UNIVERSAL
LIBRARY

OU_152786

UNIVERSAL
LIBRARY

OSMANIA UNIVERSITY LIBRARY

Call No. 332 / C45E. Accession No. 36817

Author Chandler, L.V.

Title Economics of money and banking.

This book should be returned on or before the date last marked below.

THE ECONOMICS OF MONEY AND BANKING

REVISED EDITION

THE ECONOMICS OF MONEY AND BANKING

BY

Lester V. Chandler

Gordon S. Rentschler Professor of Economics
Princeton University

HARPER & BROTHERS PUBLISHERS NEW YORK

THE ECONOMICS OF MONEY AND BANKING, REVISED EDITION

Copyright, 1948, 1953, by Harper & Brothers

Printed in the United States of America

All rights in this book are reserved.
No part of the book may be used or reproduced in any manner whatsoever without written permission except in the case of brief quotations embodied in critical articles and reviews. For information address Harper & Brothers
49 East 33rd Street, New York 16, N.Y.

C-F

Library of Congress catalog card number: 53–5076

TO

MY FATHER

CONTENTS

	Preface to the First Edition	xv
	Preface to the Revised Edition	xvii
1.	The Functions of Money in an Economic System	1
2.	Spending, Output, and Price Levels	20
3.	Kinds of Money	49
4.	Direct Determinants of the Money Supply	69
5.	Monetary Standards: General Principles	87
6.	Monetary Standards in the United States, 1792–1914	108
7.	Monetary Standards, 1914–1933	127
8.	Monetary Standards Since 1933	147
9.	Credit and Credit Instruments	173
10.	The Principles of Commercial Banking	195
11.	Some Further Aspects of Commercial Banking	229
12.	Banking in the United States Before 1914	250
13.	The Federal Reserve System: Its Structure and Control, and Its Service Functions	273
14.	The Federal Reserve and Monetary Management	299
15.	Instruments of Monetary Management	329
16.	Objectives of Federal Reserve Monetary Policies, 1914–1945	357
17.	American Monetary Policies Since World War II	380
18.	Some Commercial Banking Problems in the United States	398
19.	The Functions of Financial Institutions	420

20. Some Other Financial Institutions 449
21. The Federal Government and the Money Markets 479
22. An Introduction to Monetary Theory 499
23. The Transactions Type of Quantity Theory: General Principles 503
24. The Transactions Type of Quantity Theory: Applications 520
25. The Cash-Balance Type of Quantity Theory 546
26. The Income and Expenditure Types of Monetary Theory 558
27. National Income Analysis 587
28. Fiscal and Monetary Policies in National Income Analysis 614
29. The Mechanism of International Payments 630
30. Exchange Rates and International Equilibrium 654
31. Exchange Restrictions 677
32. The Bretton Woods Institutions 692
33. The Objectives of Monetary Policy 716

Index 733

FIGURES

1. Wholesale Prices in the United States Since 1808 38
2. Wholesale Prices in the United States, 1913–1951 39
3. Consumers' Price Index for Moderate-Income Families in Large Cities 40
4. Countries on the Gold Standard, 1921–1938 135
5. A Simple Negotiable Promissory Note 185
6. A Simple Sight or Demand Trade Draft 187
7. A Sight Bank Draft 188
8. A Time Trade Draft or Bill 188
9. A Time Bank Draft 191
10. Federal Reserve System. Boundaries of Federal Reserve and Their Branch Territories 278
11. Timing of Federal Reserve Open-Market Operations and Discount Rate Changes Compared with Changes in the Volume of Industrial Production 367
12. Federal Farm Credit Administration in Washington 467
13. Organization in Each of the Twelve Farm Credit Districts 468
14. Housing and Home Finance Agency 469
15. Comparison of Price Changes and Production Changes of Selected Classes of Commodities During Depression, 1929–1932 537
16. Supply of and Demand for Money 550
17. Shifts in Demand for Money 552
18. GNP and the C, S, and T_n Functions 588

19. Determination of GNP with Fixed C, S, T_n, I, and G Functions 590
20. The Marginal Efficiency of Capital 601
21. Shifts of the Marginal Efficiency of Capital 605
22. Liquidity Preference and the Supply of Money 607
23. Saving, the Supply of Investable Funds, the Marginal Efficiency of Capital, and the Rate of Investment 609
24. Increased Money Supply and Decreased Liquidity Preference 611
25. Elastic G and T_n Functions and Economic Stabilization 618
26. An Increase in Government Expenditures for Output 620
27. Liquidity Preference, Supply of Money, and Interest Rates 626
28. Saving and the Demand for Investable Funds as Functions of the Interest Rate 627

TABLES

1. Principal Changes of Wholesale Price Levels in the United States 37
2. An Incomplete List of Things That Have Served as Money 49
3. Classifications of Money 51
4. Metallic Content and Commodity Values of United States Coins 57
5. Kinds of Money in Circulation in the United States, May 31, 1951 65
6. Direct Determinants of the Money Supply, May 30, 1951 73
7. Direct Determinants of the Money Supply 80
8. Commercial Bank Loans and Security Holdings and the Total Assets of the Monetary System 82
9. Changes in Commercial Bank Holdings of Loans and Securities, in Total Assets in the Consolidated Statement, and in the Total Money Supply During Selected Periods 82
10. The Monetary Gold Stock and the Circulating Media of the United States, 1925–1932 92
11. United States Coins, 1792 111
12. Wholesale Prices in the United States and Great Britain, 1860–1879 119
13. Dates of Adopting Gold Standards 122
14. Wholesale Prices During Peak Year of Inflation After World War I 129
15. Decline of Selected Foreign-Exchange Rates, 1929-February, 1933 150
16. Dollar Prices of Selected Foreign Moneys, February and September, 1933, and January, 1934 156

17. Silver Production in the United States and Silver Purchases by the Government, 1934–1950 163
18. World Gold Production 168
19. Monetary Gold Stock of the United States, 1929–1950 169
20. An Approximate Consolidated Statement for All Insured Commercial Banks in the United States, December 30, 1950 201
21. Deposit Expansion on New Reserves by a Banking System 226
22. Assets and Liabilities of All Insured Commercial Banks in the United States, December 30, 1950 230
23. Loans, Discounts, and Securities Held by All Insured Commercial Banks, December 30, 1950 235
24. State Banks, 1834–1861 258
25. Principal Expansions and Contractions of State Bank Notes and Deposits, 1834–1860 259
26. State and National Banks in the United States, 1864–1914 265
27. Relative Sizes of the 12 Federal Reserve Banks, July 25, 1951 277
28. Commercial Banks in the United States That Are Members and Nonmembers of the Federal Reserve System 280
29. Member Bank Reserves and Related Items, October 31, 1951 302
30. Member Bank Reserves and Related Items, October 25, 1950, and October 31, 1951 304
31. Monetary Gold Stock of the United States on Selected Dates 305
32. Treasury Currency Outstanding 307
33. Outstanding Federal Reserve Credit on Selected Dates 311
34. Ratios of Reserve Bank Reserves to Their Deposits and Outstanding Reserve Notes 319
35. Member Bank Reserve Requirements 331
36. Treasury Transactions with Restrictive Monetary Effects 338
37. Treasury Transactions with Expansionary Monetary Effects 340
38. Minimum Down Payments and Maximum Maturities Under Regulation W in Early 1952 343
39. Credits Extended to Foreign Central Banks by Federal Reserve Banks 372

40. Cash Operating Outgo, Income, and Deficits of the Federal Government, 1940–1946 375
41. Federal Borrowings, Their Use and Their Sources, 1940–1946 376
42. Maturities of Governments Held by the Reserve Banks, 1941–1946 377
43. Branch Banking in the United States on Selected Dates 405
44. Size and Geographical Extent of Branch Banking in the United States, June 30, 1949 406
45. Group Banking in the United States, December 31, 1939 407
46. Bank Suspensions in the United States 408
47. Number of Commercial Banks in the United States on Selected Dates 410
48. Bank Suspensions in the United States by Size of Bank, 1921–1936 411
49. Insurance Status of Commercial Banks in the United States, December 30, 1951 414
50. Estimated Consumer Installment Loans Outstanding 442
51. Time and Savings Deposits in the United States, June 30, 1950 450
52. Postal Savings Banks 453
53. Time and Savings Deposits at Commercial Banks 454
54. Assets of Life Insurance Companies in the United States 456
55. Savings and Loan Associations in the United States 459
56. Estimated Total Farm Mortgage Debt, and Amounts Held by Principal Lending Groups 463
57. Outstanding Loans by Federal Agencies for Agricultural Purposes, September 30, 1951 468
58. Membership in the Federal Home Loan Bank System, December 31, 1950 471
59. Principal Sources of Assets of the Federal Home Loan Banks, December 31, 1950 472
60. Loans Insured by the Federal Housing Administration, 1935–1950 473
61. Outstanding Loans, Other Than Interagency, of Selected Federal Credit Institutions, September 30, 1951 477

62. Some Important Federal Activities That Directly Affect the Structure and Behavior of Money Markets 480
63. Federal Financial Institutions in Which the Federal Government Has a Financial Interest, June 30, 1950 491
64. Determinants of the Money Supply 508
65. Determinants of the Velocity of Money 511
66. Factors Determining the Physical Volume of Trade Effected with Money 517
67. Movements of 367 Wholesale Prices, 1939-August, 1946 541
68. Gross National Product as Expenditures for Output 569
69. Gross National Product and Price Levels, 1929–1950 571
70. Gross National Product as the Sum of Gross Income Shares, 1929–1950 573
71. Disposable Gross National Income, 1929–1950 575
72. Government Disposable Income, 1929–1950 576
73. Disposable Business Income, 1929–1950 578
74. Personal Income and Disposable Personal Income, 1950 579
75. Private Disposable Income and Its Disposal, 1929–1951 580
76. Sources and Uses of Gross Saving, 1929–1951 583
77. The Multiplier When the Marginal Propensity to Consume Is One-Half 598
78. Balance of International Payments of the United States, 1951 646
79. National Quotas Subscribed to the International Monetary Fund, and National Voting Power, as of April 30, 1951 696
80. Initial Par Values and Par Values in Effect on July 1, 1951, for Some of the World's Principal Currency Units 699
81. International Monetary Fund Sales and Purchases of National Currencies, from the Beginning of Its Operations to April 30, 1951 706
82. National Subscriptions to the International Bank for Reconstruction and Development as of June 30, 1951 708
83. Loans by the International Bank for Reconstruction and Development from the Beginning of Its Operations to June 30, 1951 712

PREFACE TO THE FIRST EDITION

This book is addressed primarily to college undergraduates who are just beginning their formal study of money and banking. In selecting and presenting materials I have tried to keep the students' needs constantly in mind and have not attempted to write to my professional colleagues. This is not an exhaustive treatise on money and banking. No one book, not even one of 700 pages, can claim to deal exhaustively with the vast amount of theoretical, legal, institutional, and historical material that has been accumulated in this field. I do not believe that the newcomer should be forced to wade through an encyclopedic treatment of this broad and complex subject. I have therefore selected what I believe to be the most important principles and problems and have attempted to deal with them fully enough to clarify their significance.

My selection and treatment of materials reflect my very strong conviction that a student in this field should first understand the basic principles of money and banking and the relationship of the monetary and banking system to the functioning of the economy as a whole. I believe this is true whether the student's interest in the subject is purely cultural or is also vocational. The student whose interest in the subject is nonvocational should first master the principles and the interrelations of the monetary and banking system with the other parts of the economy that he will study in other courses. A detailed study of the complex details should come later. The same is no less true of those who are considering banking or finance as a career. Bankers, if they are to be wise business leaders, must understand not only the technical details of bank operation and management but also the

effects of their actions on the functioning of the economy and the effects of government monetary and financial policies on the various parts of the economy, including the banks. And I believe that a study of the technical problems of bank operation and management should come only after the student is well grounded in the economics of money and banking. It is for these reasons that I have stressed the theoretical aspects of the subject. Much institutional and historical material is included, but I have tried to use it to illuminate the functioning of the system.

I wish to acknowledge gratefully the generous help that I have received while writing this book. Professor Philip E. Taylor of the University of Connecticut read most of the chapters and made many suggestions that led to their improvement. Mr. Andrew L. Kelemen was of great assistance in gathering materials, typing, and otherwise putting the manuscript in shape for the publisher. Without his loyal and efficient help my task would have been much more laborious and time consuming. For any shortcomings and errors that remain I have only myself to blame.

L. V. C.

January, 1948

PREFACE TO THE REVISED EDITION

Though extensively revised, this revised edition is quite similar to the first. It deals with the same types of subject matter, employs the same general approach, and is on the same level of discourse. Its principal changes are of the following types: (1) It contains additional material on monetary developments and policies since World War II. (2) It attempts to integrate more satisfactorily the various types of materials. To this end, an early chapter outlines the relationships of monetary policy to the behavior of national money income, real output, employment, and price levels; a new chapter employs a consolidated balance sheet approach to outline all the direct determinants of the money supply; and policy implications of monetary and banking processes are stressed throughout. (3) The materials are rearranged so that the monetary theory now precedes international monetary relationships. And (4) at several points the analysis and exposition have been improved.

LESTER V. CHANDLER

January, 1953

THE ECONOMICS OF MONEY AND BANKING

CHAPTER 1

The Functions of Money in an Economic System

One need not be an economist to be acutely aware that money plays an important role in modern life; he need only think of his own experience and recall the headlines that have thrust themselves at him in recent years. From his everyday experience he knows that the process of getting a living is a process of getting and spending money, and that how well he can live depends on how many dollars he can get and how many goods and services each dollar will buy. He also knows that dollars are harder to get at some times than at others, and that the buying power of each dollar has varied widely, sometimes to his benefit and sometimes to his injury. To him it is clear that money is an important part of the economy and that his own economic welfare is somehow affected by the behavior of money.

When he recalls the events of recent decades he is reminded that the behavior of money is also vitally important to the operation of the national and international economy. During the 1930's newspapers headlined the drastic decline of output, job opportunities, and prices accompanying the shrinkage of effective money demand; the widespread want and suffering while millions of unemployed workers and other productive facilities were both willing and able to work but were standing idle owing to lack of "demand"; and the widespread failures of debtors unable to meet their obligations because of the decline of their money incomes and of the prices of their assets. In the decade of the 1940's the headlines told a different type of story—

not stories of deflation and shrunken employment, but stories of inflation, of rising living costs, and of discontent and distress among those whose income and wealth were relatively fixed in terms of money. These inflationary trends were still dominant in the first years of the 1950 decade, and no one knew how long they would continue.

In short, on the basis of personal experience and observation as well as some knowledge of history and economics it is clear to almost everyone that money plays an important role in the economic system and that the behavior of money is somehow causally related to the behavior of employment, the rate of real output, price levels, the distribution of wealth and income, and so forth. What is not likely to be so clear, however, is the answer to such questions as the following: Just what are the functions of money in the economy, and just how does money perform these functions? To what extent do economic disturbances "arise on the side of money and monetary policy"? To what extent do money and monetary policy amplify and spread through the economy disturbances originating in nonmonetary factors? What are the effects of the various types of money and monetary policies? Which ones promote economic objectives generally considered desirable, and which ones militate against the attainment of those objectives? With how much success can we use monetary policy to prevent unemployment, promote a steadily advancing level of output, and maintain a stable purchasing power of the dollar while preserving a basically free-enterprise economy?

Questions of these types are the central concern of this book. The primary interest throughout is in the functioning of the monetary, credit, and banking systems and in their relationships to the functioning of the economy as a whole. Though much space will be devoted to the historical, structural, and legal aspects of the various institutions that create, transfer, and destroy money, these aspects will be studied not primarily for their own sakes, but rather for their contribution to our understanding of the functioning of the system.

THE BASIC FUNCTION OF MONEY

Money has but one fundamental purpose in an economic system: to facilitate the exchange of goods and services—to lessen the time

and effort required to carry on trade. A man living and working in complete isolation from others has no use for money. He cannot eat it, or wear it, or use it to promote his productive processes; having no occasion to exchange either goods or services with others, he has no need for money. Even if a dozen people lived together in isolation from all others the use of money would be of only limited benefit to them; they could barter their goods and services among themselves with but little loss of time and effort. As groups become larger, however, and wish to increase the degree of specialization and the size of the trade area, they find the direct barter of goods and services increasingly inconvenient and increasingly wasteful of time and effort. They therefore search for something which will enable them to escape the wasteful processes of barter; they invent money.

We may say, then, that the sole purpose of money in the economic system is to enable trade to be carried on as cheaply as possible in order to make feasible the optimum degree of specialization, with its attendant increase of productivity. We are all familiar with the high degree of specialization that characterizes modern economies—specialization of persons, of business firms, of regions, and of types of capital. We know that without this high degree of specialization—which enables us to utilize the various regions to maximum advantage, to make the most advantageous use of native abilities, to develop skills, to amass huge amounts of specialized and useful knowledge, and to employ large aggregations of specialized capital—our productive power and living standards would be far below their present levels. But this specialization would be impossible without an equally highly developed system of exchange or trade. Money is productive, therefore, in the sense that it is an essential part of the modern exchange mechanism and thereby facilitates specialization and production.

Since money has but one basic function in the economy—to facilitate trade to the utmost—there is but one broad test of a monetary system: How well does it facilitate trade? All questions as to the form of money must take a subordinate position; monetary forms are important, but their importance derives solely from their effects on functioning. That monetary system is best which promotes exchange most.

BARTER EXCHANGE

We have carefully avoided saying that exchange is impossible without money. People can, of course, carry on trade by a direct bartering of goods and services. Primitive trade was often carried on in this way, and bartering is not unknown even now. Yet pure barter is so wasteful of time and effort that little trade would be feasible if this were the only available method of exchange. Since the shortcomings of pure or direct barter constitute the only reason for the invention and use of money they will be described at some length.

The first serious shortcoming of pure barter, with neither money nor the concept of a monetary unit available, is the lack of any common unit in terms of which to measure and state the values of goods and services. (By the "value" of a good or service is meant its "worth," the quantity of other goods and services that it can command in the market.) In this situation the value of each article in the market could not be stated simply as one quantity, but would have to be stated in as many quantities as there were kinds and qualities of other goods and services in the market. For example, if there were 500,000 kinds and qualities of goods and services in the market, the value of each would have to be stated in terms of 499,999 others. Moreover, no meaningful accounting system would be possible. A balance sheet would consist of a long physical inventory of the kinds and qualities of the various goods owned and another inventory of those owed; consequently the net worth of the person or firm could be ascertained, if at all, only by a prolonged and tedious study of the numerous barter rates of exchange prevailing in the market. Profit and loss statements would be equally difficult to draw up and interpret. A firm could only list the various kinds and qualities of goods and services acquired during the period as income and those paid out as expenses, so that again the net results could be discovered, if at all, only by a laborious study of barter rates of exchange. It is almost inconceivable that even a small department store, not to mention General Motors Corporation, could keep meaningful accounts in the absence of a monetary unit.

The second serious disadvantage of barter is often called "the lack of a double coincidence of wants." Stated more simply, it would happen only rarely that the owner of a good or service that he wished to barter could easily find someone who both wanted his commodity more than anything else and also possessed the commodity that our trader wanted more than anything else. For example, suppose that he owns a three-year-old draft horse that he wishes to trade for a certain kind of two-wheeled cart. To find someone who already owns or can build exactly the kind of cart that he wants and who is willing to trade it, and who also wants more than anything else the kind of horse that is being offered, is likely to be a laborious and time-consuming process, if such a person exists at all. The horse owner will probably have to accept something that he wants less than the cart or else carry through a number of intermediate barter transactions; he may have to trade the horse for a cow, the cow for a boat, the boat for some sheep, and the sheep for the desired cart. Barter presents even more serious difficulties when the articles to be exchanged are not of the same value and cannot be divided without loss of value. Imagine, for example, the plight of the owner if he wanted to trade his horse for a pair of overalls, a hat for his wife, three dishes, an aluminum skillet, 50 cartridges, schoolbooks for his children, and numerous other inexpensive articles.

The third disadvantage of pure barter—the lack of any satisfactory unit in terms of which to write contracts requiring future payments—grows out of the two disadvantages already noted. Contracts involving future payments are an essential part of an exchange economy; people must enter into agreements as to wages, salaries, interest, rents, and other prices extending over a period of time. But in a pure barter economy these future payments would have to be stated in terms of specific goods or services. Though this would be possible, it would lead to three grave difficulties: (1) It would often invite controversy as to the quality of the goods or services to be repaid. (2) The two parties would often be unable to agree on the specific commodity to be used for repayment. (3) Both parties would run the risk that the commodity to be repaid would increase or decrease seriously in value over the duration of the contract. For example, wheat might rise

markedly in value in terms of other commodities, to the debtor's regret, or decrease markedly in value, to the creditor's regret.

The fourth disadvantage of pure barter, which also results from its first two shortcomings, is the lack of any method of storing generalized purchasing power. People could store purchasing power for future use only by holding specific commodities or claims against specific commodities. This method of storing purchasing power has often been used and, as we shall see later, is used extensively even today. Yet it has serious disadvantages when it is the only method available. The stored commodity may deteriorate (or appreciate) in value, its storage may be costly, and it may be difficult to dispose of it quickly without loss if its holder wishes to buy something else.

Because of the four disadvantages outlined above, pure barter is a highly inefficient means of trade. It was to overcome these difficulties that virtually every society invented some kind of money early in its development.

THE SPECIFIC FUNCTIONS OF MONEY

Money serves its basic purpose as "the great wheel of circulation, the great instrument of commerce" by performing four specific functions, each of which obviates one of the difficulties of pure barter described above. These functions are to serve as: (1) a unit of value, (2) a medium of exchange, (3) a standard of deferred payments, and (4) a store of value. The first two are usually called the *primary* functions of money. The last two are called *derivative* functions, because they are derived from the primary functions.

Money as a Unit of Value

The first function of money has been given many names, of which the most common are "unit of value," "standard of value," "unit of account," "common measure of value," and "common denominator of value." Through all these names runs one common idea: The monetary unit serves as the unit in terms of which the "value" of all goods and services is measured and expressed. As soon as a group develops a monetary unit—such as a dollar, a peso, a franc, a pound sterling, a pengö, or a boliviano—the "value" of each good or service

can be expressed as a "price," by which we mean the number of monetary units for which it will exchange. For example, we say that the "value" of a certain hat is $10, that beef of a certain grade has a "value" of $1 a pound, and so on. Ours is certainly a "pecuniary" society in the sense that values typically are measured and expressed in monetary units.

The practice of measuring the values of goods and services in monetary units unquestionably simplifies the problem of measuring the exchange values of things in the market. One has merely to compare their relative prices in terms of monetary units. For example, if carbon steel is $4 per hundredweight and corn is $1 per bushel, a hundredweight of steel is worth 4 bushels of corn. It also simplifies accounting. Assets of all kinds, liabilities of all kinds, income of all kinds, and expenses of all kinds can be stated in terms of common monetary units to be added or subtracted.

Money is not the only common unit of measurement employed in the economic system. Units such as feet, inches, and meters are used to measure linear distance; ounces, grams, pounds, and short tons to measure weight; gallons, liters, and barrels to measure liquid volume; and so on. These units of physical measurement are themselves constant quantities. Confusion would surely result if these units of physical measurement, such as pints, inches, and ounces, should shrink 25 percent one year and expand 10 percent the next. Yet the unit of value (money), perhaps the most important unit of measurement in the entire economic system, has too often undergone wide fluctuations. The dollar has had a high value at one time (that is, an ability to purchase large amounts of goods and services in the market) and much lower values at other times (that is, an ability to buy only smaller quantities of goods and services). To be a satisfactory measure of value, the monetary unit itself must maintain a relatively stable value, or purchasing power. Some of the consequences of a fluctuating monetary unit will be discussed later.

Money as a Medium of Exchange

Various names have been given to the second function of money —"medium of exchange," "medium of payments," "circulating medium," and "means of payment." This function of money is served

by anything that is generally (not necessarily universally, but very widely) acceptable by people in exchange for goods and services. The "thing" may be porpoise teeth, bits of gold, copper coins, pieces of paper, or credits on the books of a bank; the essential requirement is that people in general be willing to accept it in exchange for their goods and services. When a group has developed such a mechanism its members need no longer waste their time and energy in barter trade. Our horse owner can simply sell his horse to the person who will give him the most money for it and then buy the supplies that he most desires from those who will give him what he considers to be the best bargain. The Ford worker need not barter his bolt-tightening services directly for the various things that he needs; he can sell his services for money in the most favorable market and spend the money as he sees fit. In the last analysis all trade is, of course, barter; one good or service is traded indirectly for others, with money acting as the intermediary. But by serving this purpose money greatly increases the ease of trade.

Money is often referred to as "generalized purchasing power" or "a bearer of options." This emphasizes the freedom of choice that the use of money affords. The owner of a good or service need not secure his supplies from the people to whom he trades his good or service; he can use his money to buy the things he wants most, from the people who offer the best bargain, and at the time he considers the most advantageous.

Here, again, money can function properly only if it maintains a relatively stable purchasing power. If a dollar is a bearer of fluctuating amounts of generalized purchasing power it cannot fail to cause confusion and injustice in trade.

Money as a Standard of Deferred Payments

As soon as money comes into general use as a unit of value and a medium of payments it almost inevitably becomes the unit in terms of which deferred or future payments are stated. Modern economic systems require the existence of a large volume of contracts of this type. The greater part of these are contracts for the payment of principal and interest on debts, in which future payments are stated in

monetary units. Some of these contracts run for only a few days or a few months, many of them run for ten years or more, and some run for a hundred years or more. In 1953 the federal debt alone was well above $250 billion, with many billions of it not due until 1980. In addition there are large state, municipal, corporation, farm, and personal debts, virtually all of which are stated in monetary units. There are also many contracts other than debts which require future payments that are fixed or semifixed in terms of monetary units—dividends on preferred stock, long-term leases on property, salary contracts, and so on.

The disadvantages of writing contracts for future payments in terms of specific commodities have already been noted; there are great advantages in writing them in monetary terms. But money is a satisfactory standard of deferred payments only to the extent that it maintains a constant purchasing power through time. If money increases in value through time, it injures the groups who have promised to pay fixed amounts of money and gives windfall gains to those who receive these fixed amounts. If, on the other hand, money loses value through time, it injures those who have agreed to receive the fixed amounts and lightens the burden of payers. Suppose, for example, that in 1948 Reilly borrowed $1000 from MacGregor, promising to repay him in 1968. MacGregor transferred to Reilly a certain amount of purchasing power in 1948. If in 1968 a dollar will buy only half as much as it did twenty years earlier (if prices, in general, have doubled), Reilly will return to MacGregor only half as much purchasing power as was lent to him. The shoe will be on the other foot, however, if the value of the dollar doubles during the period (if prices, in general, fall by half); Reilly will have to return twice as much purchasing power as he borrowed. Because of the widespread prevalence of such contracts, and for many other reasons as well, variations in the value of money have serious social consequences.

Money as a Store of Value

We have already noted the disadvantages of holding specific commodities as a store of value. As soon as money comes to be used as a unit of value and as a generally acceptable means of payment, it is

almost certain to be widely used as a store of value. The holder of money is, in effect, a holder of generalized purchasing power which he can spend through time as he sees fit for the things he wants most to buy. He knows that it will be accepted at any time for any good or service and that it will remain constant in terms of itself. Money is thus a good store of value with which to meet unpredictable emergencies and especially to pay debts that are fixed in terms of money. This does not mean that money has been a stable and wholly satisfactory store of value; it could meet this test only if its purchasing power remained constant. In actual practice it has performed this function most capriciously, allowing much of its value or purchasing power to disappear in periods of rising price levels and actually increasing in value or purchasing power during periods of falling price levels.

Money is not, of course, the only store of value; this function can be served by any valuable asset. One can store value for the future by holding short-term promissory notes, bonds, mortgages, preferred stocks, common stocks, household furniture, houses, land, or any other kind of valuable goods. The principal advantages of these other assets as a store of value are as follows: (1) Unlike money, they ordinarily yield an income in the form of interest, profits, rent, or usefulness (as in the case of an auto or a suit of clothes), and (2) they sometimes rise in value in terms of money. On the other hand, they have certain disadvantages as a store of value, among which are the following: (1) They sometimes involve storage costs; (2) they may depreciate in terms of money; and (3) they are "illiquid" in varying degrees, for they are not generally acceptable as money and it may be possible to convert them into money quickly only by suffering a loss of value.

Every person and business firm is free to choose for himself the form in which he will store his value, to determine the proportions which he will hold in the form of money and in the various nonmonetary forms, and to alter these from time to time to achieve what seem to him the most advantageous proportions, taking into consideration income, safety, and liquidity. These decisions are much influenced by a person's expectations as to the future behavior of prices. If he comes to believe that the prices of other things are less

likely to decline and more likely to rise, he will be inclined to hold less of his wealth in the form of money and more in the form of other things. But if he comes to believe that prices of other things are less likely to rise and more likely to fall, he will be inclined to hold an increased part of his wealth in the form of money and a smaller part in other forms.

We shall see later that this freedom of people and business firms to determine for themselves the distribution of their holdings as between money and other assets and to shift freely from one form of assets to another promotes fluctuations in the flow of money expenditures and in prices and business activity. Sometimes people as a group show a tendency which is variously described as a desire to hold more of their wealth in the form of money and less in other forms, to use more money as a store of value and less as a means of payment, to transfer money from active use to idle balances, to hoard money, to hold money longer before spending it, or to decrease the velocity or rapidity of circulation of money. But regardless of the name applied to it, such a development tends to decrease the flow of money expenditures for securities, goods, and services, thereby exerting a downward pressure on the national money income, employment, and price levels. On the other hand, a broad tendency that has been variously described as a general movement to hold less wealth in the form of money and more in other forms, to use less money as a store of value and more as a means of payment, to transfer money from idle balances to active use, to dishoard money, to hold money only a short time before spending it, or to speed up the velocity or rapidity of circulation of money, serves to raise the rate of money expenditures and to raise money incomes, price levels, and, under some conditions, employment and real output. Such fluctuations in the velocity of money or the demand for money to hold will occupy a very important position in our later discussions of the relationships between money and the behavior of the economy.

THE UNPRECEDENTED IMPORTANCE OF MONEY

Money is by no means a recent invention. It is certainly as old as recorded history, and some form of it seems to evolve as soon as a

group finds a significant amount of specialization and exchange advantageous, which is usually early in group life. Nor are monetary problems less ancient; historians have yet to find a society with a perfectly functioning money, and many of the ancient monetary disorders were serious. Yet money is of unprecedented importance in modern capitalistic economies. This is due to two interrelated factors: (1) the unprecedented extent of specialization and exchange, and (2) the nature of economic motivations under capitalism.

The rapid rise of specialization and trade in the United States has been outlined by Walton Hamilton:

> In the United States in fewer decades than the fingers on the hands has occurred a social revolution. An economy of small farms and petty trade, with a bit of commerce on the fringe, has been converted into "the great industry." At the end of the Civil War there was a coastal plain with a few cities, a back country with a dotting of small towns, and a West which invited settlement. The small, all but isolated, farm was dominant. The family, committed to a subsistence agriculture, undertook to produce their own livings with their own hands and formed an all-but-priceless economy. The household group was well or poorly off as they were hard working, prudent, thrifty, and had the break of the seasons. The weather could bountifully give or stingily withhold; for, because of an undeveloped technique in agriculture, it was still nature and not the market which made years fat or lean. The face of the land was covered with these almost self-contained entities. Almost—for the town was near at hand, to which the farmer took his surplus of produce; discovered the strange phenomena of the market, money, and price; engaged in verbal combat in haggling over a bargain; established an indirect contact with places far removed; and brought away tobacco, tools, and the subscription to the county weekly.[1]

Even in the period before the Civil War money was not unimportant in this country. The farmer's enjoyment of life, if not his possession of the necessities, depended to a considerable extent on the prices of farm products, the prices of the things he bought, and the real burden of his money debts. Moreover, there were already many people in the towns and cities whose dependence on money and markets was greater than that of the farmer. Yet, as Hamilton indi-

[1] Walton Hamilton, *Price and Price Policies*, McGraw-Hill, New York, 1938, p. 7.

cates, the farmers were to a considerable extent self-sufficient, and even the city dwellers were less dependent on money and markets than they are today. A social revolution has indeed occurred since that time. In 1840 about 70 percent of our people lived on farms; this figure has now dwindled to 15 percent and may fall still further. And farming itself has experienced a revolution. The self-sufficient farm family is now the rare exception; to a constantly increasing extent the farmer is a specialized businessman, producing for sale in the market and relying on the market for a large part of the equipment and supplies with which to carry on production as well as for most of the things with which to satisfy his family's wants. He, too, gets a living by obtaining money for his production and spending the money for tractors, implements, building materials, gasoline, automobiles, clothing, food, and so on. Any lingering illusion that the American farmer was independent of the market vanished during the great depression following 1929. The great numbers of our people who are engaged in mining, manufacturing, transportation, communication, marketing, and service are almost completely dependent on markets and money. For them, getting a living is a process of securing money in return for their specialized goods or services and then spending it for the things that they want. Anything that interrupts the flow of their money income is likely to cause serious suffering and frustration.

A second reason for the unprecedented importance of money is to be found in the nature of economic motivations under the capitalistic system. The leaders in this system are the enterprisers—those who determine the policies of business firms, whether these are individual proprietorships, partnerships, corporations, or coöperatives. They are the ones who, at least in the first instance, determine whether or not to establish plants, the size and location of plants, the types of goods to be produced, the rate of output, the amount of employment to be offered, and the demand for capital equipment. Their motivation is to "make money," as much money as possible; and they make goods and services only to the extent that this process will contribute to their primary objective of making money profits. If the flow of money spendings for their output is so great relative to their costs as to enable enterprisers to maximize their money profits by using all

the available productive factors, something like full employment will be attained. If, however, money spendings for their output are so small relative to their costs that they will maximize their profits or minimize their losses by stopping far short of full output, they are likely to leave large numbers in the ranks of the unemployed. Such fluctuations of money expenditures are likely to be accompanied by fluctuations not only in employment and real output but also in price levels. This brings us to the difficult subject of the causative role of money.

MONEY AS A CAUSATIVE FACTOR IN THE ECONOMY

It is important neither to underestimate nor to overestimate the influence of money and monetary policy on the functioning of an economic system. The so-called "classical economists" who dominated British and American economic thinking in the nineteenth and early twentieth centuries and who were primarily interested in the conditions of long-run equilibrium, accorded to money only an unimportant causative role. These economists realized, and even stressed, the importance of money as a labor-saving device and described, as has already been done in this chapter, the serious difficulties of effecting exchanges by means of barter. But they insisted that the use of money did not normally affect the operation of the economy, aside from its facilitation of exchange. They held that in a money economy the total amount of employment, the volume of production, the types and proportions of the various goods and services produced and consumed, the exchange values of the various goods and services in the market, and the distribution of real wealth and income among the members of the community are normally the same as they would be in a highly developed and efficient barter economy, if such an economy could be devised. The classical economists were so sure of the validity of this contention that they couched much of their analysis in terms of barter, despite the fact that they were attempting to explain the functioning of a money economy.

This view of the significance, or rather the insignificance, of money was stated most clearly by John Stuart Mill:

It must be evident, however, that the mere introduction of a particular mode of exchanging things for one another by first exchanging a thing for money, and then exchanging the money for something else, makes no difference in the essential character of transactions. . . .

There cannot, in short, be intrinsically a more insignificant thing, in the economy of society, than money; except in the character of a contrivance of sparing time and labor. It is a machine for doing quickly and commodiously, what would be done, though less quickly and commodiously, without it; and like many other types of machinery, it only exerts a distinct and independent influence of its own when it gets out of order.

The introduction of money does not interfere with the operation of any of the Laws of Value laid down in the preceding chapters. The reasons which make the temporary or market value of things depend on the demand and supply, and their average and permanent values upon their cost of production, are as applicable to a money system as to a system of barter. Things which by barter would exchange for one another, will, if sold for money, sell for an equal amount of it, and so will exchange for one another still, though the process of exchanging them will consist of two operations instead of only one. The relations of commodities to one another remain unaltered by money; the only new relation introduced is their relation to money itself; how much or how little money they will exchange for; in other words how the Exchange Value of money itself is determined.[2]

If money always performed its functions perfectly the classical economists would have been right. It would be neutral in its effects and therefore could be ignored in explanations of the functioning of the economy, or at most accorded only the amount of attention that is given each of the hundreds of other labor-saving devices employed for economic purposes. Unfortunately, however, no monetary system yet evolved has functioned perfectly or even approached perfection; each has displayed an unfortunate proneness to "get out of order" and to exert "a distinct and independent influence of its own." The classical economists recognized this fact, of course, but they thought that monetary disorders were infrequent enough and the resulting disturbances small enough to be ignored without invalidating an analysis couched in terms of barter, particularly since their analysis was concerned with long-run rather than short-run phenomena. Modern

[2] John Stuart Mill, *Principles of Political Economy*, Book III, chap. 7, ¶3.

monetary theorists, on the other hand, have come to believe that money is virtually always "out of order," though in different ways and to a fluctuating degree, and that this malfunctioning of money produces significant effects upon the aggregate volume of employment and production, the relative amounts and exchange values of the individual commodities produced and sold, and the distribution of real wealth and income among the members of the community. These effects are particularly important in the short run and are capable of altering significantly the long-run behavior of the economy, for the long run is, after all, made up of a series of short runs, each of which is affected by monetary developments. It is because of this influence on the amounts and types of employment and production and on the distribution of real wealth and income that money is such an important subject of study.

But if the classical economists erred in underestimating the influence of money, we must avoid the opposite error of overemphasis. Certainly money and monetary policy are not the only determinants of economic well-being. Some monetary reformers, noting that the ability of an individual to obtain goods and services depends on the amount of money he can command, have erroneously assumed that the same holds true for an entire nation. They have therefore proposed to abolish poverty and usher in the economic millennium by great expansions of the money supply. Some would try to amass great stores of gold, some prefer silver, some would speed up the printing presses and turn out great issues of paper money, some would inflate the supply of bank money, and some would use all available methods of expansion. We have already noted that an expansion of the money supply and of money spendings may be used to expand production and real wealth if it occurs in a period of unemployment. Economic policy must not ignore this fact. But neither can it ignore the fact that the most that monetary policy can possibly accomplish—and it cannot accomplish this without the aid of other wise economic policies—is to maintain full and stable employment. It cannot compensate for lack of natural resources, or lack of capital goods, or a backward state of technology, or sluggish and unintelligent labor, or unimaginative and unenterprising economic management, or un-

wise economic policies on the part of governments. In other words, a wise monetary policy may help to raise and maintain the actually realized rate of production closer to the potential productive capacity, but it is not one of the major determinants of this potential capacity. Nor is it by any means the only factor determining the distribution of wealth and income among the members of the community. Our zeal to secure wise monetary policies must not blind us to the need for wisdom in our other economic policies.

SELECTED READINGS

Agger, E. E., *Money and Banking Today*, Reynal & Hitchcock, New York, 1941.

Bradford, F. A., *Money and Banking*, Longmans, Green, New York, 6th ed., 1949.

Coulborn, W. A. L., *An Introduction to Money*, Longmans, Green, London, 1938.

Halm, G. N., *Monetary Theory*, Blakiston, Philadelphia, 1946; reprinted 1948.

Hansen, A. H., *Monetary Theory and Fiscal Policy*, McGraw-Hill, New York, 1949.

Hart, A. G., *Money, Debt, and Economic Activity*, Prentice-Hall, New York, 1948.

Holdsworth, J. T., *Money and Banking*, Appleton-Century-Crofts, New York, 6th ed., 1937.

James, F. C., *The Economics of Money, Credit, and Banking*, Ronald Press, New York, 3rd ed., 1940.

Kent, R. P., *Money and Banking*, Rinehart, New York, rev. ed., 1951.

Prather, C. L., *Money and Banking*, Richard D. Irwin, Chicago, 4th ed., 1949.

Reed, H. L., *Money, Currency, and Banking*, McGraw-Hill, New York, 1942.

Rufener, L. A., *Money and Banking in the United States*, Houghton Mifflin, Boston, 1934.

Shaw, E. S., *Money, Income, and Monetary Policy*, Richard D. Irwin, Chicago, 1950.

Steiner, W. H., and Shapiro, E., *Money and Banking*, Holt, New York, rev. ed., 1941.

Thomas, R. G., *Our Modern Banking and Monetary System*, Prentice-Hall, New York, 2nd ed., 1950.

Westerfield, R. B., *Money, Credit, and Banking*, Ronald Press, New York, rev. ed., 1947.
Whittlesey, C. R., *Principles and Practices of Money and Banking*, Macmillan, New York, 1948.
Whittlesey, C. R., *Readings in Money and Banking*, Norton, New York, 1952.
Woodworth, G. W., *The Monetary and Banking System*, McGraw-Hill, New York, 1950.

General Treatises on Money and Banking

Angell, N., *The Story of Money*, Stokes, New York, 1929.
Cassel, G., *The Theory of Social Economy*, Harcourt, Brace, New York, 1924.
Conant, C. A., *The Principles of Money and Banking*, Harper, New York, 1905, 2 vols.
Dewey, D. R., *Financial History of the United States*, Longmans, Green, New York, 9th ed., 1924.
Hawtrey, R. G., *Currency and Credit*, Longmans, Green, London, 1930.
Helfferich, K., *Money*, Benn, London, 1927.
Jevons, W. S., *Money and the Mechanism of Exchange*, Appleton, New York, 1883.
Keynes, J. M., *A Treatise on Money*, Harcourt, Brace, New York, 1930.
Keynes, J. M., *General Theory of Employment, Interest and Money*, Harcourt, Brace, New York, 1936.
Marshall, A., *Money, Credit and Commerce*, Macmillan, London, 1923.
Mises, L. von, *The Theory of Money and Credit*, Harcourt, Brace, New York, 1935.
Robertson, D. H., *Money*, Harcourt, Brace, New York, 1929.
Robertson, D. H., *Essays in Monetary Theory*, King, London, 1940.

Sources of Recent and Current Information

Bank for International Settlements, *Annual Reports*.
Board of Governors of the Federal Reserve System:
Annual Reports, 1914 to date.
Federal Reserve Bulletin (monthly).
This is the most valuable single source of current information concerning monetary and banking developments both here and abroad.
Banking and Monetary Statistics (through 1941. Current statistics in *Federal Reserve Bulletins*).
Miscellaneous Publications.

Chase National Bank of New York, Monthly Bulletins.
Comptroller of the Currency, *Annual Reports.*
Director of the Mint, *Annual Reports.*
Federal Deposit Insurance Corporation, *Annual Reports.*
These reports contain excellent statistics and analyses of the structure and condition of American banks.
Federal Reserve Banks, *Annual Reports* and *Monthly Bulletins.*
These are valuable sources of information concerning developments in each of the 12 Federal Reserve districts.
International Bank for Reconstruction and Development, *Annual Reports.*
International Monetary Fund, *Annual Reports.*
League of Nations, Economic and Financial Section, *Annual Surveys* and various other publications.
National City Bank of New York, *Monthly Letter.*
Secretary of the Treasury, *Annual Reports* and miscellaneous publications.
State Bank Commissioners, *Annual Reports.*
U.S. Congress, Joint Committee on the Economic Report:
Subcommittee on Monetary, Credit, and Fiscal Policies,
Statements on Monetary, Credit, and Fiscal Policies, 1949.
Hearings on Monetary, Credit, and Fiscal Policies, 1949.
Report on Monetary, Credit, and Fiscal Policies, 1950.
Subcommittee on Monetary Policy and Management of the Public Debt,
Replies to Questions and Other Materials, 1952.
Hearings, 1952.
(All published by the Government Printing Office, Washington, D.C.)

CHAPTER 2

Spending, Output, and Price Levels

While discussing the role of money in an economic system, the preceding chapter touched briefly on the relationships between fluctuations in the flow of money spendings and the behavior of real output, employment, and price levels. This subject will be treated at length in several chapters in the latter part of this book. However, it will be useful to discuss these relationships briefly at this point in order to provide a theoretical framework for our later analysis of monetary, credit, and banking institutions and policies. More specifically this chapter will consider the following topics: (1) the relationships between fluctuations in the rate of money spendings and the behavior of real output, employment, and price levels; (2) two types of monetary theory used to analyze the behavior of the flow of money spendings; and (3) the measurement and significance of changes in general price levels or, what amounts to the same thing, changes in the purchasing power or value of money.

FLUCTUATIONS IN THE FLOW OF MONEY SPENDING

The flow of spendings with which we shall deal here is the flow of expenditures for the nation's current output of goods and services at the stage of final sale. It includes the value of each unit of output once and only once, eliminating duplications. It is therefore the same as the money value of the national output for the period; it corresponds to the Department of Commerce statistical series which we call "gross national product" or "gross national income." But it

is perhaps most useful to consider this flow of spendings as "the effective money demand for output" or as "the aggregate money reward for production."

When considered in this light it is evident why fluctuations in the rate of money spendings for current output should affect the behavior of real output, employment, and price levels. Suppose, for example, that buyers in general reduce their willingness to spend for output. To the various producers this will appear as a decrease in the demand schedules for their products, which will lead them to readjust their price and output policies. Some enterprisers may continue to produce as much as before, lowering their prices sufficiently to maintain their former rate of real output and sales. Some may follow just the opposite policy, holding their prices unchanged and reducing their output and employment. Still others will follow intermediate policies, distributing the reduction between their prices and their level of output and employment. Our past experience indicates that for the economy as a whole a significant decrease in the effective money demand for output is almost certain to be accompanied not only by a reduction of average price levels but also by shrinkages of real output and employment.

On the other hand, a rise in effective money demand is likely to be accompanied by an upward movement of prices and perhaps also of output and employment. Suppose, for example, that buyers in general increase their willingness to spend for output. To producers this will appear as a rise in the demand schedules for their products. Their response to this rise in demand will depend on many factors, an important one being the ease of expanding production. If the rise in demand occurs at a time when there are millions of unemployed workers and much idle capacity, producers may respond principally by expanding output and employment and raising prices only little. But the smaller the extent of unused productive resources, the more will an increase in money demand raise price levels and the less will it expand real output and employment. If a rise in money demand occurs when the economy is already operating at capacity levels the result can only be pure price inflation.

The above is, of course, only a broad general outline of the re-

lationship between fluctuations in the flow of money spendings and the behavior of real output, employment, and prices; when examined in detail these interrelationships are found to be highly complex. Moreover, these fluctuations in money spendings are not in any sense "basic causes" or "ultimate determinants." They are at most only "proximate causes," or the medium through which more basic determinants exert their influences in the market. A searching analysis cannot content itself with taking the behavior of money spendings as a given datum; it must probe behind the rate of spendings to discover the factors which determine their behavior. When one does this he finds almost countless relevant "determinants." In fact, the number of "determinants" is so large that the human mind cannot encompass them all and keep them in proper order without the aid of some logical or "theoretical" scheme for classifying them and their relationships to each other.

This is the purpose of monetary theory—to provide a logical scheme for classifying the various factors relevant to the behavior of money spendings and their relationships to the behavior of output, employment, and price levels. Economists have formulated several types of theoretical framework for this kind of analysis. We shall now examine two of the theories which will be most useful in our analysis of monetary institutions and policies. These are: (1) the quantity type of theory, and (2) the income and expenditure type of theory. It should be emphasized at the outset that the validity of one type of theory does not necessarily imply the invalidity of the other. In the hands of a competent analyst either type can yield valid results. Which theoretical framework one should employ in analyzing a particular problem is simply a matter of relative convenience and usefulness. Some problems are more amenable to one framework of analysis and some are more amenable to the other. Moreover, it is often useful to apply both types of theory to the same problem.

THE QUANTITY TYPE OF MONETARY THEORY

The quantity type of theory starts out with the mathematical truism that the flow of money spendings for output in any period is

equal to the average supply of money multiplied by the income velocity of money, by which is meant the average number of times each dollar of the money supply is spent for output during the period. We shall use the symbol M to denote the size of the money supply measured in dollars, and the symbol V_t to denote the income velocity of money. Spendings for output during a period are therefore equal to MV_t, and the rate of spending varies directly with M and V_t. Increases in either or both M and V_t tend to increase the rate of spending for output, and decreases in either or both M and V_t tend to decrease the rate of spending for output.

To state simply that the rate of spending for output varies with M and V_t does not, of course, tell us either how MV_t actually behave or what is the nature of the ultimate determinants of their behavior. It does, however, break the problem down somewhat so that we can examine more closely the underlying factors that determine the behavior of M and V_t. The primary task of the remainder of this book will be to further this purpose. For example, we shall deal at length with the determinants of the supply of money (M)—with such factors as the supply of gold and silver, the monetary policies of the Federal Reserve and the Treasury, and the operations and policies of the banking system. No discussion of the money supply and its relationship to the functioning of the economy is very meaningful if it does not analyze the various underlying factors that determine the behavior of the money supply itself at different times and under different circumstances.

We shall apply the same kind of analysis to V_t. As noted earlier, the behavior of V_t reflects the decisions of people and business firms relative to the length of time they will hold money before spending it for output. A rise in V_t reflects a general tendency to hold money only a shorter period of time before spending it for output, to transfer money from idle balances to active use, or to dishoard money from idle balances. On the other hand, a decline in V_t reflects a general tendency to hold money a longer period of time before spending it, to transfer money from active use to idle balances, or to hoard money. In short, a meaningful analysis of the flow of money spendings for output must include an analysis of the various determinants behind

V_t at different times and under different circumstances. Later parts of this book will attempt to throw light on this subject.

The quantity type of theory also employs another mathematical truism: that money spendings for output (MV_t) during any period are equal to the money value of output during the period. And the money value of output during a period is equal to the number of physical units of output multiplied by the average price of each unit of that output. We shall use the symbol O to denote the number of physical units of output and the symbol p to denote the average price of each unit of output. Thus, $MV_t = Op$.

This equation does not, of course, describe the actual behavior of the various factors in it, nor does it describe the causal relationships that are involved. It merely indicates that the two sides of it must be equal, and that a change in the value of one side must be accompanied by an equal change in the other. For example, we know that if the flow of spendings (MV_t) rises in some period the value of Op must rise by an equal amount and that the rise must be accounted for by an increase of O, or of p, or both. Starting with this truism, we can examine the responsiveness of each of the factors, O and p, to changes in MV_t, and the nature of the interrelationships among them.

It is perhaps worth emphasizing again that this framework of the quantity theory is presented at such an early point in this book not because it by itself offers any definitive analysis and description of the relationships between money and monetary policy on the one side and the behavior of output, employment, and price levels on the other, but because it provides us with a logical system for arranging, classifying, and analyzing the significance of the subjects which we shall study later.

INCOME AND EXPENDITURE TYPES OF MONETARY THEORY

Under this heading we shall lump together a group of monetary theories which during recent decades have become increasingly popular as a theoretical framework for analyzing the flow of money spend-

ings for output and the relationship between this flow and the behavior of economic activity and price levels. The distinguishing characteristic of these theories is that their analysis is stated in terms of consumption, investment, and saving.

For analytical purposes, this type of theory divides spendings for output into three broad categories: personal consumption spendings, private investment spendings, and government spendings. Personal consumption, which we shall designate by the symbol C, includes all personal spendings for the current output of consumers' goods and services. Private investment, which we shall denote by the symbol I, includes all private spendings for current output with which to maintain and expand the stock of privately owned capital goods. It therefore includes private spendings for new residential, commercial, industrial, and agricultural construction, new producers' durable goods, net increases in business inventories, and net foreign investment. Government spendings, which will be designated by the symbol G, include the spendings of all governmental units—federal, state, and local—for the current output of goods and services. Thus, total spendings for output are composed of and vary with the sum of $C+I+G$, and all the underlying factors that influence the behavior of these three categories are determinants of the total flow.

It is useful to recall, as was noted earlier, that these spendings can also be looked at in two other ways. (1) They are the value of the national output during the period. They correspond to the Department of Commerce definition of gross national product. And (2) they are the gross national income for the period—the sum of the shares of money income accruing to individuals, business firms, and the government. Spendings for output, and only spendings for output, create national money income, and the sum of its distributive shares for any period is equal to $C + I + G$. It will be convenient to divide these income shares into two broad classes. One part accrues to the various governmental units as taxes and other comparable types of income; this will be designated by the symbol T. The remainder is the disposable part of gross income in the form of capital consumption allowances, wages and salaries, interest, rent, and profits remaining at

the disposal of individuals and business firms after deduction of their tax liabilities.[1]

It is essential to note that the flow of money income is a circular flow. Spendings for output $(C + I + G)$ create shares of money income for individuals, business firms, and government; these income shares tend to be spent back in the market for output, which in turn creates income shares; and so on. If, starting with some level of spendings, the circular flow into money incomes and out of them into the market for output is steady and unbroken, spendings for output will continue on a steady level. Suppose, for example, that at some time total spendings for output are at an annual rate of $350 billion and that as income shares accrue at this rate to individuals, business firms, and government they spend back for $C + I + G$ at exactly the same rate. So long as this circular flow continues on a steady and unbroken basis, spendings for output will continue at a steady rate of $350 billion. But we know that this does not always occur. On some occasions spendings rise, indicating that the circular flow is being augmented from some source. On other occasions they shrink, indicating a blockage of the circular flow. To understand the behavior of the circular flow it is necessary to see how the government and private sectors dispose of their income shares and to examine the relationships between their money income shares and their rate of spendings during any period. It will be convenient to deal separately with the government and with the private sectors.

The government can and does exert a marked influence on the circuit flow of money income through both its rate of spending for output (G) and its money income (T), as well as in other ways. It tends to increase the flow by increasing its rate of spendings and by decreasing the amount that it extracts from private money incomes through tax collections. It tends to diminish the flow by decreasing its rate of spending and by increasing the amount it extracts from private money incomes through taxation. In some periods it spends far more than its current income, covering the deficit by borrowing

[1] We make this definition of disposable private income accurate by assuming that T is the net income remaining at the disposal of government after deducting its transfer payments to individuals and business.

current savings or idle balances from the nonbank private sectors, by borrowing from commercial and central banks, by dishoarding from its own idle money balances, or by issuing money newly created by itself. At other times it spends less than its current income, using its surplus income to repay debts owed to commercial banks, the central bank, or others, to add to its balances of idle money, or to retire some of its own monetary issues. Later sections of this book will deal at length with many aspects of government fiscal policy, including its relation to the rate of circular flow of spendings, the behavior of business activity and price levels, the quantity of money, the velocity of money, and so on.

Let us turn now to the disposal of private money income and its relationship to the circular flow of spendings. As already noted, the disposable money income of individuals and business firms during any period depends on the rate of total spendings for output $(C + I + G)$ and the amount of income taken by the government (T); it is equal to $C + I + G$ minus T. The private sectors dispose of, or utilize, this income in two ways. One part they spend for consumption. Consumption spending serves to return money income to the market as spendings for output and to that extent to maintain the circular flow. The part of private disposable income that is not spent for consumption is private saving, which we shall designate by the symbol S. Thus S is simply the part of private disposable income during a period that is not spent for consumption, and to save is merely to refrain from consuming a part of one's income. Saving is of two kinds. The first is business saving, which includes those parts of private income that are not paid out to individuals and are not spent for consumption but remain at the disposal of business firms in the form of depreciation and other capital consumption allowances and as undistributed profits. The other is personal saving, which is simply the part of disposable personal income that is not spent for consumption. Thus, total private saving during a period is made up of business and personal saving, and is the part of total private disposable income that is not spent back as consumption.

This raises a crucial question: How can these savings be returned to the market as spendings for output, so as to maintain the circular

flow? The answer is that they can be reinjected into the spending stream in two, and only two, ways: (1) by being spent as private investment, and (2) by being used to cover a current government deficit, that is, an excess of the government's spendings over its current income. These two channels, private investment and deficit spending by the government, represent the only two ways that savings can be returned to the spending stream. Thus the relationship between the propensity to save on the one hand and the rate of private investment and government deficit spending on the other is a crucial relationship in the behavior of the circular flow of money income. If, *out of a given level of national money income*, the private sectors elect to save (that is, not spend for consumption) at a rate exactly equal to the rate of private investment plus the current rate of government deficit spending, the circuit flow will be exactly maintained and the flow of output will continue on a stable level. If, however, the private sectors attempt to save *out of a given level of national money income* an amount greater than private investment plus the current government deficit, the circuit flow will be broken and the flow of spendings for output will decline. The opposite occurs if, *out of a given level of national money income*, the private sectors try to save less than the combined rate of private investment and government deficit spending; in this case the circuit flow will be augmented and the flow of spendings for output will rise.

One reason why such inappropriate relationships between the rate of saving and the rate of private investment spending can develop is that an individual or business firm may elect to save without spending during the period an equal amount for investment, or may elect to spend for investment without saving an equal amount. One may save to provide against old age, to educate his children, or to accumulate a reserve against contingencies, and use the money savings not for investment spending but to repay debts, to build up idle money balances, or to buy securities from others who may or may not hold the money idle. On the other hand, one may spend for new capital goods without himself doing any saving during the period, obtaining the necessary money by drawing down his idle balances or by securing money from others. The motive behind investment spending is in

most cases the profit motive. An enterpriser will spend to maintain or increase his stock of capital goods only if, taking into consideration his expected rate of return on the new capital goods and the availability and cost of the money needed to purchase these goods, he will add to his net profits. And both the expected rate of return on new capital goods and the availability and cost of money are key variables in investment decisions. Economists usually emphasize the wide fluctuations in enterprisers' expectations as to the profitability of new investment, but the availability and cost of money for investment purposes should not be neglected.

In short, the saving-investment process requires a flow of money from savers to spenders for investment goods, and the flow is often long and goes through a complex channel of financial institutions. The "money market" mechanism is an essential part of the saving-investment process. The flow can proceed at an "appropriate" rate only if interest rates and other terms relating to the use of money are just sufficiently attractive to induce savers and financial institutions to supply this flow of money and at the same time just sufficiently attractive to induce enterprisers to demand this flow of money and translate it into investment spendings. Unfortunately, however, there can be many a slip 'twixt the act of saving by one group and the act of spending these money savings by another.

An important source of these difficulties is to be found in the behavior of the public's desire to hold money and in the behavior of the money supply. As noted earlier, everyone is free to determine for himself the distribution of his store of value as between money and other types of assets, and to vary this distribution at will. This in itself makes possible inappropriate behavior of the supply and cost of money for investment purposes. For example, owing to newly arisen fears that loans are riskier or to a belief that the level of interest rates will rise in the future, there may develop a general preference among savers and financial institutions to hold more money and fewer securities at the prevailing levels of interest rates and to curtail the supply of money offered for use. This decreased availability and increased cost of money can decrease the amount that enterprisers are willing to borrow and spend for investment, thereby initiating a

shrinkage of spendings for output. On the other hand, a general shift of preferences toward holding less money and more securities as a store of value at prevailing interest rates, which may result from such developments as a new belief that loans are less risky and that the level of interest rates will fall in the future, can increase the supply and reduce the cost of money offered for use, thereby stimulating investment spending.

The above are cases in which shifts in general preferences for holding money as against securities and other assets change the availability and cost of money for investment spending. It is important to note, however, that the option of holding money or other assets can also derange the saving-investment flow by preventing the supply and cost of investable funds from adjusting appropriately to changes in the demand for them. Suppose, for example, that enterprisers' expectations as to the profitability of investment fall markedly, so that they will borrow and spend less money than before at the prevailing level of interest rates. The rate of actual investment spending will decline if savers and financial institutions do not continue to offer for use as much money as before, but at interest rates sufficiently lower to offset the decrease in enterprisers' expected profits. This adjustment may be prevented by the fact that the suppliers of funds may prefer to increase their holdings of idle money rather than buy securities at these lower yields. At other times enterprisers' expectations as to the profitability of investment may rise markedly, so that they will be willing to borrow and spend more than before at the prevailing level of interest rates. In such cases the actual rate of investment will increase if interest rates do not rise sufficiently to offset the rise in expected profits. Such a rise in interest rates may be prevented by the fact that, in response to even a small rise in interest rates, savers and financial institutions may be willing to dishoard out of their idle money balances to finance a rising level of investment spendings.

In summary, the public's preference for holding money as against holding securities and other nonmonetary assets is a significant determinant of the saving-investment flow, for it exerts an important influence on the availability and cost of money for investment purposes.

The total supply of money is also an important determinant of the flow of spendings for output. One of the outstanding characteristics of modern monetary systems is the ease with which these systems can create and destroy money, and they do this principally by increasing or decreasing the volume of bank loans to private spenders for investment purposes, to the government, and to a lesser extent to consumers. Fluctuations in the size of the money supply and the height of interest rates therefore exert an important influence on the behavior of the spendings flow. On some occasions the monetary system stands ready to create and lend large amounts of additional money at low interest rates and on other favorable terms. This not only permits but may actively encourage an expansion of spending. The expansion may occur solely through the expansion of private investment, or it may be channeled through increased government spendings or private consumption. At other times the system curtails the availability and increases the cost of money, even to the point of insisting that a part of current savings be used to retire some of the existing money supply. At the very least this discourages the growth of spendings and it may even force a contraction. In short, the attitudes of the issuers of money and the policies of the bankers and the monetary authorities are important influences on the availability and cost of spendable funds and hence exert an important, and at times dominating, influence on the flow of spending.

Though the preceding discussion has provided only a bare outline of the income and expenditure type of monetary theory, it has emphasized the social importance of the behavior of consumption, investment, and saving. Moreover, it has pointed out some of the factors that affect the behavior of the circular flow of money, emphasizing enterprisers' expectations as to the profitability of new investment, the public's attitude toward holding money as against other types of claims as a store of value, and the behavior of the money supply. The remainder of this book will help fill in this theoretical outline, describe the behavior of its components, and trace the relationships among them. Some of the most relevant subjects will be the following: (1) the composition of the money supply, the processes by which the money supply is increased and decreased, and the relation-

ships of these processes to the supply and cost of loanable funds; (2) the nature of monetary policy and the relation of this policy not only to the supply of money and the availability and cost of loanable funds, but also to the behavior of spendings, output, employment, and prices; (3) the functions of the various other types of financial institutions involved in the saving-investment process; and (4) the role of government fiscal policy in the behavior of spendings.

The remainder of this chapter will discuss the meaning of "price levels" and "the value of money," methods of measuring them, and some of the social consequences of their fluctuations.

MEANING OF THE VALUE OF MONEY

By the value of money we mean its purchasing power over goods in the market, the quantity of goods and services that each monetary unit (for example, a dollar) will buy. If a dollar will buy a large quantity of goods and services it has a high value; if it will buy only a small quantity of goods and services it has a low value. It is obvious that the value of money is closely related to the general or average level of prices, for a "price" is merely the number of monetary units required to buy a good or service. In fact, the value of money varies reciprocally with the general or average level of prices. If the price level doubles, two dollars will be required to purchase what one dollar would have purchased before; the purchasing power of each dollar has fallen by half. If the price level falls by half, half a dollar will buy what would have required a dollar before; the purchasing power of the dollar has doubled. Because of the general practice of expressing values in terms of prices, most discussions of this subject are in terms of "the price level" or "the general level of prices" rather than in terms of the "value of money." This should cause no confusion, however, if one remembers that a rise in the price level is the same thing as a fall in the value of money and that a decline in the price level is the same thing as an increase in the value of money. Neither is in any sense the "cause" of the other; they are merely the same thing expressed in different terms.

It must be emphasized that whether we state our analysis in terms

of the value of money or of the general level of prices we are dealing with an average of the prices of goods and services and not with the price of an individual good or service. For example, the general level of prices may remain stable despite a fall in the price of wheat, the decline in wheat prices being offset by the rise of another price or of other prices. A stable price level does not preclude readjustments in the prices of individual goods and services relative to each other. The proponents of a stable value of money are certainly not advocating inflexible prices for each individual product whose price is included in the general price level. They recognize the functions of changing individual price relationships in the economic system. They know that the price of an individual good or service should sometimes change *relative to the prices of other goods and services* in order to ration it, to adjust its supply and demand to each other, and to adjust the incomes of its producers. But most of them believe that these adjustments of individual prices relative to each other can be made most easily if the average level of prices remains approximately constant.

The use of averages in the analysis of prices, like the use of averages in any other field of analysis, has both advantages and disadvantages. Its great advantage is in permitting simplicity of statement. In an economy with hundreds of thousands of individual wholesale prices, it is convenient to summarize price developments from 1926 to 1932 by saying that the general level of wholesale prices in the United States declined by 35 percent, that the purchasing power of the dollar rose by 54 percent in the wholesale market. This statement is simple, and it conveys an important fact about the behavior of prices. Though for convenience we shall use averages in our analysis, we must constantly remember that averages are generalizations and have the shortcomings of generalizations. The first of these shortcomings is that an average of price changes fails to reveal the fact that individual prices change at widely different rates. If every price in the economic system responded in exactly the same way to the factors that change the general price level, fluctuations in the value of money would be of little social consequence. Each person would merely handle more or fewer monetary units without any change in his total

purchasing power, for his money wealth and money income would vary proportionally with the prices of the things he bought. Actually, however, individual prices behave quite differently. Some move promptly and rapidly, others move only slowly and after long delays, and still others range between the two extremes. For example, we know that some prices are fixed for long periods by contract (such as debts and rentals), whereas others are free to change every day or even every hour, and that even the prices that are legally free to change show widely varying behavior. Compare the sluggishness of salaries of office workers with the sensitivity of meat prices, or the inertia of steel prices with the gyrations of the prices of most agricultural products during periods of general price movements. An analysis of changes in the general level of prices is important, but it will be largely sterile if it does not emphasize the nonuniformity in the behavior of the individual prices that make up the general average.

Because of the nonuniform behavior of individual prices we must constantly remember that averages are man-made and that their behavior depends on the individual prices included in them and on the weight given to each price. An average that includes a larger number of highly sensitive prices or that otherwise gives a heavy weight to them will obviously undergo wider and more rapid movements than one which weights sluggish prices more heavily. The various price indexes that we shall study later show this clearly.

Having looked at the meaning of the value of money and the general level of prices, we can now discuss index numbers which are used to measure and express changes in these quantities.

PRICE INDEXES

Before specifically discussing index numbers of prices we should consider the nature and purpose of index numbers in general. They are often called "relatives," because instead of measuring and stating absolute magnitudes they measure and state magnitudes *relative to* some quantity that is taken as a *base*, or basis, for comparison. They are usually stated as percentages. Thus, index numbers applied to data for various periods or points of time show in percentage terms the

magnitudes of data for the various times relative to the magnitude on the base date. For example, let us suppose that the proud village of Excelsior wishes to construct index numbers of its population, and that its population on June 30 of each year was as follows:

Year	Population
1900	200
1910	300
1920	700
1930	900
1940	1100
1950	1200

It could use any year it wished as a base date. Let us suppose that it selects 1920 for this purpose. The index number for 1920 will be 100.0: $\left(\frac{700}{700} \times 100 = 100\right)$. The index number for 1910 will be 42.8: $\left(\frac{300}{700} \times 100 = 42.8\right)$. The index number for 1930 will be 128.6: $\left(\frac{900}{700} \times 100 = 128.6\right)$. And so on. A table of these indexes will appear as follows:

Population of Excelsior
1920 = 100

Date (June 30)	Index
1900	28.6
1910	42.8
1920	100.0
1930	128.6
1940	157.1
1950	171.4

These index numbers express the population of Excelsior as percentages of its population in 1920. In a similar way price indexes show the height of selected groups of prices at various points of time *relative* to their height at some point or period of time that is taken as the "base period."

Index numbers are so convenient that they are used in almost all fields of study. Some of the most widely known index numbers in economics, other than price indexes, are those of industrial produc-

tion, freight carloadings, department store sales, national income payments, construction contracts awarded, industrial employment, and factory payrolls.[2] These have proved to be highly valuable tools for analyzing the behavior of these magnitudes through time.

Though price indexes have been constructed in almost every advanced country, we shall confine our discussion to those used in the United States. Dr. Carl Snyder has constructed a price index with a very broad coverage. It shows the movements of a weighted average of prices of industrial products, prices of farm products at the farm, retail food prices, rents, miscellaneous costs of living, transportation costs, realty prices, security prices, equipment and machinery prices, hardware prices, automobile prices, and wages. This is "a general level of prices" in the broadest sense. Most economists now believe, however, that such a broad index that includes such heterogeneous prices with such widely varying behavior is of only little use for analytical purposes. The trend in recent years has been toward a larger number of price indexes, each with a narrower coverage; hence we now have indexes of wholesale prices, retail prices, the cost of living, common-stock prices, and so on. It is more fruitful to analyze changes in the prices of the various classes of goods and services, noting both similarities and dissimilarities in their movements.

Two of the best-known price indexes in this country are the wholesale price index and the cost-of-living index, which are compiled by the United States Bureau of Labor Statistics. The wholesale price index, which uses 1926 as its base period, shows the movements of the weighted average prices of some 900 of the most important commodities in the wholesale market.[3] The cost-of-living index, which is more accurately called a "consumers' price index for moderate-income families in large cities," shows the weighted average movement of

[2] See any recent *Federal Reserve Bulletin*. See also D. H. Davenport and F. V. Scott, *An Index to Business Indices*, Business Publications, Inc., Chicago, 1937.

[3] The materials on price indexes are voluminous. For an interesting discussion of the history of wholesale price indexes and of some of the problems in their construction, see *Index Numbers of Wholesale Prices in the United States and Foreign Countries*, U.S. Bureau of Labor Statistics Bulletin No. 284, Government Printing Office, Washington, 1921. For a later description of wholesale price indexes in the United States and of the methods used in weighting, see *Wholesale Prices, 1931*, U.S. Bureau of Labor Statistics Bulletin No. 572, Government Printing Office, Washington, 1933.

198 prices entering into the cost of living of this group.[4] This index uses the period 1935–39 as a base.

PRICE LEVELS IN THE UNITED STATES

The dollar has been far from a stable monetary unit. This is indicated by Fig. 1, which shows the behavior of wholesale prices in the United States since 1808.[5] Indexes of retail prices and of the cost of living would show less wide fluctuations, but even they would indicate a far from satisfactory performance. The broad swings of wholesale prices and of the purchasing power of the dollar in the wholesale market are summarized in Table 1. The greatest price increases occurred during and immediately following the War of 1812, the Civil War, World War I, and World War II, and the greatest decreases, in general, in the periods following these wars. But even if we admit

TABLE 1. Principal Changes of Wholesale Price Levels in the United States

Period	Percentage *Change* of Wholesale Prices	Percentage *Change* in Purchasing Power of Dollar in Wholesale Market
1808–1814	+65	−39
1814–1834	−56	+134
1834–1837	+26	−21
1837–1849	−28	+39
1849–1857	+15	−13
1857–1865	+91	−48
1865–1897	−64	+179
1897–1920	+228	−69
1920–1922	−37	+58
1922–1925	+7	−7
1925–1932	−37	+60
1932–December, 1951	+174	−64

[4] For good discussions of this index, see *Monthly Labor Review*, August, 1940, pp. 365–404; *Changes in Cost of Living in Large Cities in the United States, 1913–1941*, U.S. Bureau of Labor Statistics Bulletin No. 699, Government Printing Office, Washington, 1941; "Report of President's Committee on Cost of Living," *Monthly Labor Review*, January, 1945, pp. 168–174.

[5] *Wholesale Prices, 1931*, U.S. Bureau of Labor Statistics Bulletin No. 572, p. 14. The index since 1890 is the Bureau's regular weighted series. Indexes for the earlier period are not strictly comparable but are believed by the Bureau to reflect the trend of wholesale prices with a fair degree of accuracy.

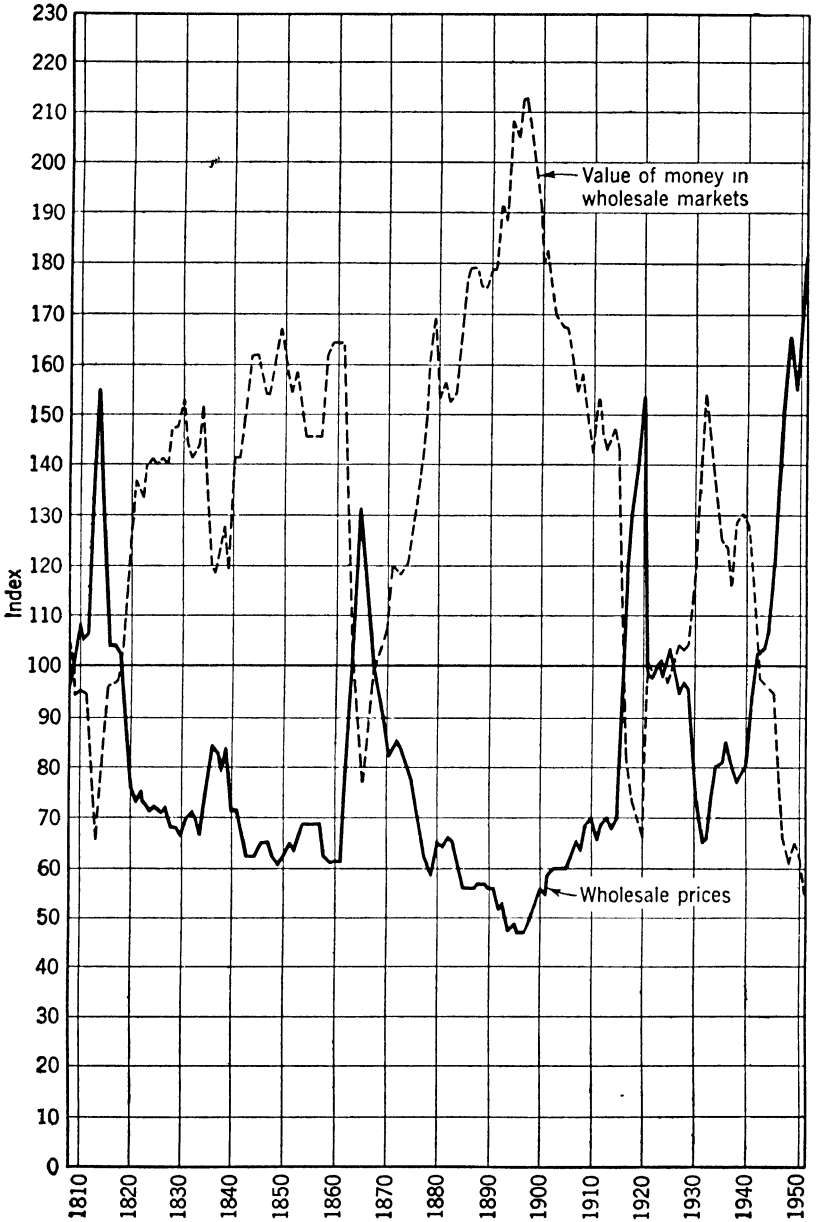


FIG. 1. Wholesale Prices in the United States Since 1808 (1926 = 100).

that serious inflation must inevitably accompany every important war and be followed by drastic deflation—a proposition that few economists will accept—the behavior of the dollar in other periods has hardly been a cause for complacency. For example, its purchasing power for wholesale commodities declined by 21 percent in the peacetime period of 1834 to 1837, rose 39 percent from 1837 to 1849, declined 13 percent from 1849 to 1857, rose 38 percent from 1880 to 1897, declined 33 percent from 1897 to 1913, and rose 52 percent from 1926 to 1932. Such fluctuations could not fail to be accompanied by serious economic disturbances and arbitrary shifts of wealth and income from one group to another.

Fig. 2 shows the Bureau of Labor Statistics index of general whole-

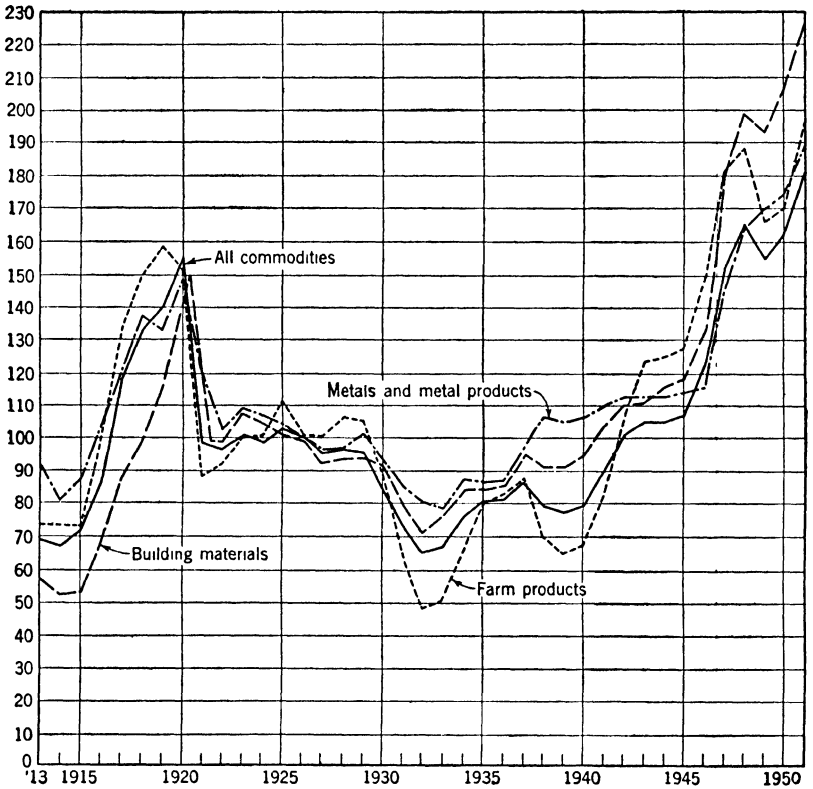


FIG. 2. Wholesale Prices in the United States, 1913–1951 (1926 = 100).

sale prices as well as its wholesale indexes for some of the most important subgroups of commodities since 1913. These indexes demonstrate not only the wide fluctuations of wholesale prices in general, but also the varying rates of change in the various classes of wholesale prices.

Though the cost of living, whose index since 1913 is shown in Fig. 3, has fluctuated less widely than wholesale prices, it has been far

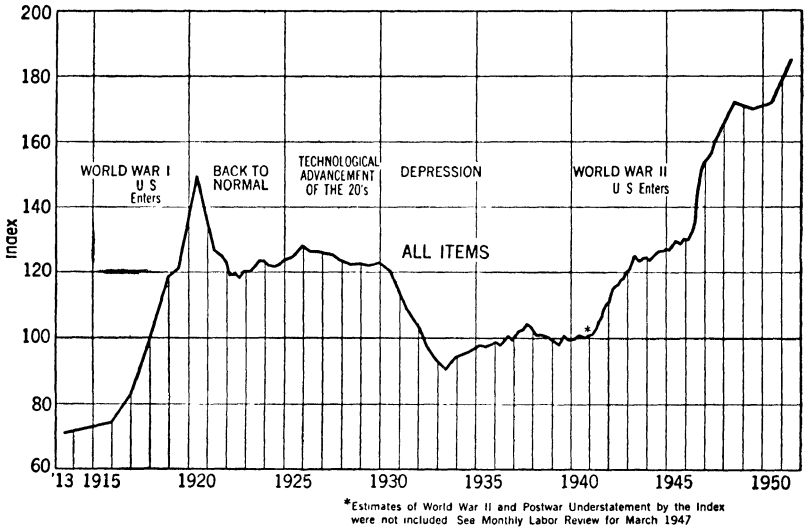


FIG. 3. Consumers' Price Index for Moderate-Income Families in Large Cities (1935–39 = 100). (From U.S. Department of Labor, Bureau of Labor Statistics.)

from stable. For example, the index shows that the cost of living rose 101 percent from 1913 to 1920, declined 16 percent from 1920 to 1922, rose 5 percent from 1922 to 1926, declined 27 percent from 1926 to 1933, and rose 105 percent from 1933 to December, 1951.

CONSEQUENCES OF CHANGES IN PRICE LEVELS

The heading of this section may be misleading, for, like so many other treatments of the subject, it implies that changes in price levels are the "cause" of the disturbances that we shall study. This is true

only in a superficial sense. The "causes" of these disturbances are the factors that change the volume of money spendings relative to the flow of goods and services, and that produce changes in the volume of production and employment as well as in price levels. It would therefore be more accurate to call this section "consequences accompanying changes in price levels." We may talk in terms of the "consequences of price level changes" only if we remember that the more basic causes of the disturbances are the factors behind price levels, and that prices are both a result of these underlying factors and the mechanism through which these factors transmit their disturbing influence to the various parts of the market.

We must recall here our earlier statement that changes in price levels are economically important largely because of the widely varying rates of change in the individual prices that make up the average. If every price, including the prices paid for productive factors, were in fact altered to the same extent, changes in the levels of prices would be of no consequence.

Output and Employment

In earlier sections of this chapter we saw that changes in the volume of spendings are reflected in the various markets for goods and services as changes in demand, and that increases or decreases in the money demand are likely to increase or decrease the volume of output and employment. That discussion assumed that changes in the prices at which producers can sell their output will not be fully offset by corresponding changes in their cost schedules—by offsetting changes in the various prices that enter into costs, such as wage rates, interest rates, land rent, transportation rates, raw material prices, and so on. The amount of output and employment would not need to be changed if producers' cost schedules would immediately and fully adjust themselves to every increase or decrease in the prices at which output could be sold. But costs are notoriously "sticky"; wages, taxes, rents, and some other elements of cost often tend to move more slowly than the demand schedules for output. The lag in cost schedules during periods of rising demand and rising prices encourages an expansion of output and employment. On the other hand, the lag in

costs during periods of declining demand and prices permits reduced employment and output. No monetary policy that ignores differences in the rates of change in prices and production costs can be successful in maintaining a high and stable level of employment.

The following discussion deals with shifts in the distribution of real wealth and income that accompany changes in the value of money. It is important to remember in this connection that not only the relative shares of income, but also the total amount of income (production) available for sharing, are affected by the developments that bring about changes in price levels.

Price Levels and the Distribution of Income

Changes in price levels, especially wide changes, are accompanied by large and arbitrary shifts in the distribution of the national income, for the money incomes of individuals respond in widely different ways. Some remain virtually constant in terms of money, others move but slowly, and still others move even more rapidly than the prices of things purchased with them. Those whose money incomes remain virtually constant or vary more slowly than the prices of things purchased tend to lose when the purchasing power of money falls and to gain when the purchasing power of money rises. Those with highly volatile money incomes, on the other hand, tend to gain when the purchasing power of money falls and to lose when the purchasing power of money rises, for their money income changes more rapidly than the cost of living.

Among the most inflexible types of money income are pensions from government or private sources which remain fixed in amount or are altered only after long delays; interest on bonds, savings deposits, and other debts; annuities, which are usually fixed by contract for the life of the recipient; fixed incomes from lifetime trusts; and rents that are fixed by long-term contracts. People who must rely largely on these fixed types of income suffer when the cost of living rises. A doubling of the cost of living, such as occurred between 1940 and 1952, can cut their purchasing power by half, and inflation like that in Germany during and after World War I can practically wipe out their ability to buy. Many a German family with a fixed money in-

come that was large enough to assure a high standard of living in 1914 found that the same number of marks would not purchase even one meal a week in 1923.

It is undoubtedly true that these groups with relatively fixed money incomes tend to receive a larger part of the national income in periods of falling prices and a smaller part of the national income during periods of rising prices. Yet some members of even these groups suffer during periods of falling prices which are also periods of decreasing production, national income, and employment, because their money incomes may be severely reduced or completely eliminated. For example, national income was reduced so drastically during the great depression following 1929 that hundreds of thousands of debtors—farmers, homeowners, municipalities, and corporations—could not even pay interest to their creditors, to say nothing of making payments on principal. The disappointed creditors got little satisfaction out of knowing that the interest due them would buy more if it were being received. On the other hand, a moderate rise in prices accompanied by a recovery of employment and production may actually benefit certain of the so-called "fixed-income" groups by enabling them to get the promised income payments. It is still true, however, that they will lose if the prices of the things they buy rise more than their money incomes.

Wage and salary rates have, in general, tended to lag behind changes in the cost of living, and hence the real purchasing power of each hour of work has tended to fall during periods of rising prices and to rise during periods of falling prices. Though true, this generalization should be accepted only with the following qualifications: (1) It may be less true in the future, owing to the rise of unionism, the workers' greater interest in real wages rather than money wages (at least during periods of rising prices), and other changes in the position of labor; (2) it relates to wage rates per hour rather than to the total annual take-home pay; and (3) as an average it does not bring out the widely differing behavior of the different types of wages and salaries. Some of these are much more inflexible than others.

Among the most inflexible wage and salary rates are those of municipal, state, and federal employees, schoolteachers, college pro-

fessors, clerical workers, and salaried executives who do not participate significantly in bonus or profit-sharing plans. Their rates of pay usually increase only slowly and after a long delay during periods of rising prices, and they are likely to show a similar lag during periods of falling prices. These groups therefore tend to be injured by general price increases and to gain from general price decreases. The statement that these groups tend to gain from falling prices is subject to qualifications, however. It is strictly true of those who keep their jobs on a full-time basis, who do not receive salary cuts proportional to the decline in the cost of living, and who are not deprived of promotion or advancement because of the depressed conditions associated with the price decline. Their purchasing power is indeed increased by falling prices. But others in this group may not be so fortunate if the decline of prices is accompanied by a general deterioration of economic conditions, for they may fail to get expected promotions, they may have only part-time employment, or they may become totally unemployed. These members may actually be benefited by a moderate rise in prices if it is accompanied by a substantial rise in employment and more favorable opportunities for advancement.

The wage and salary rates of other kinds of workers vary widely in behavior, many of them lagging behind changes in the cost of living and some of them moving at least as fast as the cost of living. The position of each kind of labor in periods of price change depends on the volatility of its wage or salary rates and the accompanying effect on opportunities for employment and advancement.

Most volatile of all types of income are the profits of business, whether of individual proprietorships, partnerships, or corporations. The owners of these enterprises accept the position of residual claimants. They enter into contracts to pay specified amounts of money as costs to workers, landlords, lenders, and other suppliers of goods and services with which to carry on production, hoping to receive enough money for their output to cover their costs and leave them a profit. In periods of rising prices, costs tend to lag behind sales receipts from output, so enterprisers' profits rise more than price levels. On the other hand, the lag of costs during periods of falling prices usually reduces owners' incomes faster than prices decline, so

they receive a smaller part of the national income. Many owners of enterprises receive no income at all during such periods.

Many people believe that there are serious injustices in the distribution of the national income. But these are not likely to be remedied in any satisfactory way by the arbitrary and capricious shifts of income that accompany price level changes. For example, a decline of prices may indeed raise the purchasing power of hourly money wages, but it may also produce unemployment, increase the purchasing power of inactive millionaire lenders, and drastically reduce the real incomes of owners, including the struggling owners of small enterprises.

Price Levels and the Distribution of Wealth

Changing price levels can bring about sweeping changes in the distribution of wealth among the various members of the community. These shifts are traceable to two principal facts: (1) Claims against real wealth are in general in the form of (a) debts which are fixed in terms of money, and (b) ownership claims, which are residual claims against the value of real wealth remaining after the settlement of creditors' claims. (2) The prices of some types of wealth vary more widely than others in periods of price change.

We have already seen that money is commonly used as the standard of deferred payments, the unit in terms of which debts are stated. The volume of these money debts is very large in modern society; at the end of 1949 debts in the United States amounted to more than $440 billion.[6] Every change in the value of money alters the real purchasing power of these debts. If prices rise between the time a debt is incurred and the time it is paid, the debtor gains and the creditor

[6] Some of the most important of these net debts at the end of 1949 were, according to the *Statistical Abstract of the U.S.*, 1951 (p. 337):

	(Billions of Dollars)
Federal government debt	$219
State and local government debt	18
Corporate bonded debt	54
Farm mortgages	5
Urban real estate mortgages	52
Short-term debts of nonfinancial enterprises	94
Total	$442

loses, for the debt is paid with dollars containing less purchasing power than those lent. But if prices fall between the time a debt is created and the time it is paid, the debtor is forced to return more purchasing power than he borrowed.

This statement can be clarified by an example. Suppose that in a year when the price index is 100 Mr. B establishes a business requiring $100,000 worth of property. He supplies $50,000 himself and borrows the remaining $50,000 from Mr. L on a ten-year note. During the ensuing ten years, however, the index of prices rises to 200 and the money value of the property to $200,000. At the end of the period Mr. L is paid $50,000 in retirement of the debt, but this sum will buy only as much as $25,000 would have bought at the time the loan was made. Mr. B, however, retains an equity in the property of $150,000, which will purchase as much as $75,000 would have purchased in the year the loan was made. In effect, the rise in prices transferred from the creditor to the debtor an amount of purchasing power equal to $25,000 at the time the debt was incurred. But if prices had fallen by 50 percent during the life of the loan, the shift of wealth would have been in the opposite direction. In this case Mr. L would have been repaid $50,000, which would represent twice as much purchasing power as he lent. Mr. B would have suffered, of course, for the money value of the property would have fallen, perhaps to only $50,000, thereby wiping out his entire original investment.

With these principles in mind it is easy to understand why creditors—holders of mortgages, corporation and government bonds, life insurance policies, savings deposits, and other obligations fixed in terms of money—should be so opposed to inflation. It is also not difficult to see why debtors—whether they are homeowners, farmers, other businessmen, or borrowers for consumption purposes—should find deflation so repugnant.

In periods of great inflation the purchasing power of bonds and other fixed debts may fall to almost nothing. Holders of mark bonds which had earlier represented a fortune were practically wiped out by the great German inflation during and following World War I. Corporations and other debtors, however, could sell a minute fraction of their assets and retire all their debts. At the end of our Revolutionary War observers reported that debtors were pursuing their

creditors relentlessly and paying them off mercilessly with money that had lost most of its purchasing power.

Serious declines of price levels bring about injustices of the opposite sort. For example, the average prices of farm real estate fell more than 50 percent from 1920 to 1933. Many farmers who bought $20,000 farms in 1920, paying half the purchase price out of their own funds and borrowing the other half, found that the value of their land in 1933 was not even high enough to cover the mortgage. Their own investment had been wiped out completely and they were still in debt. Owing to price declines, the quantity of farm products required to pay off the debt in 1933 was four times as large as in 1920 and twice as large as it would have been at any time between 1921 and 1929. In view of these facts one can understand why the farmers talked so much about "the burden of debt" during the great depression. Many urban borrowers on real estate were in similar positions; the fall of real estate prices greatly reduced or eliminated their equities. Stockholders, as the owners of corporations, in many cases found their equities seriously reduced or eliminated by the fall in the value of corporate assets, for bondholders had a prior claim.

We hear much about the burden of the federal debt, which amounted to more than $250 billion in 1953. The interest on it will amount to about $6 billion a year. The real burden of this debt for taxpayers (and its purchasing power for bondholders) will be greatly influenced by future movements of the value of money. If prices fall below the levels current at the time the loans were made, taxpayers will have to return to the bondholders more purchasing power than was lent. But if price levels rise, the taxpayers will return to the creditors less purchasing power than was originally given for the bonds. The same principles apply to the interest on the debt. Even if this were the only debt outstanding, changes in price levels would still be capable of effecting a marked redistribution of purchasing power in this country.

SUMMARY

This and the preceding chapter have dealt with the functions of money. The fundamental purpose of money is to reduce the diffi-

culties of exchange to a minimum, thereby facilitating specialization and orderly trade. Money is supposed to serve this broad purpose by acting as a measure of value, a medium of payments, a standard of deferred payments, and a store of value. It has rarely served these purposes in a wholly satisfactory manner; the flow of money spendings has behaved so inappropriately (owing to inappropriate changes in the quantity of money, or in the rapidity of its circulation, or in both) relative to the flow of real goods and services as to produce fluctuations of employment and production, fluctuations of the value of money, and arbitrary and capricious redistributions of wealth and income among the members of the community. These are the types of evils that monetary management should avoid.

SELECTED READINGS

Bresciani-Turroni, C., *The Economics of Inflation*, Allen, London, 1937.

Burns, A. R., *Money and Monetary Policies in Early Times*, Knopf, New York, 1927.

Chandler, L. V., *Inflation in the United States, 1940–1948*, Harper, New York, 1951.

Davenport, D. H., and Scott, F. V., *An Index to Business Indices*, Business Publications, Inc., Chicago, 1937.

Fisher, I., *The Making of Index Numbers*, Houghton Mifflin, Boston, 1922.

Graham, F. C., *Exchange, Prices and Production in Hyper-Inflation: Germany, 1920–1923*, Princeton University Press, Princeton, 1930.

King, W. I., *Index Numbers Elucidated*, Longmans, Green, New York, 1930.

Mills, F. C., *Behavior of Prices*, National Bureau of Economic Research, New York, 1927.

Mills, F. C., *Statistical Methods Applied to Economics and Business*, Henry Holt, New York, rev. ed., 1938.

Mitchell, W. C., *Gold, Prices and Wages Under the Greenback Standard*, University Press, Berkeley, 1908.

Mitchell, W. C., *Index Numbers of Wholesale Prices in the United States and Foreign Countries*, Bureau of Labor Statistics Bulletin No. 284, Washington, 1921.

U.S. Bureau of Labor Statistics, Numerous publications on various types of index numbers.

CHAPTER 3

Kinds of Money

Anyone who begins his study of money with the belief that there is some one thing that "is by nature money" and that has been used as money at all times and in all places will find monetary history very disconcerting, for a most heterogeneous array of things have served as circulating media. An incomplete list of these is given in Table 2.

TABLE 2. An Incomplete List of Things That Have Served as Money

clay	goats	hoes	iron
cowry shells	slaves	pots	bronze
wampum	rice	boats	nickel
tortoise shells	tea	porcelain	paper
porpoise teeth	tobacco	stone	leather
whale teeth	pitch	iron	pasteboard
boar tusks	wool	copper	playing cards
woodpecker scalps	salt	brass	
cattle	corn	silver	debts of individuals
pigs	wine	gold	debts of banks
horses	beer	electrum	debts of governments
sheep	knives	lead	

Some of these are animal, some vegetable, and some mineral; and some, such as debts, defy this classification. Some are as valuable for nonmonetary purposes as they are in their use as money; others are practically worthless for purposes other than money; still others are valuable for nonmonetary purposes, but not as valuable as in their monetary use. Some are quite durable, whereas others are much less so. About the only characteristic that all these articles have in common is the fact that each of them was able, at some time and place,

to achieve general acceptability as a means of payment. And the reasons for their general acceptability certainly varied from place to place and from time to time.

The very heterogeneity in the forms of the various things that have served as money suggests, as was said earlier, that there is no one form of money that is best at all times, in all places, and under all physical and cultural conditions. Gold and silver may have served England well in the seventeenth century, but the Indians of the New World spurned them and used wampum. A native of Malaita would no more think of accepting a checking deposit as money than a New York broker would think of accepting porpoise teeth. What will serve best as money depends upon many things, such as the stage of economic development, the availability of the various things that may be used as money, the people's taste in ornaments, the nature of religious practices, the extent of literacy, the stage of development of financial institutions, the honesty and strength of the government, and past monetary experiences.

TYPES OF MONEY

Though the monetary systems of advanced countries during recent decades show wide variations, their circulating media have been mainly of the following types: (1) checking deposits, (2) paper money issued by governments, central banks, and privately owned banks, and (3) coins of various kinds. These are listed in the order of their present importance as means of payments. By far the largest part of our payments are made by transferring claims on banks from payers to payees, the bank debts being transferred by check. Next in importance as an exchange medium is paper money, which is usually a debt of a government, a central bank, or a privately owned bank. Coin is the least important of all; it is, in effect, the small change of the economic system. We must emphasize that our circulating medium is made up largely of debts (or credits) which are transferred from payers to payees. We shall see later that this is largely true even of coins.

A classification of modern money that is more useful for analytical

purposes is given in Table 3. It is based on the relationship between the value of money as money and the value of money as a commodity for nonmonetary uses.

TABLE 3. Classifications of Money

I. Full-bodied money
II. Representative full-bodied money
III. Credit money
  A. Issued by government
    1. Token coins
    2. Representative token money
    3. Circulating promissory notes
  B. Issued by banks
    1. Circulating promissory notes issued by central banks
    2. Circulating promissory notes issued by other banks
    3. Demand deposits subject to check

Full-Bodied Money

Full-bodied money is money whose value as a commodity for nonmonetary purposes is as great as its value as money. It is versatile money; it can desert its monetary job and take up other occupations without losing value—if too much of it does not leave monetary uses. There have been many examples of this type of money. Most of the early commodity moneys—such as cattle, rice, wool, and boats—were as valuable for nonmonetary purposes as they were in their monetary use. The principal full-bodied moneys appearing in modern monetary systems have been coins of the standard metal that are issued when a country is on a metallic standard—a gold standard, a silver standard, or a bimetallic standard using both gold and silver.

Full-bodied coins usually result when two conditions exist: (1) Money can be shifted from monetary to nonmonetary uses virtually without cost, and (2) the metal can be coined into money without limit and virtually without charge. The ability to shift coins from their monetary use without cost prevents them from being worth more as a commodity than as money; any tendency for them to be worth less as money than as an industrial material will cause gain-seeking persons to withdraw the coins from monetary circulation for industrial use. This movement will continue until the industrial material is no

longer more valuable for nonmonetary purposes than for use as money, or until the coins have all been drained from the monetary system. It is almost an axiom that a money cannot have a lower value as money than it has for nonmonetary purposes; even the death penalty for melting down coins has usually proved incapable of preventing such actions when they were profitable.

On the other hand, when a metal may be coined into money without limit and virtually without charge it is impossible for the coins to have a higher value as money than as a material for other uses. Any tendency for their value as money to rise above their value as material for nonmonetary purposes will elicit enough additional coinage to lower the value of the coin and/or to raise the value of the material for nonmonetary uses so as to bring them into equality. For example, for many years before 1933, the federal government stood ready to coin gold in unlimited amounts and with only a negligible charge; it gave a dollar for each 23.22 grains of fine (pure) gold offered to it. This amounted to setting a purchase price of $20.67 per ounce of fine gold, because an ounce of gold (480 grains) will yield 20.67 dollars of 23.22 grains each. The minimum price of gold in the market became $20.67 per ounce, because as long as the government stood ready to buy all the gold offered at this price no one would sell for less, no matter whether the gold was to be coined or used in dentistry. In other words, the coinage of gold into money without limit as to quantity and virtually without cost prevented the gold dollar from being worth more as money than as a commodity for nonmonetary use.

In summary, the equality of the monetary and nonmonetary values of full-bodied money is usually maintained by these two flows. The option of converting the money freely into a commodity for nonmonetary use prevents the value of the money from falling below its value as a material for other uses. No one would pay more than $20.67 an ounce for gold in the open market so long as he could melt down full-bodied gold coins. And the option of converting the material into money without limit and virtually without expense prevents the value of money from rising above the value of the material of which it is made.

Full-bodied money has in the past played an important role in the monetary system of the United States as well as in those of other countries. All coins issued by the federal government in the first few decades after the establishment of the mint were full bodied, and full-bodied gold coins were in circulation, though in decreasing quantities, until 1933. In that year, however, all gold was called in by the government and the coinage of gold was discontinued. No full-bodied money has circulated in the United States since 1933, and this type of money has for many years been a rarity in most other countries.

Despite the fact that full-bodied money has all but disappeared from modern monetary systems, many people still feel that it is superior to the "flimsier" types of money. They believe that it is "safer" because of its ability to shift without loss of value to nonmonetary uses, such as jewelry, dentistry, gold plate, gold leaf, and so on. Most of these people seem to think that the value of a full-bodied coin merely reflects the value of the material in it for industrial and artistic purposes, and that the value of the metal is determined solely by its supply and by *its demand for nonmonetary uses*. This is clearly an erroneous idea. The value of any metal both for industrial purposes and as a full-bodied coin depends on its supply and on the aggregate demand for it, and the aggregate demand is made up of two parts: (1) the demand for it for use as money, and (2) the demand for it in other uses, such as industry and art. As soon as a metal comes to be used as money, the monetary demand for it may easily become the larger part of the total demand, and the value of the metal may depend largely on the behavior of the monetary demand for it. This is especially true of gold. How much purchasing power would gold have if no important country would purchase any of the current output for monetary use, so that the only remaining demand was for nonmonetary purposes? What would be the value of gold if all countries demonetized it and threw on the industrial market the hundreds of millions of ounces that they now hold in their monetary gold stocks? The value of gold would surely decline as the monetary demand for it disappeared. This is particularly likely in view of the fact that the nonmonetary demand for gold is to such a large extent derived from its use for "conspicuous waste"—in jewelry, gold

plate, and gold leaf. If gold lost its monetary use and depreciated seriously, people might well turn to other means of ostentation.

We are thus led to two important conclusions. The first is that though the value of a full-bodied coin as money is equal to its value as a commodity for nonmonetary uses, the value as money does not merely reflect a value determined by the supply and the nonmonetary demand. Instead, the value of the metal both as money and for other uses depends on the supply and on the aggregate demand for monetary and nonmonetary uses, and the monetary demand is often dominant. The second conclusion is that though small amounts of full-bodied money may be able to shift to nonmonetary uses without loss of value, this is not possible on any large scale. Mass attempts to convert full-bodied coins into bullion for other uses are likely to reduce the value of the metal.[1]

This fact is clearly brought out by the history of silver. Before the last quarter of the nineteenth century many important countries stood ready to coin all the silver offered to them at a value equal to around $\frac{1}{15}$ or $\frac{1}{16}$ of the value of gold; hence the value of silver for both monetary and nonmonetary uses was fixed at that level. But after these countries had withdrawn from silver the privilege of unlimited coinage, thereby decreasing its demand for monetary purposes, its value fell precipitately. In the 1920's its value averaged only about $\frac{1}{30}$ of the value of gold. There is no reason to believe that the value of gold would escape at least as great a decline if its monetary use were similarly curtailed.

Some people favor the exclusive use of full-bodied money because of its automatic limitation upon the quantity of money that can be created. Fearing that irresponsible monetary authorities would resort to inflation if token coins, paper money, or other debts were used as money, they would define the monetary unit in terms of a metal and then limit the money supply to the amount of the metal or metals offered for coinage. Though this technique might prevent the most extreme inflations, it would not at all assure appropriate behavior of the money supply or of the flow of money spendings. For example,

[1] For a delightful passage in which a piqued bank note "tells off" haughty gold coins, see D. H. Robertson, *Money*, Harcourt, Brace, New York, 1929, pp. 49–50.

new gold strikes or a decreased use of gold in industry could swell the money supply far beyond the amounts needed to carry on trade at stable prices, and the failure of gold production to rise sufficiently during periods of rapidly advancing production and trade could bring about a deficiency of money spendings, falling prices, and unemployment.

Another shortcoming of full-bodied money is its cost. To get the gold, silver, or other metal needed for full-bodied money, a nation must devote part of its productive power to mining and refining, or it must exchange part of its output of other goods and services for the metal of other nations. Credit money can be obtained more cheaply. Full-bodied money would probably be worth the extra cost, however, if in fact it performed monetary functions more satisfactorily than other types of money.

Representative Full-Bodied Money

Representative full-bodied money, which is usually made of paper, is in effect a circulating warehouse receipt for full-bodied coins or their equivalent in bullion. The representative full-bodied money itself has no significant value as a commodity, but it "represents" in circulation an amount of metal with a commodity value equal to the value of the money. Thus, the "gold certificates" which circulated in the United States before their recall from circulation in 1933 represented fully equivalent amounts of gold coin or gold bullion which were held by the Treasury as "backing" for them.

In some respects representative full-bodied money is similar to full-bodied money. The amount of it that can be issued depends upon the quantity of full-bodied money or its bullion equivalent available as "backing," and the cost of the "backing" material is as great as that of full-bodied money. This type of money has certain advantages over full-bodied money. In the first place, its use obviates the expense of coining, though against this must be set the cost of providing and maintaining the pieces of representative paper. In the second place, it avoids ordinary abrasion as well as the deliberate sweating, clipping, and chipping to which circulating coins are sometimes subjected. In the third place, it is easier to transport than the full-bodied money

that it represents. This was certainly true of the Swedish representative money which circulated in place of massive copper coins during the seventeenth and eighteenth centuries, of the warehouse receipts for tobacco which circulated in Virginia and some of the other colonies, and of the pre-1933 gold certificates. The principal disadvantages of this type of money as compared with full-bodied money are the ease of counterfeiting it if the representative paper money is not very distinctive, and its destructibility by fire.

Credit Money

All the money in circulation in the United States and almost all the circulating moneys in other countries are credit money. By credit money we mean any money, except representative full-bodied money, that circulates at a value greater than the commodity value of the material of which it is made. The principal modern types of credit money are *token coins*, *paper money*, and *checking deposits*. Each of these will be discussed in turn.

Token Coins. All circulating coins in the United States—silver dollars, half dollars, quarters, dimes, nickels, and pennies—are token money; their value as money is significantly greater than their value as materials in the commodity market. The market values of the materials in these coins are shown in Table 4. Silver would have had an even lower value as bullion if it had been completely deprived of its monetary use.

Why are people willing to accept these coins in payment at values far above the values of the materials out of which they are made? The fundamental reason is that the quantity of these coins is deliberately limited by the government. We saw that the value of full-bodied money cannot rise above the value of the materials of which it is made because of unlimited coinage at virtually no cost to the suppliers of metal. But the government does not permit free and unlimited coinage in the case of token coins; if it did, the purchasing power of the coins would necessarily fall to the level of the commodity value of the materials in them—the coins would be full bodied. Instead, the government purchases the required metals at its own option and itself determines the quantities of token coins that it will issue. By appro-

priate limitations on the supply of these coins it can maintain their monetary value well above their commodity value. It can also make a profit equal to the difference between the cost of the material in the market and the value of the coins made from it. For example, it can pay $90.50 for 100 ounces of silver in the market and coin it into $129, thereby making a $38.50 gross profit. These profits are usually called *seigniorage*.

To insure that token coins will remain at parity with other types of money, the monetary authorities often provide for free conversion

TABLE 4. Metallic Content and Commodity Values of United States Coins

Coin	Total Weight in Grains	Composition	Market Value of Commodity Content of Coins at August, 1946, Prices (in cents)
Dollar	412.5	90% silver, 10% copper	70.0
Half dollar	192.9	"	32.8
Quarter	96.45	"	16.4
Dime	38.58	"	6.5
Nickel	77.16	75% copper, 25% nickel	0.2
Penny	48.00	95% copper, 5% tin and zinc	0.09

of token coins into other types of money on a dollar-for-dollar basis as well as for the free exchange of other types of money for token coins. They then limit their issues of token coins to the amounts that people want to use or hold on a parity basis. But though this free interchangeability of the various types of money is usually necessary to maintain these various types at strict parity with each other, it must be emphasized that the basic reason why token coins can circulate at a monetary value above the value of the materials of which they are made is the limitation on their issue.

The above arrangement under which the government issues token coins made of metal purchased at its own option and in quantities determined by itself is the one ordinarily used today. But there have also been token money systems in which governments coined all the

metal offered to them, but only at a very high cost to the suppliers of it, the governments retaining the high margin as seigniorage. For example, suppose that the monetary unit of a country is the dinar and that a 1-dinar piece contains 100 grains of silver. The government might stand ready to coin all the silver offered to it, but to give only 1 dinar for each 200 grains of silver. The market price of silver could fall as low as 1 dinar for 200 grains of silver, the government purchase price. The 100 grains of silver in the dinar could be worth as little as half a dinar in the commodity market. This underlines the fact that unlimited coinage or purchase of a metal is not sufficient to make a coin full bodied; the coinage must also be virtually without cost to the supplier of the metal. The market value of the material in a coin can fall below the monetary value of the coin by the amount of any charge made for coinage.

Representative Token Money. Representative token money, which is usually paper, is in effect a circulating warehouse receipt for token coins or for an equal weight of bullion that has been deposited with the government. It is like representative full-bodied money, except that the coins or bullion held as "backing" is worth less as a commodity than as money. Silver certificates are the only example of this type of money in the United States. These have been in circulation in varying amounts since 1878 and are "backed" by an equivalent number of silver dollars or by silver bullion of equivalent weight. Most of our $1 bills are silver certificates, as are some of our $2, $5, and $10 bills. Most economists see no advantage in having a paper money "backed" by silver with a commodity value far below its monetary value. They believe that the money function could be served fully as well by an equivalent amount of paper currency without specific backing. But silver producers, constantly on the alert for better markets for their product, take a different view.

Circulating Promissory Notes Issued by Governments. Governments also issue credit money in a form usually, but sometimes inaccurately, called circulating promissory notes. These are usually made of paper and are sometimes called *fiat* money. Some of them carry the government's promise to redeem them in other types of money on demand; this is why this type of money is usually called circulating

promissory notes. Others, however, lack this promise and in effect say, "This is a certain number of monetary units."

The only circulating promissory notes issued by the United States government and still in circulation are the United States notes, or "greenbacks," which were issued to assist in financing the Civil War. Over $400 million of them were originally issued, but they were reduced to $347 million by 1878 and have since remained at approximately that level.[2]

Many people oppose the use of government paper money, fearing that it will be issued in excessive amounts. Monetary history provides a real basis for this fear, because these issues provide an attractive source of revenue to governments. By spending a small amount for paper, engraving, and printing, a government can produce millions of dollars' worth of paper money, which can then be used to pay its debts or to meet its expenses. The temptation to sacrifice proper monetary management in order to meet budgetary deficits is often strong. It should be pointed out, however, that most of the excessive issues of paper money have occurred during war periods when nations felt that their very existence was at stake and when they were in dire need of more money to meet military needs. There is no reason why a properly managed government paper money should not function well.

Circulating Promissory Notes Issued by Central Banks. A considerable part of the hand-to-hand currency used in most advanced countries is in the form of circulating promissory notes issued by central banks, such as our Federal Reserve banks, the Bank of England, and the Bank of France. The largest part of our paper money is made up of Federal Reserve notes, which are circulating evidences of debt issued by the twelve Federal Reserve banks. In some cases the paper money issued by central banks is redeemable in other typs of money; in other cases it is irredeemable. Though the Federal Reserve banks will redeem their notes in token coins or other types of paper money they are not obligated to redeem them in full-bodied money.

Circulating Promissory Notes Issued by Private Banks. Circulating

[2] The Treasury statements also list an outstanding $1 million of Treasury notes of 1890. Though these are government promissory notes, most of them are believed to have been destroyed, lost, or placed in collectors' boxes.

promissory notes issued by privately owned banks have played an important role in monetary systems. Promissory notes issued by state-chartered banks and by the First and Second Banks of the United States provided a large part of the circulating medium in this country before the Civil War, and the national banks chartered by the federal government issued such notes from the Civil War until 1935, when their power of note issue was rescinded. Though most of the notes issued by privately owned banks have been retired in this country, they are still used extensively in some other areas. These notes, it must be emphasized, are only circulating evidences of bank debts—creditor claims against banks.

Checking Deposits at Banks. The major part of the money supply in this country, as well as in most other advanced countries, is in the form of demand deposits at banks. These so-called "deposits" are merely bank debts payable on demand—claims of creditors against a bank which can be transferred from one person or firm to another by means of checks or other orders to pay. These claims against banks are generally acceptable in payment of debts and for goods and services. They are used almost exclusively in transactions involving large payments and very widely in small payments, such as those from customers to retailers and salaries and wages to employees.

The popularity of checking deposits can be traced to their advantages: (1) They are not so liable to loss or theft as other types of money. (2) They can be transported very cheaply no matter how large the amount of the payment or how great the distance from payer to payee. (3) Checks can be written for the exact amount of the payment, thereby obviating the necessity of making change and counting bills and coins. (4) When endorsed by the payee, checks serve as a convenient receipt for payment. The principal disadvantage of checking deposits is that checks drawn on them may not be accepted from an unknown person, but this is largely remedied by such devices as certified checks, cashier's checks, and traveler's checks.

THE GENERAL ACCEPTABILITY OF MONEY

Though many countries, including the United States, have long used credit money and this credit money has often not been redeem-

able in gold, silver, or any other money with a substantial nonmonetary value, the feeling still persists in some quarters that pieces of money cannot be "good" or even generally acceptable unless they themselves have an equivalent value for nonmonetary purposes or are kept redeemable in other types of money which have an equivalent value for nonmonetary uses. At the risk of excessive repetition we must point out again that this view is erroneous. That token coins, paper money, and other circulating debts can be overissued—and on too many occasions have been—is undeniable. But if their issue is properly limited they can be given a scarcity value and can circulate at least as satisfactorily as any full-bodied money; in fact, with proper management their quantities can be adjusted to the needs of trade better than can the quantities of a gold or silver full-bodied money whose supply often reflects the capriciousness of gold or silver mining.

Money can have a value simply because it is limited in supply and is demanded for use as money. Barter, as we have seen, is inconvenient. To escape these inconveniences, people want some kind of "tokens" or "tickets" that can be used as means of payment. In determining whether or not to accept such tickets in payment of debt or for goods and services, each person is interested in only one question: "Can I pass them along to someone else in exchange and without loss of value for the things I want to buy?" He is interested in their acceptability as money, not in their usability for some other purpose. If their quantity is sufficiently restricted, pieces of paper, bits of clay, or many other things may become generally acceptable.

Such things may come into general monetary use in a group which has had no previous monetary experience. Let us imagine, for example, the Zanzabu tribe, whose chief is Fungo II. The members of the tribe have been trading among themselves, but only by means of crude barter. By democratic processes or by edict of the chief they establish a monetary system, using the pecunio as their monetary unit. The physical things used as money may be baked pieces of clay bearing the seal or other distinguishing mark of Fungo II and the notation "1 pecunio," "5 pecunios," or "10 pecunios." To assure limitation of "coinage" and to prevent the chief from converting the system to his own uses, a committee of elder statesmen may be appointed to supervise the "mint." Though they have no use for other

purposes, these imprinted pieces of clay may be readily accepted in trade by the tribal members who are happy to escape the clumsiness of barter. The acceptability of pecunios may be expedited somewhat by an edict declaring them to be acceptable in payment of taxes, or declaring them to be legal tender in payment of debts, or giving them both powers. No trouble need arise if the tokens are issued in proper amounts. After a while, however, Fungo II or the tradesmen may decide that the monetary system is inefficient; some of the able-bodied members of the tribe must spend their time imprinting and baking the pieces of clay, and the tokens are liable to theft and are heavy to transport in quantities. They may therefore decide that they will supplement the "coin" system with book credits. The tribal treasurer, or perhaps a reputable tradesman, will set up pecunio credits on his books, and these credits can be transferred by written order from one tribesman to another in payment. At first the tribesmen who receive claims against the treasurer or tradesman may demand that they be redeemed in "coin." Later, however, after they have become accustomed to the system they may make virtually all their payments by transferring book credits from payers to payees, using coins only in small transactions.

Though modern credit money systems could have arisen in the manner indicated above, they are actually the result of a long evolution which is still in process. "The longer history of money has shown an almost unbroken evolution from commonplace, concrete, and simple forms to the representative, incorporeal and abstract."[3] The general nature of this evolution was somewhat as follows. Let us start with the use of uncoined metals, such as copper, gold, and silver, as circulating media. These metals probably came to be widely acceptable in payment because they were widely desired for ornamental and religious purposes, they did not deteriorate, they were relatively easy to transport, and so on. At this stage money was not differentiated at all from the material of which it was made; the metal flowed freely into and out of monetary uses. The use of bullion as money had serious disadvantages, however. Precision weighing apparatus was not

[3] F. D. Graham and C. R. Whittlesey, *Golden Avalanche*, Princeton University Press, Princeton, 1939, p. 215.

widely available and assaying was both laborious and inaccurate. Coinage solved, at least in part, both of these problems. At first, coinage amounted merely to an official certification as to the purity and weight of the lump of metal. The imprint of the king's stamp meant in effect, "I hereby certify that this contains a certain weight of metal of a certain purity." The names of many monetary units—pounds, livres, lire, and shekels—which were originally units of weight attest to this fact.

Coinage was an important monetary innovation. In the first place, it greatly expanded the use of metallic substances as money. More important, however, it was a long step toward the differentiation of money from its component material. Not metal but *coined metal* became money. People gradually ceased to think in terms of the *weights* of metal; they thought in terms of the *number* of coins—not the weight of silver in a payment, but the number of shekels or lire. Debts and other contracts came to be stated in monetary units. This habit often persisted after the pure metallic content of the coins was reduced through abrasion, clipping, chipping, sweating, or deliberate action of the sovereign. When coinage was limited, the value of the coins as money often rose above the commodity value of their reduced metallic content; token coins appeared. Token coins also came into circulation at times as tokens redeemable in full-bodied money. After the group had become accustomed to using these tokens they continued to be acceptable whether or not they were redeemable in other money.

The use of representative paper money probably arose out of governments' desires to save the costs of coinage and of keeping coins in good condition as well as from the greater ease of transporting pieces of paper. The pieces of paper may have been acceptable at first largely because of confidence that they were fully "backed" and that they would be redeemed in full-bodied money on demand. But after attaining general acceptability they could retain their monetary use even though the right of redeemability was withdrawn. The same is true of circulating promissory notes, whether issued by a government or by a reputable bank or merchant. At first their acceptability probably rested largely on confidence that the issuer would pay them on

demand in other types of money. Then they continued to circulate after the promise to pay other types of money was rescinded and the pieces of paper bore only the legend "This is X dollars." We shall see later that the use of checking deposits evolved in this same general way. At first people may have been willing to accept and hold claims against banks only because they believed that their claims were fully "backed" by full-bodied money. But after the practice of accepting and holding claims against banks became solidly established, people continued to be willing to accept and hold these claims despite the knowledge that the banks held only very small amounts of coin and paper money.

At the present stage of monetary evolution there can be no doubt that people in the principal nations of the world are fully accustomed to the use of credit money and that by far the larger part of their payments is made by the transfer of bank deposits and paper money. Coins are typically the "small change" of economic systems, and full-bodied money has all but disappeared from general circulation.

THE MONEY SUPPLY OF THE UNITED STATES

We shall define the money supply of the United States at any time as the total of coin, currency, and demand (checking) deposits owned by the American "public," that is, by all individuals, business firms, and state and local governments.[4] Table 5 shows the composition of the money supply of the United States as of May, 1951.[5]

A study of this table brings out several important facts about our monetary system. (1) There is no full-bodied money in circulation, and the $39 million of representative full-bodied money (gold certificates) listed in the table have been lost, destroyed, or locked up in

[4] Coin, currency, and checking deposits owned by the federal government, the Federal Reserve and commercial banks, and foreigners are by this definition excluded from the money supply. This is partly to avoid difficulties of accounting and double-counting, and partly because these types of money seem to be less relevant to the rate of spending than is the money supply as defined in the text.

[5] For current data, see *Federal Reserve Bulletins*.

[6] See *Federal Reserve Bulletin*, July, 1951, pp. 828–830. The figures for coins and paper money show amounts outside the Treasury and the Federal Reserve banks. They therefore overstate the amounts in actual circulation by the quantities in commercial banks and other countries.

private hands, for they may not legally circulate. The entire money supply is in the form of credit money. Or, since credit is merely debt looked at from the reverse side, all the money is debt money; it is in the form of a liability or debt of the issuer. This is clearly true of demand deposits; they are merely debts or liabilities of the commercial banks. Likewise, Federal Reserve notes are merely debts or liabilities of the twelve Federal Reserve banks, and the various types of Treasury paper money are but debts or liabilities of the Treasury. The

TABLE 5. Kinds of Money in Circulation in the United States, May 31, 1951[6]
(In millions of dollars)

	Amount	Percent of Total
Full-bodied money	$ none	0.0
Representative full-bodied money (gold certificates)	39	0.1
Credit money issued by the Treasury		
Token coins	1,568	1.3
Representative token money (silver certificates)	2,096	1.8
Circulating promissory notes[a]	643	0.5
Credit money issued by Federal Reserve banks		
Circulating promissory notes (Federal Reserve notes)	23,173	19.8
Credit money issued by commercial banks		
Demand deposits subject to check	89,500	76.5
Total money supply	$117,019	100.0

[a] Includes U S notes (greenbacks) and national bank notes and Federal Reserve bank notes for which the Treasury has assumed liability.

token coins, which are stamped pieces of metal instead of stamped pieces of paper, are also debts or liabilities of the Treasury. We shall have many occasions to emphasize the fact that our money supply is made up entirely of debts or liabilities which have the monetary attribute of being generally acceptable in payment, and that the process of increasing and decreasing the money supply is a process of increasing and decreasing the quantities of these types of debts or liabilities outstanding. Moreover, these liabilities or debts are issued or withdrawn as the issuers purchase or sell assets of various types. They are created and issued to the public in exchange for assets acquired by the issuers, and they are withdrawn as the issuers sell assets.

(2) Ranked in order of size, the types of money are: checking deposits, paper money, and coins. Checking deposits make up more

than three-quarters of the money supply, and it is estimated that they are used to effect more than 90 percent of all money payments. Paper money represents about 22 percent of the total, and coins are indeed the "small change" of the system, constituting only 1.3 percent of the total. It should be noted that this distribution represents the choice of the holders, for the banks and the Treasury stand ready to exchange the various types of money for each other on a dollar-for-dollar basis.

(3) Ranked in order of size of their outstanding money issues, the issuers of money are: the commercial banks, the Federal Reserve banks, and the Treasury. The 14,000 commercial banks, which are privately owned and privately operated institutions, are the issuers and are liable for the type of debt which we call demand deposits and which make up more than three-quarters of the money supply. The Federal Reserve banks are the issuers and are liable for the debts called Federal Reserve notes, which make up about a fifth of the money supply. The Treasury itself issues less than 5 percent of the money in actual circulation. Thus, the Federal Reserve and commercial banks together supply us with more than 95 percent of our actual circulating medium. This fact alone explains why it is impossible to discuss money and banking separately.

(4) All types of circulating money in this country, except checking deposits, have full legal-tender powers. That is, they have the legal power to discharge debts; creditors may not insist on payment in any other type of money if the debt is stated in dollars. Though checking deposits are not themselves legal tender, the banks are obligated to redeem them on demand in legal-tender money. This lack of legal-tender power reduces the general acceptability of demand deposits only in periods when people doubt the banks' ability to redeem their debts.

NEAR-MONEY

It is now necessary to raise some questions concerning our definition of money, which included all coins, paper money, and checking deposits owned by American individuals, business firms, and state and local governments. There is little doubt that all these things should

be included in the money category. They are all perfectly "liquid"—that is, they remain at par in terms of the monetary unit at all times—and they are in fact generally acceptable at face value in payment of debts and for the purchase of goods and services. However, some economists believe that this definition is perhaps too narrow and that it excludes some other assets which have a high degree of "moneyness" and which at least to some extent perform monetary functions. They also believe that the rate of spending by the public is affected by their holdings of these other highly liquid assets almost to the same extent as by their holdings of money as we have defined it.

Time and savings deposits at commercial, mutual savings, and postal savings banks are in fact highly liquid. These are debts of the issuing institutions which usually are not legally payable on demand, as are checking deposits, but are legally payable only after the passage of a specified period of time. In practice, however, the banks in many cases waive this requirement and permit withdrawals on demand. In fact, therefore, these deposits are often perfectly liquid and have the attributes of money in serving as a store of value, with the added attraction that they usually bear interest. To a very limited extent they are even transferred by checks or other orders from payer to payee as a means of payment. This, however, is rather uncommon; in most cases a payer who wishes to surrender his time or savings deposit to make payments to others must first surrender it in exchange for some form of money as we have defined it, and then use this money to pay his bills.

There are other types of assets which remain so stable in terms of money that they may be considered to be "near-moneys." Short-term government securities (and sometimes even long-term securities) are cases in point. To the extent that their values are constant in terms of money they have the qualities of money as a store of value and can be converted into money for spending purposes without loss. But they are not themselves commonly used as a means of payment.

It is worth remembering that many types of assets have the quality of moneyness in varying degrees. Nevertheless, we shall for several reasons stand by our earlier definition of money. (1) Only coins, paper money, and checking deposits are in fact generally used as means of

payments. The other liquid assets, even those whose value in terms of money remains fixed, can ordinarily be employed as a means of payment only by being first converted into money as we have defined it. (2) From the point of view of monetary policy, it may at times be desirable to make more expensive the step of converting these other assets into money proper. For example, it may be desirable to force people to take losses if they try to convert government securities into money. (3) The rate of spending depends not only on the supply of money and other liquid assets, but also on other things, such as the people's total wealth, both liquid and illiquid, and their expectations as to future incomes and price levels. To include these other liquid assets in the money supply simply because they exert an influence on the rate of spending would raise questions as to why other determinants of the spending rate were not also included. (4) Since all assets possess the quality of moneyness in varying degrees any other definition would leave equally troublesome borderline cases.

For all these reasons we shall retain the earlier definition of money, though it will be well to remember that the dividing line between money and nonmoney is somewhat arbitrarily drawn.

SELECTED READINGS

Angell, N., *The Story of Money*, Stokes, New York, 1929.

Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, pp. 34–35. (See *Federal Reserve Bulletins* for current statistics on the money supply.)

Coulbourn, W. A. L., *Introduction to Money*, Longmans, Green, London, 1938.

Curry, L., *The Supply and Control of Money in the United States*, Harvard University Press, Cambridge, 1934.

Del Mar, A., *The Science of Money*, Bell, London, 1885.

Graham, F. D., and Whittlesey, C. R., *Golden Avalanche*, Princeton University Press, Princeton, 1939.

Helfferich, K., *Money*, Benn, London, 1927, 2 vols.

Robertson, D. H., *Money*, Harcourt, Brace, New York, 1929.

White, H., *Money and Banking*, Ginn, Boston, 1896.

CHAPTER 4

Direct Determinants of the Money Supply

INTRODUCTION

The purpose of this chapter is to outline the principal processes by which money is created and destroyed in our system, and to analyze the *direct* determinants of the money supply at any point of time and its fluctuations over periods of time. Later we shall analyze the factors behind these direct determinants.

In analyzing the processes of creating and destroying money, we shall build upon several facts developed in the preceding chapter. (1) The money supply is defined as the total amount of coins, paper money, and checking deposits owned by individuals, business firms, and state and local governments in the United States. We exclude holdings by the federal government, Federal Reserve and commercial banks, and foreigners, partly to avoid double-counting and partly because they seem less relevant to the rate of spending in this country.[1] (2) In this country there are three types of creators and issuers of this money: the United States Treasury, the Federal Reserve banks, and more than 14,000 privately owned and privately operated commercial banks. (3) All this money is "debt money"; it is made up of debt claims against the issuers—liabilities of the issuers which have the quality of being generally acceptable in payments. Checking deposits are debt liabilities of the commercial banks payable on demand to the

[1] However, the following analysis will be set up in such a way that the reader may, if he wishes, include in the money supply the money held by the Treasury and by foreigners, as well as time and savings deposits at commercial banks.

creditor (depositor) or to anyone to whom he orders payment. Federal Reserve notes are debt liabilities of the Federal Reserve banks. And Treasury currency, which includes all the paper money and token coins issued by the Treasury, is a debt liability of that institution. From the point of view of the holders, of course, these are considered "assets" in the form of debt claims against the debtor institutions. (4) The Treasury, the Federal Reserve, and the commercial banks create and issue these monetary debts in the process of purchasing assets, and they reduce the volume of monetary debts outstanding by selling assets. For example, they issue monetary debts in the form of checking deposits, paper money, or coins to pay for assets which they purchase. And they withdraw their monetary debt from the hands of the public by selling assets; those who purchase assets from these monetary authorities surrender an equal value of checking deposits, paper money, or coins. This fact—that money is created and issued by the Treasury, Federal Reserve, and commercial banks as they purchase assets, and that money is destroyed as they sell assets to the public—is the foundation of our analysis in this chapter.

THE MONETARY EQUATION

Because of this relationship between the supply of money outstanding and the volume of assets held by these three types of monetary institutions, we can approach our problem through a balance sheet analysis. More specifically, we shall use a consolidated balance sheet for the commercial banks, the Federal Reserve banks, and the monetary operations of the Treasury. Two aspects of this statement are worth emphasis. (1) The balance sheet will not include all the many aspects of Treasury operations; it will include only those related to the money supply function, which we shall call the monetary operations of the Treasury. (2) The consolidated balance sheet we are using is not simply a summation of the three separate sets of balance sheets; rather it is a consolidated balance sheet for these three groups of monetary institutions taken together and showing their collective position in relation to others.[2]

[2] Though it differs from them in several respects, the analysis in this chapter borrows very heavily from both of the following: Morris A. Copeland and

The fundamental balance sheet equation with which we shall start is the following:

(1) ASSETS = LIABILITIES + CAPITAL ACCOUNTS

The left side of the equation shows the total value of assets that have been acquired by these institutions and that, as of the date of the balance sheet, are owned by them. The right side of the equation shows the types and amounts of outstanding claims against the assets. The term "liabilities" indicates creditors' claims against total assets; these are the debt claims that have been issued and that are outstanding as of the date of the balance sheet. The item "capital accounts," or "net worth" as it is sometimes called, indicates the outstanding ownership claims against the assets. Since the owners have a claim against any part of the total assets not claimed by creditors, capital accounts or net worth is equal to total assets minus liabilities, and the sum of liabilities and capital accounts must equal total assets.

We find, then, that the asset side of the balance sheet equation for a stated point of time shows the total amount of assets that have been acquired and that are owned at that time, while the other side of the equation shows the types and amounts of claims that have been issued to acquire those assets. It follows that any net increase or net decrease in the total assets of these monetary institutions during a stated period must be balanced by an equal net increase or net decrease in their outstanding liabilities and ownership claims. To get a net increase in assets they must issue a correspondingly larger quantity of debt or ownership claims. And a net reduction of their assets must be accompanied by an equal retirement of debt or ownership claims by them.

For our purposes it is necessary to divide total liabilities into two categories: nonmonetary liabilities and monetary liabilities. In nonmonetary liabilities we include all those types of debt liabilities that are not money. They include such types of debt as time and savings deposits at commercial banks, deposit debts to foreigners, and U.S.

Daniel H. Brill, "Banking Assets and the Money Supply Since 1929," *Federal Reserve Bulletin*, January, 1948, pp. 24–32 (statistical tables based on this formulation appear monthly in the *Federal Reserve Bulletin*); Edward S. Shaw, *Money, Income, and Monetary Policy*, Richard D. Irwin, Chicago, 1950, chaps. 2, 3.

Treasury holdings of debt in the from of coin and paper money and deposits at Federal Reserve and commercial banks. By monetary liabilities we mean those debts that serve as money, that is, checking deposits and coin and currency outside the banks. We can now rewrite our fundamental equation as follows:

$$\begin{aligned}(2)\quad \text{Assets} = {} & \text{Monetary Liabilities} \\ & + \text{Nonmonetary Liabilities} \\ & + \text{Capital Accounts}\end{aligned}$$

This is the same as Equation 1 except that it makes the distinction, essential for our purposes, between the debt liabilities that serve as money and those that do not.

Transposing in the above equation we get the following:

$$(3)\quad \text{Monetary Liabilities} = \text{Assets} - \left\{\begin{matrix}\text{Nonmonetary} \\ \text{Liabilities} \\ + \\ \text{Capital} \\ \text{Accounts}\end{matrix}\right.$$

This is the equation which, with elaboration, we shall use in our analysis. It shows that the money supply (monetary liabilities) varies directly with the volume of assets and inversely with nonmonetary liabilities and capital accounts. The money supply tends to be increased by increases in the amounts of assets and by decreases in nonmonetary liabilities and capital accounts. On the other hand, the money supply tends to be decreased by decreases in assets and by increases in nonmonetary liabilities and capital accounts. This point will become clearer as we analyze the various components of the equation and describe their behavior. Table 6 shows these various components as of May, 1951.

Assets

As shown in Table 6, the assets in the consolidated balance sheet are as follows: (1) monetary gold stock, (2) Treasury currency, (3) Federal Reserve holdings of loans and securities, and (4) commercial bank holdings of loans and securities. Each of these will be analyzed in turn, and in every case it will be assumed that when an asset is acquired it is paid for by the issue of a monetary debt in the form of

coin, currency, or checking deposits, and that when an asset is sold it leads to the retirement of an equal amount of debt money. The cases in which nonmonetary debt or capital accounts are involved will be treated in the following section.

Though no gold coins or gold certificates are allowed to circulate, the Treasury buys and sells gold bullion, thereby issuing and retiring money. It buys, at a price of approximately $35 an ounce, all the gold

TABLE 6. Direct Determinants of the Money Supply, May 30, 1951[a]
(In billions of dollars)

ASSETS		
Monetary gold stock	$ 21.8	
Treasury currency	4.6	
Federal Reserve holdings of loans and securities	22.8	
Commercial bank holdings of loans and securities	125.1	
Total assets		$174.3
LESS: NONMONETARY LIABILITIES		
Foreign deposits, net	2.5	
Treasury holdings of cash and deposits	6.7	
Time deposits at commercial banks	36.3	
Total		$ 45.5
LESS: CAPITAL ACCOUNTS[a]		$ 14.4
EQUALS: MONETARY LIABILITIES		
Demand deposits	89.5	
Currency and coin outside banks	24.9	
Total		$114.4

[a] Also contains some miscellaneous liabilities and statistical discrepancy.

that is offered to it; the commercial and Federal Reserve banks act as its buying agents. How such gold purchases directly add to the money supply is indicated by the following example. Suppose that John Jones sells to a bank $100 million worth of newly mined, scrap, or imported gold. The bank will pay him for the gold by creating for him a $100-million "deposit," which is a form of debt money. We are not interested here in the process by which the Treasury pays the bank for the gold. What does interest us is the fact that when gold assets are purchased by the monetary system new money is created and issued. The purchase of gold assets by the monetary institutions requires the issuance of debt liabilities that serve as money.

[3] Derived from data in *Federal Reserve Bulletin*, July, 1951, pp. 819, 830, 831.

Though the Treasury freely buys gold, it will sell gold only for "legitimate" industrial, professional, and artistic uses, or for approved export. But when it does sell gold at the official price of approximately $35 an ounce, thereby reducing its gold assets, it tends directly to reduce the money supply. For example, suppose Jones wishes to export $35,000,000 worth of gold. He will write a check on his deposit account to pay for the gold, and when the check has been deducted from his account the money supply will be smaller by that amount.[4] The net decrease in the gold assets of the monetary institutions has been accompanied by an equal retirement of monetary liabilities, or debt money. Thus, money is created and issued to pay for purchases of gold assets, and it is withdrawn from circulation to pay for gold assets sold to the public. It is important to note that this is true even though the gold purchased by the Treasury is "locked up" in Fort Knox, and even though the gold that is sold is taken out of the Fort Knox vaults. In the very process of purchasing gold assets the Treasury causes monetary debts to be created, and in the process of selling gold the Treasury causes monetary debts to be retired.

By Treasury currency is meant all those types of token coins and paper money which are debt liabilities of the Treasury. It therefore includes all token coins, silver certificates, United States notes (greenbacks), and certain other small quantities of paper money for which the Treasury is liable. Some of this money is issued to pay for silver assets and some to pay for other assets, including securities, acquired by the Treasury.[5] But regardless of the type of assets purchased with it, an increase in outstanding Treasury currency tends directly to increase the public's money supply. And a decrease in Treasury currency outstanding tends directly to decrease the public's money supply.

[4] We shall not dwell here on the fact that this will also reduce bank reserves and Federal Reserve holdings of gold certificates by the same amount, and that there may also be indirect repercussions.

[5] Actually, this item "Treasury currency" comes from the liability side of the Treasury balance sheet. In this case it was necessary to put a type of money on the asset side because of the impossibility of isolating the specific assets which the Treasury purchased by the issue of Treasury currency. Most of the Treasury currency was issued to purchase silver, but some of it was issued to purchase various other types of assets.

An examination of Table 6 brings out the very important fact that by far the largest part of the assets in the consolidated balance sheet of the monetary institutions—$148 billion out of a total of $174.3 billion in May, 1951—was in the form of loans and security holdings by Federal Reserve and commercial banks. These assets are debts of others to these banks. They include debt claims against the federal government, state and local governments, foreign governments, corporations, unincorporated businesses, and individuals. When the banks buy these claims, they pay for them by issuing money to the sellers of the claims, and when they reduce their holdings of these assets they withdraw money from the purchasers of these claims and in most cases destroy it. For example, suppose the Federal Reserve buys from someone $10 million worth of government securities. To pay for them it will issue a check, which the receiver will deposit with his bank and for which he will receive an increase in his money supply.[6] In the process of purchasing assets in the form of debt claims against others the Federal Reserve has "monetized debt." It has paid for the debt claims against others by creating its own debt which serves as money. On the other hand, sales of securities by the Federal Reserve to the public require that someone decrease his money supply to pay for them. For example, if it sells $200 million of its assets in the form of government securities, the purchaser must surrender that amount of his money holdings in payment. In the process of decreasing its assets in the form of debt claims against others the Federal Reserve "demonetizes" debt. It withdraws monetary debt from those who purchase assets from it.

The commercial banks operate on a similar principle. They issue debt money to purchase assets in the form of debt claims against others, and they withdraw and destroy money formerly held by the public by selling assets in the form of debt claims against others. In

[6] The bank will, of course, get an increase in its deposit account at the Federal Reserve. Later we shall find that this may have further effects.

The reader who knows that many Federal Reserve loan and security transactions are with commercial banks, and not "the public," may want to note that these transactions with the banks have no *direct* effect on the public's money supply. This, however, is taken care of in the consolidated statement. For example, Federal Reserve purchases of securities from banks are offset by bank sales to the Federal Reserve, with no net *direct* effect on the public's money holdings.

some cases the assets acquired by banks are debt claims on those who borrow directly from the banks. In other cases they are debt claims such as bonds, mortgages, or promissory notes purchased from someone other than the original issuer. But in either case the bank pays for the acquired asset by issuing money to the seller, usually by creating a deposit debt to him. For example, suppose that someone sells to the commercial banks a debt claim against himself or someone else. The banks will pay him by adding to his deposit account. By this process the banks "monetize debt"; they create debt money in payment for assets in the form of debt claims against others.

On the other hand, commercial banks reduce the money supply by reducing their assets in the form of debt claims against others. This can occur as banks reduce their debt claims against their borrowing customers or as they sell to others some of their holdings of bonds, mortgages, or other debt claims. In either case, the purchaser of debt claims from the banks must surrender money in payment, and this usually takes the form of a reduction of bank deposits. For example, if you buy from the banks a debt claim against yourself or others you must surrender an equal amount of your deposit claims against the banks, and this is a reduction of the money supply. Later we shall emphasize the fact that commercial banks create and destroy money largely by this process of increasing and decreasing their assets in the form of debt claims against others, and that this process directly accounts for a major part of the fluctuations in the money supply.

In summary, we find that the assets in the consolidated balance sheet for the three monetary institutions—the Treasury, the Federal Reserve, and the commercial banks—are of three principal types: (1) monetary gold stock, (2) Treasury currency outstanding, and (3) Federal Reserve and commercial bank holdings of debt claims against others. In purchasing these assets, the monetary institutions tend to issue debt money to the public, and in selling these assets they tend to withdraw and destroy money formerly held by the public.

Nonmonetary Liabilities and Capital Accounts

As we saw earlier, the size of the money supply depends not only on the total assets of the Treasury and the Federal Reserve and com-

mercial banks, but also on the volume of their nonmonetary liabilities and capital accounts. Table 6 shows that the nonmonetary liabilities in the consolidated balance sheet are made up of the following items: (1) foreign deposit claims, (2) Treasury holdings of cash and deposits at the Federal Reserve and commercial banks, and (3) time deposit liabilities of commercial banks. As indicated earlier, the item "capital accounts" represents ownership claims against total assets. All these claims have these points in common: (1) They are not money, as are monetary liabilities; (2) they are alternatives to and compete with monetary liabilities as claims against assets; and (3) when considered by themselves, increases or decreases in these claims tend to produce opposite variations in the amount of monetary liabilities outstanding.

The issuance of nonmonetary liabilities and ownership claims is an alternative to the issuance of monetary liabilities as a method of acquiring assets. For example, assets acquired by issuing claims in the form of deposit debts to foreigners, debts to the Treasury, time deposit debts, or ownership claims need not be paid for by the issuance of monetary debts. On the other hand, reductions of assets matched by reductions of outstanding nonmonetary liabilities and ownership claims do not reduce the volume of outstanding monetary debt. No reduction of the outstanding money supply results if reductions of assets are matched by the extinguishment of other claims in the form of foreign deposit claims, time deposit claims, Treasury claims, or ownership claims.

Moreover, it is important to note that changes in the volume of monetary liabilities can and do occur through the exchange of monetary liabilities on the one hand for nonmonetary liabilities and ownership claims on the other. Monetary liabilities can be increased by being issued in exchange for the relinquishment of nonmonetary liabilities or ownership claims. And outstanding monetary liabilities can be decreased by being relinquished in exchange for nonmonetary liabilities or ownership claims. Take first the case of foreign demand deposits and government demand deposits, which we have put in the category of nonmonetary liabilities. If foreigners and the government decrease their claims by transferring their demand deposit claims to the American public, the money supply tends to be increased. But if

the American public transfers some of its monetary claims to foreigners or to the government, the money supply tends to be decreased. The same principle applies to time deposits and capital accounts or ownership claims. If the public surrenders some of its monetary claims in exchange for time deposit or ownership claims, the money supply tends to be decreased. But if the public reduces its holdings of claims in the form of time deposits and ownership claims and takes monetary claims in exchange, the money supply tends to be increased.

SUMMARY

We can now draw together our findings up to this point. The amount of monetary liabilities outstanding at any time (demand deposits plus coin and currency outside banks) is equal to total assets as shown in the consolidated balance sheet for the Federal Reserve banks, the commercial banks, and the monetary operations of the Treasury, minus nonmonetary liabilities and capital accounts as shown in that balance sheet. We can state this in the form of an expanded equation.

(4)	Monetary Liabilities	=	Assets	− Nonmonetary Liabilities
	Checking deposits		Monetary gold stock	Foreign deposits
	+		+	+
	Currency outside banks		Treasury currency	Time deposits
			+	+
			Federal Reserve holdings of loans and securities	Treasury holdings of cash and deposits
			+	+
			Commercial bank holdings of loans and securities	Capital Accounts

Moreover, during a period of time the money supply is increased by increases in assets and by decreases in nonmonetary liabilities and capital accounts. It is decreased by decreases in assets and by increases in nonmonetary liabilities and capital accounts. The various ex-

pansionary and contractionary factors are summarized in the following list:

Factors Tending to Expand the Money Supply	Factors Tending to Contract the Money Supply
INCREASES OF ASSETS	DECREASES OF ASSETS
1. Increase of the monetary gold stock	1. Decrease of the monetary gold stock
2. Increase of Treasury currency outstanding	2. Decrease of Treasury currency outstanding
3. Increase of Federal Reserve holdings of loans and securities	3. Decrease of Federal Reserve holdings of loans and securities
4. Increase of commercial bank holdings of loans and securities	4. Decrease of commercial bank holdings of loans and securities
DECREASES OF NONMONETARY LIABILITIES	INCREASES OF NONMONETARY LIABILITIES
5. Decrease of foreign deposits	5. Increase of foreign deposits
6. Decrease of Treasury holdings of cash and deposits	6. Increase of Treasury holdings of cash and deposits
7. Decrease of time deposits	7. Increase of time deposits
DECREASE OF CAPITAL ACCOUNTS	INCREASE OF CAPITAL ACCOUNTS

BEHAVIOR OF THE DIRECT DETERMINANTS OF THE MONEY SUPPLY IN THE UNITED STATES

Having described the various direct determinants of the money supply and analyzed the direction of their influences, we shall now study their behavior during recent decades in order to compare their relative magnitudes, their relative variability, and their relative importance as direct influences on the size of the money supply. A close study of Table 7 will be useful for these purposes. The data for 1929 show the situation toward the end of the prosperous 1920's. Those for 1933 relate to the bottom of the great depression. Those for 1939 show conditions after partial economic recovery and before the beginning of the defense and war program. Those for 1945 reflect changes during World War II, and those for 1951 reflect postwar changes up to that time.

One is immediately struck by the wide fluctuations in the money

supply during this period. From mid-1929 to mid-1933, the money supply declined from $26.1 billion to $19.2 billion, for a drop of 26 per cent. From that time to the end of 1939 it rose 89 percent. During the defense and war period between the end of 1939 and the end of 1945, it rose $66.2 billion, or 183 percent. From that time to the end

TABLE 7 Direct Determinants of the Money Supply[7]
(In billions of dollars)

	June 29, 1929	June 30, 1933	Dec. 30, 1939	Dec. 31, 1945	May 30, 1951
ASSETS					
Monetary gold stock	$ 4.0	$ 4.0	$17.6	$20.1	$ 21.8
Treasury currency	2.0	2.3	3.0	4.3	4.6
Federal Reserve holdings of loans and securities	1.3	2.2	2.5	24.4	22.8
Commercial bank holdings of loans and securities	49.2	30.4	40.7	124.0	125.1
Total	$56.5	$38.9	$63.8	$172.8	$174.3
LESS: NONMONETARY LIABILITIES					
Foreign deposits, net	0.4	0.1	1.2	2.1	2.5
Treasury holdings of cash and deposits	0.6	1.1	3.9	27.9	6.7
Time deposits at commercial banks	19.6	10.8	15.3	30.1	36.3
Total	$20.6	$12.0	$20.4	$ 60.1	$ 45.5
LESS CAPITAL ACCOUNTS	9.8	7.7	7.2	10.3	14.5
EQUALS: MONETARY LIABILITIES					
Demand deposits	22.5	14.4	29.8	75.9	89.5
Currency and coin outside banks	3.6	4.8	6.4	26.5	24.9
Total	$26.1	$19.2	$36.2	$102.4	$114.4

of May, 1951 it rose another $12 billion, or 12 percent. Thus, at the end of May, 1951, the money supply was 3.2 times as large as at the end of 1939, 6 times as large as at the bottom of the great depression, and 4.4 times as large as in mid-1929.

The table also indicates the relative importance of the various direct determinants in producing these fluctuations in the money supply. Capital accounts and foreign deposits have fluctuated within

[7] Derived from data in *Federal Reserve Bulletins*.

a relatively narrow range and have not been a major influence. Fluctuations of Treasury holdings of cash and deposits have at times been a significant factor. During the period from the end of 1939 to the end of 1945, the $24-billion increase of these Treasury holdings was a factor offsetting in small part the rise in assets, thereby tending to hold down the rise of the money supply. And in the postwar period the $20-billion decrease in this item, as the Treasury paid out the money, was a factor tending to increase the money supply.[8] Fluctuations in time deposits have also been a significant factor.

On the asset side, Treasury currency has grown fairly steadily but not by large amounts since 1933, largely because of Treasury purchases of silver. Fluctuations in the monetary gold stock have been a more important direct factor. The big rise of the monetary gold stock between 1933 and 1939 reflects partly the increase in the official price of gold from $20.67 to $35 an ounce in 1934, and partly the increase in the physical stock of monetary gold. This was due largely to net gold imports, though purchases of newly mined domestic gold and of gold scrap were of some importance. The changes in other periods are due entirely to changes in the physical stock of monetary gold. Fluctuations in the volume of Federal Reserve loans and security holdings, reflecting mainly Federal Reserve holdings of United States government securities, have also had a considerable direct influence, and we shall see later that their indirect influence has been even greater.

But by far the most important single direct determinant of the money supply, both in total size and in breadth of fluctuations, has been commercial bank holdings of loans and securities. These did not comprise less than 63.8 percent of the total assets in the consolidated statement on any of the dates in Table 8, and on most dates they were an even larger part of the total. Moreover, as indicated in Table 9, fluctuations in commercial bank loans and security holdings have accounted for the major part of the fluctuations in both total assets and the money supply during these periods, which were not unusual in this respect.

[8] To a considerable extent, however, these outpayments were used to retire debt held by the Federal Reserve and commercial banks, so that their net direct effects on the money supply were small.

TABLE 8. Commercial Bank Loans and Security Holdings and the Total Assets of the Monetary System

Date	Total Assets in Consolidated Statement (In billions)	Commercial Bank Holdings of Loans and Securities (In billions)	Commercial Bank Holdings of Loans and Securities as Percentage of Total Assets
June 29, 1929	$ 56.5	$ 49.2	87.1
June 30, 1933	38.9	30.4	78.1
December 30, 1939	63.8	40.7	63.8
December 31, 1945	172.8	124.0	71.8
May 30, 1951	174.3	125.1	71.8

TABLE 9. Changes in Commercial Bank Holdings of Loans and Securities, in Total Assets in the Consolidated Statement, and in the Total Money Supply During Selected Periods

Period	Change in Commercial Bank Loans and Security Holdings (In billions)	Change in Total Assets in Consolidated Statement (In billions)	Change in Money Supply (In billions)	Change in Commercial Bank Loans and Security Holdings as a Percentage of Change in Total Assets	Change in Commercial Bank Loans and Security Holdings as a Percentage of Change in Money Supply
June, 1929–June, 1933	$−18.8	$−17.6	$− 6.9	106.8	272.4
June, 1933–Dec., 1939	+10.3	+24.9	+17.0	41.4	60.6
Dec., 1939–Dec., 1945	+83.3	+109.0	+66.2	76.4	125.8
Dec., 1945–May, 1951	+ 1.1	+ 1.5	+12.0	73.3	9.1

These statistics bear out our earlier statement that the 14,000 privately owned and privately operated banks are the nation's principal creators and destroyers of money through their activities in buying and selling assets in the form of debt claims against others, and that through these processes they are directly responsible for a major part of the fluctuations in the money supply. Also, since they create and destroy money through the process of increasing and decreasing their loans outstanding and purchasing and selling other debt claims,

the commercial banks are an important factor in determining the availability and cost of loanable funds for private investment, private consumption, and government use. It is largely for these reasons that commercial banks merit so much attention from anyone who wants to understand the operation of the economic system.

A NOTE OF CAUTION

In order to avoid the danger of mistaken emphasis, and even of misunderstanding, it is necessary to emphasize that this chapter has dealt only with what we have called the *direct* determinants of the money supply—the various processes and operations which *directly* account for the behavior of the supply of money. In such a discussion, emphasis properly falls upon the operations of the commercial banks, though this should not be allowed to minimize the direct effects of the other elements in the monetary equation. To provide a broader perspective on the overall problem it is necessary to make two points. (1) These *direct* determinants are not by any means the ultimate determinants of the money supply. To get a basic understanding we must go behind the various direct determinants and analyze the factors that make them behave as they do. For example, we must analyze the reasons for the behavior of the monetary gold stock and of commercial bank assets in the form of debt claims against others. (2) Some of the items in the equation also have *indirect* effects on the money supply that are at least as important as their *direct* effects, and in some cases far more important. This is especially true of the monetary gold stock, Treasury currency, Federal Reserve holdings of loans and securities, and Treasury holdings of cash and deposits at the Federal Reserve banks. These items exert their indirect influences on the money supply largely through their effect on the amount of loans and securities that the commercial banks are able and willing to acquire and hold.

American commercial banks are legally required to hold reserves equal to at least certain stated percentages of their deposit liabilities. These minimum reserve requirements against checking deposits have recently averaged around 20 percent, though they have been changed

from time to time. Thus the ability of the commercial banks to expand their loans and security holdings, which increase the amount of their deposit liabilities, depends on the height of their legal reserve requirements and on the dollar volume of reserves available to them. Changes in the monetary gold stock, Treasury currency, and Federal Reserve holdings of loans and securities exert their indirect effects on the money supply largely through their influence on the volume of reserves available to the commercial banks as a basis for the creation of deposit liabilities.[9] When the Federal Reserve and the Treasury issue additional money to pay for increased assets in the form of monetary gold stock, Treasury currency, and Federal Reserve holdings of loans and securities, this not only adds directly to the public's money supply but also swells the dollar volume of commercial bank reserves. This puts the commercial banks in a position to expand their loans and security holdings, and hence their deposits, by a multiple of the increase in their reserves. On the other hand, when the Treasury and the Federal Reserve draw in money by decreasing their holdings of assets in these forms, the total effects include not only a direct decrease of the public's money supply but also a corresponding decrease in the volume of commercial bank reserves. Because of this loss of reserves, the commercial banks may be forced to decrease their deposits by a multiple amount, and they do this by reducing their loans and security holdings.

Thus changes in the monetary gold stock, Treasury currency, and Federal Reserve holdings of loans and securities may have indirect effects on the money supply that are far greater than their direct effects, and these indirect influences operate largely through changes in the dollar volume of commercial bank reserves which alter the amount of loans and securities that the commercial banks are willing and able to acquire and hold. In fact, we shall see later that it is largely through some of these items, especially Federal Reserve loans and security holdings, that the Federal Reserve and the Treasury

[9] Since it will be discussed fully at a later point and is not essential to the general argument here, we shall not now discuss the indirect effects of changes in the Treasury balance.

regulate the money-creating and money-destroying operations of the privately owned and privately operated commercial banks.

SUMMARY

This chapter and the one that preceded it have brought out several facts of key importance in understanding the operation of the American monetary system, which is not markedly unlike other modern monetary systems. (1) All our money is in the form of debt, and this circulating debt is in the form of demand deposit liabilities of commercial banks, paper money, and token coins. The processes of increasing and decreasing the money supply are therefore processes of creating and destroying these debts, which have the common attribute of being generally acceptable in payment. (2) The three types of debtors who issue these types of debt money are commercial banks, Federal Reserve banks, and the Treasury. (3) These institutions create and destroy debt money by purchasing and selling assets. They create and issue money to acquire assets, and they retire and destroy money by selling assets. However, in explaining the size of the money supply at any time and its fluctuations through time one must also take into account the nonmonetary liabilities and capital accounts of these institutions, for these nonmonetary claims are alternatives to monetary claims. (4) By far the largest part of the assets of these institutions is in the form of debt claims against others. Purchases and sales of assets in the form of gold are important, and Treasury currency is sometimes issued in acquiring silver and other assets. But holdings of the debts of others account for the major part of these institutions' assets at any time and for a major part of their fluctuations through time. Thus, to a great extent the process of creating and destroying debt money is a process of "monetizing" and "demonetizing" government and private debts by these institutions. (5) This chapter has confined itself largely to a discussion of the *direct* determinants of the money supply. In this context it is proper to emphasize the great role of the commercial banks in creating and destroying money as they increase and decrease their assets in the form of loans

and securities. But it should be borne in mind that these banks operate under legal reserve requirements, and that the volume of money they can create is greatly affected by the volume of reserves at their disposal. The size of the monetary gold stock, Treasury currency, and Federal Reserve holdings of loans and securities is therefore significant not only because of its direct effects on the money supply but also, and more importantly, because of its effects on the volume of commercial bank reserves.

This chapter may be considered as a sort of framework which indicates in broad terms the various types of factors that directly determine the money supply. Our task in many of the following chapters will be to build on this framework, to explain why the various relevant factors behave as they do, and to show their relationships to each other. As a first step in this process we shall explore the field of monetary standards.

SELECTED READINGS

Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, January, 1948. (For up-to-date statistics, see current *Federal Reserve Bulletins*.)

Shaw, Edward S., *Money, Income, and Monetary Policy*, Richard D. Irwin, Chicago, 1950, chaps. 2, 3.

CHAPTER 5

Monetary Standards: General Principles

The two preceding chapters described the types of money that serve as actual circulating media in the United States, outlined the processes by which this money is created and destroyed, and analyzed the various direct determinants of the supply of circulating media. This chapter, as well as the three that follow, will investigate *monetary standards* and explore their relationships with the other types of money in the system. The present chapter will describe the various types of monetary standards and outline their main principles. The following three chapters will explore American monetary history and recent history in other countries to show how some of these standards have operated in practice.

Monetary standards have been the most controversial subject in the entire field of money. What kind of monetary standard should a country have—gold, silver, bimetallic, or inconvertible paper? Almost every country has debated this question at least once, and the United States has debated it bitterly several times. Early in the nineteenth century the issue was whether the standard should be gold or silver, or both gold and silver. Later, after the monometallic silver standard had lost some of its prestige, the debate was between the advocates of gold and of bimetallic standards. Gold won this contest and was virtually undisputed as the international monetary standard from the late nineteenth century until World War I. Almost every nation abandoned gold during that war and entered the postwar period with inconvertible paper standards. Since 1918 the contro-

versies over monetary standards have been many-faceted and almost continuous. Is some form of gold standard superior to a managed inconvertible paper standard? If gold is used as a standard, what should its form be? What should be the gold value of the monetary unit? Should the standard be largely automatic or deliberately managed? Who should manage it? These are but a few of the burning issues.

To attempt at this point to give precise definitions of the terms used in these controversies would be misleading. We can properly say that standard money is the basic monetary unit in terms of which the unit of value is stated and to which the values of other kinds of money in the system are equated. Thus, if the unit of value (the dollar) is defined as a fixed amount of gold or is otherwise kept constant in terms of gold, the gold monetary unit is the standard money of the system. Monetary standards take their names from the type of standard money employed. If its standard money is gold, we say that a country is on a gold standard. If the standard money is silver, the country is on a silver standard. If the standard money is defined in terms of both gold and silver the country is on a bimetallic standard. If the standard money is not kept constant in terms of any metal, the country is usually said to be on an inconvertible paper money standard. But it is essential to remember that these broad terms are in the nature of general descriptions rather than precise definitions; they are the names of general categories, each of which includes a large number of individual cases that differ widely as to both form and functioning. For example, it is almost meaningless to speak of *the* gold standard; there have been whole families of gold standards, many of whose members bear only faint family resemblances to the others. The following discussion will attempt to outline the most important points of similarity and dissimilarity in the various systems.

GOLD STANDARDS

The distinguishing characteristic of a gold standard is, as we have seen, that the basic monetary unit (the dollar, franc, or pound) is in some sense kept at a constant value in terms of gold. Beyond this

general characteristic, gold standards have displayed wide differences in both form and functioning. In the following sections we shall classify gold standards on three bases: (1) On the basis of the form of gold in which the circulating moneys of a nation are redeemable. On this basis there are gold-coin, gold-bullion, and gold-exchange standards. (2) On the basis of the degree of deliberate monetary management employed. We shall find that gold standards range all the way from those that are largely automatic to those that are highly managed by central banks or other governmental agencies. (3) On the basis of the extent of their geographical coverage. During some periods virtually all important countries maintained gold standards; at other times only one or a few countries have been on gold. We must again emphasize, however, that even these various classifications fail to indicate the variety of monetary arrangements that have existed under "gold standards."

Gold-Coin Standards

Gold-coin standards are often called the "old type of gold standard," because most of the early gold standard systems were of this sort. They are also called "the gold circulation system," for gold coins were freely issued and actually available for circulation. The distinguishing characteristic of this type of system is that the monetary unit is defined in terms of gold, full-bodied gold coins are issued, and all kinds of money are kept at parity in terms of gold and gold coins.

To maintain the monetary unit and all other types of money constant in terms of gold, the following things must, in effect, be done:

1. Define the gold value of the monetary unit.
2. Provide for the unlimited coinage of gold at virtually no cost to the suppliers of the metal.
3. Permit the free and unlimited melting of gold coin.
4. Provide for the free interconvertibility of gold money and all other types of money at parity.
5. Allow free import and free export of gold.[1]

[1] Some writers list a sixth requirement—that gold be given unlimited legal-tender powers. Though this provision is found in most gold standard systems, it is easy to see how gold may become generally acceptable in payment of debts because of convenience and custom rather than legal compulsion.

The purpose of each of these steps should be noted carefully. The first step is to define the gold value of the monetary unit. For example, for some years prior to 1933 our dollar was defined as 23.22 grains of fine gold.[2] The provision for the unlimited coinage of gold at virtually no cost to the supplier is necessary to prevent the value of the dollar from rising above the value of gold as a commodity—to prevent the price of gold from falling. This is simply one way of providing for an unlimited purchase of gold at a fixed price, payment being made with the new gold coins. For instance, when our government would coin gold in unlimited amounts at a rate of one dollar for every 23.22 grains, this was the same as providing for an unlimited purchase of gold at $20.67 an ounce, for from each ounce—480 grains—could be coined 20.67 dollars of 23.22 grains each.[3] The third provision—for the free and unlimited melting of gold coins—prevents the dollar from appreciating in terms of gold; that is, it prevents the market price of gold from rising above the mint price. This is simply a way of providing for the unlimited "sale" of gold out of monetary uses into other purposes. The price of gold in commodity markets for all purposes—hoarding, industrial use, export, and so on—cannot rise above the cost of acquiring gold by melting down full-bodied gold coins.[4] If, however, gold coins cannot be so converted or if they are not available in sufficient quantity to meet total demand, the market price of gold can rise and the value of the monetary unit can fall in terms of gold.

It will be noted that the combined effect of the first three steps is to fix the value of the monetary unit in terms of gold. For example, the free and unlimited coinage provision prevented the gold dollar from rising in terms of gold (prevented the price of gold from falling), and the provision for unlimited melting of gold coins prevented the dollar from depreciating in terms of gold as long as coins were available for melting (prevented the price of gold from rising).

[2] Actually it was defined as 25.8 grains of gold $\frac{9}{10}$ fine and $\frac{1}{10}$ alloy, but the value of the alloy was negligible.

[3] See the discussion of full-bodied money on pp. 51–55.

[4] The market price of gold can, of course, rise above this level if, through a process of clipping, sweating, or normal abrasion, the gold coins available for melting are less than full weight.

The purpose of the fourth provision—free interconvertibility of gold money and all other types of money on a dollar-for-dollar basis—is to equalize the value of all types of money in terms of each other. It should be emphasized that the use of a gold-coin standard does not mean that gold coin is the only circulating medium. In some cases gold coin did make up a significant part of the means of payments, but more often and especially in the later years, the great bulk of the circulating medium was in the form of token coins, circulating promissory notes, and checking deposits. For example, at the end of 1930 when this country was on a full gold-coin standard and people were free to demand gold coin for circulation, hoarding, or any other purpose, our circulating money was made up as follows:

		Percent of Total
Gold coin	$ 81,000,000	0.3
Other coin and paper money	3,524,000,000	14.3
Checking deposits	20,967,000,000	85.4
Total circulating media	$24,572,000,000	100.0

To insure that other types of coin and its own issues of paper money would not depreciate in terms of gold, the government usually stood ready to convert them into gold or gold money on a dollar-for-dollar basis. Though the government did not itself provide convertibility of bank notes and checking deposits into gold or gold money, the banks generally were ready to redeem these claims against them in either gold money or other government money which was freely convertible into gold. When these other types of money could not be freely converted into gold money, they sometimes depreciated in terms of it. On the other hand, any refusal to convert gold money into other types of money made it possible for the latter to appreciate in terms of gold.

The purpose of the fifth provision—allowance of free import and free export of gold—is to equalize the price of gold within the country with the price of gold abroad. If the free import of gold were not allowed, the price of gold within the country could rise in terms of foreign gold. If free gold exports were not allowed, the price of gold within the country could fall below that abroad; the value of the dollar could decline in terms of foreign gold.

These are the general principles of gold-coin standards. A few of the principal characteristics of this type of standard should be noted. (1) Some part of the actual circulating medium was made up of full-bodied gold coins. But in most cases, especially after the middle of the nineteenth century, these comprised only a small part of the total circulating medium; people preferred to use other types of money in most of their transactions. (2) Since the availability of gold coins made gold available at a fixed price in any amount demanded

TABLE 10. The Monetary Gold Stock and the Circulating Media of the United States, 1925–1932

End of Year	Monetary Gold Stock (In millions of dollars)	Circulating Media (In millions of dollars)	Monetary Gold Stock as Percentage of Total Circulating Media	Number of Dollars of Circulating Media for Each Dollar of Gold
1925	$4110	$26,059	15.8	$6.33
1926	4194	25,548	16.4	6.10
1927	4129	26,430	15.6	6.41
1928	3855	26,674	14.4	6.94
1929	4037	26,366	15.3	6.54
1930	4296	24,572	17.5	5.71
1931	4163	21,882	19.0	5.26
1932	4142	20,397	20.3	4.93

and for all purposes, there could not be "black markets" in which the market price of gold rose above the mint price; the monetary unit could not depreciate in terms of gold so long as gold coins were in fact freely available. (3) The amount of other types of money—token coins, paper money, and checking deposits—which were supposed to be kept freely convertible into gold was several times as great as the country's monetary gold stock. For example, Table 10 shows that during the latter years of the gold-coin standard in this country—and somewhat the same conditions prevailed earlier—our total circulating media were between five and seven times as great as our monetary gold supply. Promises to keep all moneys redeemable in gold could therefore be kept only so long as there was no widespread demand for redemption. This fact helps to explain why there could be recurrent

"gold runs" and "gold crises" which sometimes ended in other types of money becoming irredeemable in gold.

Gold-Bullion Standards

Gold-coin standards all but disappeared after World War I. The United States was the only major country that maintained a gold-coin standard in the 1920's, and even it shifted to a type of gold-bullion standard in 1934. We shall now examine gold-bullion standards, looking first at what may be called a "full gold-bullion standard."

The principal differences between this and a gold-coin standard are the following: (1) The coinage of gold is discontinued and gold coins no longer circulate. Gold is still purchased by the government or central bank in unlimited amounts and at a fixed price, thereby preventing the monetary unit from appreciating in terms of gold; but it is held in government or central bank vaults and payment to the sellers of gold is made in other types of money, such as government or central bank notes, deposit credits at the central bank, or deposits at other banks. (2) Other types of money are no longer convertible into gold or gold coin at the option of their holders in any amount requested; gold is sold for money only in the form of bars of a certain minimum weight. For example, the smallest bar that could be bought from the government under Great Britain's gold-bullion standard of the 1920's was worth about $7585. French peasants bitterly christened their own gold standard of this type "the rich man's standard." These gold bars were usually sold freely, however, whether they were to be used for hoarding, industry, or export.

The gold-bullion standards were usually adopted to "economize" gold. The countries wanted some sort of gold standard, but feared that the circulation of gold coins or the unlimited redeemability of money in gold would lead to such a drain of the metal from the government and the central bank as to endanger their ability to provide gold for foreign payments, or would reduce their reserves so seriously as to bring about undesired reductions in the total money supply.

Even the "full gold-bullion standards" embodied marked changes

from the old gold-coin standards. The circulation no longer included gold coins; the closest that gold came to circulation was as "backing," often in a vague sense, for money. Other moneys were convertible into gold no longer in small amounts, but only in large amounts; and even in these cases the gold received was not in the form of money. But perhaps most important of all, the concentration of gold in the hands of central banks and governments, together with the reduced responsibility for redeeming other types of money in gold, gave monetary authorities much more leeway in monetary management. The gold holdings of the monetary authorities were increased, the discontinuance of coinage and the increase of the minimum amount of gold that would be sold reduced somewhat the danger of gold withdrawals, and the need for gold relative to the total money supply was decreased.

From the "full gold-bullion standards" discussed above, it was but a short step to what we may call "limited gold-bullion standards." Under the "full gold-bullion standard" the monetary authorities sold the large gold bars for all purposes. But this often led to unwanted results. People would buy gold for hoarding at home or for export, hoping to reap a speculative gain, or at least avoid a loss, if the nation's money depreciated in terms of gold. This led to undesired drains of gold from government and central bank reserves, and tended to force decreases in the money supply and in the availability of credit. To escape these results, the monetary authorities placed still further limitations upon the purposes for which gold would be sold, and even went so far as to forbid anyone to buy or hold gold for any but "legitimate" purposes. For example, in the United States, and in most other countries as well, no one may legally deal in gold or hold gold except in accordance with government regulations, and these prohibit gold hoarding. Such limitations on the redeemability of money in gold can cause a gold standard to operate in a manner quite different from that under a gold-coin standard. (1) Since gold can be purchased from the government at the official price only for "legitimate purposes," often strictly defined, black markets can arise in which people whose demands for gold are not met by the government may pay prices that are above the official price. (2) The in-

creased concentration of gold in government and central bank reserves, as well as the reduced responsibility for redeeming money in gold, has the effect both of increasing the amount of money that can be supported by a given gold supply and of giving the monetary authorities still more leeway in their monetary management.

Countries have also placed limitations on their sale of gold for export. When this is carried so far as to permit the nation's money to depreciate in terms of gold held abroad and in terms of foreign gold moneys it is doubtful that the system should be called a gold standard.

Gold-Exchange Standards

The term "gold-exchange standards" covers a wide variety of monetary arrangements. In general, however, it refers to a system in which a country's money is not kept redeemable directly in gold but is redeemable in terms of some foreign currency which in turn is fixed in gold, and in which the country's "gold reserve" is not in the form of gold itself but rather in the form of claims against foreign gold moneys. For example, the monetary unit of the Philippines was for a long time the peso, and the actual circulating medium was composed largely of silver coins, paper money, and checking deposits; few if any gold coins were in circulation. The government did not undertake to redeem pesos directly in gold, but it did for some time redeem them in United States dollars, which at that time had a gold value of 23.22 grains. For this purpose it held not gold but claims against dollars, mostly deposits in American banks. It then stabilized the peso-dollar ratio, and indirectly the peso-gold ratio, by selling dollars for pesos whenever the peso tended to depreciate in terms of dollars, and by buying dollars with pesos whenever the peso tended to rise in terms of dollars.

Several members of the British Empire, and certain other countries as well, have had a similar system in relation to the British pound sterling. They held deposit balances in London, and kept their own monetary units at a constant value in terms of the British pound by selling pounds for their own money as they tended to rise and buying pounds as they tended to fall. Even during the period when British

pounds were not fixed in terms of gold, many countries continued to hold balances in London and to buy and sell pounds in such a way as to stabilize exchange rates between their own money and the pound.

Several aspects of gold-exchange standards are worth comment. (1) They are a means of stabilizing a nation's money in terms of other gold monetary units without the necessity of holding actual gold reserves. (2) Looked at from the point of view of the world as a whole, they are a means of "economizing gold"; that is, they are a means of permitting a given world monetary gold stock to support a larger total money supply than would be possible if every country counted as its "gold reserve" only its own holdings of actual gold. This occurs because of what is known as gold "pyramiding." The country which holds the actual gold counts it as "gold reserves," and the countries holding claims against it count these claims as "gold reserves" or their full equivalent. (3) Gold-exchange standards have certain dangers for the countries that hold their reserves in the form of balances in another country, for the countries in which the balances are held, and for the world at large. This is especially true in the absence of thoroughgoing international coöperation. For the countries owning the foreign balances, the danger is that the country in which they are held will be unable to redeem them in gold, or for other reasons will refuse to do so, and perhaps even freeze them. The countries owning the balances may therefore suffer a loss in the gold value of their foreign reserves, and may even be prevented from using them. For the country in which the foreign balances are held, the danger is that the other countries, fearing a depreciation of its money or wishing to exert "economic pressure" for other reasons, may rush to demand gold for their balances, thereby endangering the nation's ability to continue redeeming its money in gold and exerting strong deflationary pressure on its economy. This is known as "depyramiding of gold." For the world as a whole, the danger is that alternations between pyramiding and depyramiding will be a destabilizing influence. A tendency toward pyramiding exerts an expansionary effect on the world's money supply. Depyramiding, on the other hand, tends to be contractionary, for the country losing gold

suffers a reduction of its gold reserves, while the countries taking the actual gold have no increase in what they consider to be their "practical gold reserves"; from their point of view they have merely exchanged one type of "gold reserve" for another. The net effect of "depyramiding" is to reduce the "practical gold reserves" for the world as a whole.

Automatic and Managed Gold Standards

Gold standards also differ greatly in the degree to which they are subjected to deliberate management. Thus, they are sometimes classified as *automatic* or *managed* gold standards. These terms can be seriously misleading. Almost no gold standard has ever been fully automatic and without any degree of deliberate management, and almost no managed gold standard has lacked some automatic aspects. The difference is one of degree rather than of kind. The importance of these differences in degree can best be shown by outlining the theory of an automatic gold standard and then analyzing the effects of introducing management.

The theory of automatic gold standards may be outlined as follows: The monetary authority must define the monetary unit in terms of gold and provide for the unlimited purchase and sale of gold at a fixed price, as well as for the free interconvertibility of gold and all other types of money on a parity basis. The quantity of money is then left to the determination of the gold flow into and out of the monetary system. The process can be understood most easily if we assume a system in which the entire money supply is made up of gold coins and gold certificates. In this case the total money supply would be equal to the stock of monetary gold, and it would increase and decrease by amounts equivalent to the flow of gold into and out of monetary use. Actually, of course, the circulating medium has rarely been exclusively or even principally composed of gold coin and gold certificates; most of it has been in the form of paper money and checking deposits. This need not, however, prevent fluctuations of monetary gold stocks from determining the supply of money. The quantity of money could be kept at a constant ratio to the gold supply. For example, checking deposits and other money might be

limited to ten times the amount of gold held as reserves. A flow of gold into the monetary system would then automatically expand bank reserves and tend to induce a proportional expansion of checking deposits, and an outflow of gold would automatically reduce bank reserves and tend to force a proportional decrease of checking deposits. In such cases fluctuations in the supply of monetary gold would not induce *equivalent* changes in the total money supply, but would tend to bring about *proportional* changes in it.

Though this description is admittedly an oversimplification, it does bring out the principal attribute of a fully automatic gold standard. The flow of gold into and out of the monetary system would automatically induce changes in the total money supply, not only through its direct effects but also by increasing and decreasing the size of basic gold reserves on which other monetary issues are "based."

By introducing deliberate management, treasuries, central banks, and other monetary authorities can greatly alter the effects of gold flows on the total supply of money. Their instruments of control will be examined in detail later. It is sufficient here to note that they can lock up incoming gold without allowing its effect to be felt by the monetary system, that they can release gold that had previously been rendered ineffective, that the Treasury can increase or decrease its issues of token coins and paper money to offset changes in gold stocks, that central banks can increase or decrease their circulating note issues and the reserves of other banks, and that the ratio of bank reserves to checking deposits can be changed. By these and other methods the monetary authorities can accentuate the effects of the flow of gold, offset its effects in whole or in part, or cause the total money supply to move counter to movements in the gold stock.

Even this short outline emphasizes the fact that the role of gold as a determinant of a nation's total money supply varies greatly with both the degree and the type of monetary management employed. The trend has been toward an increasing amount of deliberate management by monetary authorities. Many nations have not been willing to allow their monetary policies to be dominated by the behavior of their gold stocks and have more and more substituted other types of monetary controls.

National and International Gold Standards

The functioning of a gold standard in any one country is greatly affected by the number of other countries employing it. This point is important because of the wide variations in the geographical coverage of gold standards during the past half century. For a few decades prior to 1914 gold standards were used by virtually every commercially important country in the world. Since World War I the number of countries having this type of standard has fluctuated widely, the United States being almost alone in using it during part of the period. To bring out the importance of geographical coverage, we shall compare the extreme situation in which all the important countries have a gold standard with that in which one country alone maintains it.

Let us look first at the case in which every important country keeps its monetary unit constant in terms of gold. Several consequences follow from this. The first is that exchange rates among the various national monetary units must remain virtually constant in terms of each other. If all countries keep their respective monetary units at a fixed value in terms of gold by freely exchanging their money and gold among one another, their monetary units must exchange for each other at an almost constant ratio reflecting their relative gold content. Actual exchange rates cannot vary beyond the narrow limits determined by the cost of shipping an equivalent amount of gold from one country to another. This virtual stability of exchange rates among all important moneys is one of the great advantages claimed for international gold standards, for it enables people to engage in international borrowing and lending as well as international buying and selling with little risk that exchange rates will fluctuate before the transaction is consummated.

A second consequence of the international gold standard is a close relation among price levels in the various countries. Price levels in terms of gold tend to be the same in all the gold standard countries; and since each monetary unit is fixed in terms of gold, prices in terms of monetary units tend to fluctuate in a parallel manner in all gold standard countries. Let us look first at this tendency under automatic

gold standards. Suppose that the prices of goods and services in terms of gold tended to be higher in some countries than in others. The high-price countries would be good markets in which to sell and poor markets in which to buy. The low-price countries would be good markets in which to buy and poor markets in which to sell. As a result, the high-price countries would tend to buy abroad more than they sold abroad, and the low-price countries would tend to sell abroad more than they bought abroad, so gold would flow from the high-price to the low-price countries to balance their international payments. But the flow of gold out of the high-price countries would tend to lower price levels there and the flow of gold into the low-price countries would tend to raise their price levels until price-level relationships among the countries were brought into equilibrium. The advocates of automatic international gold standards place great emphasis on this tendency of gold flows to effect a "proper" distribution of gold among the various countries and to keep the various national price levels in line with each other.

This explanation admittedly overstates the tendency of even automatic international gold standards to equalize the purchasing power of gold in the various countries. The relative heights of prices in different countries sometimes vary even more when the countries have highly managed gold standards. Yet it must be emphasized that the freedom of monetary authorities in managing their money may be closely limited under international gold standards. This is especially true of small countries. If a country on a gold standard persistently tries to keep its prices high relative to those of other countries (for example, tries to keep its prices from falling as much as those abroad), it may suffer serious losses of gold and be faced with the choice of going off the gold standard or reducing its prices in line with those of other countries. On the other hand, a country may keep its prices low relative to those abroad (for example, prevent its prices from rising as much as those abroad), only at the risk of accumulating excessive amounts of gold. It is at least partly because of this limitation of freedom in monetary management that many countries are unwilling to commit themselves to maintaining gold standards with fixed gold values for their monetary units over long periods

of time. Thus Great Britain, committed to a policy of maintaining full employment and of managing its money in a way that will be appropriate for this purpose, has made clear its intention of devaluing the pound in terms of gold rather than allowing deflationary tendencies that originate abroad to be transmitted to the British economy. And on occasion some countries, among them Sweden and Switzerland, have refused to permit gold imports in order to prevent foreign inflationary pressures from invading their economies.

A third consequence of the international gold standard is that gold can find a market for monetary uses in all the important countries. It is demanded for monetary purposes not by one country but by many countries.

A national gold standard under which one country alone keeps its monetary unit stable in terms of gold while others have different types of standards yields results that differ in several important respects from those achieved by international gold standards. In the first place, it does not insure stable exchange rates among the moneys of the various countries. The stability of the dollar in terms of gold does not give it a fixed relation to the pound sterling if the pound fluctuates in terms of gold. Thus one of the great advantages claimed for the international gold standard loses its validity as the area covered by gold standards decreases. In the second place, the use of a gold standard by a single country does not insure any stable relationship between its price levels and those of other countries. Since the exchange rates among the various moneys can fluctuate, the price levels in the various countries are free to move quite differently. Gold need no longer act as an automatic adjuster of international price relationships.

In the third place, the maintenance of a gold standard by one country alone may make it almost the sole demander of gold for monetary purposes. It is true that countries which are not strictly on gold standards often hold sizable quantities of gold in their monetary stocks and even add to them. But a lone country on a gold standard runs the risk that the entire world output of gold not used for industrial purposes will flow into its monetary system. Other countries may flood it with their gold stocks which they no longer want to

hold; hence its monetary system may be subjected to inflationary pressures and it may exchange useful goods and services for gold of questionable utility.

Summary of Gold Standards

The preceding discussion indicates the dangers of talking about *the* gold standard. The monetary systems that have carried this name have differed greatly as to the extent to which gold coin circulates, the extent to which money is redeemable in gold, the types and amounts of monetary management employed, and the number of countries using gold as a standard. The general trend since World War I has been toward reducing the role of gold in monetary systems. Before 1914 almost every important country was on a gold standard, gold coins were freely available for circulation, and gold stocks played a powerful role in determining the size of money supplies, though deliberate management was far from absent. But during much of the period since 1914 many countries have not had gold standards of any sort. Gold-coin standards have practically disappeared, to be replaced by various types of gold-bullion and gold-exchange standards, and the redeemability of money in gold has been subjected to increasingly strict limitations. In most countries it is now illegal to buy or hold gold for any except "legitimate" industrial and export purposes, and these are often narrowly defined. Moreover, the role of gold as a determinant of money supplies has been greatly reduced, giving way to control by monetary authorities. However, this does not mean either that gold is no longer an important element in modern monetary systems, or that gold stocks do not exert a significant influence on monetary behavior. It means merely that the dominance of gold has been somewhat reduced, and that modern gold standards yield results different from those achieved by the old gold-coin standards which were subjected to less deliberate management.

SILVER STANDARDS

Silver standards have played an important part in monetary history, but their role diminished rapidly after the middle of the nineteenth century. We shall therefore discuss them only briefly.

By a silver standard we mean the type of monetary system in which both the unit of value and all kinds of the nation's money are kept at a constant value in terms of silver. The steps required to accomplish this are the same as those under a full gold standard: (1) definition of the monetary unit in terms of silver, (2) free and unlimited coinage or purchase of silver at a fixed price, (3) free melting of silver coins or unlimited sale of silver at a price approximating the purchase price, (4) free interconvertibility of silver and all other types of money on a parity basis, and (5) free import and export of silver. The purposes of these provisions are the same as those under gold standards.

Various silver standards have differed significantly from each other. These differences have not been as great as those in the case of gold standards, however, because few of them survived into the period in which deliberate monetary management became so widespread.

BIMETALLIC STANDARDS

Though they have not been used for several decades and seem unlikely to be employed again, bimetallic standards played such an important role in monetary history prior to the twentieth century and were such a burning political and economic issue during the nineteenth century that we should consider them at least briefly. Out of these controversies rose such political battle cries as "the Crime of '73," "16 to 1," and "the Cross of Gold."

A bimetallic or double standard is one in which the unit of value and all types of money in the country are kept at a constant value in terms of gold and also in terms of silver. It is, in effect, the simultaneous maintenance of both a gold and a silver standard. The steps necessary for stabilizing a nation's money in terms of both metals are the same as those outlined above for monometallic standards, except that the provisions for unlimited purchase, sale, and redeemability must include both metals. The mint values of the two metals are determined by the definition of the monetary unit. For example, in 1834 our dollar was defined as 371.25 grains of pure silver or 23.22 grains of pure gold. The weight of the silver dollar was fixed at 16 times that of the gold dollar. In effect, the mint purchase and sale prices were fixed at \$1.29 an ounce for silver $\left(\frac{480}{371.25} = 1.29\right)$ and

$20.67 an ounce for gold $\left(\frac{480}{23.22} = 20.67\right)$. As long as both gold and silver were purchased freely by the mint at these prices and as long as both gold and silver coins remained available, the market prices of the metals were fixed.

Many critics allege that in practice bimetallic systems prove to be not double standards but alternating gold and silver standards, with one metal driving the other out of circulation. They claim that the relative values of gold and silver in the market are likely to vary from those established at the mint, so that the metal undervalued by the mint will forsake its monetary use. That this has happened many times is true, but it is not inevitable. Both metals can be kept in circulation if their mint values are properly set.

Bimetallic standards have sometimes broken down because various countries adopted differing mint ratios for the two metals. For example, before 1834 our mint valued gold 15 times as highly as silver at the same time that the French mint ratio was 15.5 to 1. Thus, the French valued gold more highly in relation to silver than we did. The natural result was that gold deserted this country or did not come to it and that silver tended to become our only standard money. Arbitrageurs could profit by exporting gold and importing silver. An American could exchange 15,000 ounces of silver here for 1000 ounces of gold, trade the gold in France for 15,500 ounces of silver, and gain 500 ounces of silver to cover his costs and yield a profit. This process drained our system of gold; only silver remained. Realizing that this ratio was wrong, the United States changed it in 1834; but we went too far and fixed it at 16 to 1 while the French mint ratio remained 15.5 to 1. The result was what one might expect; silver disappeared from our monetary system. One could exchange 1000 ounces of gold for 16,000 ounces of silver here, exchange the silver in France for about 1032 ounces of gold, and gain 32 ounces of gold to cover costs and yield a profit.

The failure of bimetallism in the United States certainly does not prove that international bimetallism is inevitably doomed to failure; it merely indicates that a nation cannot hope to keep both metals in circulation if the relative values placed on them at the mint differ

significantly from those fixed by the mints of other countries. If all countries, or even the most important ones, adopted bimetallism with the same mint ratios, and if these ratios were properly adapted to the market ratios of the two metals when the system was adopted, there is no reason why both gold and silver could not be kept in circulation over long periods.

Several advantages were claimed for bimetallic standards as compared with either gold or silver monometallic standards. The first was that bimetallism provided convenient full-bodied coins for both large and small transactions. The prejudice in favor of full-bodied coins was strong during the period of bimetallism; credit money was widely suspect. Proponents of bimetallism pointed out that it provided easily portable gold money for large transactions and convenient silver money for smaller payments—arguments which lose their force as credit money is developed. A second advantage claimed for international bimetallism was its tendency to stabilize exchange rates among bimetallic moneys, silver standard moneys, and gold standard moneys. Its adherents pointed out that as long as gold and silver were stabilized in terms of each other, all moneys with a fixed value in gold or in silver would exchange for each other at nearly constant rates. Their prices in terms of each other could not fluctuate by more than the cost of shipping an equivalent amount of one of the metals. Thus, the effective use of bimetallism by any group of countries would link together all bimetallic and monometallic gold and silver moneys in an international network of stable exchange rates.

The third advantage claimed for bimetallism was its tendency to provide a standard money with more stable purchasing power than would result from the use of a monometallic standard. Its advocates maintained that the value of a monetary unit under bimetallism would be determined not by supply and demand conditions for only one metal, but by supply and demand conditions for two metals. And they believed that supply and demand for the two metals would fluctuate less widely than in the case of one metal alone; the fluctuations of the two metals would tend "to average out."[5] This argument

[5] For an excellent brief discussion of this point, see W. S. Jevons, *Money and the Mechanism of Exchange*, Appleton, New York, 1892, pp. 137–140.

is probably valid. But it does not follow that the purchasing power of bimetallic moneys would be stable.

INCONVERTIBLE PAPER STANDARDS

Systems in which monetary units are not kept at a constant value in terms of a metal are usually called inconvertible paper standards. Under systems of this type the various kinds of money in circulation within a country are usually maintained at parity with each other, but they are not kept constant in their relation to a metal. We cannot emphasize too much the broad scope of this category; the systems included under it vary greatly as to both form and functioning. Under some, the monetary authority continues to purchase a metal at a fixed price, thereby preventing the monetary unit from appreciating relative to the metal, but it does not sell the metal at a fixed price. Under others, no metal is either purchased or sold at fixed prices. Under some, the monetary authority carefully manages the money supply to achieve economic stabilization. Under others, money is issued prodigally for revenue purposes. To lump all these widely varying systems into one group and brand them "good" or "bad" is to misread monetary history and to ignore the principles of money.

Inconvertible paper moneys have been held in low regard in the past largely because they were usually associated with periods of widespread economic disturbance. The continental currency of the American Revolution, the assignats of the French Revolution, the greenbacks of the Civil War, the inflations of World Wars I and II, the inconvertible money of the great depression—these and many others are often cited to prove that inconvertible paper standards are always inferior to metallic standards and should be scrupulously avoided. These conclusions do not necessarily follow. During the periods from which these examples are taken, people in general believed in "metallism"; they wanted metallic standards as long as these could be maintained without great sacrifice of other objectives, and they used inconvertible paper standards only when their metallic standards had already broken down. They did not deliberately "adopt" paper standards; they reluctantly sought refuge in them when war,

panic, depression, or other serious economic disturbances made it impossible for them to keep their money convertible in metal, or made them unwilling to tolerate the limitations imposed on their policies by the maintenance of convertibility. Those who proclaim that "history proves that paper standards are less satisfactory than metallic standards" might better say, "History shows that paper standards used in periods of extreme economic disturbance function less well than metallic standards during less troubled periods." And perhaps they should add that metallic standards have a habit of breaking down during periods of war, panic, and depression, leaving paper standards to do their work.

All monetary standards, metallic as well as inconvertible paper, are now highly managed, and their success depends largely on the quality of their management. There are still wide differences of opinion among economists as to whether some sort of metallic standard or some sort of inconvertible paper standard is likely to be more conducive to wise and efficient monetary management.

SELECTED READINGS

Coulbourn, W. A. L., *Introduction to Money*, Longmans, Green, London, 1938.

Jevons, W. S., *Money and the Mechanism of Exchange*, Appleton, New York, 1892.

Laughlin, J. L., *A New Exposition of Money, Credit and Prices*, University of Chicago Press, Chicago, 1931.

Murad, Anatol, *The Paradox of a Metal Standard: A Case History of Silver*, Graphic Arts Press, Washington, 1939.

Puxley, H. L., *A Critique of the Gold Standard*, Harper, New York, 1934.

Robertson, D. H., *Money*, Harcourt, Brace, New York, 1929.

Taylor, F. M., *Some Chapters on Money*, Wahr, Ann Arbor, 1906.

CHAPTER 6

Monetary Standards in the United States, 1792–1914

The purpose of this and the following two chapters is to explore the history of monetary standards; we shall center our attention on the experiences of the United States but relate them to developments in other countries. This study will elucidate a number of monetary principles, emphasize the changing nature of monetary institutions, and provide the background necessary for understanding our present monetary system. Our monetary history is especially enlightening, for in 160 years we have employed several kinds of bimetallic, gold, and inconvertible paper money standards.

BACKGROUNDS

The Constitution provides: "The Congress shall have power to coin money, regulate the value thereof, and of foreign coin . . . ," and "No State . . . shall coin money, emit bills of credit, make anything but gold and silver coin a tender in payment of debts." Bitter experience had convinced the delegates to the Constitutional Convention, who were generally opposed to unnecessary concentration of power in the federal government, that the issue of money should be a function of the central government and that state powers in this field should be eliminated or closely regulated. They had learned this lesson from monetary experiences under the Articles of Confed-

eration. The Articles had given Congress the power to coin money and to regulate the alloy and value of coins struck by the states. But the states retained the right of coinage, the right to issue paper money, the right to sponsor banks which could issue paper money, and the right to charter private banks with the privilege of note issue. Without centralized supervision of the amounts and types of money issued, the result could be only confusion.

The circulating medium before 1792 was a hodgepodge. It included coins issued by the Confederation, coins issued by the states, coins issued by private firms licensed by the states, token coins shipped here by foreign minters, paper money issued by states, paper money issued by banks, and many varieties of foreign coins—British, French, Portuguese, Dutch, and Spanish. Some of these were full weight, but others were badly deteriorated. They were stated in various monetary units. Their values relative to each other fluctuated from time to time and from one state to another. The desirability of a uniform national currency was evident, and this could be achieved only by centralizing the money-issuing power.

The most plentiful of all the foreign coins in circulation was a Spanish silver coin known variously as a peso, peso duro, piece of eight, eight-real piece, or dollar. The colonists, being largely of English extraction, usually kept accounts in terms of pounds, shillings, and pence, but the Spanish dollar was the most commonly used medium of payment. It was only natural, therefore, that our monetary unit should be called a "dollar."

THE BIMETALLIC STANDARD, 1792–1834

The first monetary law enacted under the Constitution, the Coinage Act of 1792, provided for the creation of a mint and established a bimetallic standard. The unit of value was named the "dollar," which was in effect defined as 371.25 grains of pure silver or 24.75 grains of pure gold.[1] Thus, the mint ratio, or relative values of the metals at the mint, was 15 to 1.

The methods used to arrive at the definition of the dollar and to

[1] The coins were, of course, alloyed with metals of almost negligible value.

determine the mint ratio are interesting. As was just said, the dollar was chosen as the monetary unit because Americans were already so familiar with the Spanish silver coin of that name. The founders of the system wanted the new United States silver dollar to have the same silver content as the Spanish coin. But the Spanish dollars in circulation here were not uniform; some of them were worn and even the new ones issued in different periods varied somewhat. Our silver dollar was therefore given a weight which was supposed to be equal to the "average" weight of the circulating Spanish coins. It was by this process that the silver content of the dollar was fixed at 371.25 grains, the weight that has prevailed to this day. Since no gold coins whose content was stated in terms of dollars had been used here, it was necessary to determine their content by finding the appropriate relative values of gold and silver. After some investigation, which does not now seem very scientific, it was concluded that the market value of gold was 15 times that of silver. The mint ratio was accordingly fixed at the supposed 15-to-1 market ratio; gold dollars were to weigh $\frac{1}{15}$ as much as silver dollars, or 24.75 grains. We shall see later that this ratio was inappropriate.

The Act of 1792 authorized minting of the coins shown in Table 11, unlimited coinage being permitted for all the gold and silver coins. At first no coinage charge was made if the supplier of the metal would wait for his money, but a charge of $\frac{1}{2}$ of 1 percent was made if coins were demanded immediately. A few years later, a charge equal to the actual cost of minting was imposed.

It is important to note that all the coins were full bodied. No provision was made for paper money or token coins. So great was the opposition to credit money that even the cent and half-cent pieces contained copper with a commodity value equal to their monetary value. The first clumsy copper cent was two-thirds as large as a silver dollar. This failure to provide token fractional money was to plague the country for more than half a century. During much of that period insufficient "change" remained in circulation and all sorts of makeshift substitutes had to be employed.

The great variety of foreign coins in circulation posed a serious problem. It was hoped that they would be replaced by the newly

authorized United States coins, but they were needed in circulation until the new money could be minted. A law of 1793 therefore provided that Spanish dollars weighing at least 415 grains (9/10 fine) should circulate with full legal-tender powers and that for a three-year period other foreign coins should be legal tender in proportion to their gold and silver content. The three-year limitation on the legal-tender powers of foreign coins proved to be a vain hope, for our own coins remained so limited in quantity that the legal-tender powers of foreign coins were extended time after time; they disap-

TABLE 11. United States Coins, 1792

Name of Coin	Principal Metal	Value in Dollars	Precious Metal Content in Grains
Eagle	Gold	$10.00	247.5
Half eagle	Gold	5.00	123.75
Quarter eagle	Gold	2.50	61.875
Dollar	Silver	1.00	371.25
Half dollar	Silver	.50	185.625
Quarter dollar	Silver	.25	92.8125
Disme	Silver	.10	37.125
Half disme	Silver	.05	18.5625
Cent[a]	Copper	.01	264.0
Half cent[a]	Copper	.005	132.0

[a] Within the next few years the copper content of the cent and half cent was reduced somewhat.

peared completely only after 1856. The provision that Spanish dollars should be legal tender only if they weighed at least 415 grains and that other foreign coins should be legal tender in proportion to their gold and silver content was unrealistic. Weighing them in each transaction was so inconvenient that they tended to circulate at values in dollars which depended not on their actual gold or silver content, but on their content when new. The general custom of accepting light-weight foreign coins in payment at their full face value helped to keep United States coins out of circulation.

The Coinage Act of 1792 and supplementary laws passed during the next several decades failed in almost every respect to achieve their objectives. They did not keep both gold and silver coins in

circulation, they did not eliminate foreign coins, and they did not provide an adequate circulation of United States coins.

In the first place, the mint ratio of 15 to 1 proved to be inappropriate. Though this may have approximated the market ratio in 1792, it placed too low a value on gold in later years. While our mint valued one part of gold at only 15 parts of silver, the French mint valued it at 15.5 parts of silver. The natural result was that little gold came to our mint and the few gold coins struck by the mint soon disappeared.[2]

In the second place, only a small quantity of silver was taken to the mint for coinage and most of the silver coins that were minted were exported. There was no incentive to take lightweight silver foreign coins to the mint. In fact, such action was generally unprofitable. Even badly worn foreign coins usually circulated at their full face value, whereas they were accepted at the mint only at a value determined by their actual silver content, and even then the supplier had to wait some time for his money and pay small mint charges. This fact explains why so little silver was offered for coinage. The silver coins that were struck disappeared because of the profitability of exchanging them in the West Indies for full-weight Spanish dollars. Though the United States dollar contained slightly less silver than a full-weight Spanish dollar, it was freely exchangeable for Spanish dollars in the West Indies on a dollar-for-dollar basis. Traders therefore found it profitable to bring new Spanish dollars to the mint, have them coined into a larger number of United States dollars, exchange these in the West Indies for new Spanish dollars, and so on in an endless chain. To stop this practice, Jefferson in 1806 suspended the coinage of silver dollars, the suspension remaining in force until 1834. Though the mint would still accept silver for coinage into fractional money, the amount of silver offered for this purpose was small (only $26,231,000 for the 38 years, 1792–1830) and many of the fractional coins were exported. The result was an almost chronic shortage of fractional money, an inconvenience which was only partially remedied in a highly unsatisfactory way by the issue of bank

[2] See p. 104.

notes in denominations of less than a dollar and the creation of many kinds of tokens by private firms.

We have already seen that most of the coins in circulation during this period were of foreign issue and that most of them were underweight. The larger part of our money supply was made up of bank notes whose quality varied widely. Though it was believed unwise for the government to issue paper money, many state-chartered banks and two banks chartered by the federal government (the First and Second Banks of the United States) were given broad powers of note issue. Some of the banks used this power with moderation and maintained their notes at parity with metallic coins most of the time. More of them, however, were less careful and allowed the value of their notes to fluctuate in terms of metallic coins and in terms of the notes of other banks.[3] As a result, the circulating medium in this period was composed largely of foreign coins stated in various monetary units and in various stages of disrepair, and a motley collection of bank notes issued by banks under widely varying laws and carrying various values relative to metallic moneys.

Though this country was formally on a bimetallic standard from 1792 to 1834, the money in actual use was not kept at a constant value in terms of gold and silver. During the War of 1812 both the federal government and the banks created so much paper money that metallic coin virtually disappeared; the country was in fact on an inconvertible paper money standard. And during much of the remainder of the period a large part of the bank notes in circulation were not in practice kept redeemable in specie.

In summary, our first monetary system was far from successful, and this failure was due to improper management. A few relatively simple actions would have remedied the ills of the system. (1) Both gold and silver could have been kept in circulation by appropriate adjustments of the mint ratio to market ratios. (2) Foreign silver coins could have been enticed to the mint to be made into United States coins by reducing the silver content of the dollar by a few grains; this would have made it profitable to bring foreign coins to the mint,

[3] For a fuller discussion of bank operations during this period, see pp. 250–256.

even those that were not full weight, without inducing any significant inflation. (3) An adequate supply of fractional coins could have been kept in circulation by giving them a monetary value considerably in excess of their value as commodities and by coining them only in limited quantities to be determined by the Treasury. (4) Bank notes could have been regulated in various ways to keep them at par in terms of gold and silver, except in times of crisis.

THE BIMETALLIC STANDARD, 1834–1861

We have seen that the Coinage Act of 1792 undervalued gold so that it practically disappeared from circulation. An act of 1834, amended in 1837, sought to restore gold to circulation by giving it a higher value at the mint. Though a congressional committee recommended a new mint ratio of 15.6 to 1, which was closely in line with that of the French, Congress decreed that the ratio should be 16 to 1. This was accomplished by leaving the dollar's silver content unchanged and reducing its gold content from 24.75 to 23.22 grains. Thus, the mint price of gold was raised from $19.39 to $20.67 an ounce. The motives of Congress in adopting the 16-to-1 rather than the 15.6-to-1 ratio are not clear. Some members undoubtedly voted for the higher ratio to insure that gold would be drawn into the monetary system. It also appears, however, that some wanted the greater reduction in the gold content of the dollar in order to secure higher prices for the metal that was being mined in North and South Carolina, Virginia, Georgia, and a few of the other southern states. This is the first in a long series of cases in which the interests of metal producers were to influence our monetary policy.

The new law overvalued gold and undervalued silver. With our mint ratio at 16 to 1 while the foreign ratio approximated 15.5 to 1, it was profitable to export silver and import gold, and silver virtually disappeared from our monetary system after about 1843. In the 25-year period 1836–60, gold coinage amounted to nearly $446 million, but only 3 million silver dollars were struck. Fractional silver coinage amounted to only $33 million from 1836 through 1850. To some extent the lack of silver dollars was remedied by the coinage of

gold dollars, but the lack of fractional silver was a serious handicap to business. "Shinplasters" (fractional paper issued by banks) and private tokens were both inadequate in amount and variable in value. Finally, in 1853, Congress took the obviously needed step and converted fractional silver into token coins; free coinage of fractional silver was stopped and the Treasury was given the power to determine the amounts to be issued. The 6.9 percent reduction in their silver content was far too small, however, and these coins disappeared during the Civil War inflation.

In this period, as in the earlier one, bank notes made up a large part of the circulating medium. Their issue was still poorly regulated, so that their value, both in terms of gold and silver and in terms of other goods and services, varied widely.

We shall see later that the outbreak of the Civil War marked the end of bimetallism as the official monetary policy of the United States.

INCONVERTIBLE PAPER STANDARD, 1861–1879

No nation has fought a major war without suspending its metallic monetary standard. The Civil War was no exception; by the end of 1861 both the government and the banks had ceased to redeem their monetary issues in specie, and the country was on an inconvertible paper standard which it kept until 1879, when it adopted a gold standard for the first time.

The Civil War Period, 1861–1865

The bimetallic standard was abandoned, leaving the country with inconvertible paper money, because of the heavy fiscal needs of the Treasury. The war was unexpectedly expensive; federal expenses during the four years following June, 1861, totaled $3348 million. But Congress was unable, or at least unwilling, to increase tax collections proportionally; consequently the government's revenues during the four-year period totaled only $729 million, or less than a quarter of its expenditures. The $2619-million deficit had to be met in other ways. Some of it was covered by borrowings from abroad and from

individuals in this country; the rest, by the inflationary creation of money. New money was created and used to meet military payrolls, to pay for provisions and equipment, and to cover other government expenses. This new money was created in three principal ways: (1) Banks, both the old state-chartered banks and the newly authorized national banks, created and lent additional bank notes to the government as well as to private business. (2) Banks created new checking deposits which were given to the Treasury in exchange for its bonds. This was a less important source of inflation during the Civil War than it was to become later. (3) The Treasury itself issued paper money in the form of circulating United States notes, or "greenbacks." These notes, of which about $430 million were issued, were given full legal-tender powers.

As a result of these inflationary issues of both bank and government credit money, the total money supply rose from about $690 million in 1860 to approximately $1540 million in 1865, an increase of over 120 percent. This increase, together with a rise in the velocity of money, supported a marked rise in price levels. Wholesale prices rose about 115 percent from 1861 to 1865; the value of the dollar in the wholesale market declined 54 percent. Other prices rose at widely varying rates, thereby effecting highly arbitrary shifts of wealth and income.

Though neither the Treasury nor the banks would redeem their money in gold and silver, the mint stood ready throughout the war to buy both metals at the old prices—$1.29 an ounce for silver and $20.67 an ounce for gold. But no metal was offered to them; in fact all gold and silver coins, including even fractional silver, disappeared from circulation. This was inevitable, because the prices of gold and silver rose along with those of other commodities. For example, the average market prices of gold and gold coin in terms of paper money were as follows:

Year	Average Market Price per Ounce of Gold	Average Market Price of Gold Dollar in Terms of Paper Dollars
1861	$20.67	$1.00
1862	23.42	1.13
1863	30.01	1.45
1864	42.00	2.03
1865	32.51	1.57

Silver prices rose comparably. With the market prices of gold and silver so far above mint prices it was only to be expected that these metals would avoid the mint and that gold and silver coins would disappear into export channels, private hoards, and industrial uses.

In summary, by the end of the Civil War in 1865, the increase of bank money and greenbacks had raised the total money supply more than 100 percent above its 1860 levels, wholesale prices had more than doubled and other prices had risen by varying amounts, gold and silver had disappeared from circulation, and the market prices of both metals were far above the mint prices. The paper dollar was greatly depreciated both in terms of gold and silver and in terms of its purchasing power for other goods and services.

Continued Inconvertibility, 1865–1879

With the return of peace in 1865 and the easing of the government's fiscal requirements, the nation faced the problem of determining the future of the dollar. Remembering the misbehavior of inconvertible money during the war and wrongly assuming that an inconvertible standard could not operate satisfactorily in peacetime, a clear majority favored returning to a metallic standard. But this raised two difficult and interrelated questions: (1) What should be the purchasing power of the dollar for goods and services? (2) What should be the metallic content of the dollar? Bitter controversies ensued between the groups that would benefit from high price levels and those that would be favored by low prices.

We have already noted that price levels in terms of paper dollars rose by more than 100 percent during the war. But prices in other countries in terms of gold and gold money remained almost constant during the period. These facts made it impossible for the United States to maintain prices as high as those prevailing at the end of the war and at the same time keep the dollar redeemable in the prewar amounts of gold and silver. Any attempt to do so would have brought an immediate drain of gold, for this country would have been such a good market in which to sell and such a poor market in which to buy.[4] With the dollar again equal to 23.22 grains of gold, foreigners would have found that things cost twice as much gold here as abroad

[4] See pp. 99–100.

and would have bought but little in our markets. We, on the other hand, would have found it cheaper to buy abroad and would have exported gold for that purpose. Thus, in view of the fact that prices in terms of gold had not risen in other countries, we had either (1) to reduce the metallic content of the dollar below prewar levels, or (2) to lower our price levels, or (3) to reduce to the necessary extent both our price levels and the metallic content of the dollar.

Price levels could have been maintained at or near 1865 levels if Congress had been willing to decrease the gold content of the dollar by approximately 50 percent. For example, a redefinition of the dollar as 11.61 grains of gold (instead of 23.22 grains as in the prewar period) would have raised the price of the British pound sterling from about \$4.87 to about \$9.73, that is, $\left(\frac{113}{11.61} = 9.73\right)$. This 50 percent decrease in the price of the dollar in the foreign-exchange market would have made purchases here at 1865 prices as attractive as they were before the war when our price levels were lower. Though foreigners would have had to pay twice as many dollars for our products, each one of their monetary units would have bought twice as many dollars. Americans would not have found purchases abroad any more attractive than before the war, for they would have had to pay twice as many dollars for each unit of foreign money. Thus, the country could have reëstablished a metallic standard and still have maintained prices at or near the levels prevailing in 1865 if it had been willing to reduce the metallic content of the dollar sufficiently. This course was not chosen, however.

In the end, Congress decided to establish a gold standard and to give the dollar its prewar gold content of 23.22 grains. To do this it was necessary to allow prices in this country to fall until the gold in a dollar would purchase as much here as it would in other countries. This deflationary process would have been painful enough if prices abroad had remained stable at the levels prevailing in 1860. Unfortunately, however, foreign prices were also declining, so the extent of our deflation was intensified. This is shown in Table 12. By 1879 wholesale prices in Great Britain had fallen 16 percent below their levels in 1860. It was therefore necessary for us to allow our prices

to fall about 55 percent below their 1865 levels, and even somewhat below their 1860 levels, before the dollar was given its former gold content in 1879. This severe and protracted decline of prices goes far toward explaining the widespread discontent that prevailed during the period following the Civil War. Costs declined only slowly; hence the decline of prices acted as a serious obstacle to production. And the marked increase in the purchasing power of the dollar added

TABLE 12. Wholesale Prices in the United States and Great Britain, 1860–1879

Year	Wholesale Prices in the United States 1860 = 100	Wholesale Prices in Great Britain 1860 = 100
1860	100	100
1865	216	102
1870	142	97
1875	128	97
1878	101	88
1879	97	84

greatly to the burdens of the debtor classes. A high price was paid for restoring the dollar to its prewar gold value.

In view of the general belief that inconvertible paper standards are necessarily inflationary standards, it is well to remember that for nearly fifteen years after the Civil War our inconvertible paper standard was coupled with highly deflationary monetary policies. Our money supply was not permitted to expand proportionally with the great growth of trade resulting from expansion of territory, growth of population, industrialization, and improvements in technology. How much faster our economic development would have been in the absence of deflationary pressures cannot be known.

THE GOLD STANDARD, 1879–1900

As already indicated, the United States adopted a gold standard for the first time in 1879. It had already indicated its intention of deserting bimetallism by enacting in 1873 a bill which withdrew from silver dollars the privilege of free and unlimited coinage. In 1875 the

Resumption Act provided for the future return of the dollar to a gold basis, and the dollar was actually made convertible into gold at the beginning of 1879.

The End of Bimetallism

Why did the United States forsake its historic bimetallic standard and embrace a monometallic gold standard? This question cannot be answered without looking at monetary developments in other countries. Prior to 1870 most other countries, like the United States, had employed bimetallic standards, though some were on monometallic silver standards. Great Britain was almost alone in its use of a gold standard, having adopted it in 1816.[5] There were strong reasons why other nations should want to adopt the same monetary standard as Great Britain. It was the most important industrial, commercial, and financial country in the world. Its own imports and exports accounted for a considerable part of world trade; a large part of international trade was financed by bills of exchange written in British pounds; and businesses in many countries were deeply indebted to London on both long-term and short-term account. Nations were inclined for several reasons to adopt a gold standard because it was the standard used by economically preëminent Britain. The first reason was the result of bad logic: Britain was an economically powerful nation, it used a gold standard, therefore a gold standard must make nations employing it economically powerful. It was often said that "gold is the money of rich nations, silver the money of poor nations." Other reasons for following Britain's example were more rational. Nations who were deeply indebted to London wanted their money stabilized in gold so that their sterling debts would not fluctuate in terms of their own money. And those who were using sterling drafts to finance

[5] This adoption of gold by Great Britain has been called an "historical accident" resulting from an earlier unintentional overvaluation of gold coins relative to silver. Having become accustomed to the use of gold and unaccustomed to the use of silver during the eighteenth century, the British found it easy to drop full-bodied silver coins from their coinage list and to limit free coinage to gold. See W. A. L. Coulbourn, *An Introduction to Money*, Longmans, Green, London, 1938, pp. 130–131; Anatol Murad, *The Paradox of a Metal Standard*, Graphic Arts Press, Washington, 1939.

international trade wanted stable exchange rates so that their risks would be reduced.

Nations with bimetallic standards could, of course, maintain stable exchange rates with the pound sterling as long as they could keep gold in their monetary systems. This was not difficult to do before about 1870, for most of the world's mints had been flooded with gold following the great gold strikes in California and Australia in the 1840's. But several developments after 1870 changed this situation drastically and threatened bimetallic countries with loss of their gold, leaving them with de facto silver standards. The first was the adoption of a gold standard by the newly formed German Empire in 1871. The thirty-three independent German states had previously had separate monetary systems, all except one based on silver. The new central government, influenced by the business interests who wanted stability with the pound, and also hoping to challenge Britain's economic supremacy, adopted a single gold standard, stopped the free coinage of silver, and began to sell some of its accumulated silver in the world's markets. For many years other countries feared this "flood" of German silver. The second factor was the decreased import of silver by India. Unfavorable balances of payments drastically reduced the amount of the white metal flowing to the Far East. The third factor was the great increase of silver production in the western part of the United States. So huge was the output of these new mines that the world's production of silver during the forty years following 1870 was as great as total world production during the preceding three and a half centuries.

As a result of this combination of events—the German refusal to continue the free coinage of silver and the threat to export large amounts of the white metal, the decreased demand for silver by the Orient, and the tremendous increase in silver production—bimetallic countries feared such a flood of silver into their mints that they would be unable to retain their gold. They therefore hastened to end the free coinage of silver and to adopt a single gold standard. The movement was cumulative; every abandonment of the free coinage of silver increased the fear of silver in the remaining bimetallic countries

and enhanced their eagerness to follow suit. Silver was still used as subsidiary money with limited coinage, but it was no longer a standard. The dates on which the various countries adopted gold as a single standard are shown in Table 13.[6]

TABLE 13. Dates of Adopting Gold Standards

Great Britain	1816	Holland	1875
Germany	1871	Uruguay	1876
Sweden, Norway, Denmark	1873	United States	1879
		Austria	1892
		Chile	1895
France, Belgium, Switzerland, Italy, Greece	1874	Japan	1897
		Russia	1898
		Dominican Republic	1901
		Panama	1904
		Mexico	1905

The "Do Something for Silver" Movement, 1873–1900

Silver did not take its demotion from the high status of a monetary standard to the lowly position of a material for token coins without loud and long protests. Even before the dollar was stabilized in terms of gold in 1879, there began a strong movement to restore bimetallism or at least to increase greatly the monetary use of silver. Not even the tariff was a subject of greater controversy between 1873 and 1900. The cessation of free silver coinage was called "The Crime of '73" and demands were made for "free silver" at a coinage ratio of "16 to 1." Two powerful groups working together almost succeeded in restoring bimetallism and they were successful in forcing large government purchases of silver for monetary use in the years following 1878. These groups were: (1) western silver producers, and (2) the groups who were being injured by declining prices.

The market price of silver could not fall below the mint price of $1.29 an ounce as long as free and unlimited coinage was permitted. But the termination of free coinage both here and abroad, the sale of silver out of monetary systems, and the tremendous increase in pro-

[6] The dates are approximate only, for some of the countries made the change from bimetallism or silver monometallism to gold in several steps.

duction permitted silver bullion prices to fall markedly. Average prices of silver per ounce in New York were as follows:

Year	Price per Ounce
1874	$1.27
1879	1.12
1885	1.06
1890	1.05
1895	.66
1900	.60
1905	.61

Silver producers, not liking this decline in the price of their product, exerted strong pressure on the government to increase its purchases for monetary use.

Though they could always count on aggressive support by the "silver Senators," silver producers would probably have failed in their demands if they had not been supported by large groups who were being injured by the continuing decline of price levels. We have already noted the decline from 1865 to 1879. This decline continued until 1897. By that year wholesale prices had fallen 64 percent below their 1865 levels and 20 percent below their levels in 1879. Debtor groups, especially farmers, protested vigorously against this increase in the real burden of their debts, and falling prices were widely blamed for the "hard times," unemployment, and widespread business failures of the period. These groups were in favor of any monetary measures that would arrest the fall of prices and bring about price increases. They therefore joined forces with the silver interests to secure the remonetization of silver.

The silver advocates achieved limited successes in 1878 and 1890. Under the Bland-Allison Act of 1878 the Treasury purchased during the next twelve years more than 291 million ounces of silver for monetary use. And under the Sherman Silver Purchase Act of 1890 it purchased another 169 million ounces of the metal before the act was repealed in 1893. It should be noted, however, that these acts did not reëstablish silver as a standard money; the Treasury, acting under orders from Congress, determined the amount to be coined and did not purchase enough to raise the market price to the level of the old mint price. Undaunted, the silver groups backed William Jennings Bryan for President in 1896, demanding free silver coinage at

a 16-to-1 ratio. Bryan's defeat marked not the death but only the temporary decline of the demand that we "do something for silver."

Were the silver advocates right or wrong? Many historians have branded them as selfish groups interested only in maintaining silver prices or in paying off their debts with inflated money. The silver producers' case was indeed weak; producers of any precious metal—gold, silver, or platinum—have no more right to demand unlimited government purchase of their output at fixed prices than do producers of any other commodity. The opponents of falling price levels cannot be dismissed so easily. The protracted deflation was highly injurious to them, as it was to the economic system as a whole, and it might have been largely avoided if all the principal nations had kept bimetallic standards. One can argue convincingly that it was a mistake for the world to adopt monometallic standards, or at least that it was a mistake to do so without lowering the gold content of monetary units or otherwise expanding the money supply in proportion to the increase in trade. But the United States could not alone remonetize silver and still remain on a gold standard. Any attempt to do so would probably have led to great flows of silver into our monetary system, a tendency toward higher prices here than abroad, and the loss of all our gold to other countries. We had two general choices: (1) We could maintain a gold standard with an unchanged gold content for the dollar, in which case our price levels would have to decline with those abroad, or (2) we could expand our money supply in various ways to prevent our price levels from falling, in which case we would have to abandon gold or decrease the gold content of the dollar. We may therefore rephrase our question as follows: "Was maintenance of the gold value of the dollar, with the resulting stability of exchange rates and other advantages, worth all the discontent and hardship that it necessitated?" Economists differ widely in their answers to this question.

THE GOLD STANDARD, 1900–1914

The period 1900–14 may well be called "the golden age of gold standards." Most of the important countries of the world were on

gold-coin standards, the period was unusually prosperous, and criticisms of these standards subsided. This was in no small degree due to increased gold production and the expansion of other types of money. The world's rate of gold production during the early years of the twentieth century was more than three times as high as it had been in the period preceding 1896. This rise was the result largely of the invention of the cyanide process of amalgamation and new gold discoveries in the Rand district of the Transvaal and in the Klondike-Yukon area. There is much truth in the statement that the cries for silver money were stilled by the rush of gold. Moreover, as we shall see later, banks were developing rapidly during this period and contributed generously to the supply of money. The total money supply (coins, paper money, and checking deposits) tripled between 1896 and 1914, and wholesale prices rose more than 40 percent. Occasional complaints against the rising cost of living were lost in the jubilant praise of prosperity. Early in 1914 it seemed that gold standards would have a long and virtually uncontested reign in almost every economically important country.

SELECTED READINGS

Carothers, N., *Fractional Money*, Wiley, New York, 1930.

Dewey, D. R., *Financial History of the United States*, Longmans, Green, New York, 9th ed., 1924.

Harvey, W. H., *Coin's Financial School*, Coin Publishing Co., Chicago, 1894.

Hepburn, A. B., *History of Coinage and Currency in the United States and the Perennial Contest for Sound Money*, Macmillan, New York, 1903.

Laughlin, J. L., *The History of Bimetallism in the United States*, Appleton, New York, 1892.

Noyes, A. D., *Forty Years of American Finance*, Putnam, New York, 1909.

Proceedings of the International Monetary Conference in Paris in August, 1878, Government Printing Office, Washington, 1879.

Report of the Monetary Commission of the Indianapolis Convention, University of Chicago Press, Chicago, 1898.

Sumner, W. G., *A History of American Currency*, Henry Holt, New York, 1884.

White, Horace, *Money and Banking*, Ginn, Boston, 1896.
White, Trumbull (ed.), *Silver and Gold, Or Both Sides of the Shield, A Symposium of the Views of All Parties on the Currency Question as Expressed by Their Leading Advocates*, Publishers' Union, 1895.
Willis, H. P., *A History of the Latin Monetary Union*, University of Chicago Press, Chicago, 1901.

CHAPTER 7

Monetary Standards, 1914–1933

The world-wide reign of gold standards was brought to an abrupt end by World War I. Almost all important countries abandoned gold soon after the outbreak of the war, and many continued to use inconvertible paper standards for some time after the return of peace; only a few went back to gold before 1925. By 1929 most nations had reëstablished some form of the gold standard, though often with marked reductions in the gold value of their moneys as well as far-reaching changes in the functioning of their monetary systems. This new "golden age" was brief indeed; the restoration of gold standards had barely been completed in 1929 when the great depression forced one country after another to end the redeemability of its money in gold. Inconvertible paper standards, not gold, have been the dominant type of monetary system during much of the time since about 1931.

Though far from constant in its loyalty, the United States has been the world's most faithful adherent of the gold standard since 1914. In brief, our monetary standards since that time have been as follows: (1) 1914–17, gold coin; (2) 1917–19, inconvertible paper; (3) 1919–32, gold coin; (4) 1933, inconvertible paper; (5) 1934–41, gold bullion, with the gold content of the dollar reduced by 40 percent and the redeemability of our money in gold limited in widely varying degrees at different times; (6) 1942–45, inconvertible paper; and (7) since 1945, gold bullion of the 1934–41 type.

WORLD WAR I AND THE EARLY POSTWAR PERIOD

Monetary developments during World War I followed, in general, the familiar pattern of wartime inflation. All the belligerents suspended their metallic standards and allowed their monetary policies to be dominated by the fiscal needs of their treasuries. Almost as soon as it became a belligerent, each nation refused to redeem its money in gold or to allow free gold exports. In most cases gold coin and bullion were called in by the government or central bank and tight restrictions were placed on the export of funds in any form. These limitations had four general purposes: (1) to prevent the nation's gold and other moneys from falling into the hands of the enemy; (2) to conserve its gold and holdings of foreign moneys for the purchase of essential war materials abroad; (3) to maintain a sufficient gold reserve in the treasury or central bank to "preserve general confidence" in the nation's money (though why "confidence" should be promoted by the maintenance of an inaccessible gold reserve is difficult to understand); and (4) to prevent operations in the foreign-exchange markets that would bring about undesirable fluctuations.

In addition to ending the redeemability of their money in gold, nations resorted to large inflationary issues of money as a means of war finance. Faced with expenditures of unprecedented size and unable—or at least unwilling—to raise tax rates sufficiently, every belligerent incurred heavy budgetary deficits. Only a few countries collected enough taxes to meet more than half of their expenditures. Part of their deficits was covered by borrowing from individuals and business firms. The remainder was met through the creation of new money. In broad outline the inflationary process was similar to that of earlier major wars, but the technique of money creation was much more sophisticated. Treasuries relied not so much on the issue of new government paper money as on the manufacture of new central bank and commercial bank money in the form of checking deposits and, to a lesser degree, bank notes. Treasuries sold their bonds to banks, which gave in return newly created checking deposits that

could then be paid over to business firms and individuals in exchange for the goods and services needed by the government. Banks also lent new checking deposits to individuals, who used them to buy government bonds. The central banks (such as the Bank of England and the new Federal Reserve banks in the United States) were turned into money-creating institutions, supplying new money themselves and providing additional reserves to commercial banks to insure that they would be able to continue their creation of money. It was largely by this process that money supplies were greatly expanded during the war and early postwar period.

TABLE 14. Wholesale Prices During Peak Year of Inflation After World War I[1]

Country	Peak Year of Inflation	Wholesale Price Index (1913 = 100)
United States	1920	226
United Kingdom	1920	283
Canada	1920	244
Japan	1920	259
Holland	1918	376
Sweden	1920	359
Czechoslovakia	1921	1653
France	1926	854
Italy	1926	654
Belgium	1927	847
Germany	1923	Many trillions

These great expansions of money supplies, coupled with a greater rapidity of spending and an inability to expand the physical output of goods and services sufficiently, brought about marked price increases in all the major countries. Even neutrals like Holland and Sweden allowed their price levels to soar. Countries varied widely, however, as to both the duration and the extent of their inflation. This is shown in Table 14. Some, such as the United States and Great Britain, succeeded in terminating their inflationary policies within two years after the end of the war and prevented prices from

[1] League of Nations, *International Statistical Yearbook, 1927*, Geneva, 1928, pp. 208–210.

rising to more than double or triple their prewar levels. Others failed to bring their budgets into balance for several years and suffered prolonged inflation. For example, France and Belgium reached the peak of their inflation only in 1926 and 1927, when wholesale prices had risen to more than eight times their prewar levels. In a few countries—among them, Germany, Austria, and Russia—prices rose astronomically; the purchasing power of their monetary units virtually disappeared.

Some Problems of Resumption

Almost every country looked upon its inconvertible paper standard as only a temporary wartime expedient and hoped to return to gold as soon as this became feasible. Most of them seemed to believe that they could turn the clock back and reëstablish the same type of international gold standard that had functioned so well during the years immediately preceding the war. In this they were sadly disappointed; the war had changed monetary, financial, and basic economic conditions so drastically that the reëstablishment of any kind of gold standard on an international basis presented difficult problems, and the gold systems that were reëstablished were never again to operate in the same way as the prewar standards. What were these war-created monetary, financial, and economic changes that were to affect monetary systems so much?

The first was the great variation in the extent of inflation in the different countries. At the outbreak of the war in 1914, price levels in the various countries were in approximate equilibrium with each other. Gold had about the same purchasing power in all of them, and the various national monetary units possessed purchasing power approximately proportional to their gold content. International gold movements had effected the necessary adjustments in money incomes and price levels so that nations could trade freely and still retain their appropriate share of the world's gold stocks. The varying degrees of inflation during the war and early postwar period completely upset these international price-level relationships. For example, in 1920 the various monetary units had lost the following percentages of their 1913 purchasing power over wholesale goods:

United States dollar	56%
English pound	65%
French franc	80%
Swedish krona	72%
German mark	over 90%

Price level discrepancies became even more pronounced during the next few years.

These drastic changes in the relative height of national price levels raised difficult and highly controversial questions of monetary policy. It was clear that no country could hope to keep its money redeemable in gold unless the purchasing power of gold in that country was approximately as great as it was in other countries. Thus, each country whose prices had risen by more than the world average had to choose among three general monetary policies: (1) It could give its monetary unit its prewar gold content. But in order to do this and still maintain enough gold to keep its money convertible it would have to lower its price levels sufficiently to give gold as much purchasing power as it had in other countries. For many countries this would have meant a painful period of falling prices, probably accompanied by underproduction and unemployment. (2) It could allow its internal price levels to remain high and decrease the gold content of its monetary unit enough to enable it to retain gold. The reduced cost of its money in the exchange markets would offset the effect of its high internal prices so that it could still maintain its place as a seller in world markets. Though this policy would enable a country to avoid prolonged deflation, it was understandably unpopular with those who were injured by high price levels, especially creditors. (3) It could effect a compromise between lowering its price levels and reducing the gold content of its monetary unit, lowering prices to some extent and also reducing somewhat the gold content of its money. As we shall see later, each of these policies was adopted by one country or another.

It must be emphasized that the process of reëstablishing a workable international gold standard involved securing *appropriate relationships among the price levels of the various countries* and *appropriate relationships among the gold content of the various national monetary*

units. Thus, the policy of each country as to the gold value of its monetary unit and the height of its prices had to be formulated in the light of monetary policies elsewhere. For example, after the United States had given the dollar its prewar gold content, no nation could successfully determine its policy as to prices and the gold value of its money without reference to the purchasing power of gold here. On the other hand, our price levels and our gold supplies were much influenced by the behavior of prices abroad and by the gold values given to foreign moneys. The problem of fixing new gold parities was unquestionably one that could be solved with a minimum of friction only through whole-hearted international coöperation. But there existed neither the spirit nor the organization to achieve this necessary coördination.

A second legacy of the war that was to affect the operation of gold standards and monetary policies in general was the great change in the international economic and financial position of various countries. For example, the United States was a heavy debtor on international account when the war broke out in 1914. Soon thereafter we proceeded to pay off our debts to foreigners and to lend large amounts abroad. The British, to pay for war materials, sold back to us large amounts of our securities that they had previously held, and borrowed heavily in our loan markets before our entrance into the war. After our entrance into the war, we lent billions of dollars to our allies for direct war purposes and for postwar relief and reconstruction. As a result, we emerged from the war a heavy creditor on international account. The position of the British, on the other hand, was considerably weakened by their sales of foreign securities and their borrowings abroad. Germany was also weakened somewhat by its wartime sales of securities abroad and by the reparations payments which the Allies demanded from it. Moreover, the relative international economic positions of countries were changed by the burden of producing for war. The productive powers of some countries that had fought longest—such as Britain, Germany, and France—did not recover for some time; hence their ability to export was curtailed. On the other hand, some of the countries that were in the war for only a short time or that remained neutral—such as the United States and

Sweden—emerged with their productive capacities virtually unimpaired and in a strong export position.

These shifts in the relative economic and financial position of the various countries affected the operation of gold standards in several ways. In the first place, they tended to concentrate gold holdings in the strong countries. For example, the strong creditor position of the United States, coupled with its ability to export and with the smaller rise in its price levels, tended to bring disproportionate amounts of gold here. Other countries had to take this into account in determining their price levels and the gold value of their money. In the second place, the increased economic and financial power of the United States, together with the decline of Britain, tended to shift the financial capital of the world from London to New York. American monetary policy was to become of unparalleled importance to other nations.

A third legacy of the war and early postwar period was an unprecedented degree of government intervention. This permeated all parts of the economic system, but was especially pronounced in the field of money and international finance. During the war, and in some countries for several years thereafter, treasuries and central banks controlled international financial transactions, influenced exchange rates in many ways, and managed the internal monetary systems more than ever before. In this way they built up organizations, procedures, and policies that were to persist and to result in a high degree of deliberate monetary management even after their nations' return to gold standards. This was especially true in the United States, where the Federal Reserve System was established only in 1914. In the field of money, perhaps more than elsewhere, the wartime experience accelerated the departure from laissez-faire policies.

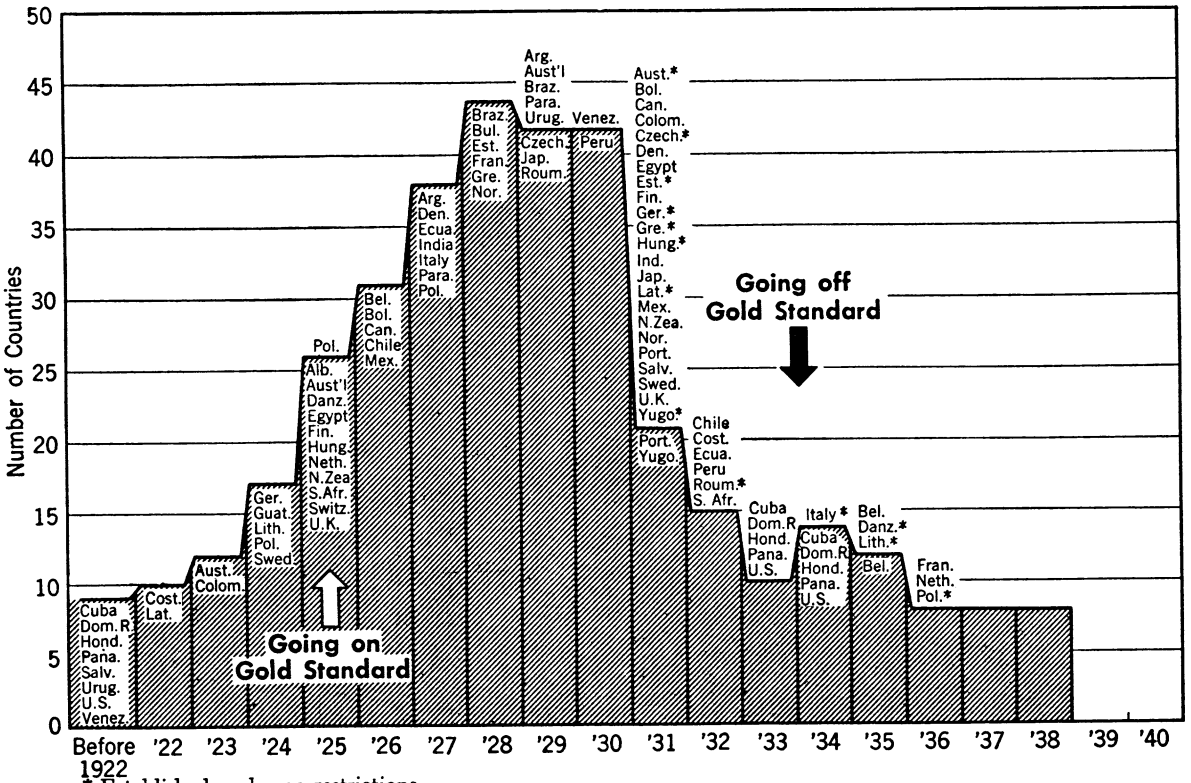
A fourth legacy of the war was the concentration of gold in central banks and treasuries. Little gold coin remained in circulation, partly because it had been called in during the war and partly because the remainder had gone into hoards during the wartime inflation. This was to have lasting effects on monetary systems. In the first place, people had become accustomed to the use of nongold money even more than they had before the war. And in the second place, the

concentration of gold in central banks and treasuries gave these authorities more leeway in their monetary management.

In summary, then, the world faced the problem of reëtablishing gold standards with the following important changes in conditions resulting from the war: (1) National price levels had risen by such differing amounts since 1914 that the early redeemability of all moneys in their prewar amounts of gold was out of the question. The gold value of money, or national price levels, or both, had to be altered drastically so as to give gold about the same purchasing power everywhere. (2) The relative financial and economic strength of the various countries had changed greatly. Most striking were the rise of the United States and the decline of Great Britain and Germany. These changes had to be recognized in determining the relative gold values of money and relative price levels if a gold standard was to operate satisfactorily. (3) Treasuries and central banks had acquired much experience in managing money internally and in controlling international financial transactions. (4) Monetary gold was largely concentrated in central banks and treasuries, and people had become fully accustomed to the use of nongold money.

THE REËSTABLISHMENT OF GOLD STANDARDS, 1919–1929

The United States restored the full redeemability of its money in gold in 1919, resuming its prewar gold-coin standard and giving the dollar its prewar gold content of 23.22 grains. It could do this because its prices had risen less than those of most other countries, it was able to export large amounts of goods, it was a creditor rather than a debtor on international account, and it had accumulated about a third of the world's monetary gold. Prices in this country continued to rise until 1920; but the drastic decline that began in the middle of that year and lasted into 1921 brought wholesale prices down to about 140 percent of their level in 1913, and they fluctuated around that level until 1928. Thus, the purchasing power of gold here during the 1920's was about 70 percent of its 1913 level. This was a fact that no country could ignore if it wished to be successful



* Established exchange restrictions.

FIG. 4. Countries on the Gold Standard, 1921–1938. (Source: U.S. Treasury.)

in returning to gold. Either by devaluing its money in terms of gold or by lowering its price levels, every country had to give gold a purchasing power within its boundaries that was in line with that in the United States.

Germany in 1924 was the next commercially important country to return to gold, although several small countries—mostly neutrals who had benefited financially from their wartime trade—preceded it. As noted earlier, the German inflation had reached astronomical heights, prices rising to many billion times their prewar levels. Rather than attempt to stabilize its old monetary unit, the mark, Germany adopted a new unit, the reichsmark, which was made equal to about 23.8 cents (about 5.5 grains of gold). One reichsmark was given for a trillion of the old paper marks. The success of Germany's stabilization was in part due to loans and other assistance from countries hoping for an early resumption of reparations payments.

Great Britain returned to gold in 1925, the pound being given its full prewar gold content. Many other countries with close political or economic ties soon followed suit. To insure its success in retaining gold, Britain borrowed $100 million from J. P. Morgan and Co. and arranged a $200-million line of credit with the Federal Reserve Bank of New York. In giving the pound sterling its prewar value in terms of gold, the British may have accomplished one of their major aims—to restore the international prestige of the pound and defend London's position as the world's financial center. Yet most economists now agree that the gold content of the pound should have been reduced in order to obviate the necessity of lowering British price levels so much. The wartime inflation had carried British cost elements to high levels from which they could be brought down only slowly and painfully. As a result, the decline of prices which was required to raise the value of gold in England to the level prevailing in the United States decreased the profitability of production and brought about serious and prolonged unemployment. If the gold value of the pound had been reduced somewhat so that the pound would have been cheaper in the foreign-exchange market, Britain could have kept its position in export markets and have retained the required amount of gold without lowering its price levels. The case for some devaluation of the pound in

terms of gold was strengthened by the fact that Britain's international economic position had been weakened to some extent by the decline in its income from foreign investments and the rise of competitive sellers in the export market.[2]

The deflationary pressure on Britain and on other countries that had placed too high a gold value on their money was intensified by the action taken by France in returning to gold in 1928. As noted earlier, inflation there continued until 1926. Rather than attempt a long and painful deflation, France decreased the gold content of the franc by about 80 percent. This proved to be an excessive reduction, making France a favorable market in which to buy and tending to concentrate excessive amounts of gold there at the expense of other countries. Similar devaluations were made by Italy and Belgium.

In summary, gold again became an international standard between 1924 and 1928. In 1923 it was employed by only the United States and a few small nations; by the end of 1928 it had been readopted by most of the world's commercially important countries.

Characteristics of the New Gold Standards

The new monetary arrangements differed greatly from those in use at the outbreak of World War I. In the first place, gold-coin standards virtually disappeared everywhere except in the United States, the new systems being predominantly gold-bullion or gold-exchange standards, or combinations of the two. In many cases the monetary authority had the option of redeeming money in gold bars or in foreign money which was stable in terms of gold. Let us look first at the gold-bullion standards. Typically, gold coins were no longer struck, existing gold coins had been called in, and other money was redeemable in gold bullion in certain minimum amounts. For example, the minimum amount of gold that would be sold by the monetary authority was about $7585 in Great Britain, $8428 in France, $9114 in Belgium, $8747 in Czechoslovakia, and $3645 in Italy. The general effects of these bullion standards were to eliminate gold coin as a part of the circulating medium, to limit the convertibility of other types of

[2] For a more detailed discussion of this complex problem, see T. E. Gregory, *The Gold Standard and Its Future*, Methuen, London, 3rd ed., 1934, pp. 39–59.

money into gold, and to concentrate gold in the hands of the monetary authorities. This concentration not only increased the freedom of management of these authorities, as we have already seen, but also tended to "economize gold"—to increase the total amount of money relative to gold stocks, since a dollar's worth of gold in the reserves of a central bank could "support" several dollars' worth of circulating notes or checking deposits.

The increased use of various kinds of gold-exchange standards was to influence markedly the functioning of gold standards. For one thing, redemptions of domestic money only in foreign gold money (usually drafts on foreign banks) was a way of limiting the internal holding of gold. Furthermore, it led to greatly increased holdings of foreign money by central banks. For example, the Bank of France and other central banks could count as part of their "gold reserves" their holdings of claims on other gold standard money, such as dollars and pounds. They therefore accumulated sizable holdings of this sort. Such a practice had several consequences. It tended to "economize gold" by "pyramiding" credit. Suppose, for instance, that the Bank of France held in its reserves a $500-million claim on American banks, on the basis of which it expanded France's money supply. To the Bank of France this claim was the equivalent of gold. But our Federal Reserve banks held the physical gold in their reserves and used it as a backing for money here. The result was a high pyramid; the United States expanded its various kinds of dollars on the basis of its actual gold holdings, and France expanded its money on the basis of its claims against dollars. Such an arrangement was unquestionably convenient and economical of gold during untroubled periods. But it was also dangerous in the absence of thoroughgoing international coöperation. Our gold reserves could be quickly and seriously depleted by a decision of the Bank of France, or of any other central bank similarly situated, to demand payment of its claims in gold. Such action could exert strong deflationary pressure in the United States without any offsetting inflationary pressure in France, because the latter's total "gold" reserves would not be increased by its decision to hold gold rather than dollar claims. In fact, any widespread tendency to "de-

pyramid" could exert strong deflationary pressures throughout the world, for effective "gold reserves" would come to include only gold itself, instead of both gold and the claims on it that were previously counted as a gold equivalent.

The widespread use of gold-exchange standards and the central banks' practice of holding large amounts of foreign money in their reserves increased the danger of international financial panics. The danger of a "run" was especially great in countries whose money was held in large amounts by the central banks of other countries. The British pound and the American dollar were very vulnerable because of their popularity with other monetary authorities. An fear that one of these units would depreciate in terms of gold could lead to such widespread and immediate demands for gold by foreign creditors as to force the country off the gold standard. In fact, panic demands for gold played an important part in the dissolution of the gold standard after 1929.

In the second place, postwar gold standards were deliberately managed to a much greater extent than were those of the prewar period. The mere installation of the Federal Reserve System in the United States in 1914 materially changed the operation of the gold standard here; moreover, we had become the most powerful nation in the world in the field of money and finance. No country could afford to ignore variations in the purchasing power of gold here. The rise of monetary management was not limited to this country; it was virtually a world-wide trend.

Though the introduction of a greater degree of management unquestionably changed the operation of gold standards, its results were not wholly beneficial. In general, nations failed to coöperate sufficiently to achieve their objectives—if they kept their objectives constantly in view. By restoring gold standards they had again stabilized exchange rates among their various moneys, but they were not willing to allow their internal money incomes and price levels to adjust themselves in response to gold inflows and outflows. Complaints multiplied that nations were "violating the rules of the gold standard game." Some countries, especially the United States and France,

sometimes "neutralized" or "sterilized" gold inflows, preventing them from effecting increases in their money supplies, money incomes, and prices. Other nations complained that such action prevented these gold inflows from terminating themselves, as they would if they were allowed to exert their normal expansionist effects, and that it tended to prolong the drain of gold from other countries, thereby enhancing deflationary pressures there. On the other hand, countries losing gold were often reluctant to allow gold exports to decrease their money supplies, money incomes, and prices, with the result that the gold drain was prolonged. Monetary experts repeatedly warned that gold standards could not operate satisfactorily without thoroughgoing international coöperation in monetary management. They insisted that monetary authorities should (1) agree on general objectives and on rules to be followed to accomplish those objectives, and (2) conform their actual monetary policies to those agreed upon. They emphasized the interdependence of monetary systems and insisted that an international monetary standard required either international management or very close coöperation among national monetary authorities. Some central banks did coöperate, but the action was only sporadic and tended to break down during periods of crisis.

In the third place, postwar gold standards had to operate under general economic conditions that were much less favorable than those immediately preceding 1914. Higher tariffs and many other ingenious devices were used to impede world trade, thereby interfering with appropriate adjustments of imports and exports. Heavy war debt and reparations payments, together with the unwillingness of the United States and other creditors to accept goods in payment, tended toward excessive concentrations of gold in a few countries, especially in the United States and France. Sporadic international lending, with funds flowing freely at some times and dwindling to a trickle at others, led to rapidly shifting balances of international payments. And the vivid memory of war and postwar monetary disturbances inclined people to become panicky whenever the gold value of a currency was threatened. These and many other conditions were unfavorable to a smooth functioning of gold standards, especially of systems that were not wisely managed.

THE BREAKDOWN OF GOLD STANDARDS

In 1929 the world began to slide into the great depression which was to bring not only wholesale departures from gold standards but also rapid price declines, ruinous reductions of both money and real national incomes, widespread bankruptcies, long lines of unemployed, and a general social and economic discontent that played an essential role in precipitating World War II. We are interested here only in the accompanying decline of gold standards.

A few countries abandoned gold in 1929 and 1930, and most of the others left it in 1931. The United States and France were the only major nations remaining on it at the beginning of 1933, and we renounced it during that year. In less than a decade gold had again lost its position as an international monetary standard. Many countries renounced it in a straightforward way, refusing to redeem their money in it, though they still stood ready to buy it at the old price. Others tried to maintain the fiction of a gold standard while destroying its substance. For example, Germany insisted that it was on a gold standard even though it would not sell gold at a fixed price for internal use, would sell gold for export only for very limited purposes and in closely regulated amounts, and would allow funds to be exported or imported only under government license. Exchange control —that is, strict government licensing and control of international payments—became so widespread that it threatened to throttle international transactions. Such a system can hardly be called a gold standard.

Why did the gold standard break down so completely? A full explanation would be too lengthy to be included here, but we can point out some of the principal factors in its demise. These are: (1) the deterioration of world trade, (2) the virtual cessation of international long-term lending, and (3) an international panic in which great volumes of short-term credits were summarily withdrawn from international financial centers. All these developments were closely related to the deepening depression, both as aggravating causes and as effects.

As the depression deepened and national incomes declined, the

demand for goods and services in world markets fell. Because of unemployment and because economic systems were running in low gear, imports of both finished goods and raw materials were reduced. Especially hard hit were the countries exporting raw materials whose prices dropped abruptly. With the great drop in their receipts from exports, the ability of these countries to maintain enough gold to insure convertibility of their money was weakened. Their plight was worsened by the second factor, the virtual cessation of international lending.

Many countries had been assisted in restoring the convertibility of their money in gold, and thereafter in maintaining this convertibility, by large international loans from abroad. The United States alone lent abroad, in net amounts, over $700 million in 1926, over $1000 million in 1927, and nearly $850 million in 1928. Beginning in 1929, however, international lending began to dry up. The tightness of credit here, associated with stock market speculation and the restrictive credit policies of the Federal Reserve, lowered our net long-term lending in 1929 to less than $300 million. International lending declined still more as the depression deepened, as national incomes fell, and as prospects of repayment darkened. Repayments to the United States actually exceeded our new long-term foreign lending by nearly $500 million during 1931–32. This country, and some other international lenders, were likened to a shortsighted and capricious loan shark who dispenses loans with a generous hand during untroubled periods and then ruthlessly demands repayment regardless of the consequences as soon as doubts begin to cloud the future. In any case, the virtual cessation of international lending and the demand for repayment greatly weakened the gold position of many countries that had been borrowing heavily; and this loss of loan receipts from abroad and the necessity of repaying came at the very time that receipts from exports of goods and services were dwindling. Sizable drains on gold were an inevitable result.

These two factors alone—the decreased demand for exports and the cessation of long-term lending—were enough to force some countries to terminate the redeemability of their money in gold, and they weakened the gold position of many others. Moreover, they

were a highly unwelcome deflationary influence. But the wholesale departures from gold in 1931 were precipitated by an international financial panic in which frightened foreign creditors demanded immediate repayment of short-term debts in gold. These international short-term debts (or credits) were large in amount; in some countries they were several times as large as gold stocks. They took many forms. Some of them were in the form of foreign deposits with central or commercial banks. Others were in the form of short-term foreign loans in the securities markets and short-term commercial debts owed to foreigners. But they had one common characteristic: they were all payable on demand or on short notice. The owners of these international short-term credits were of two general types. One was the central banks and other monetary authorities who maintained large deposits and other short-term credits in foreign financial centers to implement their gold-exchange standards. The other included commercial banks, corporations, and individuals who had accumulated deposits or other short-term credits abroad to facilitate their business operations or to earn interest. Neither group was willing to suffer a loss on its foreign credits; all that was needed to start a panicky demand for immediate repayment was a fear that these credits would depreciate in terms of gold. Their psychology was that of the old lady who told her banker, "I just came in to see if I could get cash for my deposits here. If I can get it, I don't want it; but if I can't get it, I want it immediately."

The international panic began in May, 1931, with the failure of the Credit-Anstalt, the largest bank in Austria. This raised doubts as to the ability of any Austrian bank to meet its obligations, and not only foreigners but many Austrians as well withdrew large amounts of funds from the country. So great was the flood of withdrawals that it exhausted large loans from the Bank of England and the Bank for International Settlements as well as Austrian holdings of gold and foreign money; consequently Austria was forced to terminate the convertibility of its money in gold. Many creditors found their remaining credits frozen and depreciating in terms of gold.

The panic was now on. Fearful creditors, remembering losses in Austria, began to withdraw their credits from Berlin, and frightened

Germans joined the run. Within a few weeks and despite sizable loans from the Bank of England, the Bank of France, the Bank for International Settlements, and the Federal Reserve Bank of New York, Germany suspended gold payments in July, 1931, and placed strict limitations on international payments of all sorts. Millions of dollars' worth of short-term foreign credits were frozen in Germany.

Reinforced, the panic swept on to London, from where credits were rapidly withdrawn. An increase in its discount rate by the Bank of England, which was supposed to attract and retain foreign funds, seemed rather to publicize the fact that England was in financial difficulties, and thereby hastened withdrawals. Even a $250-million joint credit from the Federal Reserve Bank of New York and the Bank of France was insufficient to stop the run or to cover withdrawals, which amounted to $975 million from July to late September. England departed from gold on September 21, 1931. The retreat from gold now became a rout. By April of 1932, gold standards had become inoperative in the following countries:[3]

Argentina	Estonia	Nicaragua
Australia	Finland	Norway
Austria	Germany	Paraguay
Bolivia	Greece	Portugal
Brazil	Honduras	Rhodesia
Bulgaria	Hungary	Russia
Canada	India	Salvador
Chile	Iraq	Spain
Colombia	Irish Free State	Sweden
Costa Rica	Japan	Turkey
Czechoslovakia	Jugoslavia	United Kingdom and dependencies
Denmark	Latvia	
Ecuador	Newfoundland	Uruguay
Egypt	New Zealand	Venezuela

In the meantime the position of the United States was becoming daily more precarious because of both internal and external events. The depression was deepening; millions were unemployed, millions more were working only part time, the national income had fallen far

[3] H. V. Hodson, *Slump and Recovery, 1929–1937*, Oxford, London, 1938, p. 92.

below 1929 levels, prices were dropping, bankruptcies were widespread, and the ability of many other creditors to meet their obligations was questionable. Our banks, never strong in their ability to withstand depression, were failing in large numbers. More than 5000 commercial banks, about 20 percent of all the banks in the country, failed in the years 1930–31–32. Depositors were becoming increasingly doubtful of the ability of banks to redeem their deposits in coin or paper money and were withdrawing large sums for hoarding. Up to the end of 1932 there seemed to be little fear that token coins or paper money would depreciate in terms of gold; early in 1933, however, the demand for gold for hoarding purposes increased.

Closely related to unfavorable internal conditions, both reinforced by them and reinforcing them, was the withdrawal of short-term credits by foreigners who feared that the United States would join the panicky abandonment of gold. The net outflow of short-term funds from this country amounted to $479 million in 1930, $637 million in 1931 and $446 million in 1932. But even at the end of 1932 our gold position seemed very strong. Both internal hoarding and the export of short-term credits had subsided somewhat, and the country held monetary gold stocks amounting to $4226 million, which was about 40 percent of the world's total. But this was only the lull before the storm. The storm broke in Detroit with the failure of the Union Guardian Trust Company, which was one of the largest banks in Michigan and was also closely connected with many other banks. So great was the blow to public confidence in the ability of banks to redeem their deposits in cash and so panicky were withdrawals that the governor of Michigan on February 14, 1933, declared an eight-day bank holiday. The panic now spread to other states. By March 4 every state in the Union had declared bank holidays and bank deposits were no longer redeemable in cash.[4] President Roosevelt's decree of a national four-day bank holiday beginning on March 6 merely recognized the existing situation.

The collapse of the banking system was accompanied by develop-

[4] Lacking constitutional power to relieve banks of their obligation to redeem deposits in legal-tender coin or paper money, some of the governors used amusing methods. For example, the governor of Kentucky declared "Days of Thanksgiving." The reason for his thankfulness is still unclear.

ments that threatened the gold position of the Federal Reserve banks and the Treasury. The domestic drain of cash from banks amounted to nearly a billion dollars, and there was some tendency to demand gold coin and gold certificates for domestic hoarding. At the same time foreigners were rapidly withdrawing short-term credits, so that our monetary system lost $270 million of gold during February and March. How much more would have been lost if the banks had been redeeming their deposits freely can never be known.

It was under these conditions that President Roosevelt on March 6, 1933, placed an embargo on gold exports, thereby abandoning the gold standard.

SELECTED READINGS

Bank for International Settlements, *Annual Reports.*

Brown, W. A., Jr., *The International Gold Standard Reinterpreted, 1914–1934,* National Bureau of Economic Research, New York, 1940, 2 vols.

Gregory, T. E., *The Gold Standard and Its Future,* Methuen, London, 3rd ed., 1934.

Mlynarski, F. J., *The Functioning of the Gold Standard,* League of Nations, Geneva, 1931.

Puxley, H. L., *A Critique of the Gold Standard,* Harper, New York, 1934.

Report of the Macmillan Committee on Finance and Industry, His Majesty's Stationery Office, London, 1931.

Rogers, J. H., *America Weighs Her Gold,* Yale University Press, New Haven, 1931.

The Gold Delegation:

The Interim Report of the Gold Delegation, League of Nations, Geneva, 1930.

Selected Documents Submitted to the Gold Delegation, League of Nations, Geneva, 1930.

Legislation on Gold, League of Nations, Geneva, 1930.

Second Interim Report of the Gold Delegation, League of Nations, Geneva, 1931.

Selected Documents on the Distribution of Gold, League of Nations, Geneva, 1931.

The Report of the Gold Delegation, League of Nations, Geneva, 1932.

CHAPTER 8

Monetary Standards Since 1933

When the United States abandoned gold on March 6, 1933, it was generally expected that the departure would be no more than temporary and that the form of the gold standard when restored would be practically unchanged. The gold standard could probably have been reëstablished with no more than minor changes if the government had been willing to make this the primary objective of its monetary policy. We still held, even at the end of the panic, about a third of the world's monetary gold, and foreign credits here had been reduced to a low level. Domestic gold hoarding could probably have been minimized by actions restoring confidence in the banks and by conservative and tight monetary policies. In the end, however, it was decided that other monetary objectives were more important than maintaining the gold value of the dollar at its old level. We therefore remained off the gold standard during the remainder of 1933 and adopted a new and drastically changed gold standard in January, 1934.

BACKGROUNDS OF THE NEW GOLD STANDARD

Monetary policies during 1933 and the new gold standard that was adopted in 1934 can be understood only in the light of economic developments since 1929. The period was one of devastating deflation and widespread economic distress. By early 1933 the nation's money supply had fallen nearly 25 percent below 1929 levels; the remaining

money was being spent only slowly and cautiously; the national income had fallen by more than 50 percent in terms of money, and more than 25 percent in real terms; wholesale prices had fallen more than 30 percent; upward of 15,000,000 persons were wholly unemployed or working only part time; reflecting the decline of spendings for output, thousands of corporations were incurring heavy losses and many were unable to meet even the interest on their debts; farm mortgages were being foreclosed in large numbers and others were in default as to both interest and principal; defaults on urban real estate mortgages were widespread; and the solvency of a large part of our financial institutions was in serious doubt. President Roosevelt decided that the primary objective of our monetary policy, as well as of our fiscal and general economic policy, must be to halt the deflationary spiral and to bring about an expansion of the money supply, money spendings, national income, employment, and prices. In his fourth Fireside Chat he emphasized his determination to bring about "reflation"—an increase of price levels.

> Ever since last March the definite policy of the Government has been to restore commodity price levels. The object has been the attainment of such a level as will enable agriculture and industry once more to give work to the unemployed. It has been to make possible the payment of public and private debts more nearly at the price level at which they were incurred. It has been gradually to restore a balance in the price structure so that farmers may exchange their products for the products of industry on a fairer exchange basis. It has been and is also the purpose to prevent prices from rising beyond the point necessary to attain these ends.[1]

He also stated emphatically that the prime objective of our monetary policy after prices had been increased to the desired level should be stabilization of the purchasing power of money.

> Old fetishes of so-called international bankers are being replaced by efforts to plan national currencies with the objective of giving to those currencies a continuing purchasing power which does not greatly vary in terms of the commodities and needs of modern civilization. Let me

[1] Radio address to the nation, October 22, 1933. Reproduced in *The Public Papers and Addresses of Franklin D. Roosevelt*, Random House, New York, 1938, vol. ii, p. 425.

be frank in saying that the United States seeks the kind of dollar which a generation hence will have the same purchasing and debt-paying power as the dollar value we hope to attain in the near future. That objective means more to the good of other Nations than a fixed ratio for a month or two in terms of the pound or franc.[2]

It was feared that the readoption of gold with the dollar at its former gold value would in two ways impede the restoration of higher price levels. In the first place, restoration of the full convertibility of dollars into gold might lead to such extensive gold exports and internal gold hoarding as to reduce seriously the gold reserves of the Federal Reserve banks and force them to follow restrictive credit policies. There was some basis for this fear. Public confidence in the banks was still fragile, so that a resumption of internal hoarding of gold as well as of coin and currency in general was a real possibility. Moreover, the government's vigorous policy of reflation included marked increases of government spending and additional money issues which were considered radical by many and which could easily have raised doubts as to the government's ability to redeem its money in gold. In achieving its primary objective of raising price levels, the New Deal administration was not willing to be hampered by any obligation to convert dollars into gold.

In the second place, it was feared that restoration of the former gold value of the dollar and of free gold exports would prevent what was considered a necessary reduction in the price of dollars in the foreign-exchange market. This point can be understood only by reference to the existing situation in those markets. It will be remembered that practically all the major countries except France had been off the gold standard for a year or more. By February, 1933, their money had fallen markedly in value relative to both gold and the dollar; or, to put the same thing another way, the dollar had risen markedly in terms of foreign money. This is shown by the examples in Table 15.

This decline in the price of foreign money (that is, the rise in the price of dollars in terms of foreign money) tended to accentuate de-

[2] Message to the London Economic Conference, July 3, 1933. See *ibid.*, p. 265.

flation here by lowering the prices of both our exports and our imports. This was true because the new exchange rates placed such a high value on the dollar relative to foreign monetary units. Let us look first at the effect on export prices, using exchange rates between dollars and pounds as an example. Even as late as August, 1931, a pound would buy about 4.86 of our dollars, which could then be used to buy our goods. But by February, 1933, the pound had fallen to $3.42; the price of dollars in terms of pounds had risen by more than

TABLE 15. Decline of Selected Foreign-Exchange Rates, 1929–February, 1933[3]

Money	Average Price in Dollars in 1929	Average Price in Dollars in February, 1933	Percentage Decline of Money in Terms of Dollars
British pound	$4.857	$3.422	30
Canadian dollar	0.992	0.835	16
Argentine peso	0.951	0.586	38
Brazilian milreis	0.118	0.076	35
Indian rupee	0.362	0.258	29
Chilean peso	0.121	0.060	50
Danish krone	0.267	0.153	43
Norwegian krone	0.267	0.175	34
Swedish krona	0.268	0.183	32
Portuguese escudo	0.045	0.031	31
Australian pound	4.81	2.72	45

40 percent. This increase in the cost of each dollar meant that a foreigner, computing cost in terms of his own money, would find it more expensive to buy here unless our prices fell enough to offset the increased cost of dollars in the foreign-exchange market. For example, before September, 1931, an Englishman could for £1 buy an article in the United States that was selling for $4.86. But after the pound had depreciated to $3.42 the article, if it still sold in the United States for $4.86, would cost him one and four-tenths pounds. He would therefore tend to decrease his demand for American goods and buy either at home or from other countries whose money had not risen, unless the

[3] This table deliberately omits money which was inconvertible in terms of gold and which was artificially pegged, at least in official markets, at high prices. Most of these moneys were depreciated in unofficial or black markets.

price of the American product fell to about $3.42. This overvaluation of the dollar in the exchange market was a powerful factor in depressing the prices of our export goods, especially of such articles as cotton and wheat which had to compete with the products of countries with depreciated currencies.

The increased value of the dollar in the exchange market also tended to reduce the prices of American products that competed with imports; for declines in the prices of foreign money, unaccompanied by offsetting price increases abroad, decreased the cost of foreign products to us. For instance, before September, 1931, an article selling for £1 in England cost an American importer about $4.86. But the same article would cost him only $3.42 in February, 1933, if it could still be bought in England for £1. And English prices rose only slightly during this period.

Part of the New Deal program for raising domestic prices included lowering the value of the dollar in terms of foreign money. It was believed that cheapening the dollar in the foreign-exchange market would increase the foreign demand for our exports and permit our export prices to rise in terms of dollars. Moreover, an increase in the price of foreign money would also increase the dollar cost of imported goods, thereby permitting increases in the prices of American products that competed with imports. We shall see later that competitive attempts by many countries to raise their domestic price levels by lowering the value of their money in the exchange market can have seriously disturbing effects on monetary systems and international transactions. It is probably true, however, that the American policy of lowering the price of the dollar in terms of foreign money did aid in raising our domestic prices.

These, then, were the reasons for the New Deal's unwillingness to restore the former gold standard in 1933. Not necessity but a desire to be unhampered by it in achieving higher prices was the motive for refusing to restore it. The following sections will deal only with strictly monetary measures employed in 1933 to facilitate expansion. But it must not be forgotten that these were supplemented by ambitious programs to raise agricultural prices, to provide relief for the unemployed, to expand public works, to decrease the length of the

work week and raise wages, to end "unfair competition" in industry, and to bail out debtors and credit institutions.

MONETARY POLICY IN 1933

With all the banks closed, Congress on March 9 gave the President broad executive powers to regulate the banks and the conditions of their reopening and to control the holding and trading of gold. A majority of the banks were reopened soon thereafter, with confidence restored to such an extent that large amounts of cash were redeposited with them. A number of executive orders issued in March and April effectually ended the convertibility of dollars into gold. By the end of April virtually all gold coins, gold bullion, and gold certificates, except rare coins and reasonable amounts of gold for use in industry and the arts, were required to be turned in to the government. The government would sell gold only for "legitimate" industrial or artistic uses. It would not supply the metal for export or even to meet maturing debts specifically requiring payment in gold.

In the meantime many groups were demanding monetary expansion to end the deflation, and each seemed to have its own method for accomplishing this purpose.[4] Some of the more conservative urged a liberal expansion of Federal Reserve credit. Vocal groups in the South and West, remembering the battle cries of the late nineteenth century, demanded remonetization of silver at the old 16-to-1 ratio. Others, looking at the current use of "scrip," "prosperity checks," "corn money," and "cotton money" in a number of states, demanded national issues of scrip. Others wanted large issues of greenbacks of the Civil War type. And still others demanded an increase in the price of gold. The legislation enacted in May, 1933, showed the influence of all these groups and gave the President unprecedented powers to expand the money supply in many ways.[5] The President himself, or the Secretary of the Treasury acting under presidential direction, was empowered:

[4] This paragraph leans heavily on G. Griffith Johnson, Jr., *The Treasury and Monetary Policy, 1933–1938*, Harvard University Press, Cambridge, 1939, pp. 10–11.

[5] This legislation was included under Title III of the Farm Relief Act approved by the President on May 12, 1933.

1. To enter into agreements with the Federal Reserve Board and the Federal Reserve banks for the latter to buy directly from the Treasury, and to hold, up to $3 billion of federal government securities in addition to those already in their portfolios. The effect of such purchases, as we shall see later, would be a corresponding increase of bank reserves.
2. To issue United States notes (greenbacks) in amounts not to exceed $3 billion. These were to be legal tender for all debts.
3. To fix the gold value of the dollar by proclamation, with the limitation that it should not be reduced more than 50 percent.
4. To fix the silver value of the dollar and to provide for the unlimited coinage of both gold and silver at fixed ratios. The President could reëstablish a bimetallic standard in this country alone or he could enter into agreements with other countries to establish international bimetallism.
5. To accept silver at a price not to exceed 50 cents an ounce in payment of debts from foreign governments, the total accepted in this form not to exceed $200 million. Any silver acquired in this way was to be coined into silver dollars and held as backing for additional silver certificates.

If the President had used all these powers vigorously, the combined effects could have been highly expansionist. His actual use of them was quite limited, however, as compared with their potentialities; in fact, there is evidence that he prevailed upon Congress to pass this broad permissive legislation in order to avoid a highly expansionist mandatory law. Federal Reserve purchases of additional government securities were far below the amount permitted (they amounted to about $600 million). No additional greenbacks were issued. Only limited amounts of silver were acquired in 1933 in payment of war debts or by Treasury purchase. But in September the President began to use vigorously his power to increase the price of gold, that is, to reduce the gold value of the dollar. From September 8 to October 24, the Secretary of the Treasury stood ready to receive newly mined domestic gold on consignment at a price equal to the best price available in free gold markets abroad. On October 24 this price was $29.80 an ounce, or 44 percent above the old mint price. Dissatisfied with

the extent of the rise in gold prices, the President ordered the Reconstruction Finance Corporation to purchase newly mined domestic gold at increasing prices. These purchases began on October 25. Purchase prices were as follows, to cite only month-end figures:[6]

Date	RFC Purchase Price per Fine Ounce	Percentage of Old Mint Price ($20.67)
October 31, 1933	$32.12	155
November 29, 1933	33.93	164
December 30, 1933	34.06	165
January 31, 1934	34.45	167

Thus, by the end of January, 1934, the price of newly mined domestic gold had been raised 67 percent above the old mint price; the gold value of the dollar had been reduced about 40 percent.

It is clear that the gold-buying program to raise the price of gold was undertaken as part of the general program to raise commodity prices. This was emphasized in the President's October 22 radio address just before the gold-buying program was begun.[7] What is not so clear, however, is the process by which the enhanced price of gold was expected to increase the prices of other goods and services. Some critics have accused the President of accepting fully the rather naïve theories held by one of his monetary advisers, Professor George F. Warren, regarding the relationship between gold and price levels. Professor Warren, pointing to alleged long-run correlations between the monetary value of gold stocks and the height of price levels, argued that an increase in gold prices would raise domestic price levels in a short period of time and almost in proportion to the increase in the price of gold. With many qualifications, there is some tendency *in the long run* for the monetary value of gold stocks and price levels to move in a parallel manner. Even in the short run an increase in the price of gold can be used to increase the monetary value of gold stocks and the size of bank reserves, thereby *permitting* an expansion of the money supply. But there is no assurance that the total money supply, being largely composed of bank deposits, will rise proportionally in the short run, or that an increase of the money

[6] See Secretary of the Treasury, *Annual Report, 1934*, p. 205.

[7] This speech is reproduced in *The Public Papers and Addresses of Franklin D. Roosevelt*, vol. ii, pp. 420–427.

supply, even if achieved, will increase spendings proportionally, or even that increased spendings will effect proportional changes in price levels. The extent to which the President was influenced by Professor Warren's theory is not known.

There is some evidence, however, that a stronger motive for raising the dollar price of gold was the one mentioned earlier—the desire to lower the value of the dollar in terms of foreign money, thereby increasing the foreign demand for our exports, especially for farm products, and raising the prices of these goods in terms of dollars. This is indicated in the President's notes for his radio address on October 22, 1933.

> At this point it may be said that the depreciation of foreign currencies, prior to 1933, had had the effect of making the dollar more expensive in terms of those foreign currencies. Thus it took more pounds, more francs or more marks to buy a dollar than it had formerly and, since the prices of our export products are determined in terms of dollars, it took more pounds, francs and marks to buy our export products. The effect of this had been to contribute to the serious decrease in our foreign trade, not because our own prices, in terms of dollars, had risen, nor because our products were of an inferior quality, nor because we did not have sufficient products to export. But because, in terms of foreign currencies, our products had become so much more expensive, we were not able to obtain our fair share of the world's trade. It was, therefore, necessary to take measures which would result in bringing the dollar back to the position where a fair amount of foreign currency could again buy our products; that is, to make the dollar cheaper in terms of pounds, francs or marks. This was the process which commenced in March, 1933, and which had to be continued until that level was reached. It was not desirable to make this level too low, because then our own importers would find it difficult to buy foreign merchandise. But it was clear that the level had been too high, and we wanted to find the appropriate level.[8]

As is shown in Table 16, the value of the dollar in terms of foreign money had already been substantially reduced before the start of the gold-buying program, and it fell still further as the program was carried through. It is impossible to isolate the effects of the dollar's decline in terms of foreign money upon the prices of our exports, especially our exports of farm products. Our export prices did rise,

[8] *Ibid.*, vol. ii, p. 428.

and the rise was unquestionably assisted by the increase in foreign-exchange rates. But two facts must be kept in mind: (1) Many other factors, especially crop reduction and government purchase programs, were also tending to raise farm prices, and (2) the decline of the dollar in terms of foreign money could raise our export prices proportionally only if these prices remained constant in terms of foreign

TABLE 16. Dollar Prices of Selected Foreign Moneys, February and September, 1933, and January, 1934

Money	Price in February, 1933	Price in September, 1933	Price in January, 1934	Percentage Increase, February, 1933, to January, 1934
English pound	$3.422	$4.665	$5.032	47
French franc	0.039	0.058	0.065	49
Australian pound	2.722	3.713	4.088	48
Canadian dollar	0.835	0.965	0.992	19

money. And our actions tended to lower prices abroad somewhat, the extent varying from case to case.

THE REESTABLISHMENT OF A GOLD STANDARD, JANUARY, 1934

From early March, 1933, until the end of January, 1934, the United States was unquestionably off the gold standard. Not only did the government refuse to redeem its money in gold either for domestic holding or for export, but it required the turning in of virtually all gold coin, gold bullion, and gold certificates except rare coins and "reasonable amounts" for industrial or artistic uses. The country returned to gold on January 30, 1934, but the new gold standard differed greatly from that prevailing before March, 1933. The principal provisions of the Gold Reserve Act of 1934 were as follows:

1. The President was authorized to fix the gold value of the dollar, with the limitation that it might not be fixed at less than 50 percent or more than 60 percent of the old amount. Thus, the President at his discretion could define the dollar as not more than

13.93 grains and not less than 11.61 grains; the price of gold could not be set below $34.45 (the level reached by January under the gold-buying program) or above $41.34 an ounce.

Acting under this power, the President on January 31, 1934. fixed the price of gold at $35 an ounce, though he expressly reserved the right to alter the price as the country's interest might require.[9] Actually, however, the price has remained unchanged at this level. The gold content of the new dollar is 13.71 grains, representing a reduction of 40.94 percent. Revaluation of the nation's monetary gold stock at $35 rather than $20.67 an ounce yielded the Treasury a handsome profit. The gain amounted to $14.33 on each of nearly 196 million ounces, or $2805 million.

2. All gold was "nationalized." Banks and individuals had already been required to turn in all gold and gold certificates, except for certain permitted amounts of gold, to the government or the Federal Reserve banks. The law provides that title to gold in the Federal Reserve banks shall be vested in the government, and that any profits or losses accruing from increases or decreases in the price of gold shall be for government account. The Federal Reserve may, however, hold gold certificates. No currency of the United States is to be redeemed in gold, except that gold certificates held by the Federal Reserve banks may be redeemed in gold to the extent that the Secretary of the Treasury judges necessary.
3. No more gold is to be coined (unless for foreign use) and existing coins are to be formed into bars.
4. No one may hold, transport, import, export, or otherwise deal in gold except under regulations to be prescribed by the Secretary of the Treasury with the approval of the President.
5. A $2-billion stabilization fund was set up with part of the profits from the gold revaluation. As manager of this fund, the Secretary of the Treasury has wide powers. We shall see later that such stabilization funds can be powerful instruments for controlling

[9] The buying price is actually ¼ of 1 percent below $35 and the selling price ¼ of 1 percent above it. The President's power to make further changes in the price of gold was rescinded by legislation enacted in 1945.

internal credit, changing the price of gold, and regulating the prices of money in the exchange market.

A comparison of the new standard with the old shows great differences. (1) The gold value of the new dollar is only 59.06 percent as great as that of the old. (2) The gold-coin standard was abolished. Even gold bullion cannot be secured for any internal use except in industry or the arts, and it is sold for export only under the conditions laid down by the Secretary of the Treasury. The reasoning behind this change was given in the President's message to Congress on January 15, 1934:

> . . . The free circulation of gold coins is unnecessary, leads to hoarding, and tends to a possible weakening of national financial structures in times of emergency. The practice of transferring gold from one individual to another or from the Government to an individual within a Nation is not only unnecessary, but in every way undesirable. The transfer of gold in bulk is essential only for the payment of international trade balances.
>
> Therefore it is a prudent step to vest in the Government of a Nation the title to and possession of all monetary gold within its boundaries and to keep that gold in the form of bullion rather than in coin. . . .
>
> The title to all gold being in the Government, the total stock will serve as a permanent and fixed metallic reserve which will change in amount only so far as necessary for the settlement of international balances or as may be required by a future agreement among the nations of the world for a redistribution of the world stock of monetary gold.[10]

(3) The monetary system has been subjected to a higher degree of deliberate monetary management than ever before. This point will be developed in our later discussion of Federal Reserve and Treasury policy.

Abrogation of "Gold Clauses"

The government's policy of devaluing the dollar in terms of gold raised serious problems in debtor-creditor relationships because of the wide use of "gold clauses" in debt contracts. These clauses, in effect, called for payment of debts in a fixed amount of gold. For example, a corporation bond or a real estate mortgage issued in 1925

[10] *The Public Papers and Addresses of Franklin D. Roosevelt*, vol. iii, pp. 41–42.

would promise payment of "one thousand dollars gold coin of the United States of the present standard of weight and fineness." United States Liberty Bonds issued in 1917 read: "The principal and interest hereof are payable in United States gold coin of the present standard of value." Gold certificates also carried what was generally construed as a promise to pay the bearer a fixed amount of gold. If these gold clauses had been enforced despite the increase in the price of gold, debtors would have been virtually ruined, for they would have had to pay $1694 to retire each $1000 debt that included a gold clause—this despite the fact that the purchasing power of the "new" dollar for goods and services was higher than that of the "old" dollar when most of the debts were incurred. In fact, the enforcement of all these gold clauses would have injured individual and corporate debtors, increased the burden of the federal debt, and given windfall profits to the holders of gold certificates to such an extent that the government would probably have had to reduce the price of gold to its old level.

It was to avoid these burdens on debtors and at the same time maintain the government's freedom to manage the gold value of the dollar that Congress passed Public Resolution No. 10, which was approved by the President on June 5, 1933. This resolution voided gold clauses in future contracts, declaring them to be against the public policy, and provided that all obligations, whether or not they contained gold clauses, could be discharged by payment, dollar for dollar, in any coin or currency which was legal tender at the time of payment. All coins and currencies of the United States were declared to be legal tender. The constitutionality of this resolution was immediately challenged by creditors, but it was in effect upheld by the Supreme Court in the famous gold clause cases.[11]

The justice of this act and of the Supreme Court decisions upholding it has been the subject of white-hot controversy. Some have argued that it constituted a major defrauding of creditors who held claims containing gold clauses, for they received only 59.06 percent

[11] See Norman *vs.* B.&O. R.R. Co., 294 U.S. 240, 55 S.Ct. 432, 79 L.Ed. 885 (1935); Perry *vs.* U.S. 294 U.S. 330, 55 S.Ct. 432, 79 L.Ed. 912 (1935); Nortz *vs.* U.S. 294 U.S. 317, 55 S.Ct. 428, 79 L.Ed. 907 (1935).

as much gold as their contracts called for. But others see no such injustice. They point out that these claims were paid on a dollar-for-dollar basis and that the new dollars had at least as much purchasing power as those originally lent. Moreover, they believe that the government, in exercising its constitutional power to "coin money and regulate the value thereof," must retain the right to change the gold value of the dollar, and that the existence of gold clauses in contracts is an intolerable deterrent to the use of this power.

THE GOLD STANDARD IN THE UNITED STATES DURING AND FOLLOWING WORLD WAR II

During World War II the United States in effect suspended the gold standard. It continued to purchase gold at the official price and did sell some gold to pay for defense and war materials purchased abroad, especially in Central and South America. But all international payments were subject to such strict government control and the redeemability of our money in gold was so narrowly limited that we can hardly call the resulting system a gold standard. This situation prevailed throughout the war. Almost as soon as the war was over, government controls of international payments began to be relaxed, and the United States soon returned to the type of gold-bullion standard that existed in the immediate prewar period.

Do Something for Silver—Again

In view of our monetary and political history it was only to be expected that economic depression and monetary disturbances would again bring the demand that we "do something for silver." Conditions and alliances were similar to those of the late nineteenth century. Silver prices fell to only 24.6 cents an ounce in December, 1932, a level that was hardly to the taste of silver-mining interests and their spokesmen in Congress. Moreover, debtors suffering because of the low prices of goods and services in general were willing to endorse monetary expansions of any sort, especially a "sound" expansion of "hard money." These two groups therefore joined forces again to secure a greater use of silver in monetary systems. They even brought forth a new argument that Bryan had not used: we should raise the

price of silver to help "the teeming millions in the Orient." They pointed out that as the price of silver fell, the prices of oriental silver money declined in terms of gold money, thereby—they argued erroneously—decreasing the purchasing power of oriental countries in the world market. Their remedy was as simple as it was fallacious: raise the price of silver, thereby raising the prices of oriental silver money in foreign-exchange markets and also raising the purchasing power of the Orient in world markets.

It was in response to pressure from these groups that many steps were taken in behalf of silver. We have already seen that the legislation of May, 1933, gave the President broad powers to accept silver in payment of war debts, to fix the silver value of the dollar, to purchase the metal, to establish bimetallism, and to enter into international agreements as to silver. Only limited amounts of silver were received in payment of war debts.[12] In July, 1933, Senator Pittman, an ardent silverite and a delegate to the London Economic Conference, persuaded a number of silver-using and silver-producing countries to agree to measures raising the price of silver. The big holders of the metal—China, India, and Spain—agreed not to dispose of it beyond certain limits (but these limits were generous). The producing countries, on the other hand, agreed to absorb from their domestic production 35 million ounces a year for four years. The joker was soon revealed. The United States had agreed to buy for monetary use 24,400,000 ounces of silver each year, though its annual production was only about 24,700,000 ounces; we had in effect agreed to monetize all our own production of the metal. But other countries had agreed to buy only 11,600,000 ounces each year, despite the fact that their annual production amounted to 103,000,000 ounces.[13] Virtually the entire burden of doing something for silver was assumed by this country. The President ratified the London Silver Agreement on December 21, 1933, and ordered the purchase of the entire domestic production of silver at 64.64 cents an ounce. This price was about 50 percent above that previously prevailing.

Proponents of silver, still dissatisfied, pushed through the Silver

[12] For an excellent brief discussion of our silver policy, see G. Griffith Johnson, *The Treasury and Monetary Policy, 1933–1938*, Harvard University Press, Cambridge, 1939, pp. 161–200.

[13] *Ibid.*, p. 172.

Purchase Act in June, 1934. The objective of this law was stated in its Section 2:

> It is hereby declared to be the policy of the United States that the proportion of silver to gold in the monetary stocks of the United States should be increased, with the ultimate objective of having and maintaining, one-fourth of the monetary value of such stocks in silver.

The Secretary of the Treasury was directed to purchase silver at home or abroad until the monetary value of silver stocks should be equal to one-third the value of monetary gold stocks, or until the market price of silver rose to the level of its monetary value ($1.29 an ounce). To prevent excessive profits to speculators it was provided that no more than 50 cents an ounce should be paid for silver situated in the United States on May 1, 1934. In August the President implemented this provision by nationalizing all silver at this price.

Though the Secretary of the Treasury was directed to purchase silver until its monetary value was equal to one-fourth of the total of gold and silver, the speed of purchase was not stipulated. He therefore followed a policy of buying as slowly as political conditions permitted. Nevertheless, silver purchases were very large. Table 17 shows that total purchases during the 1934–50 period amounted to 2.8 billion ounces, at a cost of $1.6 billion. Most of these purchases were made before World War II. This silver was of three types: (1) nationalized silver, (2) foreign silver, and (3) newly mined domestic silver. The first included a relatively small amount of silver located in the United States at the time of the legislation. All this was purchased at a price of 50 cents an ounce. Purchases of foreign silver amounted to more than 2 billion ounces, for which the average purchase price was 50.1 cents an ounce. This was much above the prices that had prevailed earlier.

The fallacy of the argument that increasing the price of silver would help the "teeming millions in the Orient" was soon apparent. As the price of silver rose, the prices of foreign silver money also rose in the foreign-exchange market, thereby decreasing the ability of those countries to export without lowering their prices at home. This deflationary pressure was intensified as some of their silver coins were

melted and exported. In the end, most silver countries abandoned silver as a standard and adopted paper standards or tied their money to the dollar or the British pound. Thus, the long-run effect of our silver policy will probably be to reduce still further the use of silver in foreign monetary systems.

Reflecting political realities, newly mined domestic silver enjoyed

TABLE 17. Silver Production in the United States and Silver Purchases by the Government, 1934–1950[14]
(In millions)

Year	Silver Production in the U.S. (Ounces)	Silver Acquired by U.S. Government							
		Newly Mined Domestic Silver		Nationalized Silver		Foreign Silver		Total	
		(Ounces)	(Dollars)	(Ounces)	(Dollars)	(Ounces)	(Dollars)	(Ounces)	(Dollars)
1934	32 5	21.8	14 1	110.6	55 3	172 5	86 5	304 9	155 9
1935	45 6	38.0	27 3	2 0	1.0	494 4	318 2	534.3	346 5
1936	63 4	61 1	47 3	0 4	0 2	271 9	150 3	333 4	197 8
1937	71 3	70 6	54 6	—	—	241 5	108.7	312 2	163.3
1938	61 7	61 6	42 4	—	—	355 4	156.9	417.1	199 1
1939	63 9	60 7	40 1	—	—	282 8	120 5	343 3	160 6
1940	67 0	68 3	48 5	—	—	139 8	50 9	208 0	99 4
1941	71 1	70 5	50 1	—	—	72 6	27 1	143 1	77 2
1942	55.9	47 9	34 0	—	—	14.3	6 0	62 1	40 0
1943	40.8	5 5	3.9	—	—	—	—	5 5	3 9
1944	35.7	—	—	—	—	—	—	—	—
1945	29 3	0 9	0 6	—	—	—	—	0.9	0.6
1946	21 4	4 9	4.4	—	—	—	—	4 9	4 4
1947	36 1	30 3	27 4	—	—	—	—	30 3	27 4
1948	36 1	36 8	33 3	—	—	—	—	36 8	33 3
1949	34 6	33 0	29 9	—	—	—	—	33.0	29 9
1950	42.1	41 3	37.4	—	—	—	—	41.3	37 4
Total	808 5	653 2	495 3	113 0	56 5	2045 2	1025 1	2811.1	1576 7

a preferred position from the beginning. Its price was fixed at 64.64 cents an ounce until July 1, 1939, at which time the silver interests pushed through a law depriving the Secretary of the Treasury of his discretionary power and ordering him to buy at 71.11 cents an ounce all newly mined domestic silver offered to him. This price continued until July, 1946, when the silver interests again entered the fray, forcing through a law fixing minimum buying and selling prices at 90.5 cents an ounce. As a result, the Treasury is now purchasing practically the entire domestic output at prices considerably above those in the world market.

Though it has but small effects on the monetary equation, this sil-

[14] Source: *Treasury Bulletins*.

ver purchase policy is indefensible. As a subsidy, it grants rewards without any reference to need. It tends to deprive the silver-using industries of a useful raw material and to raise the prices of silver products. It substitutes a more expensive for a less expensive type of circulating medium; "unbacked" paper money would serve just as well as silver certificates. And it is a continuous, if minor, expansionary factor in the monetary equation regardless of the requirements of sound monetary policy.

THE GOLD STANDARD ABROAD AFTER 1933

After our abandonment of gold in 1933, gold standards remained in force in only a few important countries—France, Belgium, Holland, Switzerland, and Luxembourg. These are often referred to as "the gold bloc" because of their agreements to remain on gold without devaluing their moneys. But even these countries were to devalue their moneys in the face of the general deflationary pressure intensified by our monetary policy. Our 69 percent increase in the price of gold effected corresponding increases in the prices of gold-bloc currencies in the foreign-exchange market; the French franc, for example, rose from 3.93 cents in 1932 to 6.57 cents in 1934. Since the gold-bloc moneys had already risen in terms of most paper money, these countries found it increasingly difficult to sell their products in the export markets without drastic price reductions at home. The deflationary pressure was intensified by withdrawals of both long-term and short-term funds by foreigners and nationals who feared that the gold-bloc moneys would depreciate in terms of gold. Finally, in 1936, the gold-bloc countries concluded that further deflation was unbearable and that they would have to withdraw from their position. A few of them definitely abandoned the gold standard. Others, like France, abandoned gold temporarily and then returned to a modified gold standard, with the gold value of their money reduced by amounts ranging between 25 and 34 percent. After these actions by the gold-bloc countries, no money in the world was freely convertible into gold at the 1929 rate.

Announced simultaneously with the French devaluation of the franc on September 25, 1936, was the Tripartite Agreement among Great Britain, France, and the United States. Several other countries adhered to the agreement during the next few months. Essentially this was a "gentleman's agreement" on an "hour-to-hour" basis for coöperative action to stabilize exchange rates among the various moneys, or at least to govern exchange fluctuations coöperatively. The agreement had two principal purposes: (1) to assist the French government in securing internal acceptance of its action in devaluing the franc, and (2) to avoid competitive devaluations. For some time the press had been speculating on the possibility of an international currency war in which each country would try to lower the value of its money in terms of others for the purpose of expanding its exports. One of the principal purposes of the Tripartite Agreement was to avoid such ruinous competition and to coördinate the operations of the various countries in the foreign-exchange market. The functioning of exchange stabilization funds in general and of the Tripartite Agreement will be discussed more fully in a later chapter. It is sufficient here to note that the countries did coöperate, but that they allowed a number of fluctuations of exchange rates to occur.

In summary, then, the outbreak of World War II found only a few countries—the United States and the gold-bloc nations—on gold standards, and these countries had lowered the gold value of their money as well as introducing unprecedented amounts of management into their monetary systems. Internally, their money was highly managed not only by their central banks but also by their treasuries. The values of their money in foreign-exchange markets were managed by central banks, treasuries, and powerful exchange stabilization funds. Gold had lost much of its power even in gold standard countries, and most of the world was on inconvertible paper standards.

During World War II practically the entire world was off gold standards. All international transactions were strictly regulated, and moneys were redeemable in gold only for narrowly limited purposes approved by governments. In the meantime, inflation was rampant. As a result, the coming of peace in 1945 found the entire world off

gold, with the purchasing power of the various national monetary units reduced by widely differing amounts, and with all international payments subject to a network of strict governmental controls.

Since postwar monetary systems will be discussed more fully in later chapters, we shall at this point indicate only their general outlines. In late 1946, under the auspices of the International Monetary Fund, most countries declared a gold value for their respective monetary units and agreed to buy and sell gold to the extent necessary to keep the foreign-exchange values of their moneys at a practically constant level. For this reason, the resulting systems should perhaps be called gold standards. If so, however, they are certainly very limited types of gold standards, for with the exception of a few countries, of which the United States is the outstanding example, the redeemability of moneys in gold for even international purposes is subject to strict governmental regulation and limitation. In the great majority of countries, people not only are unable to convert their moneys into gold for domestic holding, but are also prevented from converting their money into gold for export in the absence of a government permit. Gold movements among countries are thus subject to direct government management in most cases.

THE GOLD AVALANCHE

No discussion of gold standards would be complete without at least a brief survey of the avalanche of gold that swept into the monetary systems of the world, especially that of the United States, during the period immediately preceding World War II. This flood is the more remarkable because it was so unexpected. In fact, throughout the 'twenties and early 'thirties monetary experts warned that gold production was insufficient to support a stable price level without the use of gold-economizing measures, such as gold-bullion and gold-exchange standards and reductions of central bank reserve requirements. But before the outbreak of World War II the problem was to devise methods of preventing greatly augmented gold stocks from effecting excessive increases in money supplies.

The magnitude of this golden avalanche is indicated by the fact

that the gold reserves of central banks and governments rose from about $10,340 million at the end of 1929 to more than $29 billion at the end of 1941.[15] In part, this increase merely reflects the higher price of gold, as existing gold stocks and physical additions to them were revalued at increased prices. For example, our action in raising the price of gold 69.4 percent effected a corresponding increase in the value of our gold stocks. Similar revaluations occurred in other countries. But much of the increase represents physical additions to monetary gold stocks emanating from (1) increased production, (2) imports from the Orient, chiefly from India, and (3) the melting of gold scrap.

The increase of production is shown in Table 18. By 1940 the physical output of gold mines had more than doubled the 1923–29 rate, and the value of newly mined gold, reflecting the increase in gold prices, had risen by 270 percent. In fact, the value of the newly mined gold during this period, at current gold prices, substantially exceeded the value of the entire world's monetary gold stocks in 1929.

Why did gold production increase so markedly in the period before World War II? Not because of great new gold discoveries or revolutionary improvements in the technology of gold mining, but because of the great increase in the purchasing power of gold for goods and services, including the services of labor. In the first years of the depression, before the price of gold was increased, gold production rose in response to the drop in prices that entered into mining costs while the price of gold remained stable. With its price pegged by monetary authorities, gold was the only commodity whose production was enhanced by deflation. But the greater part of the rise in output resulted from increasing the price of gold without raising the prices of other goods and services in proportion. With greatly increased prices for their product and with the wages of labor and the costs of materials lagging far behind, gold miners found it profitable to expand greatly the scope of their operations. The expansion of output would have been even larger if South Africa had not as a mat-

[15] These figures are not, of course, accurate measures of the size of total monetary gold stocks, for they omit monetary gold outside of governments and central banks and include some "gold equivalents." They do indicate the trend, however.

ter of policy diverted much of its mining from richer to poorer ores.

The flood of gold into monetary uses was further augmented by large imports from the Orient. For example, British India, during the relatively prosperous 'twenties, had absorbed about 3½ million

TABLE 18. World Gold Production[16]

Period	Production in Millions of Fine Ounces	Index of Physical Gold Production, Average 1923–29 = 100	Value in Millions of Dollars ($20.67 an ounce, 1933, and earlier; $35 an ounce in 1934 and later)	Index of Value Average 1923–29 = 100
1923–1929 (annual average)	18.8	100	$ 388.6	100
1930	20.9	111	432.1	111
1931	22.3	119	460.7	119
1932	24.1	128	498.2	128
1933	25.4	135	525.1	135
1934	27.4	146	958.0	247
1935	30.0	160	1050.0	270
1936	32.9	175	1152.6	296
1937	35.1	187	1229.1	316
1938	37.7	201	1319.6	340
1939	39.5	210	1383.7	356
1940	41.1	219	1437.3	370
1941	36.2	193	1265.6	326
1942	32.2	171	1125.7	290
1943	24.9	132	871.5	224
1944	22.2	118	777.0	200
1945	21.1	112	738.5	190
1946	21.6	115	756.0	195
1947	21.9	116	766.5	197
1948	22.7	121	794.5	204
1949	23.6	126	826.0	213

ounces of new gold each year. But as its own prosperity dwindled and the purchasing power of gold abroad rose to unprecedented levels, it threw large amounts of the yellow metal on world markets. Its exports for the period 1931–40 amounted to more than 41 million ounces worth about $1430 million.

Another source of monetary gold during this period was the melting of scrap. Unknown but substantial amounts came from this source.

[16] Source: Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, p. 542, and *Federal Reserve Bulletins*.

The above factors—increased gold production, exports by the Orient, and the melting of gold scrap—accounted for the great increase in the world's monetary gold stock. But almost the entire increase came to the United States. As shown in Table 19, our

TABLE 19. Monetary Gold Stock of the United States, 1929–1950[17]
(In millions of dollars)

End of	Monetary Value of Gold Stock	Increase During Year	Value of Domestic Gold Production	Net Gold Imports
1929	$ 3,997	—	—	—
1930	4,306	$ 309	$ 43	$ 280
1931	4,173	−133	46	145
1932	4,226	53	46	−446
1933	4,036	−190	47	−174
1934	8,238	4,202	93	1,134
1935	10,125	1,887	111	1,739
1936	11,258	1,132	132	1,117
1937	12,760	1,502	144	1,586
1938	14,512	1,751	149	1,974
1939	17,644	3,132	162	3,574
1940	21,995	4,351	170	4,744
1941	22,737	742	170	982
1942	22,739	2	125.4	−148.4
1943	21,981	−758	48.3	−806.2
1944	20,631	−1,350	35.8	−1,385.6
1945	20,083	−546	32.0	−579.8
1946	20,706	623	51.2	571.9
1947	22,868	2,162	75.8	2,086.3
1948	24,399	1,531	70.9	1,459.5
1949	24,563	164	67.3	97.3
1950	22,820	−1,743	83.1	−1,826.4
Addendum:				
Total increase, Dec. 31, 1929–Dec. 31, 1941		$18,740	$1,313	$16,655
Total increase, Dec. 31, 1941–Dec. 31, 1950		$ 83.0	$ 589.8	$ −506.6

monetary gold stock rose from $3997 million at the end of 1929 to $22,737 million at the end of 1941, an increase of nearly 470 percent. A small part of this increase came from domestic production; another part ($2805 million) resulted from the revaluation of our gold stocks

[17] For basic data and explanations of the contents of these figures, see Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, pp. 522–5, 536. For more recent data, see *Federal Reserve Bulletins*.

in 1934; but by far the largest part—more than $16 billion—resulted from gold imports. Some of these gold imports were attributable to our net exports of goods and services to other countries, but a larger part was due to our net capital imports as money fled from financial, social, and military uncertainty abroad.

The course of gold production since 1940 was shown in Table 18. During the war period production fell markedly below its prewar levels, partly because of the rise in costs accompanying the wartime inflation in producing countries but more because of government limitations and the diversion of manpower and equipment to war and civilian uses. By 1950 the rate of production had risen considerably above its wartime low but was still considerably below its levels in the immediate prewar period. Several factors accounted for this slow recovery. Perhaps most important was the rise in costs accompanying war and postwar inflations in most of the producing areas, coupled with the lack of an offsetting rise in the price of gold. For a considerable period most governments resisted the mine operators' demands for higher official gold prices. Later, however, especially in 1949, a number of countries did permit increased realizations on gold by raising official prices, by granting subsidies, or by permitting sales of a larger part of output in "unofficial" markets where the price was higher. Where these measures were taken they were usually followed by some increase in the rate of gold output. However, the United States kept the official price of gold at its prewar level of $35 an ounce despite widespread protests by the gold-mining interests.

Though the inflation of mining costs resulting from price inflation and more favorable employment opportunities in other industries was the major factor retarding the rise of gold production, the partial exhaustion of richer ores also played a role. The rapid rate of exploitation during the prewar period depleted some of the lowest-cost deposits and left only higher-cost ores for future working.

The behavior of the monetary gold stock of the United States during the war and postwar periods is shown in Table 19. During the war period itself, the nation actually lost more than $2.5 billion of gold, mostly to Central and South American countries, to pay for raw materials and other supplies.

SUMMARY

At this point it will be useful to review some of our principal findings relative to changes in monetary standards, especially gold standards. One of the most striking developments has been the changed role of gold even in countries maintaining some type of gold standard. In the late nineteenth century, gold coins were actually in circulation though they were not a major part of the circulating medium, all types of money were freely redeemable in gold coin, gold was freely available for all domestic uses and for export, and changes in monetary gold stocks were allowed to exert a powerful influence on domestic monetary policies. Today it is indeed a rare country in which gold coins are being struck and in which moneys are freely redeemable in any form of gold. The typical situation now is one in which monetary gold is concentrated in central banks or other government agencies, and gold is sold only for purposes specifically approved by governments. And these purposes are often narrowly defined.

This has been accompanied by several important changes. (1) The concentration of gold in central banks and governments has greatly increased the "efficiency" of gold. Even where gold reserve requirements are retained—and they have been abolished in several countries—each unit of gold can "support" a larger quantity of money. (2) This concentration of gold reserves, together with the lessened responsibilities of governments to redeem their moneys in gold, has greatly increased the discretionary powers of monetary authorities. Considerations relating to gold supplies now play a far smaller role in monetary policies. With their greater degree of freedom, most monetary authorities attach more weight to other objectives, such as the behavior of the national money income, real output, employment, price levels, and interest charges on national debts. In fact, when a fixed relation to gold threatens to limit their ability to attain these other objectives they are likely to abandon or modify the relationship of their money to gold rather than sacrifice the other objectives.

In short, the role of gold in monetary systems has been progressively weakened. Most countries still buy and sell gold, and in the

process they issue and withdraw money. But in most countries the size of the monetary gold stock is subject to a high degree of government control rather than being left to the determination of private buyers and sellers, and the size of the gold stock is not allowed to dominate the behavior of the total money supply or the availability and cost of credit. This is indeed a far cry from the old automatic gold-coin standards under which the gold values of monetary units were kept constant for long periods, all moneys were freely redeemable in gold for all purposes, and general monetary and credit conditions were supposed to be dominated by changes in gold stocks.

SELECTED READINGS

Bank for International Settlements, *Annual Reports.*

Board of Governors of the Federal Reserve System, *Annual Reports,* 1933–1942.

Gilbert, M., *Currency Depreciation and Monetary Policy,* University of Pennsylvania Press, Philadelphia, 1939.

Hardy, C. O., *The Warren-Pearson Price Theory,* Brookings Institution, Washington, 1935.

Harris, S. E., *Exchange Depreciation: Its Theory and Its History, 1932–35,* Harvard University Press, Cambridge, 1936.

Hawtrey, R. G., *Bretton Woods for Better or Worse,* Longmans, Green, London, 1946.

Hodson, H. V., *Slump and Recovery, 1929–1937,* Oxford, London, 1938.

International Monetary Fund, *Annual Reports,* and various surveys, Washington, 1946 —.

Johnson, G. G., Jr., *The Treasury and Monetary Policy,* 1932–1938, Harvard University Press, Cambridge, 1939.

League of Nations, Economic and Financial Section, various annual surveys.

Paris, J. D., *Monetary Policies of the United States, 1932–1938,* Columbia University Press, New York, 1938.

Roosevelt, F. D., *The Public Papers and Addresses of Franklin D. Roosevelt,* Random House, New York, 1938, vol. ii.

Secretary of the United States Treasury, *Annual Reports,* 1933–1942.

Warren, G. F., and Pearson, F. A., *Gold and Prices,* Wiley, New York, 1935.

Westerfield, R. B., *Our Silver Debacle,* Ronald, New York, 1936.

CHAPTER 9

Credit and Credit Instruments

In the preceding chapters, which dealt largely with the functions of money and monetary standards, we frequently had occasion to refer to credit (or debt) and to credit (or debt) instruments. The purpose of this chapter is to investigate the nature and types of credit and debt, the nature of credit instruments, and the functions of credit in our economy.

THE NATURE OF CREDIT OR DEBT

It is necessary to emphasize at the outset that credit and debt are merely the same thing looked at from two different points of view. They are an obligation to pay in the future and, since money is so widely used as a standard of deferred payments, they are usually obligations to pay a fixed sum of money. From the point of view of the person to whom the future payment is to be made, the obligation is a credit; it is his claim against another for payment. But from the point of view of the one who is obliged to pay in the future, the obligation is a debt. Suppose, for example, that Reilly has promised to pay MacGregor $1000 on the following July 31. Reilly is likely to call the obligation a debt, whereas MacGregor will insist that it is a credit. A neutral third party can settle the quarrel by pointing out that the two parties are merely looking at different sides of the same shield. Since the two are identical, it is obvious that the amount of debt outstanding at any time is equal to the amount of outstanding credit,

and that the amount of each is the sum of existing obligations to pay in the future.

This point would not have been labored at such length if credit and debt were not viewed so differently by the general public. Credit is usually looked upon with approval and increases in its quantity are ordinarily considered beneficial. We often hear such statements as "Credit is the lifeblood of business" and "Prosperity depends on an orderly flow and a continued increase of credit." Debt, however, enjoys much less approbation. People speak of "the burden of debt" and "the necessity of decreasing our debt burden." Since debt and credit are the same thing, our attitude must be the same toward both. We shall see later that whether or not credit (or debt) has favorable effects on debtors, creditors, and the general public depends on its amount and the rate at which it is increased or decreased, on general economic conditions at the time, and on the purposes for which it is created.

The great bulk of credit or debt originates in economic and financial transactions in which creditors surrender money or goods at one point of time in exchange for debtors' promises to pay in the future. We are all familiar with the creation of debt by the sale of goods or services "on credit." For example, Mrs. Jones receives groceries from a store, promising in return to pay at the end of the month. A big corporation gets raw materials from its suppliers with the understanding that payment will be postponed until the end of the quarter. Smith buys a house, deferring at least part of the payment until later months. Much of the outstanding debt at any time has arisen from such "extensions of credit" by sellers of goods and services. Most of the rest arose out of money-lending transactions in which creditors surrendered money at one point of time in exchange for the promises of debtors to pay later, usually with interest. These money-lending transactions range all the way from the simple case in which Joe lends Bob $5 until payday to the much more complicated one in which a large public utility corporation borrows $100 million, giving in return its bonds, which carry its promise to pay the principal at the end of a stated number of years and to pay interest at 3 percent annually. Thus, it is often said that the creation of credit in-

volves the exchange of present goods or purchasing power against future goods or purchasing power, interest being paid by the debtor for the privilege of having the goods or purchasing power sooner.

The Basis of Credit

The ability of any person, business firm, or governmental unit to get credit—to command goods or money at one time in return for a promise of future payment—depends upon the potential creditors' faith that he will be both willing and able to pay in accordance with his promise. The popular statement that "Smith's credit is good for half a million" means that he is believed to be both willing and able to pay fully and punctually a debt of at least half a million dollars. The statement that "his credit is bad" indicates lack of faith in either his willingness or his ability to pay. We may say, then, that the ability of any potential debtor to obtain credit depends on (1) his character, (2) the value of his capital, the convertibility of his capital into money, and the size and nature of his other obligations, (3) his probable income, and (4) his ability to get others to back his promise to pay.

Character is of great importance in determining a debtor's ability to obtain credit. Creditors analyze carefully an applicant's past record in meeting his obligations, his reputation for general honesty, his police record, his likelihood of becoming involved in damage suits of any kind, his marital status, his drinking habits, and all his other personal characteristics and associations that might bear on either his ability or his willingness to pay. Anyone who has a reputation for paying his debts only when forced to do so by the courts is likely to lose his ability to command credit, no matter how rich he may be.

The value and character of the potential borrower's capital are another set of important determinants of credit worthiness. Credit analysts therefore scrutinize both the value and the character of an applicant's capital, noting especially the probable stability of the value of his assets and their ability to be converted into money quickly and without loss of value. Other things being equal, an applicant who possesses capital with stability of value and a high degree of liquidity is more likely to obtain credit easily than one whose capital fluctuates

more widely in value or is less liquid. For this reason, the owner of easily marketable short-term government obligations is often in a better position to borrow than the holder of little-known common stocks or real estate. However, a creditor is interested primarily in an applicant's *net capital;* he therefore investigates the applicant's other debts as well as his assets to find out how much his assets exceed his other liabilities.

The size of an applicant's future income is another major determinant of his ability to obtain credit. We all know of cases in which credit was extended, even though the borrower lacked capital, on the basis of his expected income. Thus, a man with a steady job may buy on credit, a governmental unit borrows on the basis of expected income from taxes, or a business firm secures credit because of the lenders' faith in the demand for its output and the ability of its management to make money. On the other hand, doubt as to an applicant's future income may greatly reduce his ability to obtain credit. This is especially true when the applicant's capital is largely in the form of fixed assets that can be sold only at a price far below the cost of construction. Expected future income is certainly a major determinant of credit worthiness.

In most cases the ability of a person, firm, or governmental unit to obtain credit depends on the factors outlined above—the creditors' faith in his willingness to pay, and his ability to pay as evidenced by the value of his capital, the volume of his other debts, and his prospects for future income. In some cases, however, one may borrow on the basis of guarantees of payment given by others. A friend endorses Joe's note, promising "to make it good" if Joe fails to pay. A giant corporation guarantees the bonds of its subsidiaries. The Federal Housing Administration guarantees payment of a real estate mortgage. A bank guarantees payment by one of its clients. We shall find later that there are many ways in which a debtor's friends or relatives, or his bank or business associates, or the government can bolster his credit worthiness by backing his promise to pay.

Thus, the basis of credit is faith in the willingness and ability of a debtor or of his guarantors to pay as promised. But we must remember that the ability of a debtor to pay is not determined solely by his

own efforts, ability, and character. It is also subject to wide variations in response to changes in general economic conditions. Credit is generally much more available in periods of high national income and brisk demand for output than in times of low national income and stagnant demand. We shall see later that the interrelationships of credit and income levels are very intricate.

Types of Credit or Debt

Credit or debt has been classified on many bases, only a few of which need be discussed here. One important basis of classification is the purpose for which the debt is incurred. On this basis, debts are *consumption* or *production* debts. Most of us are familiar with consumption debts, those incurred to enable the debtor to consume earlier and pay later. A family gets groceries "on credit" in return for a promise to pay at the month's end; an office worker borrows from a small-loan company to buy furniture for immediate use; a father borrows from a loan shark to buy medicine; an impatient heir gets credit from his club, promising to pay as soon as his grandfather dies. In such cases the debtor's motive is to get consumption goods or services sooner than would otherwise be possible.

The greater part of modern debt, however, is *production* or *productive* debt. Productive processes are time-consuming. A farmer must plant seed wheat in the fall in order to harvest his crop nearly a year later. Newly planted orchards will not start to bear fruit for several years. A merchant must acquire inventories some time in advance of sales. A manufacturer must obtain and use plant facilities which will yield their full return only over a long period of years, as well as raw materials, supplies, and labor whose finished products may not be sold for several weeks or even months. There are only three general ways in which producers can get money to purchase the necessary facilities, materials, and labor with which to carry on their productive processes: (1) By plowing in earnings. The farmer, merchant, or manufacturer can save out of his income and use these savings to purchase the things needed to facilitate production. (2) By selling shares of ownership. A farmer can sell a share of ownership to a partner, a merchant can take in a new partner, or a corporate manu-

facturer can sell new shares of ownership in the form of common or preferred stock. (3) By going into debt. A producer can acquire goods or services on credit or borrow the money with which to pay for them. Since producers often find it inconvenient or impossible to secure adequate funds to maintain or expand their output by plowing in earnings and are either unwilling or unable to get enough funds by selling ownership interests, a large part of productive activities is financed through the incurring of debt. Thus it is through debt creation that an important part of our savings finds its way into use in financing production. In the absence of borrowing and lending activities, spendings for production and consumption would not be maintained at sufficiently high levels to support high levels of demand and employment.

Credit or debt is also classified on the basis of the amount of time elapsing between the time it is created and the time it is to be retired. On this basis it is: (1) long term, (2) intermediate term, (3) short term, (4) payable on demand. Debts running five years or more are ordinarily called long-term. Such debts are usually incurred when the borrower knows that he cannot repay in a shorter period. For example, a corporation borrowing to build a factory knows that it is unlikely to earn enough to repay the loan in less than ten years and fears that a shorter debt might be embarrassing if it could not be renewed. A railroad borrowing to construct a roadbed or to buy locomotives is in a similar position, as is a farmer going into debt to buy land.

Intermediate-term credit, the name usually applied to debts running from one to five years, is likely to be granted to finance the purchase of things that will return their full value only over such a period. For example, such debts may be incurred by a farmer to buy milk cows, or by a manufacturer to buy nondurable machines, or by a merchant to buy store fixtures.

Short-term credit, that running for less than a year but with a stated maturity date, is widely used for consumption purposes, to purchase inventories of raw, semifinished, or finished materials, to meet pay rolls, to finance goods in transit, and for many other purposes.

Debts payable on demand are those that must be paid immediately

whenever the creditor demands payment, or "calls" the debt. Owing to the dangers inherent in obligations to pay on demand without previous warning, industrial and commercial firms are reluctant to incur large debts of this type. "Call" or demand loans against stocks and bonds as collateral are an important part of the New York securities markets. But by far the largest part of debts payable on demand are those that circulate as money. Government notes of various kinds, central bank notes, commercial bank notes, and bank demand deposits are all debts which require their issuers to pay whenever the demand is made. We shall consider these debts in detail in later sections.

Another classification of credit or debt is on the basis of the security given by a debtor to insure payment. Some debts are *unsecured;* they have no specific assets or income pledged for their payment but are general claims against the debtor's assets and income. Other debts are *secured;* they not only are general claims against the debtor's assets and income, but they also have specific assets or income pledged for their satisfaction. Thus a borrower may give his creditor a mortgage claim on his house, a chattel mortgage on his car, a mortgage on a factory, a warehouse receipt for tobacco, collateral made up of stocks or bonds, or a first claim on bridge tolls.

It must not be inferred that unsecured debts are necessarily less likely to be paid than secured debts. In fact, credit may be extended without requiring specific security simply because of the unquestioned safety of the loan. A bank would hardly require Mr. Du Pont to pledge his watch as security for a $5 loan, and it would be equally willing to lend large amounts to General Motors Corporation without demanding specific pledges. The fact that a loan is secured may, though it need not, indicate doubt as to the general credit worthiness of the borrower. Specific security for credit may, however, help to improve a creditor's position, the extent of the improvement depending on the value of the specific security given. It enables a creditor to insert his claim ahead of those of other creditors and also to prevent others from inserting their claims ahead of his.

Of the many other classifications of credit or debt we shall mention only two. The first is based on the type of creditor. Thus we have

credit extended by banks of many kinds, by manufacturers, by wholesalers, by retailers, by governments, by individuals, and so on. The second is based on the type of debtor. A detailed classification on this basis would include practically every type of governmental unit, business firm, and individual, for debts are incurred by almost everyone.

CREDIT INSTRUMENTS

Outstanding credit or debt need not be evidenced by a written contract. We have all been parties to "parole credit" transactions in which the agreement to pay was merely an oral contract, with no written evidence of the obligation. Such an arrangement may be satisfactory in small credit transactions among friends, but it has serious disadvantages for general use. In the first place, if the parties disagree as to the terms of the credit contract there is no reliable way of ascertaining who is right. The creditor may even have difficulty in proving the existence of any obligation to pay. And in the second place, the creditor is likely to have difficulty in transferring the claim to a third party if the need to do so should arise. Only in the exceptional case can a creditor persuade a third party to buy his claim against a debtor if there is no written obligation to pay.

Some debts are evidenced only by book accounts. Thus, a college student's debt to his tailor is usually evidenced only by an entry in the tailor's ledger, department store credits to customers are evidenced by "charge accounts" on the store's books, and so on. Though more satisfactory than oral contracts, these have their disadvantages. Controversies as to the terms of the debt may be difficult to settle, and the sale of these claims is usually, though not always, difficult.

It was largely to overcome these difficulties that written credit instruments were evolved long ago. By "credit instrument" we mean a legal document evidencing the existence and terms of a credit or debt contract. The reduction of a contract to writing goes far toward eliminating doubt as to the existence and precise terms of a debt contract and therefore improves the quality of the creditor's claim and increases his ability to sell the claim to others. Credit instruments can be sold whether they are *nonnegotiable* or *negotiable*. Nonnegotiable

credit instruments are those whose rights are governed by the general common and statute laws of contract, whereas negotiable instruments enjoy special advantages conferred by the negotiable instruments laws. Title to nonnegotiable instruments can be transferred only by assignment; title to negotiable instruments is transferable by endorsement.[1]

Under the general common and statute laws of contract, which govern nonnegotiable instruments, title is transferred from one owner to another by assignment only.

In assignment, only the assignor's title is transferred, so that the assignee gets only such title as his assignor possessed, and any defense existing at the time of the assignment, whether by reason of breach of warranty, set-off, recoupment, or fraud in the inducement, can still be used against the assignee.

At the present day, an assignee takes no better right or title than his assignor possessed; he is said "to stand in the shoes of his assignor" and is subject to all defenses which the obligor possessed against the assignor.[2]

For these reasons nonnegotiable paper should be purchased only with full knowledge of the various conditions surrounding its creation. Some of the dangers involved in purchasing nonnegotiable paper can be indicated by an example. Suppose that Smith buys a car from the Ajax Motors Co., giving in return his written but nonnegotiable promise to pay $1000 at the end of three months. Suppose also that this paper is transferred by assignment from the Ajax Motors Co. to Reilly, who then transfers it by assignment to Johnson. As holder of the paper, Johnson runs several risks. In the first place, Smith may legally refuse to pay him, claiming that the car was not as warranted, that the Ajax Motors Co. owed him $500 that should be offset against his debt, or that he was fraudulently induced to issue the promise to pay. In short, Smith may refuse to pay Johnson for any of the reasons that would have excused him from making full payment to the Ajax Motors Co. In the second place, Johnson runs the risk that Reilly had found or stolen the note, for Johnson gets no better title to it than Reilly had.

[1] For a good discussion of this general subject, see C. N. Hulvey, *Commercial Law*, Macmillan, New York, 1930, chap. 9.

[2] *Ibid.*, pp. 173–174.

It was for reasons of this sort that, even as early as the Middle Ages, merchants, traders, financiers, and others dealing in credit found non-negotiable paper inconvenient. To facilitate their operations they needed credit instruments that were unconditional obligations to pay and that could be freely bought and sold without the usual doubts concerning title. To satisfy this need for easy negotiability a new branch of law evolved; it culminated in the negotiable instruments laws. Credit instruments that meet the specifications of these negotiable instruments laws are known as negotiable instruments.

To be negotiable, an instrument must meet the following requirements:

1. It must be in writing.
2. It must be signed by the maker or drawer.
3. It must be an unconditional promise or order to pay a certain sum of money.
4. It must be payable on demand or at a fixed or determinable future date.
5. It must be payable to order or to bearer.

Most of these requirements are self-explanatory. Instruments that meet them are written and signed unconditional promises or orders to pay a fixed sum of money at a fixed or determinable future time. Special attention should be given to the terms "bearer" and "order," for paper failing to contain one of them is not negotiable. An instrument promising or ordering payment to "bearer" or to "John Smith or bearer" is payable to any "holder in due course." An instrument promising or ordering payment to "John Smith or order," or "to the order of John Smith," is payable either to John Smith or to anyone to whom he transfers title by endorsement. In fact, it becomes payable to bearer if John Smith endorses it in blank by signing his name.

A *holder in due course* of a negotiable instrument has a title to the instrument that is nearly perfect. Such a holder in due course is one who has taken the instrument under the following conditions:

1. The instrument is complete and regular upon its face.
2. He became the holder of it before it was overdue, and without

notice that it had previously been dishonored, if such was the fact.

3. He took it in good faith and for value.
4. At the time it was negotiated to him he had no notice of any infirmity in the instrument or defect in the title of the person negotiating it.

A holder in due course not only has a nearly perfect title to the negotiable instrument, but is also free from all the debtor's defenses mentioned above in connection with nonnegotiable instruments. The debtor has left only the defense that the instrument never had legal existence because of such reasons as forgery, alteration, or infancy of the maker.

As already indicated, title to negotiable instruments is transferred not by assignment but by *endorsement*. Such instruments payable to bearer require no endorsement for negotiability, though a buyer may, of course, ask for one. It is important to note that one who gives an unqualified endorsement to a negotiable instrument in effect warrants that:

1. The instrument is genuine and in all respects valid.
2. He has good title to it.
3. He has no knowledge of any fact which would impair the validity of the instrument or render it valueless.
4. If on due presentment it is dishonored by the debtor, the endorser will pay the holder or any subsequent endorser who may be compelled to pay it.[3]

There are three general classes of unqualified endorsements: (1) blank endorsement, (2) endorsement to a specified person or order, and (3) restrictive endorsement. To illustrate each, let us take the case of a promise or order to "pay to John Smith or order." If Smith endorses it in blank, merely signing "John Smith," the instrument is in effect made payable to bearer; it becomes freely negotiable without further endorsement. If he endorses it by writing "Pay to Sam Jones" or "Pay to Sam Jones or order" and signs his name, the instrument is

[3] We shall not discuss qualified endorsements here. On this subject, see *ibid.*, pp. 174–180.

not further negotiable without endorsement by Sam Jones. If he writes "Pay only to Sam Jones" and signs his name, the instrument at this point loses its negotiability.

Owing to the ease of transferring title by endorsement and the ample protection given their holders in due course, negotiable instruments are easily and widely bought, sold, and exchanged for each other.

Credit instruments are divided into two broad classes: (1) promissory notes, and (2) bills of exchange, or drafts. Both nonnegotiable and negotiable credit instruments fall into these two categories, but we shall discuss here only those that meet the requirements of the negotiable instruments laws.

Promissory Notes

A promissory note is an unconditional statement in writing made by one person to another and signed by the maker, promising to pay on demand, or at a fixed or determinable time in the future, a stated sum of money to order or to bearer. When a note is drawn to the maker's own order, it is not complete until endorsed by him. Several aspects of this definition should be noted carefully.

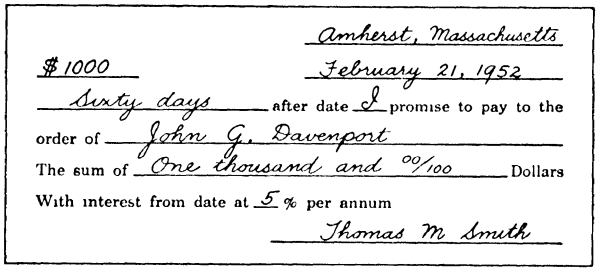
1. The promise to pay must be in writing.
2. The promise to pay must be unconditional.
3. The amount to be paid must be certain in terms of money.
4. The note must be payable on demand, at a fixed time, or at a determinable time.
5. The note must be payable to bearer or to the order of a specified person.

All these conditions must be met if the note is to be negotiable.

There are at least two parties to a promissory note: the *maker* or *payer*, and the *payee*. In some instances, the maker and the payee are the same person, the maker promising to pay to himself or order and then endorsing the note so that it becomes negotiable. The payee may be "bearer" or a specified person. Subsequent purchasers of the note become involved as holders and often as endorsers. Fig. 5 shows the general form of a simple promissory note. Though all negotiable promissory notes contain these elements, they vary greatly in other

respects. They differ as to the time elapsing before maturity; some mature only after a long period of years, some in a year, some in a few months or weeks, and some are payable on demand. Some are secured, others unsecured. Some are issued by corporations, some by governments, some by banks, and so on.

Promissory notes also vary as to the way in which they yield interest to their holders. Some notes that are payable on demand and circulate as money do not yield interest in any form. Central bank, commercial bank, and government notes payable to bearer on demand are in this


Amherst, Massachusetts

$1000 February 21, 1952

Sixty days after date I promise to pay to the order of John G. Davenport

The sum of One thousand and 00/100 Dollars

With interest from date at 5 % per annum

Thomas M Smith

FIG. 5. A Simple Negotiable Promissory Note.

category. Others, like that in the figure, provide for the payment of interest at a stipulated rate, in addition to the principal. Still others call for payment of a stipulated amount of principal on the maturity date and make no specific provision for interest. For example, a promissory note may provide for the payment of $100 one year after date. A buyer of the note will secure interest by buying the note at a discount; he will subtract interest in advance, or "discount" the note. If he is to hold the note for a year and earn 5 percent on his loan, he will pay only $95.24 for it. The $4.76 difference is his 5 percent interest on the amount advanced.[4]

Bills of Exchange, or Drafts

In contrast to promissory notes, which are promises to pay, bills of exchange, or drafts (both are the same), are orders to pay. "A bill

[4] The formula for simple discount is: Present value $= \frac{A}{1+i}$, where A is the future amount being discounted and i is the rate of interest for the period before payment, i being stated in percentage terms, such as .05 or .02.

of exchange is an unconditional order in writing addressed by one person to another, signed by the person giving it, requiring the person to whom it is addressed to pay on demand or at a fixed or determinable future time a sum certain in money to order or to bearer."[5] There are three parties to a draft: the *drawer*, or the one who orders payment; the *drawee*, or the one who is ordered to pay; and the *payee*, or the one to whom payment is ordered to be made. In most cases the three parties are different persons; thus, Jones (the drawer) may order Smith (the drawee) to pay to the order of Thompson (the payee). In other cases only two persons are involved, the drawer and the payee being the same. Thus, Jones may order Smith to pay to the order of Jones. In a few cases drawer, drawee, and payee are the same person. Thus Jones may order himself to pay himself or order and then make the draft negotiable by endorsing it.

Drafts or bills of exchange are classified on several bases, of which we shall explore only a few of the most important. One basis for classifying drafts or bills is the type of drawee involved. Thus, an order on a bank to pay is a *bank draft* or *bank bill*, or a *banker's draft* or *banker's bill*. An order to any other type of drawee to pay is a *trade draft* or *trade bill*.

Drafts or bills are also classified on the basis of the amount of time elapsing before payment is to be made. A draft ordering payment "on demand" or "at sight" is known as a *sight draft* or *sight bill*, or a *demand draft* or *demand bill*. A draft ordering payment after a lapse of time is known as a *time draft* or *time bill*. Time drafts fix the time of payment in three general ways. Some state a specific date of payment in the future. Others accomplish the same thing by requiring payment a stipulated number of days after the date of drawing the draft. Still others require payment a certain number of days "after sight," that is, after the bill is presented to the drawee. This last method is a legacy of the period when both land and water transportation were so irregular as to make forecasts of dates of arrival unreliable.

Before discussing time drafts let us look at the form and use of sight or demand drafts. In the sight trade bill shown in Fig. 6, the drawer (Fisher) ordered the drawee (Strong) to pay to the order of

[5] Section 126 of the Negotiable Instruments Law.

the payee (Smith) $2000 at sight. This draft may have had any one of several purposes. It may have been used to clear debts. If Fisher owed Smith $2000, and Strong owed Fisher the same amount, all the debts could be cleared by having Strong pay Smith or his order. The draft could have been to force Strong to pay for supplies before he received title to them. For example, Fisher may have shipped maple syrup to Strong by Smith's truck and ordered payment before delivery of title. Such a draft can also be used as a means of "putting pressure" on a slow-paying debtor. Suppose, for example, that Strong has bought $2000 worth of syrup from Fisher on book credit and has

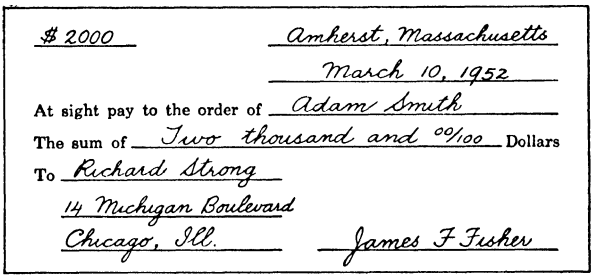


FIG. 6. A Simple Sight or Demand Trade Draft.

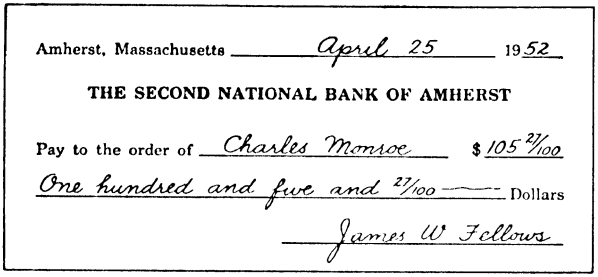
refused to pay or blithely ignored numerous requests for payment. By drawing a draft on Strong and then routing it through Strong's bank for collection, Fisher can put Strong in the position of having to pay or letting his bank discover his untrustworthiness. This use of trade bills for "dunning" purposes has reduced their popularity in this country.

The appearance and use of a sight bank draft (Fig. 7) should be familiar to everyone, for bank checks belong in this category. Negotiable drafts on banks ordering them to pay on demand are used to transfer deposit credits from one owner to another, thereby effecting more than 90 percent of all payments in our economy. These drafts are drawn on banks by individuals, by business firms, and by other banks.

Time drafts, those payable only after a lapse of time, are either *time trade drafts* (or *bills*), or *time bank drafts* (or *bills*), depending on the type of drawee involved. We have already seen that the date of

payment may be stated as a specific date, as a stipulated length of time after the date on the draft, or as a stipulated period "after sight," that is, after the draft is presented to the drawee. The time trade draft shown in Fig. 8 calls for the last method of payment.

It is important to note that a draft, as such, is only an order to pay; it is not an obligation of the drawee to pay. In fact, you can draw a


Amherst, Massachusetts April 25 1952

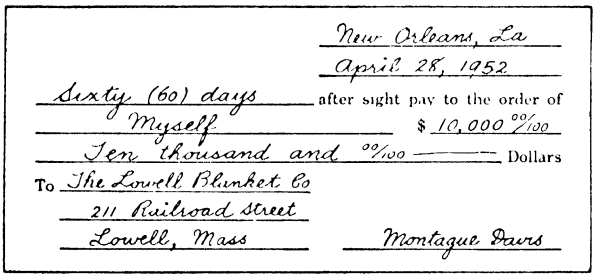
THE SECOND NATIONAL BANK OF AMHERST

Pay to the order of Charles Monroe $105 27/100

One hundred and five and 27/100 Dollars

James W Fellows

FIG. 7. A Sight Bank Draft.


New Orleans, La

April 28, 1952

Sixty (60) days after sight pay to the order of

Myself $ 10,000 00/100

Ten thousand and 00/100 Dollars

To The Lowell Blanket Co

211 Railroad Street

Lowell, Mass

Montague Davis

FIG. 8. A Time Trade Draft or Bill.

draft on any person or firm, but the mere drawing of the draft does not obligate the drawee to pay. The order to pay can be converted into a binding unconditional obligation to pay through *acceptance* by the drawee. The drawee accepts the order to pay by writing on either the face or the back of the draft the word "accepted" and by affixing his signature and the date of acceptance. Thus, the drawee may accept the draft in Fig. 8 by writing on its reverse side:

Accepted, May 4, 1952
The Lowell Blanket Company
By: Cabot L. Lawrence, Treasurer

By this act the drawee transforms the trade bill into a *trade acceptance*, which is his unconditional obligation to pay to Davis or his order $10,000 sixty days after the date of acceptance.

Acceptances are widely used credit instruments in finance and trade. To illustrate their use in financing trade, let us follow through a specific trade transaction. Suppose that the Lowell Blanket Company purchases $10,000 worth of wool from Montague Davis, a wool merchant in New Orleans. The buyer does not wish to pay until 60 days after receipt of the wool, and Davis does not want to surrender title to the wool until he has written evidence of the buyer's obligation to pay. The problem may be solved somewhat as follows. Davis will put the wool on a common carrier, consigning it to himself in Lowell, Massachusetts, and getting from the carrier an *order bill of lading*, which represents title to the wool and which can be endorsed over to others. He then draws on the Lowell Blanket Company the draft shown in Fig. 8, ordering it to pay $10,000 to him or his order 60 days after sight. Davis may then secure the help of his bank in presenting the draft, to which the order bill of lading is attached, to the Lowell Company for acceptance. A Lowell bank, which is either a correspondent of the New Orleans bank or associated with one of its correspondents, will actually present the draft for acceptance. When the Lowell Blanket Company accepts the draft the bank gives it the order bill of lading endorsed by Davis and it can claim the wool. Davis now holds, or has held for him, the trade acceptance, which is a written obligation of the Lowell Company to pay 60 days later. Davis may, if he wishes, hold the acceptance until its maturity. In this case he would, in effect, be lending $10,000 to the Lowell Company for 60 days. In actual practice, however, Davis as a wool merchant probably will not want to finance his customers, or will be unable to do so, and will wish to receive payment as soon as possible. He is likely, therefore, to endorse the acceptance and sell it to a bank or some other short-term investor for $10,000, less interest for 60 days. The acceptance may change hands several times before maturity, each holder financing the Lowell Company for the period he holds its acceptance.

Davis may even sell the draft before it is accepted and at the same

time that the wool is shipped. If he does, the transaction will be somewhat as follows. After drawing the draft and securing the order bill of lading, Davis will endorse them and sell the draft to a bank, which will then have the draft, with the bill of lading attached, presented to the Lowell Company for acceptance. After the draft becomes an acceptance and title to the wool is surrendered, the bank may hold the acceptance to maturity or sell it to other investors immediately or at any time before its maturity.

A trade acceptance is a highly convenient and negotiable credit instrument when the acceptor or the drawer is widely known and enjoys an excellent credit standing. It suffers, however, if the acceptor and the drawer are less widely or less favorably known. In this case, an attempt is usually made to use a bank acceptance, which is a bill of exchange drawn against and accepted by a bank. Let us see how a bank acceptance can be used to finance the transaction we have just described.

In arriving at the terms and conditions of the wool sale, Davis and the Lowell Company may agree that the transaction shall be financed by a 60-day draft drawn on the National Shawmut Bank of Boston. The Lowell Company will go to the National Shawmut Bank and secure a *letter of credit*. This letter of credit will contain the bank's promise to accept the draft drawn on it in accordance with an agreement concerning the amount of the draft, the time of shipping the wool, and so on. The letter of credit will then be sent to Davis. Having received it, Davis will put the wool on a common carrier, secure an order bill of lading made out to himself, and draw a draft on the National Shawmut Bank. The draft will look something like that in Fig. 9. He will then endorse both the draft and the bill of lading and sell the draft to his bank, which will route the draft, with the bill of lading attached, to the National Shawmut Bank for acceptance. Upon acceptance of the draft, the National Shawmut Bank will retain the bill of lading, which it will turn over to the Lowell Company under the terms agreed upon. The bank acceptance, now a binding obligation on the National Shawmut, can be held to maturity by Davis' bank or be sold to any of the numerous investors who have high confidence in the credit worthiness of the National Shawmut. In accord-

ance with the usual terms of letters of credit, the Lowell Company is obligated to place in the hands of the National Shawmut Bank, before the debt matures, enough money to meet it. But the National Shawmut must pay the debt whether or not the Lowell Company fulfills its part of the contract.

It is interesting to note the role played by the National Shawmut Bank in this transaction. It did not at any time act as a lender of money unless, of course, the Lowell Blanket Company failed to meet

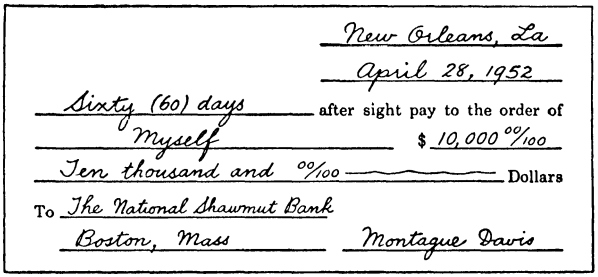

New Orleans, La
April 28, 1952
Sixty (60) days after sight pay to the order of
Myself $ 10,000 00/100
Ten thousand and 00/100 Dollars
To The National Shawmut Bank
Boston, Mass Montague Davis

FIG. 9. A Time Bank Draft.

its obligations. Instead, it substituted its credit standing for the credit standing of the Lowell Company; in this way it increased the ability of the textile company to secure credit from other lenders.

Summary of Credit Instruments

Outstanding debt or credit is evidenced by (1) oral agreements, (2) book credits (or debts), and (3) written instruments. These written instruments fall into two general classes: (a) promissory notes, and (b) orders to pay (drafts or bills of exchange) which become binding obligations (acceptances) when they are accepted by the drawee. Our discussion of these instruments has deliberately been confined to general principles. We have not attempted to cover all the perplexing legal aspects of negotiable instruments, or to detail the hundreds of variations that have been introduced to adjust these instruments to the peculiar needs of individual industries and transactions. Enough has been said, however, to indicate the great usefulness of these instruments in facilitating the flow of credit and of goods and services.

THE ROLE OF DEBT IN THE ECONOMIC SYSTEM

Our economic system is often called a credit economy, so great is the role of credit or debt in its operation. In fact, debt plays not one role but many. In the first place, as we have already seen, all our money is now made up of debts or credits. Government promissory notes, Federal Reserve notes, national bank notes, checking deposits, and even coins—all are merely promises to pay on demand. Our total money supply is composed of and varies with the volume of outstanding debts in these forms. The creators of the largest part of our money supply, the banks, are merely dealers in debt; they issue their own promises to pay on demand—checking deposits—in return for the debts of governmental units, corporations, and individuals.

In the second place, the offsetting or clearing of debts or credits greatly decreases the need for money. For example, a country store buys produce from farmers on credit and sells groceries to them on credit, only the difference being paid in money. In some cases the claims of the farmer against the store and of the store against the farmer balance completely, so that no money payments are necessary. Similarly, railroads maintain clearing houses at which their claims against one another for such things as car and locomotive rentals and charges for the use of roadway are balanced against each other, only the net balances being paid in money. Manufacturers buying from and selling to one another balance their claims and pay only the difference in money. Stock exchange members follow the same practice. This clearing of credits or debts against each other enables the settlement of many claims without the use of money of any kind; it is a means of "economizing" money.

In the third place, the use of debt enables people to space their consumption through time in the way that seems most advantageous. By incurring debt one can secure medical care when it is most needed, and pay later. A family can acquire a refrigerator or furniture for immediate use and pay for it over a period of time. A father can borrow to pay for his son's education at the time he needs the money, and pay later. Though it is painfully true that the shortsighted often decrease their happiness in the long run through reckless indebtedness for

consumption, consumption credit is a highly convenient part of our economic system. The fact that it is sometimes abused detracts in no way from its usefulness to those who employ it judiciously.

In the fourth place, the use of debt greatly facilitates productive processes. We have already seen that production is a time-consuming process and that modern enterprisers need large amounts of land, buildings, machinery, equipment, raw materials, and labor with which to carry on their operations. Many of them could not secure enough money to buy all the necessary equipment and supplies by plowing in earnings or selling shares of ownership. They need to be able to buy goods or services from their suppliers on credit or to borrow money with which to finance their productive purchases. Productive activities would suffer seriously in the absence of debt.

In the fifth place, debt must be created to transfer savings from savers to those who will spend for consumption or investment in order to support an adequate level of spendings for output. Our Puritan morality places the mark of approval on saving. This approval, coupled with our high levels of income and the great inequality of personal incomes, has led us to save a considerable part of our national income every year. If these savings were hoarded the inevitable effect would be to reduce the demand for output and to bring on widespread unemployment. Serious depression can be avoided only if these savings flow back into the market as spendings for output. Some of them, of course, are returned to the market through the plowing-in of earnings by enterprises or the purchase of shares of ownership in business. But some people are not willing to use their savings to expand their ownership holdings. Whether for consumption or investment purposes, debts must be expanded enough to absorb these savings if the latter are to be returned to the market as spendings instead of stagnating as hoards. To illustrate this point simply, let MacGregor represent all the savers in the country and suppose that he saves $1 billion a year. He may be willing to spend not more than $600 million for new shares of ownership, thereby returning only that amount to business firms with which to purchase new capital goods and to maintain the national income. If he merely hoards the other $400 million it is clear that the spendings for output will fall, thereby shrinking the

national income. But if he lends it to consumers or productive enterprises, the resulting increase in debt is a way of channeling savings back into spendings for output and into national income. The importance of this fact will be brought out in later chapters.

SELECTED READINGS

Bigelow, M. M., *Law of Bills, Notes and Checks*, Little, Brown, Boston, 3rd ed., 1928.

Dewing, A. S., *The Financial Policy of Corporations*, Ronald, New York, 3rd ed., 1934.

Encyclopædia of the Social Sciences, article on Credit.

Graham, B., and Dodd, D. L., *Security Analysis*, McGraw-Hill, New York, 1934.

Green, T. F., Jr., *Practical Summary of Negotiable Instruments*, Longmans, Green, New York, 1938.

Hulvey, C. N., *Commercial Law, Principles and Cases*, Macmillan, New York, 1930.

James, F. C., *The Economics of Money, Credit and Banking*, Ronald, New York, 3rd ed., 1940.

Moulton, H. G., *Financial Organization and the Economic System*, McGraw-Hill, New York, 1938.

CHAPTER 10

The Principles of Commercial Banking

Earlier sections of this book have emphasized many times that by far the largest part of our money supply is made up of checking deposits, which are merely debts of commercial banks payable on demand, and that the size of our money supply depends largely on the banks' activities in creating and destroying these credits or debts. The purpose of this chapter and of several that follow is of clarify the operations of commercial banks. The present chapter will deal primarily with the basic principles of commercial banking.

We shall not discuss here all the institutions that are known as "banks," for many types of institutions that operate on very different principles are included under this generic term. Thus, there are commercial banks, investment banks, savings banks, real estate mortgage banks, and so on. We are concerned here only with those institutions that create money in the form of circulating bank notes or demand deposits, or both, and that are usually known as commercial banks. Moreover, we shall not discuss at this point the "nonmonetary" functions of the institutions known as commercial banks. Such banks are often multi-department firms which, in addition to their commercial banking function, act as savings banks, trustees, executors and administrators of estates, brokers, and so on. These functions will be discussed later. We are here interested only in the money-creating and money-destroying functions of these so-called "commercial banks."

It is also important to note that the name "commercial bank" is likely to be misleading. It was originally applied to this type of insti-

tution because of a widespread belief that banks which issue their own promises to pay on demand, whether these are evidenced by circulating notes or deposit debts, should make only short-term "commercial" loans to others. Thus, a bank might properly lend funds to a manufacturer for a short period to buy raw materials or labor which would be incorporated in a finished product to be sold within a few weeks or months, or to a merchant to acquire goods to be sold in a short time, or to a shipper to finance the movement of his product. But it was considered improper for a money-issuing bank to extend long-term investment credit to finance the purchase of land, buildings, or durable machinery and equipment. This was "the commercial loan theory of banking." Banks have at times adhered to these rules, but they certainly do not today. Our "commercial banks" buy government bonds of virtually all maturities, corporation bonds, urban and farm real estate mortgages, and consumption debts of individuals as well as short-term commercial debts. In fact, there are few types of loans that our "commercial banks" do not make. We use the term "commercial banks" because of its popularity, but with the caution that "checking deposit banks" would be a more accurate description.

THE GENERAL FUNCTION OF COMMERCIAL BANKS

As already indicated in Chapter 4, commercial banks can be most accurately described as dealers in debt or, what is the same thing, as dealers in credit. They buy the debts of others, giving in payment their own promises to pay on demand, these demand debts of the banks being evidenced by bank notes or demand deposits. The debts of others acquired by banks are included in the banks' assets, for they are the banks' claims against others. Commercial bank assets include many kinds of debts owed to the banks: government debts, corporation bonds, mortgages on real estate, short-term corporate debts, debts of individuals, debts of central banks, debts of other banks, and so on. Two points regarding bank assets deserve emphasis: (1) They are composed largely of debt claims against others, and (2) the banks pay for these assets largely by issuing debt claims against themselves.

On the other side of the balance sheet the banks' circulating notes,

if any, and demand "deposits" are *liabilities* of the banks; they are the banks' obligations to pay on demand, and their obligation is to pay legal-tender money. Most of us readily accept the fact that bank notes are merely bank debts payable on demand and that banks can create money by issuing them. There has been much more reluctance, however, to accept the fact that bank deposits are merely bank debts which the banks can and do create in amounts far greater than their holdings of coin and paper money. The very term "deposit" seems to imply that a bank has merely accepted a certain amount of "money" for safekeeping in its vaults. Anyone who persists in such a belief will never comprehend commercial banking. To understand banking, one must constantly bear in mind the following interrelated facts: (1) Demand or checking deposits are legally only the banks' promises to pay legal-tender money on demand. If you acquire a deposit at a bank by "depositing" coins or a bundle of paper money and the bank fails the next day with the coins or paper money still in its vaults, you have only a general claim against the bank's assets, not a specific claim against the coins or paper money that you surrendered. Your claim is no different from that of a person who acquired a "deposit" at the bank by borrowing from it or by selling to it a debt claim on someone else. (2) Bank holdings of coin and currency are ordinarily equal to only a very small percentage of the bank's outstanding debts in the form of deposits. Coin and currency holdings equal to more than 2 or 3 percent of a bank's deposits are unusual. (3) Only a small part of bank deposits is originally created through the "deposit" of coin or currency; by far the larger part originates as banks give them in exchange for the debts of others.

In view of the above facts, why are people willing to hold demand claims against banks? Why don't they demand that the banks pay all these debts immediately with coin or paper money? Why are the banks so courageous as to issue their promises to pay on demand in amounts so far in excess of their holdings of coin and currency? To a small extent, perhaps, the answer is to be found in the fact that many people, not understanding commercial banking, assume that deposits are backed dollar for dollar by bank holdings of coin and paper money. But this is not an important part of the answer today;

banking is not now based on deception. Two facts constitute the answer: (1) Deposits offer certain advantages to their owners, and (2) under normal conditions people believe that banks will be able to keep their deposits convertible into coin or currency because there will be no general demand for such redemption.

We have already noted the special advantages of checking deposits to their holders.[1] We found that (1) they are not so liable to theft or loss as other types of money, (2) they are a means of payment that can be transported in large amounts over long distances at almost negligible cost, (3) checks against them can be written for the exact amount of the payment to be made, thereby obviating the necessity of making change and counting bills and coins, and (4) endorsed checks serve as a convenient receipt for payment. In addition, people often hold bank deposits in order to increase their chance of securing loans from a bank. For all these reasons checking deposits are more convenient for many uses than other types of money and are therefore preferred. Thus, banks can normally expect that, although they are legally obligated to pay all their deposits on demand, no widespread demand for payment will be made at any one time. In fact, cash withdrawals from banks are usually largely offset by cash inflows, net inflows or net outflows of cash merely reflecting the decreased or increased need for coin and paper money for pay-roll and retail trade purposes. We shall see later, however, that the situation is far different in periods of crisis.

OPERATIONS INCREASING AND DECREASING DEPOSITS OF A COMMERCIAL BANKING SYSTEM

Having dealt in general terms with the principles and functions of commercial banking, we can now treat the subject more concretely by using a balance sheet analysis of the type employed in Chapter 4, when we discussed the direct determinants of the money supply. For this purpose we shall use a consolidated balance sheet for the com-

[1] See pp. 69–86. It must be recognized, however, that the recent tendency of banks to levy service charges has to some extent reduced the attractiveness of checking accounts.

mercial banking system as a whole, ignoring some of its minor items and concentrating on the major ones. Moreover, we shall direct our attention primarily to the determinants of the total volume of commercial bank deposit liabilities, though attention will also be given to the effect on the total money supply. Several aspects of this treatment should be noted. (1) We are at this point interested in the functioning of the commercial banking system as a whole. The position of individual banks within the system will be discussed later. (2) Since the balance sheet that we shall use is a consolidated balance sheet for the commercial banking system as a whole, in this way we eliminate the claims of the various commercial banks against each other, leaving only the claims of the commercial banks against others and the claims of others against the commercial banks. (3) In order to emphasize basic principles, we shall neglect certain minor items in the balance sheet and concentrate on the major ones. And (4) we shall assume that deposits are the only liabilities of banks. At the beginning we shall deal with the total volume of deposits, but later we shall discuss the various types of deposits. In describing the effects of changes in the volume of bank assets, we shall assume that checking deposits are the ones affected.

The Basic Equation

Here, as in Chapter 4, we can start with the basic equation:

(1) ASSETS = LIABILITIES + CAPITAL ACCOUNTS

And, since we have assumed that all liabilities of the commercial banks are in the form of deposit liabilities, we can restate the equation in the following form:

(2) ASSETS = DEPOSITS + CAPITAL ACCOUNTS

The asset side shows the value of assets acquired and held by the commercial banks. The other side shows the types of claims issued by the commercial banks in payment for the assets acquired. Some of the assets were acquired by the issue of ownership claims to the stockholders of the banks. These claims are evidenced on the balance sheet by the sum of capital stock, surplus, and undivided profits, which we have called "capital accounts." Such ownership claims cannot circu-

late as money. The remaining value of assets represents the amount acquired through the issue of debt claims in the form of deposits.

Since outstanding deposit claims on the banks at any time are equal to the total value of bank assets minus the amount covered by ownership claims, we can restate our basic equation in the following form:

(3) DEPOSITS = ASSETS *minus* CAPITAL ACCOUNTS

This equation brings out the fact that the total volume of deposits at commercial banks varies directly with the volume of bank assets and inversely with the capital accounts of banks. As banks increase their assets, they must issue in payment an equal amount of claims against themselves. When banks decrease their assets, they withdraw an equal amount of claims against themselves. On the other hand, a change in the capital accounts of banks tends to have an opposite effect on the volume of outstanding deposit claims against the banks, for ownership claims rather than deposits may be created and issued to pay for assets or may be created and issued in exchange for deposit claims.

Though it is useful to bear in mind that variations in the capital accounts of commercial banks can influence the volume of outstanding deposits, we shall not discuss them further. This is because they vary only slowly and are therefore not an important determinant of fluctuations in either the total volume of deposits or the total money supply. With only minor discrepancies, the volume of deposits fluctuates with the volume of bank assets, being created to pay for additional assets acquired, and retired as bank assets are decreased.

The principal types of bank assets are shown in Table 20.

Bank Loans, Discounts, and Security Holdings

Though deposit claims are created and issued by the commercial banks in payment for all these types of assets, the table shows the preponderant importance of loans, discounts, and securities. At the end of 1950, these made up about 85 percent of total commercial bank assets. Statements for other dates would show similar proportions, and comparative statements at different points of time would

show that fluctuations of loans, discounts, and securities account for the major part of the fluctuations in total bank assets and in total bank deposits.

Loans and discounts include the banks' holdings of the short-term debts of their borrowers, these being evidenced by promissory notes or acceptances, mostly the former. For our present purposes, there is no significant difference between a loan and a discount. Both are debt

TABLE 20. An Approximate Consolidated Statement for All Insured Commercial Banks in the United States, December 30, 1950[2]

ASSETS			LIABILITIES AND CAPITAL ACCOUNTS		
	Amount in Billions	Percent of Total		Amount in Billions	Percent of Total
Cash in vault	$ 2.2	1.5	Deposits	$130.1	88.7
Deposits at Federal Reserve banks	17.5	11.9			
Loans and discounts	51.8	35.3			
Securities	73.2	50.0	Capital and miscellaneous accounts	16.5	11.3
Miscellaneous assets (mostly real estate and equipment)	1.9	1.3			
Total	$146.6	100.0	Total	$146.6	100.0

claims against others, loans being evidenced by instruments on which interest is payable in addition to the stated principal, whereas a discount is evidenced by an instrument payable at maturity at its stated principal value, the interest or discount having been deducted in advance at the time the obligation was purchased by the bank. The item "securities" is made up largely of longer-term debt instruments purchased and held by the banks. It includes government obligations, corporation bonds, mortgages, and other comparable items. It is largely through buying and selling these types of debt obligations of others that the banks create and destroy money.

To illustrate this, let us assume that the commercial banking system

[2] Derived from data in the *Annual Report of the Federal Deposit Corporation*, 1950 pp. 236–239. The basic balance sheet has been simplified and adjusted in several ways, the most important being the elimination of interbank items.

increases its outstanding loans and discounts by $2 billion, issuing new deposit claims in payment. The effect on the banks' balance sheet will be as follows:

Assets		Liabilities	
Increase of loans and discounts	$2 billion	*Increase* of deposits	$2 billion

By this process the banking system has monetized debt; it has created $2 billion of deposits that did not exist before, and has done so without reducing the amount of other types of money outstanding. In short, if these new deposits are checking deposits, it has added $2 billion to the total money supply.

Net increases in the banks' holdings of securities also increase deposits and the money supply. Suppose, for example, that the banks as a group add $4 billion to their holdings of securities and pay for them with new deposit credits. The effect on their balance sheet will be as follows:

Assets		Liabilities	
Increase of security holdings	$4 billion	*Increase* of deposits	$4 billion

Here again the banks have monetized debt; they have in this case created $4 billion of deposits that did not exist before, and have done so without reducing the amount of other types of money outstanding. If these new deposits are checking deposits, there has resulted a $4-billion addition to the total money supply.

The principles brought out in these examples are so important that they should be emphasized. (1) By expanding the volume of its loans, discounts, and security holdings, the commercial banking system creates deposits which did not exist before. (2) This process creates deposits without any decrease in other types of money outstanding. If the new deposits are checking deposits, the result is a net addition to the total money supply. (3) It is also worth noting that an expansion of bank loans, discounts, and security holdings tends to expand the public's total money supply even if payment is not made by the creation of deposits but rather by paying cash out of vault. Suppose, for example, that the banking system buys $1 billion of securities and pays for them by paying this amount out of its vault cash.

The effect on the banks' balance sheet is not to increase deposits; it is to increase assets in the form of securities and to decrease assets in the form of cash in vault. In this process, however, $1 billion of coin and currency formerly held by the banks is placed in the hands of the public. Thus any expansion of total bank holdings of loans, discounts, and securities tends to add an equal amount to the public's holdings of deposits plus coin and currency.

A reduction of bank holdings of loans, discounts, and securities has the opposite effect on deposits and the money supply; it tends to reduce them. Suppose, for example, that the banks reduce their loans and discounts by $3 billion, and that the borrowers repay by drawing down their deposit accounts. The effect on the banks' balance sheet will be as follows:

Assets		Liabilities	
Decrease of loans and discounts	$3 billion	*Decrease of deposits*	$3 billion

By this process the banks have destroyed $3 billion of deposits and have not increased the amounts of other types of money outstanding. If the destroyed deposits were checking deposits the total money supply has been reduced by an equal amount.

A reduction of bank holdings of securities has a similar effect. Suppose, for example, that the commercial banks reduce their security holdings by $5 billion, the buyers paying for them by drawing down their deposit accounts. This transaction will have the following effect on the banks' balance sheet:

Assets		Liabilities	
Decrease of security holdings	$5 billion	*Decrease of deposits*	$5 billion

By this process the banks have destroyed $5 billion of deposits without increasing other types of money outstanding.

These examples relating to a reduction of bank loans, discounts, and security holdings bring out several principles: (1) By reducing their assets in these forms the banks destroy deposits which previously existed. (2) They do this without increasing the amounts of other types of money outstanding, so that they reduce the total of deposits, and coin and currency. (3) Moreover, by reducing their

holdings of these assets the banks tend to decrease the public's total money supply even if those who repay loans or buy securities from the banks pay for them with coin or currency instead of drawing down their deposits. Suppose, for example, that to retire loans or to buy $2 billion of securities from the banks, the public pays in $2 billion of coin and currency. The effect is not to decrease deposits, but rather to decrease bank assets in the form of loans and securities and to increase bank assets in the form of cash. In the process, however, the public's total holdings of money have been reduced by $2 billion. Thus a reduction of bank loans, discounts, and security holdings tends to reduce by an equal amount the public's total holdings of deposits plus coin and currency.

Our somewhat lengthy discussion of commercial bank operations in loans, discounts, and securities is justified by the importance of the subject. It is by increasing and decreasing their holdings of assets in these forms that the banks exert most of their influence on the volume of deposits, the total money supply, and the volume of loan funds. By expanding their holdings of these debt obligations, the banks create deposits, add to the money supply, and augment the supply of loan funds. By decreasing their total holdings of these obligations, the banks decrease deposits and the total money supply, and tend to reduce the total supply of loan funds.

However, while emphasizing the preponderant importance of bank assets in the form of loans, discounts, and securities, we must recognize that banks can also affect the volume of deposits by varying the volume of their other types of assets.

Miscellaneous Assets

The miscellaneous assets are largely in the form of real estate and equipment owned by the banks. In principle, the banks can create and destroy deposits by buying and selling real estate or other real goods. They can create deposits in payment for additional assets of these types, and they can decrease deposits by selling to others some of their holdings of these types of assets. To the extent that this is done, the banks alter not only the volume of deposits but also the total money supply. In practice, however, bank operations of

this type are rather small, so that variations in bank assets of this type are not an important determinant of fluctuations in either the volume of deposits or the total money supply.

Cash in Vault and Commercial Bank Deposits at the Federal Reserve Banks

We have left for consideration the two remaining types of bank assets: cash in vault and deposit claims against the Federal Reserve banks. These will be discussed together because the banks can freely exchange them for each other. Thus, they can take cash from their vault and ship it to the Federal Reserve to make additions to their deposits there. Or they can decrease their deposit accounts at the Federal Reserve to get coin and paper money to be held in their vaults. In practice, banks keep in their vaults little more than the minimum amount of cash consistent with their day-to-day needs.

It should be clear that since cash in vault and deposits at the Federal Reserve banks are commercial bank assets, variations in their volume also tend to affect the volume of deposits, just as do fluctuations in other types of commercial bank assets. But what determines the volume of bank assets in the form of these two types of money? The answer is that bank assets in these two forms are equal to the total issues of money by the Federal Reserve and the Treasury minus the amounts of this money held by the Federal Reserve and the Treasury and minus also the amount of coin and currency held outside the banking system. Neglecting certain minor items, we can put this in the form of an equation, as follows:

$$\begin{array}{l}\text{Commercial Bank Holdings of Cash and Deposits at the Federal Reserve} \\ = \end{array} \begin{array}{l}\text{Net Issues of Money by the Federal Reserve and the Treasury} \\ \hline \left.\begin{array}{l}\text{Monetary gold stock} \\ + \\ \text{Treasury currency} \\ + \\ \text{Total Federal Reserve credit}\end{array}\right\} \end{array} - \left\{ \begin{array}{l}\text{Amounts of This Money Held Outside the Commercial Banking System} \\ \hline \begin{array}{l}\text{Treasury holdings of cash and Treasury and foreign deposits at the Federal Reserve} \\ + \\ \text{Currency and coin outside the commercial banking system}\end{array}\end{array}\right.$$

The Treasury creates and issues money by buying gold and issuing Treasury currency, and the Federal Reserve creates money by making loans and buying securities. However, part of this money is not available to the commercial banks, for it is held in Treasury vaults or in the form of Treasury and foreign deposits at the Federal Reserve or it is in circulation outside the commercial banks. Only that part of these Federal Reserve and Treasury issues which is not absorbed by competing uses is available to the commercial banks to be held as cash in vault or deposits at the Federal Reserve. Thus, the volume of commercial bank assets in these forms tends to fluctuate directly with the sum of the monetary gold stock, Treasury currency outstanding, and total Federal Reserve credit, and inversely with the sum of currency and coin outside the banking system and Treasury holdings of cash and Treasury and foreign deposits at the Federal Reserve.

Let us now trace through the effects of variations in each of these items on the assets and deposits of the commercial banking system. We shall assume that additions to and subtractions from commercial bank assets occur through their deposit accounts at the Federal Reserve, though the banks may, if they wish, allow the change to occur in their cash in vault.

Increases and decreases in the monetary gold stock tend directly to increase or decrease by an equal amount both commercial bank assets and total deposits at commercial banks. Suppose, for example, that the Treasury buys an additional $1 billion worth of gold from some miner or importer. The Treasury will issue $1 billion of gold certificates to the Federal Reserve bank, thereby getting a deposit credit there, and will pay the gold seller with a check drawn on the Federal Reserve. The seller of the gold will deposit the check at a commercial bank, getting in return a new deposit credit, and the bank will then send the check to the Federal Reserve, which will add that amount to the bank's deposit account. Thus, the net increase in the monetary gold stock has added $1 billion to commercial bank assets in the form of deposit claims against the Federal Reserve and $1 billion to deposits at the commercial banks. This illustrates the general principle that net additions to the monetary gold stock tend directly to add equal amounts to commercial bank assets in the form

of deposit claims against the Federal Reserve, and to total deposits at commercial banks. We shall see later that the indirect effect may be to permit the commercial banking system to expand its loans, discounts, and security holdings by a multiple amount.

As would be expected, a net decrease in the monetary gold stock tends to have the direct effect of reducing by an equal amount both commercial bank assets and deposit liabilities. Suppose, for example, that the Treasury sells $2 billion of gold for export and that the exporter pays for it with a check drawn against a commercial bank. On receipt of the check, the Treasury will send it to the Federal Reserve and withdraw $2 billion of existing gold certificates. The Federal Reserve will subtract the amount of the check from the deposit account of the bank on which it is drawn, and send the check to the bank, which will reduce the deposit claim of the gold exporter. Thus, the direct effect of the reduction of the monetary gold stock has been to reduce by a corresponding amount both assets and deposits at commercial banks. These are only the direct effects; the indirect effect may be to force the commercial banks to reduce their loans, discounts, and security holdings by a multiple amount. This same principle relating to indirect effects also applies to all other operations which increase or decrease commercial bank deposits at the Federal Reserve, but we shall not mention it further in this section.

Fluctuations in the volume of outstanding Treasury currency have effects comparable to those of changes in the monetary gold stock. Suppose, for example, that the Treasury issues additional coin and paper money at a time when there is no additional demand for coin and currency outside the banks. The recipients will take the money to commercial banks and exchange it for new deposit claims, and the banks will ship it along to the Federal Reserve to increase their deposit claims against the Federal Reserve. Thus, the direct effect of increased issues of Treasury currency is to add corresponding amounts of commercial bank assets and to deposits at commercial banks. A net reduction in outstanding Treasury currency has the opposite effect. Suppose that the Treasury borrows from or taxes the public to get money to retire some of its coins or paper money. The checks

of the lenders or taxpayers will be deducted from their own deposit accounts at commercial banks, and the latter will lose deposits at the Federal Reserve. Thus, both commercial bank assets and liabilities will be reduced.

Fluctuations in Federal Reserve credit—mostly Federal Reserve loans and security holdings—have effects quite comparable to those of fluctuations in the monetary gold stock. This is because, as we saw in Chapter 4, the Federal Reserve can create and destroy money by increasing or decreasing its holdings of loans and securities. To illustrate the principles involved, we shall deal separately with two cases: (1) where the Federal Reserve buys assets from or sells assets to some one other than a commercial bank, and (2) where the Federal Reserve buys assets from or sells assets to the commercial banks. Pursuing the first case, let us assume that the Federal Reserve expands its assets by lending to you (buying your promissory note) or purchasing from you government securities in the amount of $2 billion. The Federal Reserve will send you a check for this amount, which you will deposit at your commercial bank in exchange for a new deposit credit. Your bank will then send the check to the Federal Reserve, which will credit your bank's deposit account. Thus, the Federal Reserve purchase of assets from someone other than a commercial bank has increased both commercial bank assets and deposits at commercial banks.

Federal Reserve sales of assets to someone other than a commercial bank have the reverse effect. Suppose, for example, that the Federal Reserve decreases its assets by decreasing its loans to you or by selling to you government securities in the amount of $1 billion, and that you make payment by drawing a check on your deposit account at a commercial bank. When the Federal Reserve receives the check it will deduct it from your bank's deposit with it, and then send the check to your bank, which will deduct it from your deposit account. In this process total deposits at commercial banks and commercial bank assets in the form of deposits at the Federal Reserve have each been decreased by $1 billion. These examples illustrate the general principle that Federal Reserve purchases of assets from and sales of assets to some one other than a commercial bank tend directly to in-

crease or decrease by equal amounts both total deposits at commercial banks and the latter's assets in the form of deposit claims against the Federal Reserve.

Federal Reserve purchases of assets from or sales of assets to commercial banks have somewhat different direct results. Here there is no *direct* effect on either total commercial bank assets or total deposits at commercial banks; the direct effect—and it is an important one—is rather to alter the composition of commercial bank assets. For example, suppose commercial banks sell $1 billion of their loans and securities to the Federal Reserve. The effect is to reduce commercial bank assets in these forms and to increase by an equal amount their deposit claims against the Federal Reserve. On the other hand, if they buy $1 billion of securities from the Federal Reserve, this increase of assets is offset by their surrender of an equal amount of deposit claims against the Federal Reserve.

We have now accounted for all the monetary issues of the Treasury and the Federal Reserve. These are the sum of the monetary gold stock, outstanding Treasury currency, and Federal Reserve credit. Increases in these items tend directly to increase total deposits at commercial banks and to increase commercial bank assets in the form of cash in vault and deposits at the Federal Reserve. Decreases in these items tend to have the reverse effect.

It should be remembered, however, that not all these issues of money by the Treasury and the Federal Reserve are available for holding by the commercial banks. A large part is absorbed in other uses—as Treasury holdings of cash, as Treasury and foreign deposits at the Federal Reserve, and as coin and currency held outside the banking system. Only the amounts of total Treasury and Federal Reserve issues not used for these other purposes are available for commercial bank holding as cash in vault or as deposits at the Federal Reserve. Thus increases in the amounts used for these other purposes tend to reduce these types of commercial bank assets, and decreases in the amounts used for these other purposes tend to increase these types of commercial bank assets.

Since their effects on commercial banks are the same, we can lump together Treasury holdings of coin and currency and Treasury de-

posits at the Federal Reserve.[3] Increases in Treasury holdings of cash and deposits at the Federal Reserve tend to decrease both commercial bank assets and deposits at commercial banks. To illustrate this principle, let us look at two cases. (1) The Treasury draws a check on its own deposit accounts at commercial banks and "deposits" the check at the Federal Reserve. The Federal Reserve deducts the amount of the check from commercial bank deposit claims against it, so that both commercial bank assets and deposit liabilities are reduced. (2) The Treasury deposits with the Federal Reserve checks drawn on commercial banks by private taxpayers or lenders. The Federal Reserve deducts the amount of these checks from commercial bank deposit accounts with it, and the commercial banks reduce their deposit liabilities to those who have paid the Treasury. In both cases, the effect of the increase of Treasury deposits at the Federal Reserve has been to reduce both commercial bank assets and deposit liabilities. The effect on commercial banks would be the same if the Treasury increased its holdings of coin and paper money.

On the other hand, a reduction of Treasury deposits at the Federal Reserve tends to increase both commercial bank assets and deposit liabilities. By shifting its deposits from the Federal Reserve to the commercial banks, the Treasury can increase both commercial bank deposits at the Federal Reserve and deposits at commercial banks. And by paying out deposits at the Federal Reserve to individuals and business firms, the Treasury can increase both commercial bank assets and deposit liabilities.

At times these Treasury operations have an important influence on the position of commercial banks. The Treasury's balance is often large, and its inpayments and outpayments are far from small. By transferring large amounts to its deposit account at the Federal Reserve, the Treasury can exert a significant restrictive influence on the commercial banking system. And by paying out large amounts from its deposits at the Federal Reserve, the Treasury can expand significantly both the assets and the deposit liabilities of the banks. The

[3] Because they have the same effects on commercial banks as do Treasury holdings of cash and deposits at the Federal Reserve, we shall not discuss foreign deposits at the Federal Reserve.

Treasury and the Federal Reserve must therefore take care that these operations are not disruptive. At times they deliberately use these operations to regulate the volume of commercial bank deposits at the Federal Reserve.

The volume of commercial bank assets and deposits is also influenced by variations in the volume of coin and currency outside the banking system. We saw earlier that bank customers are free to determine for themselves the form in which they will hold their money; they may surrender part of their holdings of coin and currency in exchange for additional deposit claims against the banks, or they may draw down their deposit accounts to get more coin and currency for use outside the banks. Thus, a net inflow of coin and currency tends to increase both bank assets and the deposit liabilities of the banks. The direct effect is to increase bank assets in the form of cash in vault, but the banks usually ship any excess cash to augment their deposits at the Federal Reserve. On the other hand, net outflows of coin and currency tend to reduce both the assets and the deposit liabilities of commercial banks. When the net outflow is of any considerable size the banks are usually unable to handle it by reducing their cash in vault and hence must draw upon their deposits at the Federal Reserve to get the required amounts of coin and currency.

Fluctuations in the amount of coin and currency outside the banks exert a significant influence on the behavior of bank assets and liabilities. These net inflows and outflows may be divided into two classes: normal and abnormal. (1) Normal inflows and outflows reflect the "needs of trade" for coin and paper money. Fluctuations in the value of retail trade and pay rolls are usually accompanied by changes in the amount of coin and paper money in circulation. Even the net inflows and outflows reflecting these changing needs can have a significant effect on total bank assets and liabilities, and an even more important effect on the volume of bank reserves. (2) Abnormal outflows and inflows reflect changes in the public's confidence as to the safety and liquidity of bank deposits. For example, a sizable "run" on the banking system, as people demand coin and currency for their deposits, can not only reduce total bank assets seriously, but

put the banks in an intolerable position as regards reserves and liquidity.

Summary

We can now summarize this long discussion of the various components and direct determinants of commercial bank assets and deposit liabilities. At the outset, we found that the principal commercial bank assets and liabilities are the following:

Assets	Liabilities and Capital Accounts
Cash in vault Deposits at Federal Reserve banks	Deposits
Loans and discounts Securities	Capital and miscellaneous accounts
Miscellaneous assets (mostly real estate and equipment)	
Total	Total

The volume of deposits at any time is equal to total bank assets minus bank capital accounts, and over a period of time total deposits fluctuate directly with the volume of bank assets and inversely with the size of the banks' capital accounts. However, capital accounts usually change only slowly, so that the volume of deposits tends to vary directly with the total assets of the banks. On the asset side, bank loans, discounts, and security holdings are by far the largest component and show the widest range of fluctuation. Banks create deposits largely by purchasing these types of assets, and they reduce the volume of deposits primarily by making net sales of these types of assets. Though banks can also create and destroy deposits by purchasing and selling real estate and other comparable types of assets, their operations along these lines are usually small.

This leaves for consideration commercial bank assets in the form of cash in vault and deposits at the Federal Reserve banks. On analyzing these, we found that their magnitude depends on the total amount of money issued by the Federal Reserve and the Treasury

minus the amounts held outside the banking system and minus also Treasury holdings of cash and Treasury and foreign deposits at the Federal Reserve. More specifically, we found that the sum of commercial bank holdings of cash in vault and deposit claims against the Federal Reserve banks is determined as follows:

Commercial bank holdings of cash in vault and deposits at the Federal Reserve = Monetary gold stock + Treasury currency + Total Federal Reserve credit − Treasury holdings of cash and deposits at the Federal Reserve + Foreign deposits at the Federal Reserve + Coin and currency outside the banks

By substituting the right side of this equation for the items "cash in vault" and "deposits at the Federal Reserve banks" in the consolidated balance sheet for the commercial banking system, we get a statement showing all the major factors that directly determine the volume of commercial bank assets and liabilities. This statement is as follows:

Assets	Liabilities and Capital Accounts
Monetary gold stock	
Treasury currency outstanding	Deposits
Total Federal Reserve credit	
Minus:	
(a) Treasury holdings of cash and deposits at the Federal Reserve	
(b) Foreign deposits at the Federal Reserve	Capital and miscellaneous accounts
(c) Coin and currency outside the banking system	
Loans and discounts	
Securities	
Miscellaneous assets (mostly real estate and equipment)	
Total	Total

In this way we bring together in one balance sheet all the major factors that directly affect the size of commercial bank assets and liabilities. The reader will find it helpful to study this statement carefully and to trace for himself the effects of variations in each of the items on the asset side.

The item "commercial bank deposits at the Federal Reserve banks" requires further discussion. Up to this point we have dealt with it as just another commercial bank asset. But its importance is far greater than this, because it can be counted as a "legal reserve" for the commercial banks. We shall see later that commercial banks are required by law to hold reserves equal to at least some specified percentage of their deposits. This is a device for limiting the amount of deposits that may be created by the banks. For example, to require that banks hold a 20 percent reserve against their deposits is just another way of providing that the banks may not create and have outstanding deposits in an amount greater than 5 times the amount of legal reserves available to them. It is for this reason that the volume of legal reserves is so important, as we shall see in a later section.

Types of Deposits

The preceding sections have discussed the total assets and total deposit liabilities of the commercial banking system. We shall now discuss the various types of deposit liabilities of the commercial banks. It will be useful to classify these on two bases: on the basis (1) of time of payment and (2) of ownership. (1) On the basis of the time when the banks are obligated to pay the deposit claims, there are demand deposits and time or savings deposits. Demand deposits, as the name implies, are payable at the depositors' demand, whereas time or savings deposits are payable only after the lapse of a specified period of time. (2) On the basis of the ownership of the deposit claims, there are foreign deposits, U.S. government deposits, and deposits owed to business firms, individuals, and others.[4] Putting these two classifications together, we can classify total deposits at commercial banks in the following categories:

[4] Since we are here dealing with the consolidated balance sheet of the commercial banking system, interbank deposits do not appear.

Demand deposits
  Owed to the U.S. government.
  Owed to foreigners.
  Owed to business firms, individuals, and others.
Time or savings deposits
  Owed to the U.S. government.
  Owed to foreigners.
  Owed to business firms, individuals, and others.

The sum of all these is the item "total deposits" in our consolidated balance sheet for the commercial banking system.

There are, of course, transfers among these categories. Thus, any depositor may relinquish a demand deposit claim and take a time deposit claim, or vice versa. Moreover, as payments are made among the various types of depositors, deposit claims against the banks are transferred from one type of owner to another. If we are interested in the behavior of any one type of deposit, such as privately owned demand deposits, we must take into consideration not only total deposits in the commercial banking system but also the movement of deposits from one category to another. Thus, the volume of privately owned demand deposits at any time is equal to total deposits, as determined by the factors previously outlined, minus all time and savings deposits and also minus U.S. government and foreign demand deposits at commercial banks. The volume of privately owned demand deposits can be increased not only by an expansion of total bank assets but also by transfers of deposits to this category and away from the others. On the other hand, these privately owned demand deposits can be decreased not only by a decrease in total bank assets but also by transfers from this category and into others. It will be remembered that this is the same conclusion that we arrived at in Chapter 4, though by a somewhat different route.[5]

FACTORS DETERMINING THE VOLUME OF DEPOSITS THAT A BANKING SYSTEM CAN CREATE

The preceding sections of this chapter have traced the various processes by which commercial banks create and destroy deposits,

[5] See p. 77.

with emphasis on their purchases and sales of loans, discounts, and securities. These debt instruments acquired by the banks yield an income. The purpose of a commercial bank, from the point of view of its owners, is to make profits; in fact, bankers usually want to maximize their profits. Why, then, do not the banks buy up all the debt instruments available in the entire economy and monetize them by issuing checking deposits in exchange? Why should the banks stop with monetizing all the debt instruments that they can induce governments, corporations, and individuals to issue? Why should they not proceed to buy up great quantities of real goods and services, issuing demand deposits in return? Such a procedure would appear profitable, for the banks receive interest or other income from the assets that they acquire and they do not ordinarily pay interest on checking deposits. Such an unlimited expansion of the money supply would be a real possibility if no one ever required the banks to redeem their deposits in coin or currency and if there were no other restraints on bank lending and investing operations.

But it must be remembered that banks are under obligation to redeem their demand deposits in coin or currency at the request of their creditors. Inability to meet these demands means failure for the banks. Therefore, even in the absence of legal reserve requirements, banks will, if they are prudent, try to keep available enough coin and currency, or what they consider its equivalent, to meet all likely demands for cash. Such holdings are usually referred to as *primary reserves;* their composition will be discussed later. Let us suppose that a certain banking system has come to believe that a reserve equal to less than 10 percent of its deposits is too small to be "safe." This banking system is not likely to expand the amount of its deposits to more than ten times the volume of its available reserves; to do so would reduce the percentage of reserves to deposits below what it considered a safe level. Thus, the ability of a commercial banking system to expand deposits is limited by (1) the dollar amount of its reserves, and (2) the required ratio of reserves to deposits. A $1-million reserve will support $10 million of deposits if the minimum "safe" reserve ratio is 10 percent. It will support only $5 million of deposits if this ratio is 20 percent.

This practice of maintaining reserves equal to a certain proportion of deposits acts in two ways to limit the volume of deposits that banks can create. In the first place, increases in the volume of deposits lower the ratio of reserves to deposits even if the dollar amount of the reserves remains constant. After a time, therefore, the banks have to cease expanding their deposits unless they can acquire proportional increases in their reserves. In the second place, as indicated earlier, large expansions of deposits may reduce the dollar volume of bank reserves. The expansion of deposits, by adding to the total money supply, is likely to be accompanied by an increased dollar volume of business, rising pay rolls and rising retail trade, and perhaps rising price levels, so that depositors will withdraw some coin and currency from the banks to carry on these transactions. These cash outflows have the effect of reducing bank reserves; they are often called the *internal drain* or the *domestic drain* of cash from the banking system. If the expansion of bank deposits is large and the country is on a gold standard, a *foreign drain* may also appear as prices in the country tend to rise above those abroad and as gold is withdrawn from the banking system for export.

Though these factors prevent unlimited expansions of checking deposits even when a banking system does not operate under legally fixed minimum reserve requirements, it must not be inferred that the maintenance of customary minimum reserves assures the creation of exactly the "right" amounts of money. The volume of deposits can still fluctuate in socially undesirable ways.

In many countries the amount of reserves to be maintained relative to deposits is left largely to the judgment of the banks. This was true in the early history of banking in the United States, but so great were the abuses that our banks now operate under legally prescribed minimum reserve requirements. Our laws specify not only the minimum quantity of reserves that must be held relative to deposits but also the form of these reserves. We shall see later that our monetary authorities—the Federal Reserve System and the Treasury—exercise most of their control over the quantity of commercial bank credit through their ability to control (1) the dollar volume of commercial bank reserves, and (2) the height of the legally required minimum

ratio of reserves to deposits. The remainder of our discussion of the limitations on the volume of bank credit will assume that minimum reserve requirements are set by law.

Because of their great variety in different countries and at different times, it is difficult to define "reserves." At first they were made up largely of coin and currency held in the banks' vaults. This meant, however, that reserves yielded no monetary return, so the banks began to search for an asset that would yield a return and still be "as good as cash" for the purpose of meeting depositors' demands. Thus, a bank sometimes counted as "reserves" its deposit claims against other commercial banks, reasoning that it could at any time get coin or currency in exchange for these deposits. But the banks that acted as "depositories of reserves" seldom held more than a small percentage of cash behind their deposits, with the result that they were unable to supply cash to their depositors if demands for cash were large. Such "reserves" were not as good as cash for meeting a general demand for coin or currency. Banks have also at times counted as part of their "reserves" their holdings of certain high-quality readily marketable securities, such as bank acceptances and short-term government securities, reasoning that these were "as good as cash" because they could be sold without delay and without loss whenever the bank needed coin or currency. Though this logic was valid for an individual bank or a small group of banks in need of coin or currency, it was far from valid when the banking system as a whole tried to sell its paper. The market for such paper virtually disappeared in situations of this sort.

Our banking laws now determine both the form and the minimum amount of commercial bank reserves that must be held, the latter being stated as a percentage of deposits. Commercial banks that are members of the Federal Reserve System—and they account for the major part of bank deposits in this country—must hold their legal reserves in the form of deposits at the Federal Reserve banks. Nonmember banks hold their reserves in various forms. The height of the legal minimum ratio of reserves to deposits varies with classes of banks, as we shall see later, but it has recently averaged around 20 percent. That is, the commercial banks may have about $5 of demand

deposits for each $1 of reserves in the form of deposits with the Federal Reserve banks. Federal Reserve authorities by administrative action can vary the height of the minimum reserve-deposit ratio, thereby affecting the maximum amount of deposits that the commercial banks can create on the basis of each dollar of their reserves.

The formula for determining the maximum volume of deposits that a commercial banking system can have outstanding at any time is:

$$D = A \cdot \frac{1}{R}, \text{ or } D = \frac{A}{R}$$

where D equals the maximum amount of deposits that the banking system can have outstanding;

A = the dollar amount of reserves available to the banking system;

R = the minimum percentage ratio of reserves to demand deposits.

Thus, if $A = \$1{,}000{,}000$ and $R = 10$ percent, the maximum amount of deposits (D) that can be outstanding is $10,000,000. If $R = 20$ percent, D = only $5,000,000. It will be noted that though the direct effect of such reserve requirements is to limit the amount of bank deposits that may be created, the indirect effect is to limit bank acquisitions of loans, discounts, and securities, for expansions of these holdings expand deposits.

This formula can also be used to show the potential increase in deposits in the banking system in response to an increase in its reserves *if the process of expansion does not lead to any net withdrawal of cash from the banking system.* In this case the banks can expand their deposits by an amount equal to $\frac{1}{R}$ for every $1 increase in their reserves. Thus if $R = 20$ percent the banking system can create $5 of additional deposits for every dollar added to its reserves.

It must be emphasized, however, that this formula for deposit expansion applies only if the process of expanding bank credit does not lead to net foreign or domestic withdrawals of "cash" (gold, coin, or paper money) from the banking system. If the expansion of deposits is accompanied by increases in the national money income, pay rolls, and retail trade, some of the increased bank reserves may be drained off to supply the increased domestic need for coin and cur-

rency in circulation. Moreover, a similar drain on bank reserves may occur if the expansion induces net gold exports. The extent to which the potential expansion of deposits will be reduced depends on the extent of the net foreign and domestic cash drain from the banking system that accompanies the expansion of deposits.

The general formula for determining the potential expansion of bank deposits on the basis of a given increase in bank reserves is:

$$\Delta D = \frac{\Delta A}{R + C}$$

where ΔD = the potential increase in deposits in dollars;

ΔA = the dollar increase in reserves for the commercial banking system;

R = the minimum percentage ratio of reserves to deposits;

C = the drain of cash from the banking system induced by the expansion of deposits expressed as a percentage of the increase of deposits. Thus, the dollar drain of cash is $\Delta D \cdot C$.

This formula is derived in the following way. All the increase in reserves (ΔA) is available for backing new deposits ($\Delta D \cdot R$) and for meeting net cash drains from the banking system ($\Delta D \cdot C$). Thus,

$$\Delta A = \Delta D \cdot R + \Delta D \cdot C$$

or

$$\Delta A = \Delta D(R + C)$$

or

$$\frac{\Delta A}{R + C} = \Delta D$$

To show how the cash drain reduces expansion possibilities, let us assume that $R = 20$ percent, and that ΔA, the increase in reserves, is \$1. In the absence of any cash drain, the potential expansion (ΔD) is $\frac{\$1}{.20 + 0} = \$5$. If, however, a cash drain equal to 10 percent of the increase in deposits is induced, the deposit expansion possibility becomes $\Delta D = \frac{\$1}{.20 + .10} = \frac{\$1}{.30} = \$3.33$. If the induced cash drain were equal to 15 percent of the increase in deposits, the potential expansion would be reduced still more. In this case, $\Delta D = \frac{\$1}{.20 + .15} = \frac{\$1}{.35} = \$2.85$.

This multiple expansion of deposits on the basis of a given addition to the reserves of the banking system is a highly important factor that we must constantly bear in mind. We shall find that it is especially important in monetary control.

It is equally important to note that a net loss of reserves by the banking system can necessitate a multiple contraction of deposits. Let us suppose that a banking system operating under 20 percent minimum reserve requirements loses $1 million of its reserves at a time when it has been utilizing its reserves fully. To restore the 20 percent ratio of reserves to deposits the banks will have to retire enough loans and investments to reduce their deposits by $5 million. Any smaller reduction will leave them with a reserve deficiency. The lower the ratio of reserves to deposits the greater will be the multiple of contraction. For example, if the minimum reserve ratio is 10 percent and the banks lose $1 million of reserves, they may have to contract deposits by $10 million to restore their reserve ratio. In short, the principles outlined above in connection with a multiple expansion of deposits following an increase in bank reserves apply as well to the multiple contraction of deposits resulting from a decrease in bank reserves. This is why a given reduction in the dollar volume of bank reserves can have such a large "leverage" effect on total bank assets and deposits.

If the deposit contraction following the loss of reserves does not induce a net inflow of cash into the banking system, the amount of deposit contraction required—assuming the banks had no excess reserves when the reserve loss occurred—will be:

$$\Delta D = -\frac{\Delta A}{R}$$

where ΔD = the necessary contraction of deposits in dollars;

ΔA = dollar amount of reserves lost;

R = the percentage minimum ratio of reserves to deposits.

In some cases the process of contracting deposits reduces pay rolls and retail trade and induces a flow of cash into the banking system, thereby reducing somewhat the amount of contraction necessary. In such a case, the formula for multiple contraction in response to an initial loss of reserves is:

$$\Delta D = \frac{\Delta A}{R + C}$$

where ΔD = the necessary contraction of deposits in dollars;
ΔA = the dollar amount of reserves initially lost;
R = the percentage minimum ratio of reserves to deposits;
C = the inflow of cash to the banking system induced by the contraction of deposits, expressed as a percentage of the deposit contraction. Thus the dollar cash inflow is $\Delta D \cdot C$.

The multiple contraction of deposits in response to a loss of reserves is a highly important factor in our monetary system. It goes far toward explaining the extent of contractionary results following losses of bank reserves through gold exports and cash withdrawals from the banking system. It is also the basis of many monetary controls exercised by monetary authorities; by reducing the dollar volume of bank reserves or by raising reserve requirements the authorities can force the banks to contract their credit.

Actual and Potential Expansion of Bank Credit

The discussion above related to the maximum potential expansion of deposits. But does the banking system expand its loans and investments until the ratio of reserves to deposits has been reduced to the legal minimum? The incentive to do so is a profit incentive; to hold reserves in excess of legal requirements is to fail to expand earning assets to the maximum and to sacrifice income that might be earned. In normal times, therefore, the banking system tends to lend and invest up to the maximum amount permitted by its reserves. There are other times, however, when banks prefer to sacrifice current earnings and to hold excess reserves. Fear that depositors have lost or may soon lose confidence in the banks and may make large cash withdrawals, lack of faith in the ability of borrowers to repay, fear of declining bond prices, unwillingness to accept low interest rates—any of these may cause banks to fail to lend up to the maximum of their ability.

The fact that banks may not lend up to their maximum ability at all times must be borne in mind by the student of money. In the

first place, it tends to aggravate fluctuations in the money supply, for the banks are likely to "boom the boom" by lending as much as their reserves will permit during periods of prosperity, and then "depress the depression" by failing to create as much money as their reserves would permit in periods of reduced employment and lower income. And in the second place, it limits the ability of monetary authorities to arrest a contraction and to induce an expansion of the money supply through actions that increase the dollar volume of reserves available to the banks or that reduce legal reserve requirements. The banks may continue to hold excess reserves idle instead of using them as a basis for creating additional deposits by making more loans and purchasing more securities.

INDIVIDUAL BANKS IN THE BANKING SYSTEM

Our discussion up to this point has related to the banking system as a whole and to its ability to expand deposits by several times any addition to its reserves. But we must remember that our commercial banking system is made up of not one bank but of more than 14,000. These are spread from one end of the country to the other and range in size from the gigantic Chase National Bank of New York to the small institutions in agricultural villages. Because of this multiplicity of banks, some of our statements relating to the operations of the commercial banking system as a whole are not equally applicable to the operations of an individual bank in the system. This is primarily because of the shift of money from one bank to another within the system. Each bank receives funds from the other banks by receiving "on deposit" many checks drawn on other banks in the system. And each bank loses funds to other banks in the system when checks that are drawn on it are deposited with the other banks. At times a bank's losses and gains of funds may balance. But at other times a bank may suffer sizable net losses of funds to the other banks or enjoy sizable net gains from them. These interbank payments are usually made, at least in the first instance, by the transfer of reserve funds from the payer to the payee bank. In the following examples we shall assume that the payer bank transfers to the payee bank deposit claims against the Federal Reserve.

To illustrate this point, let us consider the position of the Excelsior State Bank. Its deposits and assets are increased when deposits are transferred to it from other banks. For example, suppose that you deposit with this bank a $1000 check drawn by John Adams on the First National Bank of Keokuk. The Excelsior State Bank will experience a $1000 increase in its deposits and the First National Bank of Keokuk an equivalent decrease in its deposits. The Keokuk Bank must pay $1000 to the Excelsior Bank, which it will probably do by transferring to it an equivalent deposit credit at a Federal Reserve bank. The effects of this entire transaction on the balance sheets of the two banks will be as follows:

EXCELSIOR BANK		KEOKUK BANK	
ASSETS	LIABILITIES	ASSETS	LIABILITIES
Increase deposits at Federal Reserve $1000	Increase deposits $1000	Decrease deposits at Federal Reserve $1000	Decrease deposits $1000

It will be noted that the total assets and deposits in the banking system as a whole remain unchanged, but that they are redistributed among the banks in the system. On the other hand, if you write a $500 check on your deposit at the Excelsior Bank and give it to some one who deposits it at the Hibernia National Bank of New Orleans, deposits at the Excelsior Bank will be decreased by $500, deposits at the Hibernia will be increased by $500, and the Excelsior Bank will have to transfer to the Hibernia Bank $500 of its deposits at the Federal Reserve.

These interbank transfers of funds must be borne in mind for at least two reasons. In the first place, they make the "liquidity problem" of an individual bank very different from that of the commercial banking system as a whole. The system as a whole suffers net drains only when there are net withdrawals from it of currency, coin, and gold. But an individual bank must be able to meet not only its customers' demands for coin and currency, but also its payments to other banks as they receive on deposit checks that are drawn on it. In the first instance a bank usually pays other banks by transferring to them some of its reserve deposits in a Federal Reserve bank. But

if these payments reduce its reserves below the required level the bank may have to sell some of its other assets in order to secure funds —usually at the expense of other banks—with which to replenish its reserves. This point will be discussed in more detail later.

In the second place, because of these interbank transfers of funds an individual bank cannot, upon receiving an initial addition to its reserves, increase its loans, investments, and deposits by a multiple amount. That the commercial banking system as a whole can do so we have already seen. But this is not true of an individual bank. When it creates deposits by making loans or purchasing securities, an individual bank is likely to lose reserves to other banks as those to whom it lends or from whom it buys securities write checks on their deposits with it and pay them to depositors at other banks in the system. These recipient banks, in turn, receive additions to their reserves, create deposits by making loans or purchasing securities, and lose deposits and reserves to still other banks. It is in this way that a net addition to reserves entering the system through one bank is spread through the banking system; consequently the total expansion of bank loans, investments, and deposits is the work of not one bank but many.

Table 21 shows how additional reserves entering the system at one point are spread through the banking system and how they permit a multiple expansion of deposits by the system as a whole. For the sake of simplicity we assume (1) that the first bank receives a $10-million addition to its reserves through the deposit of a government check drawn on a Federal Reserve bank, (2) that all the banks operate under 20 percent reserve requirements, and (3) that all the additional deposits created by loans are checked out to other banks and that an equal amount of reserves must be paid over to the transferee banks.

After receiving the $10-million addition to its deposits and reserves, the first bank sets aside the necessary $2-million addition to its reserves and creates $8 million of new deposits by making new loans or by purchasing additional securities. These loan-created deposits of $8 million are checked out to the second bank and an equal amount of reserves paid over to it, so it sets aside the necessary $1,600,000 addition to its reserves and creates $6,400,000 of new deposits by

making loans and investments. These deposits and an equal amount of reserves are paid over to the third bank, which continues the expansion, as do the other banks in their turn. Thus, the $50-million expansion of deposits in the system as a whole—$40 million of which were created by new loans and security purchases—represents increases at many banks.

TABLE 21. Deposit Expansion of New Reserves by a Banking System[6]

	Additional Deposits Received	Additional Reserves Retained Against Deposits Received (20%)	Additional Loans Made (80%) (The deposits created by these loans are all checked out to the next bank)
1st bank	$10,000,000	$ 2,000,000	$ 8,000,000
2nd bank	8,000,000	1,600,000	6,400,000
3rd bank	6,400,000	1,280,000	5,120,000
4th bank	5,120,000	1,024,000	4,096,000
5th bank	4,096,000	819,200	3,276,800
6th bank	3,276,800	655,360	2,621,440
7th bank	2,621,440	524,288	2,097,152
8th bank	2,097,152	419,430	1,677,722
9th bank	1,677,722	335,544	1,342,178
10th bank	1,342,178	268,436	1,073,742
Total, first ten banks	$44,631,292	$ 8,926,258	$35,705,034
Other banks in turn	5,368,708	1,073,742	4,294,966
Grand total	$50,000,000	$10,000,000	$40,000,000

The expansion of deposits by each individual bank was small in our example because we assumed that all the loan-created deposits created by any given bank were checked out to other banks. When a larger part of the new deposits remains with the bank that created them by making loans or purchasing securities, the multiple of expansion for that bank is larger, because the bank does not lose so much of its reserves to other banks. But the multiple expansion for the system is unaffected.

In a similar way a net loss of reserves by one bank or a small group of banks can necessitate a multiple contraction of deposits for the banking system as a whole. We can illustrate this by means of

[6] This table is based on that in Board of Governors of the Federal Reserve System, *The Federal Reserve System—Its Purposes and Functions*, 1939, p. 73.

Table 21 if we change the headings of the three columns. The heading of the first column is changed to read "Decrease in deposits and reserves." The second, to read "Decrease in required reserves because of loss of deposits; this is equal to 20 percent of the decrease of deposits." The third, to read "Decrease in loans; this is equal to 80 percent of deposits lost."

Now suppose that the first bank loses $10 million of deposits and reserves through the withdrawal of coin, currency, or gold. This will tend to lower its reserves below the required level, for its reserve requirements are lowered only $2 million (or 20 percent of the $10 million decrease of deposits) whereas its loss of reserves amounted to $10 million. It will therefore call loans or sell securities to other banks or to their customers, thereby tending to draw deposits and reserves from them. These banks, having lost reserves, will then tend to reduce their loans and sell securities, thereby tending to draw reserves from still other banks. This process will continue until no further contraction is necessary to restore the legally required ratio of reserves to deposits.

These examples have illustrated several points: (1) the transfer of deposits and reserves from one bank to another within the system, (2) the process by which a net change in the reserves of the banking system occurring in only one or a few banks spreads through the banking system and brings about a multiple expansion or contraction, and (3) the differences between the expansion or contraction ratio for an individual bank and for the system as a whole.

SELECTED READINGS

Angel, J. W., and Ficek, K. F., "The Expansion of Bank Credit," *Journal of Political Economy*, 1933, pp. 1–32, 152–193.

Board of Governors of the Federal Reserve System, "History of Reserve Requirements for Banks in the United States," *Federal Reserve Bulletin*, 1938.

Crick, W. F., "The Genesis of Bank Deposits," *Economica*, June, 1927.

Currie, L., *The Supply and Control of Money in the United States*, Harvard University Press, Cambridge, 1934.

Phillips, C. A., *Bank Credit*, Macmillan, New York, 1926.

Rodkey, R. G., *The Banking Process*, Macmillan, New York, 1928.
Rodkey, R. G., *Legal Reserves in American Banking*, University of Michigan Press, Ann Arbor, 1934.
Shaw, E. S., *Money, Income, and Monetary Policy*, Richard D. Irwin, Chicago, 1950.

CHAPTER 11

Some Further Aspects of Commercial Banking

Having surveyed the general principles of commercial banking, we can now explore more fully the nature of bank operations and some of the problems of commercial banks. To be more specific, we shall give further consideration to bank assets and liabilities, and then proceed to consider some of the problems of bank solvency and liquidity.

ASSETS AND LIABILITIES OF COMMERCIAL BANKS

It will be convenient to begin our investigation by analyzing the combined balance sheets of the 13,446 insured commercial banks in the United States on December 30, 1950. These banks comprised 95 percent of all commercial banks in the United States and they held more than 98 percent of total commercial bank assets. The balance sheet shown in Table 22 differs in only two respects from that used in the preceding chapter: (1) It is a combined, rather than a consolidated, balance sheet, and (2) its classification of assets and liabilities is somewhat more detailed.

As noted earlier, a consolidated balance sheet for the commercial banking system eliminates the claims of the banks against each other, leaving only the claims of the banks against others and the claims of others against the banks. But the balance sheet in Table 22 is a combined balance sheet; it is simply a summation of the balance sheets of the individual banks. It therefore includes the claims of the banks

TABLE 22. Assets and Liabilities of All Insured Commercial Banks in the United States, December 30, 1950[1]

ASSETS

	Amount (In billions)	Percent of Total Assets	Amount (In billions)	Percent of Total Assets
CASH, BALANCES WITH OTHER BANKS, AND CASH ITEMS IN PROCESS OF COLLECTION—TOTAL			$ 39.9	23.9
Currency and coin	$ 2.2	1.3		
Reserve with Federal Reserve banks	17.5	10.5		
Demand deposits at banks in U.S.	10.4	6.2		
Other balances at banks in U.S.	0.1	—		
Balances at foreign banks	0.1	—		
Cash items in process of collection	9.6	5.8		
U. S. GOVERNMENT OBLIGATIONS HELD—TOTAL			61.0	36.6
Maturing in 5 years or less	47.7	28.6		
Maturing beyond 5 years	13.3	8.0		
OTHER SECURITIES—TOTAL			12.2	7.3
LOANS AND DISCOUNTS, NET—TOTAL			51.8	31.1
Commercial and industrial loans	21.8	13.1		
Loans to farmers (excluding loans on real estate)	2.8	1.7		
Loans on securities	2.8	1.7		
Real estate loans	13.4	8.0		
Other loans to individuals	10.1	6.0		
All other loans	1.5	0.9		
BANK PREMISES, OTHER REAL ESTATE, ETC.—TOTAL			1.2	0.7
MISCELLANEOUS ASSETS—TOTAL			0 7	0.4
TOTAL ASSETS			$166.8	100.0

against each other. On the asset side appears the volume of bank deposit claims against other banks, and on the liability side appears the banks' deposit liabilities to other banks.

The relatively large volume of these interbank deposits reflects the importance of "correspondent" banks in the United States—the arrangement under which some banks hold deposits with other banks and use them as agents in various types of transactions, such as check clearing and collection, purchases and sales of securities, purchases and sales of foreign exchange, and participation in large loans. Small banks, especially those in small towns, usually have at least one

[1] *Annual Report of the Federal Deposit Insurance Corporation*, 1950, pp. 236–239.

correspondent bank, and even the large banks are likely to hold deposits with other large banks and to use these banks as agents.

LIABILITIES AND CAPITAL ACCOUNTS

	Amount (In billions)	Percent of Total Assets	Amount (In billions)	Percent of Total Assets
DEMAND DEPOSITS—TOTAL			$114.1	68.4
Individuals, partnerships and corporations	$90.0	54.0		
U.S. government	2.8	1.7		
States and subdivisions	7.9	4.7		
Foreign	1.4	0.8		
U.S. banks	12.0	7.2		
TIME AND SAVINGS DEPOSITS—TOTAL			36.5	21.9
Individuals, partnerships, and corporations	34.6	20.7		
U.S. government	0.2	0.1		
States and subdivisions	1.4	0.8		
Foreign	0.3	0.2		
U.S. banks	—	—		
CERTIFIED AND OFFICER'S CHECKS, CASH LETTERS OF CREDIT AND TRAVELER'S CHECKS OUTSTANDING, AND AMOUNTS DUE FEDERAL RESERVE BANKS—TOTAL			2.9	1.7
MISCELLANEOUS LIABILITIES—TOTAL			2.0	1.2
CAPITAL ACCOUNTS—TOTAL			11.3	6.8
TOTAL LIABILITIES AND CAPITAL ACCOUNTS			$166.8	100.0

Thus, a bank in a small Missouri town may have deposits in a St. Louis bank and possibly in a Chicago or New York bank, and the St. Louis bank may have deposits in Chicago or New York banks. These interbank deposits serve several functions. Among these are: (1) To serve as legal reserves. Though members of the Federal Reserve may count as legal reserves only their deposits at the Federal Reserve banks, nonmember banks have more leeway. The relevant state laws permit most nonmember banks to hold at least part of their legal reserves, usually a large part, in the form of deposit claims against other commercial banks. (2) To facilitate check clearing and collection. Many banks have their correspondent banks pay at least some of the checks drawn on them and collect checks on other banks that are deposited with them. A New Jersey bank may have such an arrangement with the National City Bank of New York. If so, checks

drawn on the New Jersey bank and deposited with other banks will be routed to National City, which will deduct them from the New Jersey bank's deposit account. And checks drawn on other banks and deposited with the New Jersey bank will be sent to National City, which will credit the New Jersey bank's deposit account and send the checks along for collection. (3) To facilitate domestic and foreign payments. A customer of the New Jersey bank may want to make payments with a draft drawn on a New York bank or on some foreign bank. Holding deposits at National City, the New Jersey bank can draw drafts on that bank or on a foreign correspondent bank of National City. (4) To facilitate agency operations. The New Jersey bank may use National City as an agent to buy or sell securities, to make loans for it on the Stock Exchange, or to accept or draw drafts. Interbank deposits which can be credited or debited to finance these transactions are helpful. (5) To increase the geographical mobility of credit. Banks with funds in excess of their current needs can increase their deposits at correspondent banks, thereby shifting reserves to them and increasing their lending power. On the other hand, banks that wish to increase their other assets, or to meet withdrawals, may withdraw some of their deposits from their correspondent banks. Geographical mobility of credit is also promoted, of course, when banks buy securities and other assets outside their own locality, or sell some of their securities and other assets to buyers outside their own locality.

In the detailed statement, only one liability item appears to require further clarification. This is the item "Certified and officer's checks, cash letters of credit and traveler's checks outstanding, and amounts due Federal Reserve banks." Most of these are closely related to the volume of deposits and should be included in the total money supply. Certified checks outstanding represent bank liabilities to pay the holders on demand. For example, suppose that you are to receive payment from Jones but doubt his willingness or ability to pay. You may require payment by certified check; Jones will write a check on his account and have the bank certify it. By such certification the bank guarantees that the signature is good, that the bank has in its possession sufficient funds of the drawer to pay the check, and that

it will hold the funds for this purpose. The certifying bank immediately deducts the amount of the check from the drawer's deposit account and the certified check becomes the evidence of the bank's debt. The certified check disappears from bank liabilities when it is paid, and its amount is then added to deposits at the bank where it is deposited. Officer's checks outstanding serve a similar function. Suppose you insist that Jones pay you with a cashier's check. Jones will write a check on his deposit account and use it to purchase a check drawn by the cashier or some other officer on his own bank. Bank deposits are thereby decreased for the time being, and bank obligations in the form of officer's checks outstanding are increased. When the cashier's check is paid, its amount is again added to deposits. Traveler's checks outstanding are similar in purpose to cashiers' checks. They are usually purchased with checks drawn on deposits; while outstanding they are obligations of banks to pay, and when paid they are retired and an equal amount is added to deposits.

Cash letters of credit outstanding are also demand liabilities of banks and are similar in function to traveler's checks. Suppose that you are going on a trip and want $2000 in a safe but easily negotiable form. You may write a check on your deposits and buy from the bank a traveler's cash letter of credit, which is the bank's promise to pay drafts drawn on it by other banks that will provide you with money under the letter of credit. Thus, the letter of credit represents the bank's obligation to pay on demand. The item "amounts due Federal Reserve banks" is self-explanatory; it represents borrowings from the Federal Reserve and the value of other Federal Reserve claims against the banks that have not yet been paid.

Commercial Bank Assets

As indicated in an earlier chapter, the commercial banks can and do exert an important influence on the total supply of loanable funds and on the behavior of interest rates in the various loan markets. Commercial banks are not, of course, the only lenders in our economic system; but by adding to their holdings of the various types of debt obligations they can increase the total supply of credit, and perhaps lower the general level of interest rates, and by contracting their

holdings of debt obligations they can decrease the total supply of credit and perhaps increase the general level of interest rates. By analyzing the various types of loans, discounts, and securities held by the banks we can shed some light on the processes by which the banks inject money into the various branches of the loan market or extract money from them. For this purpose, it will be useful to classify on several bases the debt obligations held by banks. (1) On the basis of the nature of the debtor, there are debts of the United States government, of states and political subdivisions, of corporations, of unincorporated businesses, of individuals, and so on. (2) On the basis of maturity, debts range all the way from "call loans," which are payable on demand, to very long-term government bonds, corporation bonds, and real estate mortgages. (3) On the basis of the type of security pledged for satisfaction of the debt, some loans are "unsecured"; they have no specific assets pledged for their security, but rest on the general credit standing of the debtor. Others have claims on specific assets which are pledged for their security, such as real estate, stocks, bonds, or chattels. (4) On the basis of the "declared purpose" of the loan, the borrower may declare that he will use the proceeds of the loan to buy inventory and meet pay rolls, to finance the storage or shipment of goods, to buy and carry securities, to purchase plant and equipment, to buy specified types of consumers' goods, and so on.

When one applies this type of analysis to the detailed classifications of loans, discounts, and securities shown in Table 23, he is immediately struck by the wide variety of obligations held by commercial banks. The so-called "commercial" banks are by no means institutions specializing in short-term commercial, industrial, and agricultural loans. In fact, as summarized in Table 23, at the end of 1950 bank loans of this type (excluding loans on farm real estate) made up less than 20 percent of the banks' total earning assets, and some of these had maturities of more than a year. U.S. government obligations were by far the most important single type of earning asset held by the banks, making up nearly half of the total. Some of these had maturities of less than a year, and well over half had maturities within five years, but some were due to run for longer periods. Other securi-

ties—such as obligations of state and local governments and corporation bonds—accounted for nearly 10 percent of total earning assets, loans on real estate for more than 10 percent, loans on securities for 2 percent, and other loans to individuals—many of them consumer loans—for about 10 percent.

This great diversity in commercial bank earning assets—the variety of debtors whose obligations are purchased, the diversification of maturities, the many types of collateral behind the debt obligations, and the variety of declared purposes—is an important fact for our

TABLE 23. Loans, Discounts, and Securities Held by All Insured Commercial Banks in the United States, December 30, 1950[2]

	Amount (In Billions)	Percent of Total
U.S. Government obligations	$ 61.0	48.6
Other securities	12.2	9.8
Commercial and industrial loans	21.8	17.3
Loans to farmers (excluding loans on real estate)	2.8	2.2
Loans on securities	2.8	2.2
Real estate loans	13.4	10.7
Other loans to individuals	10.1	8.0
All other loans	1.5	1.2
Total	$125.6	100.0

understanding of bank operations. In the first place, it means that banks monetize and demonetize not one narrowly defined type of debt but many kinds of debt which already exist or can be created in very large amounts. And in the second place, it means that banks inject or withdraw money not in just one narrow branch of the market for loanable funds but in most of its important branches. Moreover, the banks often withdraw money from one branch of the money market and transfer it to other branches where interest rates and other conditions appear more attractive. They therefore exert an important influence on the availability and cost of loanable funds in the entire money market.

Though commercial bank operations in the various branches of the market for debt obligations can have an important influence on the amounts of money available to purchase these various types of in-

[2] Data from Table 22. The figures, except the total, are gross amounts before subtracting a $673-million valuation reserve.

struments and on their prices and yields, we must not assume that the types of obligations acquired by the banks are an accurate indicator either of who receives the newly created bank money, or of the specific purpose for which the money will be spent, or of the behavior of the various streams of spending. Some people seem to believe that by discovering the identity of the debtors whose obligations the banks purchase they will know with accuracy who is receiving the newly created money, that by looking at the type of collateral pledged and at the declared purpose of a loan they will know precisely for what purpose the new money will be spent, and that by controlling the types of loans made by banks it is possible to control accurately the various streams of spending.

This view is for several reasons oversimplified and may even be seriously misleading. (1) In purchasing the obligations of a given type of debtor the banks do not necessarily put money in the hands of that debtor. This is because the obligations may be purchased not from the debtor himself but from someone else who has held the obligations for some time and who will spend the new money for various purposes. Thus individuals, insurance companies, nonfinancial corporations, or others may sell to commercial banks some of the government securities they have been holding for some time and then lend or spend the money as they see fit. Or they may sell to the commercial banks some of their holdings of corporation bonds, real estate mortgages, or shorter maturity loans and then spend or lend the money in various ways.

2. Even when a bank buys obligations directly from the issuer, the types of assets pledged to secure a loan are not necessarily an accurate indicator of the types of assets which the new money will be used to purchase. For example, a debtor may borrow on the basis of real estate to get money to be used to buy inventory or meet pay rolls, to purchase securities, to purchase consumers' goods, or for other purposes, or a person may pledge stocks or bonds as collateral for a loan and use none of the new money to buy securities. In short, the choice of collateral behind a loan can often be adjusted to the tastes of the lender and borrower and is not necessarily an indicator of the use to be which the new money will be put.

3. The borrower's "declared purpose" for a loan is not necessarily an accurate indicator of the way his various types of spending will behave if he receives the loan. It is probably true that if a borrower is granted a loan for some specified declared purpose, such as the purchase of inventory or some consumers' good, he will spend at least that amount of money for the declared purpose. But this does not mean that because his loan application was granted he will spend for the declared purpose that much more than he would have spent if the loan had been denied, and that his other types of spending will be unaffected. For example, a borrower may get a $10,000 loan for the declared purpose of buying inventory and in fact spend at least that amount for the purpose. But if the loan had been denied he might still have spent the same amount for inventory and reduced his other types of spendings. The result of being able to get the loan for the declared purpose of inventory accumulation may be to free some of the borrower's other money for other types of spending. Many borrowers who engage in various types of spending are in a position to adjust the declared purposes of their borrowings to suit the tastes of lenders without relinquishing their freedom to determine for themselves the pattern of their spendings.

4. Even if the banks were able to control the expenditure patterns of their borrowers they could not control subsequent spendings of the new money. Once the money has been spent by the borrower it goes off on "rounds of its own," free of control by the bank that issued it.

The facts brought out above will be useful when we come to discuss "selective credit controls"—the various attempts by the monetary authorities to control not only the total volume of credit and money but the amounts of credit and money used for specified purposes, such as the purchase of stocks, of durable consumers' goods, and of new residential construction.

SOME PROBLEMS OF COMMERCIAL BANKING

Several commercial banking problems are suggested by our survey of bank assets and liabilities. We found that bank promises to pay

fixed dollar amounts to claimants other than their owners came to more than 93 percent of the total value of their assets at the end of 1950; the ownership "cushion" was equal to less than 7 percent of their assets. Moreover, these bank obligations to pay fixed dollar amounts were promises to pay either on demand or on very short notice. Demand deposits, which were equal to about 68 percent of assets, are promises to pay legal-tender money on demand, as are certified and officer's checks outstanding, cash letters of credit, and traveler's checks. Even time deposits, which amounted to nearly 22 percent of assets, are obligations to pay within a few months. In earlier periods banks also issued large amounts of circulating promissory notes (bank notes) which were payable on demand.

What assets do the banks have with which to meet these obligations that are payable either on demand or on short notice? We found that their holdings of coin and currency were very small, and that their combined holdings of these items, balances with other banks, and cash items in process of collection amounted to less than 24 percent of their assets. The great bulk of their assets was in the form of loans, discounts, and securities, only small amounts of them payable on demand and some of them payable only after a long period of time.

This combination of conditions suggests two difficult problems faced by commercial banks: (1) the problem of remaining solvent, and (2) the problem of achieving and maintaining liquidity. A bank is solvent when the value of its assets is at least great enough to cover all its liabilities except those to its owners; it is insolvent when the value of its assets is insufficient to cover all the nonowner claims against it. By the liquidity of a bank we mean its ability to exchange its assets for money fast enough to meet the demands on it for payment. Though the problems of solvency and liquidity are closely related, we can separate them for analytical purposes. For example, a bank may not be able to acquire cash quickly enough to meet demands on it for payment on short notice or without any notice at all, even though the value of its assets would be considerably greater than its liabilities to nonowners if it had ample time in which to sell the assets. On the other hand, an insolvent bank—one whose de-

posits and bank note liabilities exceed the value of its assets—may continue to operate for a long time if it is not subjected to heavy demands for payment.

BANK SOLVENCY

Although a bank may be able to function for some time after the value of its assets has declined below its liabilities to its creditors, such insolvency is obviously undesirable for several reasons. In the first place, even an impairment of the owners' claims is injurious to the owners, and an insufficiency of assets to meet other liabilities endangers the creditors' claims. And in the second place, such a condition, if it becomes known or even suspected, is likely to lead to immediate demands on the bank for payment and therefore to losses by depositors and other creditors. Regulatory authorities and conscientious bank officials are faced with a difficult decision when a bank's assets fall below its noncapital liabilities. If they close the bank and liquidate its assets under "bankrupt sale" conditions, depositors and other creditors are almost certain to suffer losses, whereas the bank might recover if allowed to continue in operation. On the other hand, if they permit it to stay open despite its unsound condition, its assets may deteriorate even further and the soundest assets may have to be sold to pay those who first demand payment, leaving only the poorer assets to satisfy remaining claims. The position of the remaining depositors after a bank has suffered large drains is often far from enviable.

Regulation of Bank Assets

Many methods have been employed to protect creditors against losses from bank insolvency. The first is to see that banks acquire only those types of assets that are least likely to decline in price. In the early days of banking in this country, bank officials were allowed a high degree of freedom in determining the types and proportions of the assets they acquired. So extensive were the abuses of these powers and so great were the consequent losses to holders of deposits and bank notes that many legal restrictions were placed on the types of assets that banks may acquire and hold. For example, they are usually

forbidden to hold common stocks, except stock in Federal Reserve banks and limited amounts of other stocks acquired through the calling of loans. Bank holdings of real estate other than banking premises are ordinarily either forbidden or limited in quantity. These assets fluctuate too much in value to be considered appropriate assets for banks.

In the second place, the quality of bank assets is to some extent regulated by law and by the administrative actions of supervisory authorities. Attempts are made, with varying degrees of success, to exclude speculative and unsafe bonds, inadequately secured mortgages, and even highly questionable short-term paper.

In the third place, an effort is made to assure diversification of a bank's assets. Limitations are placed on the proportion of assets that may be held in any one form—in the form of real estate mortgages, for example—and also on the amount that may be lent to any one borrower. The principal purpose of such limitations is to enhance the safety of banks by preventing them from putting too many eggs in one basket. Another purpose, however, is to curb favoritism in the granting of loans and to make bank lending facilities more widely available.

In the fourth place, limitations are placed on a bank's loans to its owners, officers, and employees. These loans are doubly suspect. There is great danger that such applications for loans will not be scrutinized as critically as they should be and that the quality of bank assets will suffer. Moreover, it is generally felt that the owners, officers, and employees of banks ought not to enjoy more than their fair share of a bank's limited lending ability at the expense of loans to other qualified borrowers. The definition of a banker as "one who takes care of your money by lending it to his friends" has too often been more than a witticism. Where arm's-length bargaining does not exist, loans are likely to be of doubtful safety and discriminatory as among borrowers.

From the point of view of bank solvency, it is obviously desirable that banks should make only relatively safe loans and investments. But this objective may conflict with another objective—that of providing adequate loan funds to business. Risk is inevitable in business. If

the banks insist on too much safety in lending they may fail to facilitate production and trade as much as is desirable. This is especially evident during periods of distrust when business activity should be bolstered as much as possible and when the banks are likely to emphasize safety in loans. We shall see later that this dilemma of bank safety versus availability of loans in adequate volume is now avoided to some extent by government guarantee of loans or government participation in the risk on loans. By socializing the loan risks, bank safety may be achieved without sacrificing the availability of loans. The success of such plans depends on the wisdom and efficiency of the guaranteeing agencies.

Bank Capital Requirements

Solvency of banks depends not only on the stability of value of their assets, but also on the size of their capital accounts. If these accounts are large relative to bank assets, creditors enjoy a large cushion of safety; assets must depreciate to a considerable extent before the owners' equities are wiped out and creditors' claims are endangered. But a small decline in asset values will wipe out owners' equities and endanger creditors if capital accounts are small relative to total assets. The securing of adequate bank capital relative to assets has been a difficult problem in American banking history. Many of the early banks engaged in highly dangerous practices. Some of them had only a very small capital, with the result that creditors were injured by even a small depreciation of bank assets. And, to worsen the situation, the banks often made highly risky loans. Other banks had a large nominal capital, the actual value of which was doubtful. For example, promoters would establish a bank with $100,000 of capital stock, but the stock would be paid for not with money or valuable property but with promissory notes of the owners. This practice would not have been objectionable if the stockholders' debts had been fully collectible, but the stockholders were too often merely adventurers whose credit standing was uncertain. Even when the owners originally paid for their stock with good coin or currency, they sometimes borrowed it back as soon as the bank was established, giving promissory notes in return; hence the net result was the same

as if they had originally paid for the bank stock with their debt instruments. In other cases bank capital was reduced by excessive dividend payments.

To eliminate or at least to reduce these abuses, banks are now subject to numerous legal capital requirements. The federal government and most of the states fix minimum capital requirements that banks must meet before they begin operation. In some cases these requirements set a minimum ratio of capital to assets or to noncapital liabilities. Stock must be paid for with money, and loans by banks to their owners are regulated to prevent deterioration of assets. The conditions under which dividends can be declared are also prescribed in order to prevent a reduction of capital through excessive payments to owners. At one time attempts were made to protect bank creditors by providing "double liability" on bank stock. That is, the owner of a share of stock could be assessed an amount equal to the par value of his stock to meet the claims of bank creditors; he could lose not only the amount of his original investment in the stock but also the amount of the assessment. This method of protecting depositors and other bank creditors has now been largely abandoned. In practice it offered only limited protection, for bank stocks often gravitated into the hands of people who could not pay the assessments levied on them, and the courts proved reluctant to force payment by unfortunate stockholders whose equities had already been eliminated. Moreover, the dangers inherent in double liability interfered, especially during depression periods, with the securing of adequate capital funds for banks.

The two general methods described above—enhancing the stability of the value of bank assets and increasing bank capital relative to bank assets—attempt to protect bank creditors by maintaining the solvency of banks. But bank failures have been numerous in this country despite these efforts. This has led to the introduction of many insurance schemes in which some outside agency, usually sponsored by the government, insures creditors against loss. Several devices of this type were used to insure the safety of bank notes, usually with only limited success. We now have an elaborate insurance system for bank deposits. This problem will be discussed in detail at a later point.

BANK LIQUIDITY

Closely related to the difficult problem of maintaining bank solvency is that of maintaining bank liquidity, by which we mean the ability of banks to meet requests for payment on demand or on short notice. The acuteness of this problem stems from three facts that we have already noted: (1) The great bulk of bank liabilities are payable in legal-tender money on demand or on short notice. (2) By far the larger part of bank assets is in the form of debts that are payable only after a period of time. (3) The banks' outstanding obligations to pay on demand or on short notice are usually far in excess of the amount of coin and currency existing in the country. Banks expect, of course, that they will not be asked to pay any large part of their obligations during any short period of time, but these hopes are sometimes disappointed and heavy demands for payment do occur. To understand the problems involved in meeting these demands, we must analyze separately the liquidity problem of an individual bank and of the banking system as a whole.

Liquidity of an Individual Bank

An individual bank must be liquid enough to meet two types of demands for payment: (1) demands by its customers for coin and currency, and (2) payments of adverse clearing balances to other banks in the system with which checks and other claims against the individual bank have been deposited. The first demand can be met only with legal-tender coin and currency; the second can usually be satisfied with coin and currency, checks on the Federal Reserve banks, or checks on other well-known commercial banks. To meet these payments, an individual bank may have recourse to the following sources of funds:

1. *Coin and Currency in the Bank's Vault.* Though a bank may use its cash holdings to meet demands for payment, it usually gets but little help from this source, for these holdings are ordinarily small—not much in excess of day-to-day working requirements. They rarely exceed 2 or 3 percent of a bank's liabilities.

2. *Legal Reserves.* It is usually assumed that a bank can pay out its legal reserves to meet demands on it, but this is not necessarily true. Some reserve laws have provided that the banks must meet their reserve requirements at all times. In these cases the banks' reserves were largely immobilized. Even when the laws provide that reserve requirements may be met on the average over a period of time, such as two weeks, a bank must replenish its reserves if it uses them temporarily to meet drains. Moreover, we must remember that a bank's legal reserves are equal to only a fraction of its deposits. If a bank operating on 20 percent reserves loses $100,000 of deposits, its reserve requirements are lowered by only $20,000 and it must pay the other $80,000 out of other funds.

Not only the strictness of the laws fixing reserve requirements but also the form of its reserves influences a bank's use of its reserves to meet drains. If, as has sometimes been the case, a bank holds its reserves in the form of coin and currency in its vault, it may be able to use these freely to make payments. In some cases banks have been permitted to include as reserves their deposits in other commercial banks. The usefulness of these as a means of making payments depends on the kind of money that is demanded. These deposits are fully satisfactory if payees will accept checks on other commercial banks. They may even be satisfactory in meeting drains of coin or currency if the depository banks have or can get enough coin or currency. But there is always the danger that the depository banks will themselves be unable to redeem their deposits in these kinds of money. Hence, most banks now hold their legal reserves in the form of deposits at the Federal Reserve banks. These deposits are wholly acceptable in payment, for the Federal Reserve System can manufacture enough new paper money to redeem them in full. But even so, a bank must meet its reserve requirements against deposits over relatively short periods of time.

3. *Deposit Balances with Other Commercial Banks.* As indicated in the preceding paragraph, an individual bank may meet drains by drawing on its deposit claims against other commercial banks, whether or not these are considered legal reserves. If the payees will accept deposits in payment, the effect is merely to redistribute the owner-

ship of deposits in the system. If, however, the payees demand coin or currency, an individual bank can meet demands on it only by draining cash from the other banks—if they can supply it.

4. *Collection of Loans or Sale of Debt Instruments to Buyers Other Than Central Banks.* To assist it in meeting demands for payment, a bank usually holds some assets which it considers its "secondary reserves." These are debt instruments which it believes it can sell quickly and without loss of value. They are made up of such things as call or demand loans on securities, bank acceptances, short-term government securities, and so on. In addition, a bank can sell its other creditor claims over longer periods but perhaps with greater losses. The liquidity of an individual bank depends to a great extent on the quick salability of its assets to other banks and other buyers. Such sales of assets may to some extent induce a flow of coin or currency into the bank without similar losses by other banks; individuals and corporations paying loans or buying securities may reduce their net holdings of cash to make the necessary payments to the bank. But it must be emphasized that this occurs to only a limited extent. In most cases payment to the individual bank will be made by check, and these checks will be drawn on other banks. Thus, the individual bank secures funds at the expense of other banks. In many cases the assets sold by the bank will be purchased directly by other banks, so the bank meets its drain by drawing on them.

5. *Sale of Assets to and Borrowings from Federal Reserve Banks.* A bank may secure funds to meet demands for payment by selling assets to the Federal Reserve banks or by borrowing from them. We shall see later that within wide limits central banks can create and issue new money by purchasing securities and by lending.

Liquidity of the Banking System as a Whole

Our rather extended discussion of the liquidity problem of an individual bank emphasized the extent to which one bank in a banking system meets demands for payment by drawing funds from other banks. It also indicated that a bank should be able to meet demands under normal conditions if it is careful to have in its portfolio a large percentage of highly salable debt instruments which can be sold to

other banks or to other members of the economy, thereby enabling the bank to draw funds from other banks in the system. But the problem of liquidity for the banking system as a whole is sometimes much more difficult. To illustrate this, let us suppose that the general public has come to fear that banks in general are in a weak position and cannot meet their obligations to pay in full and on demand. Each depositor is therefore likely to try to withdraw cash before payments are suspended.

When not only one bank but all or most of the banks in the system simultaneously face demands for payment in coin or currency, there are only a few sources of cash with which to meet the drain.

1. *Coin and Currency in Bank Vaults.* This source, as we have seen, is not of much assistance.

2. *Interbank Deposits.* This source is of little or no assistance in meeting a general run on the banking system. One bank may try to meet its own problem by drawing on another, but if the latter is also facing demands from individual depositors and other depositor banks, it is likely to be in trouble itself.

3. *Deposits of Cash by the Public.* If the public has lost confidence in them, the banks can hardly expect net deposits of coin and currency.

4. *Calling of Loans and Sale of Bank Assets to Buyers Other Than Federal Reserve Banks.* This source is likely to offer little assistance. When all or most of the banks face large demands for payment they are hardly likely to be buyers of securities of any kind; virtually all of them will be on the selling side. Moreover, even sales of bank assets to individuals and corporations offer only limited help. Some may pay loans or buy securities from banks by reducing their net holdings of coin or currency, but most of them will do this by writing checks against their deposits. This will reduce the total of deposits outstanding, but it will not supply the banks with coin or currency to be used in meeting demands for payment. And, it must be emphasized, the effect of a widespread calling of loans and selling of assets by the banks is to reduce the money supply in the form of checking deposits, thereby aggravating any existing deflationary trend. By selling assets or calling loans an individual bank may draw cash from other banks.

But the banking system as a whole may attract virtually no coin or currency by this means; the result may be merely a ruinous contraction of the total money supply.

5. *Reserves at Federal Reserve Banks.* The banks may demand cash at Federal Reserve banks in exchange for deposits there. But reserves are only a fraction of bank deposits, and the banks must continue to meet their reserve requirements. Thus, if the banking system suffers a cash drain of $1 billion and operates under 20 percent reserve requirements, the $1-billion reduction of deposits frees only $200 million of reserves; the remaining drain of $800 million must be met from other sources.

6. *Borrowings from and Sales of Assets to Federal Reserve Banks.* The banking system can get cash to meet demands on it to the extent that the Federal Reserve banks (or other monetary authorities) are willing and able to create additional coin or currency by making loans to banks or buying assets from them. In some cases the Treasury may release idle cash that it holds in its vaults.

In summary, *the banking system as a whole* can obtain cash with which to meet net cash withdrawals only from the following principal sources: (1) From cash drawn from its reserve accounts in the central bank to the extent that its reserve requirements are reduced by the decrease of deposits with the banks. Relief from this source is equal to only a fraction of the reduction in deposits, the amount of the relief depending on the height of the ratio of reserves to deposits. (2) The issue of additional cash by the Federal Reserve System and the Treasury. We shall emphasize many times that in the last analysis the liquidity of the banking system as a whole—its ability to meet its obligations with coin or currency—depends on the extent to which the monetary authorities are able and willing to issue additional cash by buying assets or by lending.

It is especially necessary to point out the fallacy of the idea that *liquidity of the banking system as a whole* can be maintained by having the banks hold "liquid" types of loans and other securities. We have already seen that an individual bank can achieve liquidity by holding assets that are readily salable to other banks or to the cus-

tomers of other banks, thereby enabling it to draw funds from other banks in the system. But obviously this method of meeting drains is effective only when the demand is limited to one bank or to a minor part of the system. When a major part of the banking system is faced with demands for cash, most of the drain must be met with additional cash that was not previously in the hands of the banking system; usually this must come from the central monetary authority. Thus, the liquidity of the banking system as a whole depends largely on the ability and willingness of the monetary authority to issue new coin and currency; and those bank assets are most liquid which will be purchased by the monetary authority or will be accepted as collateral for loans by this authority.

The following chapter will bring out the fact that before the establishment of the Federal Reserve System in 1914 the American commercial banking system was subject to recurrent crises and panics, during which all or most of the banks were unable to meet widespread demands for redemption of their notes and deposits in legal-tender coin and paper money. There was during this period no institution in the entire monetary system that either held extra coin and paper money in amounts sufficient to meet such emergency drains or had the power to create and issue additional legal-tender coin or paper money for the purpose. To remedy this deficiency was one of the principal reasons for creating the Federal Reserve System. But even the Federal Reserve did not prevent the banking panic of 1933 or enable the banks to meet depositors' demands for gold, coin, and paper money.

QUANTITATIVE CONTROL OF THE MONEY SUPPLY

We have already seen that appropriate control of the money supply and of money spendings is highly important to the economic system. One of the most difficult problems in the social control of banking is to secure proper behavior of the quantity of money and loan funds created by banks. In the absence of wise control by a monetary authority, banks are likely to expand the money supply when it should be contracted and to contract it when it should be expanded. Even

when they vary the money supply in the right direction, the extent of the change is often inappropriate. Banks ordinarily think of themselves primarily as lenders or buyers of securities and only incidentally as creators and destroyers of money. Moreover, most of their income is derived from earnings on the debt instruments they hold. It is only natural, therefore, that they should lend as much as they can during periods of "good business," both because the demand for loans is great and because loans appear relatively safe. But the resulting expansion of both the total money supply and the supply of loanable funds may be excessively expansionist and socially undesirable. It is equally natural that banks should tend to reduce their loans in periods of "bad business," both because of the decline in the demand for loans, and because of the greater risk of lending large amounts. But the resulting decline in the money supply is likely to depress money spendings, output, and prices still further. This tendency of commercial banks to accentuate expansions and contractions in economic activity is one of the most difficult problems facing monetary authorities, as we shall see later in our discussion of central banking.

SELECTED READINGS

Chapman, J. M., and Westerfield, R. B., *Problems in Banking, Money and Credit*, Ronald, New York, 1927.

Currie, L. B., *The Supply and Control of Money in the United States*, Harvard University Press, Cambridge, 1934.

Ebersole, J. F., *Bank Management*, McGraw-Hill, New York, 1931.

Robinson, Roland I., *The Management of Bank Funds*, McGraw-Hill, New York, 1951.

Schwulst, E. B., *Extension of Bank Credit*, Houghton Mifflin, Boston, 1927.

Trant, J. B., *Bank Administration*, McGraw-Hill, New York, 1931.

CHAPTER 12

Banking in the United States Before 1914

This chapter will trace some of the main trends in American banking history prior to the institution of the Federal Reserve System in 1914. The period will be treated in two general sections: (1) from 1781 to the establishment of the National Banking System in 1863, and (2) from the establishment of the National Banking System in 1863 to 1914. Each period will be further subdivided to bring out important banking developments.

AMERICAN BANKING, 1781–1863

To understand the confusion in American banking in this early period, we must remember the newness of our country and its lack of experience with money, finance, and large-scale industry. The country had had no experience with a well-developed banking system, by far the largest part of the population lived on farms which were largely self-sufficient, all except a few of the cities were small, manufacturing was still in its infancy, and trade occupied a far less important position than it does today. Moreover, the relationship between the federal and state governments was a subject of wide dispute; the Federalists favored centralized controls, whereas the Anti-Federalists hoped to minimize the centralization of power. The location of the power to charter and regulate banks with a highly controversial subject well into the nineteenth century.

It is also important to remember that bank notes were the principal type of money issued by banks until about the time of the Civil War. Checking deposits were not well suited to a predominantly agricultural country with few towns and slow travel and communication. In fact, during the colonial period the word "bank" meant "a batch of paper money." We need not dwell here upon the small number of "banks" during the colonial period, most of which were short-lived. The first bank of a modern type in this country was the Bank of North America, which was established in Philadelphia in 1782 to aid in financing the Revolutionary War. The Bank of Massachusetts and The Bank of New York were established in 1784. These three were the only incorporated banks in the United States in 1790. There were, however, a few unincorporated or private banks, for under the common law everyone had a right to engage in banking as well as in other types of business. Only later, after 1800, did the states begin to limit banking carried on by unincorporated firms.

The First Bank of the United States, 1791–1811

The first bank to be established under a federal charter was the First Bank of the United States, which in 1791 received a twenty-year charter. It had a capital stock of $10 million, of which $2 million was subscribed by the federal government with funds borrowed from the bank, the remainder being subscribed by private individuals, some of them residents of foreign countries. Its head office was located in Philadelphia, and it established branches in the other principal cities of the country—Boston, New York, Baltimore, Norfolk, Charleston, Savannah, and New Orleans. It was in fact a nation-wide bank.

This banks seems to have functioned well when compared with the other banks that operated during the first half of the nineteenth century. Its note issues were not excessive; it greatly facilitated the transfer of funds from region to region; it was useful in lending to the government, in acting as government depository, and in transferring government funds; and it acted as a central bank in curbing the note issues of state banks by presenting their notes regularly for redemption. Nevertheless, Congress refused to renew its charter on its expiration in 1811.

Several arguments were advanced in support of the refusal to recharter the First Bank. (1) Much of the bank stock was owned by foreigners. Some people feared that foreigners would exercise excessive control over our economy through the bank—though foreign stockholders had no vote—and they also argued that money was drained out of the country by the payment of dividends to foreign stockholders. (2) Only "hard money" was good money. A large part of the community was still opposed to paper money of any sort, whether issued by banks or by government. (3) The bank was unconstitutional. The Constitution contained no express provision for bank charters. The Anti-Federalists contended that no such power was even implied and that hence the bank had been unconstitutional from the beginning. Moreover, they feared that it would tend to centralize power in the federal government at the expense of the states, as its foremost proponent, Alexander Hamilton, hoped it would. It was frequently charged, apparently with some justice, that the bank was dominated by Federalists and that it discriminated against Anti-Federalists in making loans. (4) The bank discouraged the growth of state banks. That it curbed the issue of state bank notes by presenting them regularly for redemption is clear. Some elements of the community, including the owners and officers of state banks as well as other proponents of "easy money," wanted to eliminate the curbing effects of the bank. But whatever the deciding motives of Congress in refusing its recharter, the First Bank of the United States expired in 1811.

State Banking, 1811–1816

Freed from the moderating influence of the First Bank and favored by the inflationary financing of the War of 1812, state banks went on a spree. They grew in number from 88 in 1811 to 246 in 1816, and their note issue rose from $45 million in 1812 to at least $100 million in 1817. Virtually all of them ceased redeeming their notes in gold or silver, and their notes depreciated by varying amounts; the notes of many banks became virtually worthless. All the banking abuses that we shall study later appeared during this period. It was largely because of these gross abuses of the banking privilege by state banks

and because of the extreme disorder of the monetary system that the Second Bank of the United States was established in 1816.

The Second Bank of the United States, 1816–1836

The Second Bank of the United States received a twenty-year charter from the federal government in 1816. In many respects it resembled the First Bank, but it was much larger and some of its charter provisions were different. Its capital was fixed at $35 million, of which one-fifth was to be subscribed by the federal government and paid for with its bonds. The remaining $28 million was subscribed by individuals, corporations, companies, and states, no one of whom was permitted to subscribe more than $300,000. At least one-fourth of these private subscriptions had to be paid in gold or silver; the remaining three-fourths could be paid in either specie or securities of the federal government. The bank was governed by a board of directors, of whom five were appointed by the President of the United States and twenty were elected by the private stockholders. The amount of property that the bank could hold was limited to $55 million, and its debts, excluding deposits but including bank notes, were limited to $35 million. These limitations did not prevent the bank from being a giant institution as compared with other firms of the period. It established 25 branches to serve all the settled parts of the country.

The Second Bank performed both commercial and central banking functions. As a commercial bank it lent to individuals, business firms, states, and the federal government; it accepted deposits from individuals and business firms as well as from governmental units; it issued bank notes; it transferred funds from one area to another; and it engaged in foreign-exchange operations. It also performed various functions that are usually entrusted to a central bank. It held government deposits, acted as fiscal agent of the government, and transferred funds from area to area for government account. Moreover, it acted as a regulator of state banks, presenting their notes for redemption, insisting that they redeem their obligations promptly in specie, and in general limiting the amount of credit they created. This was one of the principal purposes for which the Second Bank was created.

By 1833 the Second Bank had become so unpopular with President Andrew Jackson and many of the Jacksonian Democrats that federal deposits were withdrawn from it and placed with selected state banks, and its charter was not renewed on its expiration in 1836. The country was to see no more federally chartered banks until 1863 and was not to have another central banking system until 1914.

To evaluate the success of the Second Bank and the wisdom of Jackson's action in abolishing it is still a difficult task, for most of the contemporary discussions were rabidly partisan, and even some present-day writers are inclined to be apologists for either the bank or Jackson. We shall, however, note some of the reasons for the refusal to recharter the bank. No special attention will be given to charges that it was grossly mismanaged. It is true that mismanagement did appear in its early years and that later the bank performed some of its functions unwisely or at least clumsily. But the principal objections to it came from deeper sources.

1. *Unconstitutionality.* Though the power of the strict constructionists had diminished greatly, critics of the bank again alleged that the federal government had no constitutional power to charter a bank. It is unlikely, however, that these people would have raised the question of constitutionality if they had not opposed the bank on other grounds.

2. *Opposition to Paper Money.* "Hard-money" men like Senator Benton opposed paper money of any kind and favored the exclusive use of gold and silver coin. They denied that banks could increase the total quantity of money in a country or that they could "quicken trade" and insisted that bank money merely drove out of circulation an equivalent amount of gold and silver.

3. *Opposition by State Banks.* State banks, especially those that wanted to follow liberal lending and note-issue policies, were much opposed to the Second Bank. In the first place, the bank brought pressure on them to keep their notes redeemable in specie and to limit the quantity of their notes to the amount that they could redeem at par. This had the obvious effect of limiting state bank earnings. In the second place, the Second Bank competed with state banks in making loans. Not only did it take the business of lending away from

state banks but it also reduced interest rates in some areas, for its discount rate was limited to 6 percent. And in the third place, some state banks, especially those in New York, wanted the large volume of federal government deposits that the Second Bank enjoyed. This opposition by state banks was a potent factor in the Second Bank's undoing.

4. *Opposition by Others Who Favored Easy-Money Policies.* Realizing that the Second Bank tended to restrict the total amount of money created and the total volume of loans extended by banks, many debtors, landowners, potential land speculators, and others who felt they would be benefited by easier money worked for the abolition of the bank.

5. *Opposition to the Concentration of Financial and Economic Power.* We have already noted that the Second Bank was a giant institution during the period in which it operated. It held about a third of all the banking assets of the country and was probably larger than any other business firm. Its critics insisted that a free people could ill afford to grant such power to any small group, for with this financial power went the ability to determine the life and death of banks and other business enterprises, the level of employment and prosperity, and even the political freedom of the people. Such critics repeatedly asserted that concentration of economic power in the hands of a few was incompatible with political democracy.

6. *Political Activity by the Bank.* Though some attempts were made to secure members of both political parties as directors and officers of the bank, it was well known that the large majority of those in control of it were opposed to Jackson and his party. Moreover, some of these men were aggressive in their political activities. It is difficult to discover the extent to which the bank's officers took the political initiative and to what extent their activities were merely defenses against earlier attacks on the bank. But it seems certain that the bank did enter the political arena and that at least some of its branch managers used their lending power to influence votes. The fate of the bank was sealed when its president, Nicholas Biddle, openly but vainly opposed Jackson's reëlection in 1832 and made the recharter of the bank one of the principal issues of the presidential cam-

paign. A diplomatic president of the Second Bank might have been able to arrive at a satisfactory *modus vivendi* with the choleric President Jackson. But Biddle was not such a man. "Nicholas Biddle was a man of intense energy, autocratic in temper, and possessing supreme confidence in his own judgment. It was inevitable that he should rule and not merely reign, and the proofs that he did rule are observable everywhere."[1] The inevitable clash between Biddle and Jackson may have greatly altered the entire course of our banking history.

Was President Jackson right in refusing to recharter the Second Bank in 1836? A full answer to this question would require far more space than we can devote to it. Two facts now seem clear, however. In the first place, it is questionable public policy to grant central banking powers to a corporation which is largely owned and controlled by private individuals and corporations, which is operated by the owners primarily for profit, and which as a profit-seeking enterprise has interests in conflict with those of the banks that it regulates. We now recognize that central banking is a governmental function that can be properly exercised only by institutions whose primary motive is not profits but financial and economic stabilization. A properly managed central bank must often follow policies that will decrease its profits. In the second place, however, it is equally clear that the abolition of the Second Bank without establishing another institution to take over its functions was a major blunder. It ushered in a generation of banking anarchy and monetary disorder.

State Banking, 1836–1863

From the lapse of the Second Bank's charter in 1836 until the establishment of the National Banking System in 1863, our banking system was made up exclusively of private (unincorporated) banks and of banks operating under corporate charters granted by the various states. We shall not discuss the unincorporated banks except to say that as a group they seem to have been neither significantly better nor significantly worse than the incorporated banks as a group.

[1] Davis R. Dewey, *The Second Bank of the United States*, Senate Document No. 571, Government Printing Office, Washington, 1912, p. 263.

The incorporated banks, operating under widely diverse state laws, varied from fairly good to very bad. Some performed their functions satisfactorily, especially toward the end of the period. At the other extreme, many engaged in practically all the banking abuses known to man.

Prior to 1837 a bank could secure a corporate charter from a state only by a special legislative act. This method of granting bank charters gradually fell into disfavor for several reasons. It injected banks into politics and politics into banks. Loyal members of the political party in power might receive a bank charter, whereas members of the minority party had little chance of success. The controversy over bank charters threatened to corrupt state governments. Legislators were offered large sums of money to grant new charters, and other large sums by existing banks to reject the applications of potential competitors. Furthermore, this method of granting charters often gave monopoly power to the favored banks. This was considered objectionable, both because of its alleged unfairness to those who wished to become bankers and because it was believed to restrict the total amount of credit granted, thereby impeding the economic expansion of the country.

To remedy this situation, Michigan in 1837 and New York in 1838 enacted "free banking laws." Most of the other states later enacted laws of the same general type. These laws ended the practice of granting charters by special legislative act and provided that anyone might secure a corporate charter and engage in banking by complying with the provisions of a general bank incorporation law. Banking was made "free" to all enterprisers who met the specified general requirements. The quality of state banks came to depend upon the appropriateness of these general requirements and upon the effectiveness with which they were enforced. In some states the requirements were strict; banks could issue notes only by depositing with a state official an equivalent amount of high-quality bonds and by meeting adequate capital and reserve requirements. But in more of the states the collateral requirements for notes were hopelessly inadequate, and capital and reserve requirements were virtually meaningless.

The relationships between banks and the states varied widely. At

one extreme, the state banks merely received their charters from the state; they secured all their capital from private sources and made any loans that were permitted within the broad framework of the banking laws. At the other extreme, many banks were wholly owned and

TABLE 24. State Banks, 1834–1861[2]

Year	Number of State Banks	State Bank Notes Outstanding (In millions)	Deposits at State Banks (In millions)	Total State Bank Notes and Deposits (In millions)
1834	506	$ 95	$ 76	$171
1835	704	104	83	187
1836	713	140	115	255
1837	788	149	127	276
1838	829	116	85	201
1839	840	135	90	225
1840	901	107	76	183
1841	784	107	65	172
1842	692	84	62	146
1843	691	59	56	115
1844	696	75	85	160
1845	707	90	88	178
1846	707	106	97	203
1847	715	106	92	198
1848	751	129	103	232
1849	782	115	91	206
1850	824	131	110	241
1851	879	155	129	284
1852	815	161	137	298
1853	750	146	146	292
1854	1208	205	188	393
1855	1307	187	190	377
1856	1398	196	213	409
1857	1416	215	230	445
1858	1422	155	186	341
1859	1476	193	260	453
1860	1562	207	254	461
1861	1601	202	257	459

operated by states. There were all variations between these two extremes. Thus, some banks were owned jointly by the state and by private investors. Others had to pay large sums to the state for the privilege of banking. And still others were permitted to act as banks only if they would lend stipulated amounts to canal companies, rail-

[2] Source: Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, pp. 417–418.

roads, or other enterprises considered meritorious by the state legislature. In a period when "capital" was still scarce, states encouraged and even forced banks to lend large amounts for financing selected projects.

Abuses by the State-Chartered Banks Before the Civil War

Without inferring that all the banks were guilty, we shall now investigate the principal banking abuses during this period. These abuses were so widespread that they greatly influenced both public

TABLE 25. Principal Expansions and Contractions of State Bank Notes and Deposits, 1834–1860[3]

Period	Percentage Expansion (+), or Contraction (−)		
	Bank Notes	Bank Deposits	Total Notes and Deposits
1834 to 1837	+56%	+67%	+61%
1837 to 1843	−60	−56	−58
1843 to 1848	+119	+84	+102
1848 to 1849	−11	−12	−11
1849 to 1854	+78	+107	+91
1854 to 1855	−9	+2	−4
1855 to 1857	+15	+21	+18
1857 to 1858	−28	−19	−24
1858 to 1860	+36	+37	+35

attitudes toward banks and subsequent banking legislation. Some of the most serious banking abuses were the following:

1. *Violent Fluctuations in the Amount of Money Created by the Banks in the Form of Bank Notes and, Especially Toward the End of the Period, Checking Deposits.* With the transfer of federal deposits from the Second Bank to selected state banks and the removal of the moderating hand of the Second Bank, both the number of state banks and the volume of their credit increased. This is shown in Table 24.

This growth was far from steady, however. The banks would expand rapidly for a time and then undergo severe contraction. The principal expansions and contractions during this period are shown in Table 25, though the data are admittedly imperfect. Business activity and prices fluctuated widely as banks alternated inflationary periods of

[3] Derived from data in Table 24.

increased money supplies and liberal loans with periods of shrinking money supplies and reduced loans. The banks' policies were not the sole causes of these fluctuations, but they were unquestionably contributory.

2. *Inadequate Bank Capital.* Using all the devices that we described earlier, many banks failed to have large enough capital accounts to protect their creditors. Some made no pretense of having adequate capital. Others had a large enough nominal capital, but it was paid for with the promissory notes of the stockholders, many of whom were unable to meet their obligations. Even when bank stocks were fully paid for with gold or silver, stockholders often borrowed back the coin, giving in return their doubtful paper. Furthermore, bank capital was frequently dissipated by excessive dividend payments.

3. *Risky and Illiquid Loans.* Many of the banks made highly risky and speculative loans without regard for the safety of their creditors, and some lent excessively to their own stockholders and officers. Moreover, many of the loans were highly illiquid. This was especially true of the banks' large loans on real estate, much of which was not in use but was being held for speculative purposes. This combination of inadequate bank capital and highly risky and illiquid loans could lead to but one result—numerous bank failures and serious losses to noteholders and other bank creditors.

4. *Inadequate Reserves Against Notes and Deposits.* In some of the state banking laws reserve requirements were either wholly absent or very inadequate, and evasions of existing requirements were widespread. Many banks issued large quantities of notes and deposits with little or no regard for their reserve situation and with little ability to redeem their obligations on demand.

As a result of all these abuses—excessive issues of bank notes, inadequate bank capital, risky and illiquid bank assets, and highly inadequate reserves—bank notes had widely differing values. The notes of some banks were freely redeemed in gold and silver and circulated at their face value. Others circulated at small but varying discounts; still others circulated at only a small percentage of their face value; and many became completely worthless. A "know your

money" campaign would have been an utter failure in this period.

State bank notes in this period may be divided into four main categories: (1) genuine notes of banks still in operation, (2) genuine notes of failed banks, (3) genuine notes whose denominations had been raised, and (4) counterfeits. The genuine notes of banks still in operation varied greatly in value, for around 1860 such notes were issued by nearly 1600 banks operating under the widely diverse laws of some 30 states. Even the banks in a given state varied widely in quality. Some, as we have seen, issued their notes in moderation and redeemed them freely in specie. Others issued notes in great quantity and with virtually no assets behind them and then employed ingenious devices to avoid redeeming them. For example, an enterpriser would secure a bank charter, pledge virtually worthless securities as collateral for a large volume of bank notes, set up a banking "office" in a remote swamp, put the notes into circulation, and use various ruses to keep his location secret. Only later would some innocent recipient of the bank's notes find that they were virtually worthless.

Owing to the slowness of communications, genuine notes often remained in circulation long after the issuing bank had failed, much to the regret of those who accepted them in payment.

The period was a counterfeiter's paradise. Each of the hundreds of banks issued notes of its own design and in many denominations; the notes were made of many kinds of paper, mostly of low quality; the workmanship on the genuine notes was usually poor; and no one could be familiar with all the bank notes outstanding. Under these conditions it was easy to raise the denomination of genuine notes and to issue counterfeits on existent or even nonexistent banks. "Bicknall's Counterfeit Detector and Bank-Note List of January 1, 1839, contains the names of 54 banks that had failed at different times; of 20 fictitious banks, the pretended notes of which are in circulation; of 43 banks besides, for the notes of which there is no sale; of 254 banks, the notes of which have been counterfeited or altered; and 1,395 descriptions of counterfeited or altered notes then supposed to be in circulation, from one dollar to five hundred."[4] That these conditions

[4] Raguet, quoted by Horace White, *Money and Banking*, Ginn, Boston, 1896, pp. 403–404.

had not been remedied by 1858 is indicated by the fact that Nicholas's Bank Note Reporter gave 5400 separate descriptions of counterfeit, altered, and spurious notes. There were 30 different counterfeit issues of the Bank of Delaware notes.[5]

The numerous "counterfeit detectors and bank note reporters" which attempted to warn against counterfeits and to indicate the current values of the various bank notes were of only limited assistance. Even with their supplements they were often out of date, they were beyond the reach of small tradesmen and individuals, and they could not remove the confusion in trade resulting from the fact that the price charged for an article depended on the type of bank note with which payment was to be made.

Though banking abuses during this period were widespread, we must not leave the impression that all state banks were unsound. Some states, notably New York, Massachusetts, and Louisiana, enacted highly protective banking laws and implemented them with bank supervision and examinations. In fact, some of these laws, especially those of New York, contributed much to the legislation establishing the national banking system.

THE NATIONAL BANKING SYSTEM, 1863–1914

In 1863 the federal government again began chartering banks by passing "An act to provide a national currency, secured by a pledge of United States Stocks, and to provide for the Circulation and Redemption thereof." The 1863 law, which contained a large number of imperfections, was replaced by a new law in 1864. This latter is usually referred to as the National Banking Act.

In providing for a new system of national (federally chartered) banks to be owned and operated by private individuals, Congress had two principal motives: (1) to replace the unsound and unsafe state banking system with new banks that would issue safe and uniform currency, and (2) to secure a new source of loans with which to finance the Civil War. Ever since the demise of the Second Bank there had been a widespread demand for banking reform, and many

[5] *Ibid.*, p. 398.

contended that a satisfactory system of note issue could be achieved only with centralized control and uniform notes. This demand was not successful, however, until reinforced by the exigencies of Civil War finance. We have already noted the difficulty encountered in taxing or borrowing enough money to finance that war. Secretary Chase and others believed that they could create an additional market for government bonds by permitting the creation of new banks which could issue notes only on the basis of their holdings of these securities. Thus, the National Banking System owes its birth to the demand for safer types of bank money and to the financial embarrassment of the Treasury. But it proved more useful as a means of banking reform than as a source of Civil War funds.

Principal Provisions of the National Banking Act

We have already said that the National Banking Act owed much to earlier state banking laws, especially those of New York. The new law provided for "free banking." Anyone meeting the general requirements of the act was to receive a charter and permission to engage in banking. A new office, the Comptroller of the Currency, was created in the Treasury Department to grant charters and to administer all laws relating to national banks. Some of the principal provisions regulating the establishment and operation of national banks were the following:

1. *Capital.* To enhance bank safety, several capital requirements were imposed. Minimum capital requirements, which are the same today, were fixed as follows:

$ 50,000 in cities of not over 6000 inhabitants.
$100,000 in cities with from 6000 to 50,000 inhabitants.
$200,000 in cities with over 50,000 inhabitants.[6]

At least 50 percent of the subscribed capital had to be paid in before a bank could begin business, and the remainder had to be paid within five months. The stock was subject to double liability. In order to expand the market for government securities, each bank was required

[6] From 1900 to 1933 the minimum capital requirement was only $25,000 in places with not more than 3000 inhabitants. This was reëstablished at $50,000 in 1933.

to deliver to the Treasury United States registered bonds amounting to not less than $30,000 or one-third of its capital stock, whichever was larger.[7] These bonds could be used as collateral for issues of national bank notes.

2. *Regulation of Bank Loans.* To promote safety and liquidity, many restrictions were placed on bank assets. Each national bank was forbidden to lend on real estate or to lend to any one borrower an amount exceeding 10 percent of its capital stock.

3. *Supervision and Examination.* To insure compliance with both the letter and the spirit of the act, national banks were required to supply the Comptroller of the Currency with periodic reports on their financial condition and were made subject to examination by his representatives.

4. *Reserve Requirements Against Notes and Deposits.* To enhance bank liquidity and limit the amount of bank money, minimum reserve requirements were specified for both circulating notes and deposits. Banks in reserve and central reserve cities were required to hold reserves of 25 percent, and banks in other cities 15 percent, of their outstanding circulating notes and deposits. In 1874 national banks were relieved of the necessity of carrying reserves against their note issues.

5. *Protection to Noteholders.* Remembering the sorry record of state bank notes, the framers of the National Banking Act were determined that national bank notes should be perfectly safe, that they would all circulate at parity with other types of money, and that they would always be freely redeemable. To this end the act provided as follows: (a) These notes could be issued only against United States government bonds deposited with the Comptroller of the Currency, the amount of notes not to exceed 90 percent of the par value of the bonds or 90 percent of the market value of the bonds, whichever was smaller. (b) The issuing bank should maintain a redemption fund with the Comptroller equal to 5 percent of its outstanding notes, though this could be counted as part of the bank's required reserve. (c) In case of refusal by a national bank to redeem its notes, the

[7] This requirement that national banks buy government securities was modified toward the end of the century and dropped after 1900. The double-liability provision was repealed during the depression of the 1930's.

Comptroller might sell the pledged bonds and use the proceeds to pay noteholders, any remaining claims of noteholders to constitute a first claim against the assets of the bank. (d) No national bank might issue notes in amounts exceeding its capital stock. (e) The total circulation of national bank notes should not exceed $300 million (this limitation was later revised and was wholly removed after 1875). (f) Each national bank should accept the notes of every other national bank at par. Thus, every effort was made to insure the safety and parity of value of national bank notes. In these respects the act was successful.

State Banks

It was hoped that the authorization of national banks would induce state banks to take out federal charters and comply with the require-

TABLE 26. State and National Banks in the United States, 1864–1914[8]

Year	State Banks	National Banks
1864	1,089	467
1868	247	1640
1870	325	1612
1880	650	2076
1890	2,250	3484
1900	5,007	3731
1910	14,348	7138
1914	17,498	7518

ments of the National Banking Act. When it became evident that few state banks were going to do this, Congress decided to force the issue by levying a 10 percent tax on any bank or individual paying out or using state bank notes. It seems clear that the purpose here was to end the issuance of circulating notes by state banks and to force all or most of these banks to become national banks or to cease doing a general banking business. As shown in Table 26, the act did succeed in reducing the number of state banks from 1089 in 1864 to 247 in 1868. After that time, however, state banks again began to expand, and by 1914 they outnumbered national banks by more than 2 to 1.

How were state banks able not only to survive but even to expand

[8] Source: Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, p. 418.

greatly in spite of the prohibitive tax on their notes? First and foremost is the fact that note issue had become of much less importance in banking. With the growth of cities and more rapid transportation and communication, people used checking deposits more and more as a means of payment. With the privilege of creating checking deposits a bank could now operate successfully without issuing notes. But why did many banks prefer to operate under state rather than federal charter when national banks also had the right to create deposits? The answer is to be found largely in the fact that many states imposed less rigid restrictions and granted more liberal powers than those contained in the National Banking Act. In general, state banking laws provided lower capital requirements, lower reserve requirements, less supervision by the government, more liberal powers to lend on real estate, greater ability to accept drafts drawn on a bank, and more power to engage in fiduciary activities, such as operating trust departments. This was especially true in the western and southern states, where many of the state banks were located.

Shortcomings of the National Banking System

Though the National Banking System unquestionably raised greatly the general quality of American banking, it became subject to an increasing amount of criticism. Demands for further banking reform swelled during the late years of the nineteenth century and grew still more in the first years of the twentieth, finally ushering in the Federal Reserve System in 1914. Although many aspects of national banks were criticized, the greatest complaint was against their "inflexibility" or "inelasticity." The keynote of the National Banking Act was safety, especially safety of national bank notes. Less attention was paid to the safety of deposits. Critics now complained that the system was too inflexible and that it must be given a greater degree of "elasticity." The meaning of this term was often unclear, but we can discover its general meaning as we proceed.

Though national bank notes were safe, there was no provision for appropriate variations in their quantity over the long run, in response to seasonal variations in the need for them, and during crisis periods. We have already seen that these notes could be issued only on the

basis of federal bonds, the amount of notes being limited to 90 percent of the par or market value—*whichever was lower*—of the bonds deposited with the Comptroller. Thus, the supply of national bank notes depended on the government bond market. The supply obviously could not exceed 90 percent of the eligible bonds outstanding. Within this limit the quantity of notes actually issued by banks depended on the profitability of issuing them. When government bonds could be purchased at or below par, a relatively large volume of national bank notes was issued, because a bank could issue notes equal to 90 percent of the purchase cost of the bonds. But the profitability of issuing notes was decreased and in some cases eliminated as the market price of bonds rose above their par value. For example, a bank would hesitate to pay $1200 for bonds with a par value of only $1000, for these would serve as collateral for only $900 worth of notes; note issues were limited to only 75 percent of the actual cost of the bonds. It was for these reasons that the volume of national bank notes outstanding fell from $352 million in 1882 to $162 million in 1891, a reduction of 54 percent. But they had risen to $715 million by 1914. Critics maintained that a note system of this type based on the government bond market could never supply a properly "elastic" currency that would respond properly to the needs of business. The volume of these notes fluctuated, but not necessarily in ways that were appropriate to economic needs.

National bank notes were also criticized for their lack of seasonal elasticity. The demand for currency for hand-to-hand use showed marked seasonal variations, reaching peaks in the early autumn and around Christmas and dropping to lower levels during other seasons. But the volume of outstanding national bank notes remained relatively constant throughout the year; hence banks could meet the seasonal peak demands for currency only by draining funds from their reserves, and the inflow of currency to the banks during slack seasons increased their reserves. Critics complained that the seasonal inelasticity of national bank notes brought about seasonal credit stringencies by forcing banks to draw on their reserves to meet peak seasonal demands for cash, and then led to an undue easing of credit in other seasons as currency flowed back into the reserves. They de-

manded the creation of a currency that would be seasonally elastic—that would increase and decrease with seasonal demands for coin and currency and would leave bank reserves unaffected.

Critics also complained of the inelasticity of national bank notes during banking crises. They pointed out that there was no existing way in which new currency could be created to satisfy general demands on the banks for cash, and that banks could not meet these demands out of the limited cash in their vaults. They proposed the authorization of a new type of currency whose quantity could be increased to meet crisis demands and then decreased again as demands for cash subsided. We shall see later that one of the principal purposes of the Federal Reserve Act of 1914 was to supply an elastic currency in the form of Federal Reserve notes.

The disturbing effects of an inelastic bank note system were intensified by a defective system of reserve requirements. We have already seen that national banks were required to maintain reserves against both notes and deposits—later against deposits only—equal to 25 percent in central reserve and reserve cities and 15 percent in other places. The banks in a few of the largest cities—New York, Chicago, and St. Louis—were designated as "central reserve city banks," those in 47 other cities as "reserve city banks," and those in other places as "country banks." That this general classification of banks for the purpose of fixing reserve requirements was carried over into the Federal Reserve Act will be made clear later. Though these reserve requirements appeared large, the form of reserves was defective, as is suggested by the following summary:

Type of Bank	Percentage Reserve Requirement	Composition of Required Reserves
Country banks	15%	$\frac{2}{5}$ of reserve (or 6% of deposits) as cash in vault; remaining $\frac{3}{5}$ of reserve (9% of deposits) to be either cash in vault or deposits with reserve city or central reserve city banks.
Reserve city banks	25%	$\frac{1}{2}$ of reserve (12.5% of deposits) as cash in vault; remaining $\frac{1}{2}$ of reserve (12.5% of deposits) as either cash in vault or deposits in central reserve city banks.
Central reserve city banks	25%	All as cash in vault.

This reserve system had three principal weaknesses. In the first place, a large part of the nominal reserve was "fictitious," in the sense that it was not available for meeting actual cash drains from the banking system. This was because such a large part of the reserves was in the form of deposits with other banks, which in turn held only a small percentage of actual cash as a reserve against their deposit obligations. Suppose, for example, that customers of country banks should demand large amounts of coin or currency. Holding an actual cash reserve equal to only 6 percent of their deposits, the country banks would call on the reserve city banks to send them cash. But the reserve city banks held a reserve equal to only 25 percent of their total deposits, only half of the reserve being in actual cash. To meet the drain, they in turn would call upon central reserve city banks for cash; but these banks had reserves equal to only 25 percent of their deposits. Thus, the central reserve and the reserve city banks were in a precarious position; they were liable to drains not only by their own customers but by all the banks that held "reserves" in the form of deposits with them. The threat of general cash withdrawals by the public or of a suspension of cash payments by the banks in large cities could therefore bring on a banking panic, or at least a general tightening of credit, for it would lead country banks to withdraw their "reserves" from reserve city and central reserve city banks in order to hold their reserves in the form of cash in their own vaults, and the reserve city banks would make similar withdrawals from the central reserve city banks. It is no wonder that the National Banking System was so susceptible to panics.

In the second place, reserve requirements were very inflexible. Each bank was supposed to meet its reserve requirements at all times; it could not legally make any new loans while its reserves were deficient. Thus, when banks had lent up to the limit permitted by their reserves, and especially when their reserves had decreased, new lending was brought to a sudden stop and a scramble to liquidate loans was likely to occur. There arose a general demand that reserve requirements be relaxed by being suspended in periods of crisis, or at least by banks being allowed to meet these requirements on the average over a period of time, deficiencies at one time being balanced by overages at an-

other. This latter method is employed for banks that are members of the Federal Reserve System.

In the third place, many criticized the "parcelation of reserves" resulting from the lack of any orderly way of pooling the reserves of individual banks to meet drains of cash from any segment of the banking system. Some compared existing reserve requirements with attempts to fight fires by placing a pail of water in each house; the greater effectiveness of pooling the water and providing a system of pipes to concentrate it at the point of need is obvious. Advocates of bank reform proposed the establishment of a similar system of pooling individual bank reserves so that they could be concentrated at the points of greatest need in time of emergency. This was another purpose of the Federal Reserve Act of 1914.

The inelasticity of national bank notes and the defects—or at least the inadequacy—of bank reserve requirements were dramatized by the recurrent banking panics that occurred under the National Banking System before 1914. There were full-fledged panics in 1873, in 1884, in 1893, and in 1907, and serious credit stringencies threatened at other times. Unable to meet their obligations to pay cash on demand, most banks suspended payments for periods of varying lengths; some of them never reopened, a mad scramble to call loans ensued, and business activity suffered. The panic of 1907 was the last straw; popular disgust with recurrent panics made the Federal Reserve Act politically possible, though it had objectives beyond that of panic prevention.

BACKGROUNDS OF THE FEDERAL RESERVE SYSTEM

As already indicated, the Federal Reserve Act was passed and the Federal Reserve System established in 1914 because of shortcomings in the existing system of national and state banks. We have noted the three principal defects of this system emphasized by the advocates of bank reform—the lack of appropriate elasticity of national bank notes, the defective reserve system, and the system's resulting vulnerability to panics. There were, however, several other complaints against the

system which the Federal Reserve Act attempted to correct. We shall only mention them here.

1. The slowness and expensiveness of collecting checks that had to be transported long distances.
2. The inadequate coördination of state and national banks. It was hoped that the introduction of a new central supervisory authority would weld the two groups of banks into a more homogeneous and smoothly functioning system.
3. The inability of national banks to act as accepters of time drafts drawn on them. Many claimed that prohibition of this function under the National Banking Act encouraged banks to seek state rather than national charters, deprived American business of a convenient and inexpensive method of finance, encouraged short-term funds to flow into stock market speculation rather than into the financing of "legitimate" business, and inhibited this country's growth as an international financial center.
4. The inability of national banks to lend on real estate. Many contended that the legal prohibition of real estate loans by national banks placed them at a disadvantage relative to state banks, deprived them of legitimate lending opportunities, and deprived borrowers on real estate of an important source of funds. The 1914 act permitted national banks to lend on real estate under strict limitations which were liberalized somewhat in later years.
5. The lack of a fiscal agent for the government. In many respects the National Banking System left much to be desired as an instrument for holding and transferring government funds and distributing and retiring its securities.

SELECTED READINGS

Barnett, G. E., *State Banks and Trust Companies Since the Passage of the National Banking Act*, Senate Document No. 659, Government Printing Office, Washington, 1911.

Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941.

Catterall, R. C. H., *The Second Bank of the United States*, University of Chicago Press, Chicago, 1903.

Davis, A. M., *The Origin of the National Banking System*, Senate Document No. 582, Government Printing Office, Washington, 1910.

Dewey, D. R., *Financial History of the United States*, Longmans, Green, New York, 11th ed., 1931.

Dewey, D. R., *The Second Bank of the United States*, Senate Document No. 571, Government Printing Office, Washington, 1912.

Dewey, D. R., *State Banking Before the Civil War*, Government Printing Office, Washington, 1910.

Gouge, W. M., *A Short History of Paper Money and Banking in the United States*, Collins, New York, 1835.

Kinley, D., *The Independent Treasury of the United States and Its Relations to the Banks of the Country*, Senate Document No. 587, Government Printing Office, Washington, 1910.

Report of the Monetary Committee of the Indianapolis Convention in 1898, University of Chicago Press, Chicago, 1898.

Scroggs, W. O., *A Century of Banking Progress*, Doubleday Doran, New York, 1924.

Sprague, O. M. W., *History of Crises Under the National Banking System*, Senate Document No. 538, Government Printing Office, Washington, 1910.

Sumner, W. G., *History of Banking in the United States*, New York Journal of Commerce, 1896.

Taus, E. R., *Central Banking Function of the U.S. Treasury, 1789–1941*, Columbia University Press, New York, 1943.

White, H., *Money and Banking*, Ginn, Boston, 1896.

Willis, H. P., *The Federal Reserve System*, Ronald, New York, 1923.

CHAPTER 13

The Federal Reserve System: Its Structure and Control, and Its Service Functions

In establishing the Federal Reserve banks in 1914, the United States was one of the last of the great financial powers to provide itself with a central bank. The Bank of Sweden was founded in 1656, the Bank of England in 1694, the Bank of France in 1800, the Netherlands Bank in 1814, and the Bank of Belgium in 1835; most of the other leading European countries established central banks well before the end of the nineteenth century. In general outline the functions of the Federal Reserve banks are similar to those of the central banks in other countries. But there are also important differences in the structure, control, and functioning of the various central banks, and these are traceable to economic, financial, and political differences among the countries. For example, most countries have one central bank with branches controlled by the central authority; we have twelve Federal Reserve banks exercising central banking functions. In many countries central banks are completely controlled by the government; in others control is divided between the government and other groups, such as private stockholders.

To understand the differences between our central banking system and those of other countries, several facts must be kept in mind. The most important of these are: (1) The United States covers a large geographical area with differing economic and financial conditions in the various regions, whereas some of the other countries occupy much

smaller areas and have less pronounced regional variations. (2) In some countries political power is concentrated in the central government and all bank charters are granted by that government, whereas in this country political power is divided between the federal government and the states, and bank charters are granted by 49 governmental units. (3) The types and amounts of government regulation and control of banking vary greatly from country to country. (4) We have thousands of separately incorporated commercial banks, whereas some other countries have only a few banks operating many branches; for example, most of the commercial banking in England is in the hands of five great branch banking companies. We cannot analyze here the structure and functions of foreign central banks, but we can trace the effects of these factors on the Federal Reserve banks.

Though the subject will be discussed in much greater detail in later chapters, it is necessary at this point to outline briefly the functions of the Federal Reserve System in order to understand the problems of its structure and control. In general, Federal Reserve functions may be divided into two broad groups: (1) central banking "chores," and (2) central bank control of the quantity of bank credit, of the terms on which credit is extended, and of the size of the money supply. The term "chores" is not used in any derogatory sense; it includes many highly useful functions, such as general supervision and examination of member banks, clearing and collection of checks and other instruments, transfer of funds from area to area, the holding and transfer of government funds, assistance to the Treasury in selling and retiring government securities, and safekeeping of valuables for banks and the government. But of far greater social importance is the Federal Reserve's function of controlling credit and money. It issues by far the largest part of the paper money in circulation, and it not only holds all the legal reserves of member banks but it also determines, within wide limits, the dollar volume of commercial bank reserves and the height of member bank reserve requirements relative to their deposits. In carrying out its monetary and credit control functions, the Federal Reserve lends, mostly to member banks, and fixes the discount rate and other conditions of its loans; it buys and sells

securities (mostly federal obligations) in the open market; it buys and sells acceptances and fixes the discount rates applicable to them; it sets the height of member bank reserve requirements within the broad limits prescribed by law; and in various other ways it affects the volume, types, and terms of credit. With these general functions in mind we now examine the structure, ownership, and control of the Federal Reserve System.

STRUCTURE OF THE FEDERAL RESERVE SYSTEM

The structure of the Federal Reserve System represents a compromise among varying opinions before 1914 as to the degree of centralization and decentralization that should be embodied in the new central banking system. At one extreme were those who believed that the country should be divided into a large number of districts, each with its own autonomous central bank. One plan called for twenty districts and twenty banks, each to be largely autonomous. Several arguments were advanced for this extreme decentralization: (1) Regional economic and financial differences. It was argued that the various regions of the country differed so greatly as to the height of interest rates, the types of industry and agriculture to be served, and the nature of customary banking practices that no one uniform credit policy could be appropriate for the whole country. (2) Fear of domination by Wall Street. Especially in the South and West it was feared that a single central bank would fall under the control of the giant New York banks, with their concentrated financial power, their alleged preoccupation with international finance, and their lack of benevolent interest in the hinterland and in small business. (3) Fear of government control. Some feared that a centralized system would come to be dominated to an excessive extent by the federal government, and they wanted control lodged in the hands of bankers in the various districts.

At the other extreme many advocated the establishment of a single central bank with numerous branches, all to be controlled by a central authority. The advocates of centralization argued their case primarily

on the basis of the indivisibility of the national credit market. They pointed out that credit is so mobile that any attempt to follow different credit policies in different regions would be doomed to failure. For example, if New York tried to tighten bank credit and raise interest rates while Chicago tried to liberalize credit and maintain low interest rates, both policies would probably fail. Credit would flow from Chicago to New York, thereby tending to defeat both Chicago's attempt to maintain easy credit and New York's attempt to tighten credit. This tendency toward equality of interest rates in all the principal markets would be accentuated by migration of the demand for credit from high-interest to low-interest areas. Many contended, therefore, that a centralized central banking system was necessary to achieve a coördinated and workable credit policy for the nation as a whole.

The Federal Reserve structure finally erected represents a compromise among these varying views. The country was divided into a number of districts, each with its own Federal Reserve bank, and a central authority was established in Washington to supervise the various Reserve banks and to coördinate their policies.

The 12 Federal Reserve Banks and Their Branches

The Federal Reserve Act provided that the continental United States, excluding Alaska, should be divided into not less than 8 or more than 12 Federal Reserve districts, each to have a Federal Reserve bank. The maximum number of districts and Reserve banks was established at the outset, so we have 12 Federal Reserve districts and 12 Federal Reserve banks. The boundaries of these districts are shown on the map in Fig. 10. Each Federal Reserve bank is named after the city in which it is located; thus there is the Federal Reserve Bank of Boston, the Federal Reserve Bank of New York, and so on. To facilitate their operations, some of the Federal Reserve banks have established branches in their districts. There are now 24 of these branches distributed unequally among the various Federal Reserve districts. The numbers of the Federal Reserve districts and the names and locations of the Federal Reserve banks and their branches are as shown on page 279.

It is interesting to note, as is shown in Table 27, that the Federal Reserve banks differ greatly as to both their size and their influence on credit and monetary conditions. The Federal Reserve Bank of New York, which is by far the largest, holds more than a quarter of the total assets of all the Reserve banks, and its member banks hold more than a third of the total deposits at all member banks. The predominance of the New York Bank is even greater than these statistics imply, for it is the principal point of contact with foreign

TABLE 27. Relative Sizes of the 12 Federal Reserve Banks July 25, 1951[1]

Federal Reserve Bank of	Assets (In billions)	Percent of Total Federal Reserves Bank Assets
Boston	$ 2.6	5.5
New York	12.6	26.5
Philadelphia	2.9	6.1
Cleveland	4.0	8.4
Richmond	2.7	5.7
Atlanta	2.4	5.0
Chicago	8.4	17.6
St. Louis	2.0	4.2
Minneapolis	1.2	2.5
Kansas City	2.0	4.2
Dallas	1.7	3.6
San Francisco	5.1	10.7
Total	$47.6	100.0

central banks, it has a direct influence on international financial transactions, it is located in the midst of the great New York money market which draws funds from and dispatches funds to every part of the country, and its member banks, especially the giant banks in New York City, greatly influence banks in all parts of the nation through their correspondent relationships. At the other extreme, the relatively small Federal Reserve Bank of Minneapolis holds less than 3 percent of all the assets of the Reserve banks, and its actions have relatively little influence on nation-wide credit and monetary conditions.

Member Banks in the Federal Reserve System

Each Federal Reserve bank has many "member banks," by which we mean the commercial banks in the district that have met at least

[1] Source: *Federal Reserve Bulletin*, August, 1951, p. 973.

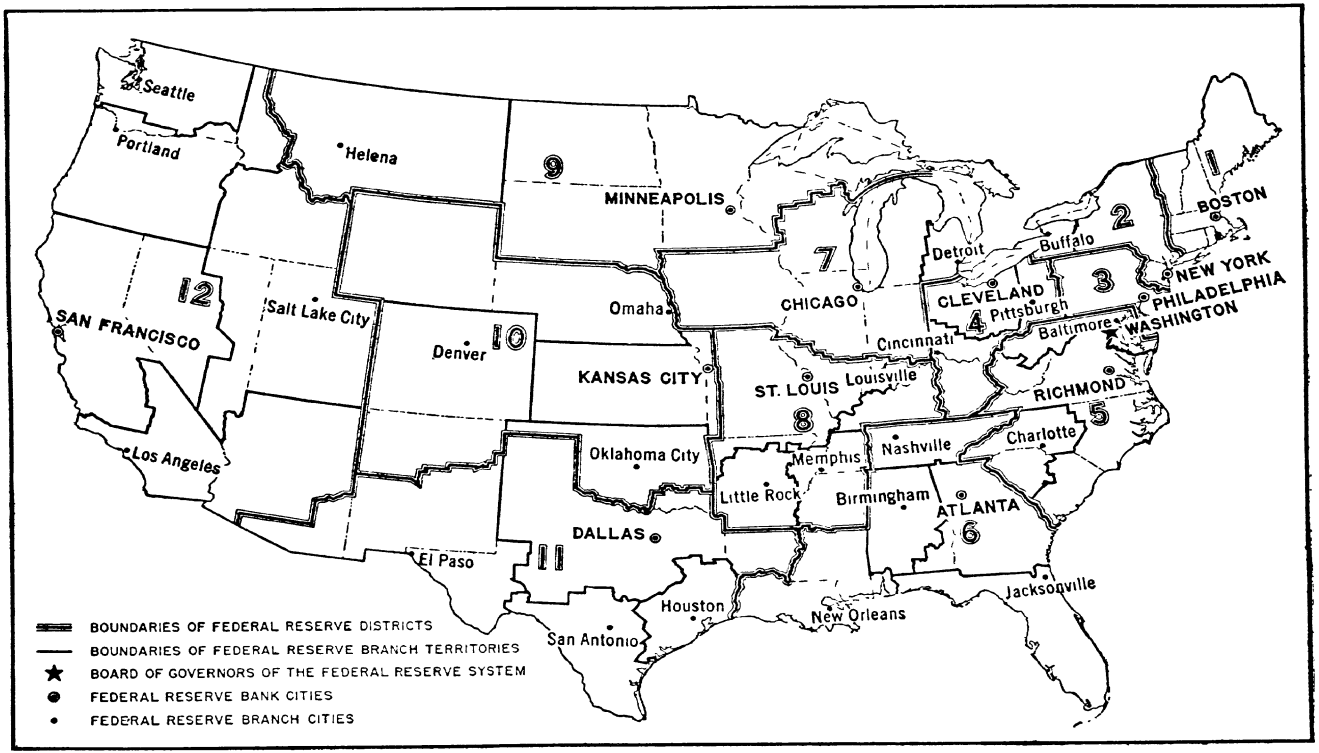


FIG. 10. Federal Reserve System. Boundaries of Federal Reserve Districts and Their Branch Territories. (Source: Board of Governors of the Federal Reserve System.)

Federal Reserve Districts, Federal Reserve Banks, and Branches of the Federal Reserve Banks

Federal Reserve District Number		
1	Federal Reserve Bank of Boston	
2	Federal Reserve Bank of New York	
	Branch:	Buffalo, New York
3	Federal Reserve Bank of Philadelphia	
4	Federal Reserve Bank of Cleveland	
	Branches:	Cincinnati, Ohio
		Pittsburgh, Pennsylvania
5	Federal Reserve Bank of Richmond	
	Branches:	Baltimore, Maryland
		Charlotte, North Carolina
6	Federal Reserve Bank of Atlanta	
	Branches:	Birmingham, Alabama
		Jacksonville, Florida
		Nashville, Tennessee
		New Orleans, Louisiana
7	Federal Reserve Bank of Chicago	
	Branch:	Detroit, Michigan
8	Federal Reserve Bank of St. Louis	
	Branches:	Little Rock, Arkansas
		Louisville, Kentucky
		Memphis, Tennessee
9	Federal Reserve Bank of Minneapolis	
	Branch:	Helena, Montana
10	Federal Reserve Bank of Kansas City	
	Branches:	Denver, Colorado
		Oklahoma City, Oklahoma
		Omaha, Nebraska
11	Federal Reserve Bank of Dallas	
	Branches:	El Paso, Texas
		Houston, Texas
		San Antonio, Texas
12	Federal Reserve Bank of San Francisco	
	Branches:	Los Angeles, California
		Portland, Oregon
		Salt Lake City, Utah
		Seattle, Washington

the minimum requirements and have been accepted for membership in the Federal Reserve System.[2] As a member of the Federal Reserve, a commercial bank has both obligations and privileges. It must continue to meet various requirements for membership, submit to supervision and examination by Federal Reserve authorities, subscribe to

TABLE 28. Commercial Banks in the United States That Are Members and Nonmembers of the Federal Reserve System[3]

Data as of June 30	Total Number of Commercial Banks	Members of Federal Reserve System			Nonmember State Banks	Number of Member Banks as Percentage of All Commercial Banks	Deposits at Member Banks as Percentage of Total Deposits in All Commercial Banks
		Total	National Banks	State Member Banks			
1915	25,875	7615	7598	17	18,260	29.4	49.4
1925	27,858	9538	8066	1472	18,320	34.2	72.8
1935	15,478	6410	5425	985	9,068	41.4	84.5
1945	14,003	6840	5015	1825	7,163	48.8	86.6
1946	14,026	6887	5012	1875	7,142	49.1	85.9
1950 (Dec. 30)	14,121	6873	4598	1915	7,248	48.7	85.7

stock in its Federal Reserve bank, and hold all its legal reserves in the form of deposits at its Federal Reserve bank. On the other hand, it enjoys the privilege of borrowing from its Federal Reserve bank and of using the other facilities of the System.

Before the establishment of the Federal Reserve System there were wide differences of opinion as to what commercial banks should be required or permitted to become members. At one extreme, those who were opposed to further "regimentation" of banks would have made membership in the System optional with each bank. At the other extreme, some would have forced every commercial bank in the country to become a member or cease to perform commercial banking functions. Here again the issue was settled by compromise. Every national bank must become and remain a member of its Federal Reserve bank

[2] Morris Plan banks and certain other incorporated banking institutions engaged in a similar type of business may also petition for membership.

[3] Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, 1943, pp. 16–17; *Federal Reserve Bulletin*, August, 1951, p. 981.

or forfeit its federal charter. Each state bank may, at its option, become a member if it can meet the minimum requirements for membership.

Table 28 shows the number of members and nonmembers of the Federal Reserve System on various dates. In December, 1950, there were 6873 member banks, of which 4958 were national banks and 1915 were state banks. Thus slightly less than half of all commercial banks, holding about 86 percent of total deposits in commercial banks, were members of the Federal Reserve. But 7248 state banks, or nearly 80 percent of all state-chartered banks, were nonmembers. However, most of these institutions are relatively small, as is indicated by the fact that though they comprise about 51 percent of the total number of commercial banks they account for only 14 percent of all commercial bank deposits.

There are several reasons why so many state banks have failed to become members of the Federal Reserve System.[4] Many of them cannot qualify for membership because of their inability to meet its minimum capital requirements. For example, 2389 state banks had insufficient capital for membership at the end of 1939; more than half of these, 1614, had a capital of less than $25,000. But many state banks with sufficient capital for membership have for various reasons failed to join: (1) The Federal Reserve requirement of par clearance by its members. No member of the System may make "exchange charges" on checks forwarded to it for payment through the Reserve banks. That is, the member bank on which a check is drawn must pay the full face amount of the check to the payee or to the agencies taking the check for clearance and collection; it may not deduct any amount to cover alleged costs of making payment.[5] But many non-

[4] For an excellent discussion of this subject, see B. Magruder Wingfield, "Deterrents to Membership in the Federal Reserve System," in Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, pp. 273–292.

[5] It must be noted that these "exchange charges" differ somewhat from the service charges with which we are now so familiar. A member of the Federal Reserve may still charge its customers for the services it performs for them, including charges for cashing checks that are drawn on other banks. But it may not remit less than the face amount of a check drawn on it and presented to it by a Federal Reserve bank for payment.

member banks—1853 of them at the end of 1950—refuse to pay such checks at par, for they are unwilling to forgo this source of revenue in order to join the Federal Reserve. (2) Lower reserve requirements under state laws. The fact that reserve requirements for member banks are higher than those prescribed by some state laws makes some banks unwilling to join. (3) Unwillingness to comply with other regulations applicable to member banks. Many state banks operating under more lenient state banking laws are unwilling to comply with member bank regulations, such as the Clayton Anti-Trust Act prohibitions against interlocking bank officers, directors, and employees; restrictions on affiliates of member banks; limitations as to the types of assets acquired; limitations on a bank's loans to its executive officers; and reports required. (4) Availability of Federal Reserve services without membership. With certain limitations, nonmember banks may use the Federal Reserve clearing system, borrow from Federal Reserve banks, and use other Federal Reserve facilities. A less generous policy toward nonmembers would probably force more banks into the System.

OWNERSHIP OF THE FEDERAL RESERVE BANKS

Another controversial question prior to the passage of the Federal Reserve Act was, "Who shall provide the capital for the Federal Reserve banks?" Some wanted government ownership. Others wanted the stock to be sold to the general public. And still others wanted all of it to be sold to member banks. The solution was a compromise. Each member bank is required to subscribe to the stock of its Federal Reserve bank in an amount equal to 6 percent of its own paid-up capital and surplus. It was provided, however, that stock would be offered to the public if insufficient capital was obtained from this source; and if subscriptions by the banks and the public were insufficient, stock would be sold to the federal government. In reality, no stock of the Federal Reserve banks has been sold to either the public or the government, and even the member banks have paid in only half of their subscriptions. Thus, the Federal Reserve banks are owned wholly by their member banks, each member bank having paid in to

its Federal Reserve bank an amount equal to 3 percent of its own paid-up capital and surplus.

It is important to note, however, that in this case ownership does not carry with it full control of the corporation and the enjoyment of all its earnings. (The distribution of control is discussed in the next section.) Annual dividends to stockholders of the Reserve banks are limited to 6 percent of the paid-in capital stock. The remainder of Reserve bank earnings has been used to build up the surplus accounts of the Reserve banks and to provide revenue for the Treasury. Prior to 1933 each Reserve bank was required by law to pay the Treasury a franchise tax equal to 90 percent of its net earnings after it had accumulated a surplus equal to its subscribed capital. By the end of 1932 the Reserve banks had accumulated surplus accounts amounting to $278 million and had paid $149 million in franchise taxes to the Treasury. The Banking Act of 1933 required the Reserve banks to pay half of their accumulated surplus, or $139 million, as a subscription to the capital stock of the Federal Deposit Insurance Corporation, and in return repealed the franchise tax in order to enable the Reserve banks to use all their earnings in excess of dividend requirements to replenish their surplus accounts. By the end of 1946 the Reserve banks had built their combined surplus accounts up to $439,823,000; therefore the Board of Governors in April, 1947, voluntarily put into operation a plan to channel into the Treasury most of the Reserve bank earnings in excess of their dividend requirements.[6] About 90 percent of these excess earnings will go to the Treasury through an interest charge on outstanding Federal Reserve notes.

CONTROL OF THE FEDERAL RESERVE SYSTEM

Closely related to the heated controversies over the structure of the Federal Reserve System were those concerning its control. The most widely debated questions were: (1) Who should control the Federal Reserve? (2) Should control be centralized or decentralized?

[6] *Federal Reserve Bulletin*, May, 1947, pp. 518–519. The authority for this action by the Board is found in Section 16, paragraph 4, of the Federal Reserve Act.

Three principal groups wanted a voice in control—the federal government, member banks, and businessmen who were customers of member banks. Some, arguing that central banking is essentially a governmental function and that one of its principal objectives is the regulation of member banks, demanded full government control. On the other hand, many bankers who looked upon the new Reserve banks as essentially coöperative institutions for member banks demanded that full control be placed in the hands of bankers, although small banks feared domination by their larger competitors. Others argued that businessmen as customers of banks should be given a voice. No less heated were the discussions concerning the degree of centralization of control. Some wanted almost complete centralization, whereas others demanded a large degree of regional autonomy.

Here, too, the issue was settled by compromise. All the competing groups were given representation, and control was divided between a central authority in Washington and the regional Federal Reserve banks. In the following sections we shall describe the present system of control. It should be remembered, however, that the original division of authority proved unsatisfactory in many respects and that it has been changed in several ways during the period since 1914. In general, the evolution has been toward greater centralization of authority and a greater degree of control by the federal government.

The Board of Governors of the Federal Reserve System

The central controlling authority, which has its offices in Washington, is the Board of Governors of the Federal Reserve System. This Board is composed of 7 members (each called a governor) appointed by the President of the United States with the advice and consent of the Senate. Each member devotes his full time to the Board, receives an annual salary of $16,000, is appointed for a term of 14 years, and is ineligible for reappointment if he has served a full term.[7] No more than one member of the Board may be selected from any one Federal

[7] Prior to 1935 this body was known as the Federal Reserve Board. Both the Comptroller of the Currency and the Secretary of the Treasury were ex-officio members of the old Board. The Board was reconstituted in 1935, its members being given higher salaries and longer terms in order to strengthen it and centralize control to a greater degree.

Reserve district, and in making appointments the President is to "have due regard to a fair representation of the financial, agricultural, industrial, and commercial interests, and geographical divisions of the country." The President designates one of the members as chairman of the Board and another as vice-chairman.

Though the actual location of control has in the past depended greatly on economic and political conditions and on the forcefulness of the various personalities involved, the Board of Governors is now clearly the most powerful controlling force in the entire Federal Reserve System. Among its most important powers are the following:

1. To exercise general supervision over the Federal Reserve banks, to examine their accounts and affairs, and to require reports from them.
2. To approve or disapprove appointments to the positions of president and first vice-president of each Federal Reserve bank and to suspend or remove any officer or director of any Federal Reserve bank.
3. To supervise the issue and retirement of Federal Reserve notes by each Federal Reserve bank.
4. To serve as a majority of the members of the Federal Open-Market Committee.
5. To permit one Reserve bank to lend to another, and by a vote of at least five members of the Board to require it to do so.
6. To suspend the reserve requirements applicable to the Reserve banks.
7. To determine, within the broad limits prescribed by law, the types of loans that the Reserve banks may make.
8. To approve or disapprove discount rates established by the Reserve banks.
9. To fix, within the limits established by law, member bank reserve requirements.
10. To regulate loans on securities.

Though this list is far from complete, it indicates the general scope of the Board's authority.

Federal Open-Market Committee

As we shall see later, one of the most powerful instruments of credit control in the hands of the Federal Reserve System is its power to buy and sell government securities, acceptances, and other obligations in the open market. The Reserve banks can create additional member bank reserves by purchasing obligations in the open market and can contract member bank reserves by selling securities. The original Federal Reserve Act was vague as to who should control this function, with the result that the individual Reserve banks sometimes followed conflicting policies and sharp controversies arose within the System. Attempts were made to solve the problem in the 1920's by creating an informal open-market committee made up of representatives of the Federal Reserve banks, but these efforts were only partially successful Some Reserve banks complained that they were not adequately represented, others ignored the decisions of the informal committee, and the Board in Washington felt that it should have more control of this function.

The Federal Open-Market Committee was created by amendments to the Federal Reserve Act to clarify the location of authority and to centralize the control of Federal Reserve open-market operations.[8] It is composed of 12 members; 7 of these (a majority) are members of the Board of Governors of the Federal Reserve System and 5 are representatives of the Reserve banks. The latter are elected annually. must be either presidents or vice-presidents of Reserve banks, and are elected by the boards of directors of the various Reserve banks, each board having one vote. The distribution of the five Reserve bank representatives is as follows:

One from the Federal Reserve Bank of New York.

One from the Federal Reserve Banks of Boston, Philadelphia, and Richmond.

One from the Federal Reserve Banks of Cleveland and Chicago.

One from the Federal Reserve Banks of Atlanta, Dallas, and St. Louis.

[8] The first Federal Open-Market Committee was established by amendment to the Federal Reserve Act in 1933. The Committee was reconstituted by further amendments in 1935, and minor changes have been made since that time.

One from the Federal Reserve Banks of Minneapolis, Kansas City, and San Francisco.

Because of its key position the New York Bank is always represented on the Committee.

The Federal Reserve Bank of New York occupies a unique position with respect to the Federal Reserve System, the Treasury, and the banking system of the country. Its resources total approximately 40 per cent of the aggregate of the twelve Federal Reserve Banks. It is located at the central money market and at the principal market for Government securities; its operations as fiscal agent of the United States and its transactions with foreign governments, foreign central banks and bankers, as well as its operations in foreign exchange, are in far greater volume than those of any other Federal Reserve Bank. It is clearly in the public interest that the Federal Open-Market Committee be given at all times the benefit of counsel of the Federal Reserve Bank which is in constant touch with the domestic and international money and capital markets and has had long experience in these fields.[9]

The Federal Open-Market Committee has full control of all open-market purchases and sales by the Reserve banks. No Reserve bank may engage or decline to engage in open-market operations except in accordance with the regulations adopted by the Committee.

Federal Advisory Council

The Federal Advisory Council is composed of 12 members, one being selected by the board of directors of each Reserve bank. The sole function of this Council is to act in an advisory capacity to the Board of Governors. The only source of its power is its eloquence and the prestige of its members, most of whom are prominent men.

Control of Individual Federal Reserve Banks

The control of each of the 12 Federal Reserve banks is divided among the member banks in the district, businessmen in the district, and the Board of Governors of the Federal Reserve System. Each Reserve bank has a board of directors with 9 members. Three of these are

[9] *Federal Reserve Bulletin*, August, 1942, pp. 740–741.

known as Class A directors, three as Class B directors, and three as Class C directors. The Class A directors represent the member banks of the district and are chosen by them. To prevent domination of the Reserve bank by any one banking group, the member banks of the district are divided into three groups based on size, and each group elects one Class A director. The Class B directors represent industry, commerce, and agriculture in the district and must be actively engaged in one of these pursuits at the time of their election. They may not be officers, directors, or employees of any bank. They are, however, elected by the member banks of the district in the same way as the Class A directors. All three of the Class C directors are appointed by the Board of Governors. One of these, who must be "a person of tested banking experience," is chairman of the board of directors and "Federal Reserve Agent" at the bank. As Federal Reserve Agent he acts as official representative of the Board of Governors in carrying out its legal functions. Another Class C director at each Reserve bank acts as deputy chairman of the board of directors.

The chief executive officer of each Reserve bank is its president, who is appointed by its board of directors with the approval of the Board of Governors. The first vice-president of each Reserve bank is appointed in the same way. Other Reserve bank officers and employees are appointed by the bank's board of directors, though they may, of course, be removed by the Board of Governors.

After a long period of doubt as to the proper location of authority in the Federal Reserve System, it is now clear that the Board of Governors occupies the dominant position. Some power still rests with the representatives chosen by member banks, but the Board of Governors has many sources of power. (1) Exclusive regulation of many Federal Reserve and commercial bank functions is in the hands of the Board. (2) Its members make up a majority of the members of the powerful Federal Open-Market Committee. (3) The Board appoints three members of the board of directors of each Reserve bank, one of its appointees at each bank being chairman of the board of directors and Federal Reserve Agent. (4) The Board may disapprove appointments of presidents and first vice-presidents of the Reserve banks and remove directors, officers, and employees.

SUMMARY OF THE STRUCTURE OF THE FEDERAL RESERVE SYSTEM

This, then, is the general structure of the Federal Reserve System at the present time:

Board of Governors	—Located in Washington, composed of 7 members appointed by the President.
Federal Open-Market Committee	—12 members, including the Board of Governors and 5 representatives of the Reserve banks.
12 Federal Reserve Banks	—Each separately incorporated, each located in an important city, each with a board of directors of 9 members, and each with its president and other officers.
24 Branches of the Federal Reserve Banks	—To facilitate the functioning of the Federal Reserve banks of their districts.
Member Banks	—Nearly 7000 banks (mostly commercial banks), of which about 5000 are national banks and nearly 2000 are state banks. These banks hold more than 85 percent of all commercial bank assets and by their magnitude can dominate commercial banking operations in this country. It is largely through its effects on member banks that the Federal Reserve can control the credit policies of nonmember commercial banks.

It would be rash indeed to assume that the evolutionary development of the Federal Reserve has now ended and that the System will continue unchanged for an indefinite period. There are still heated

controversies over both the structure and control of the System, and these tend to center around membership and control. Most Federal Reserve officials, and probably a majority of monetary economists, believe that all commercial banks should be required to become members of the Federal Reserve, or at least be required to hold reserves equal to those of comparable classes of member banks. They contend that monetary management is a responsibility of the federal government and that the freedom of state-chartered banks to abstain or withdraw from membership tends to weaken the Federal Reserve in performing the functions delegated to it by Congress. This is especially true when the Federal Reserve attempts to raise member bank reserve requirements considerably above those of nonmember banks, but it applies to some other Federal Reserve actions as well. Such actions tend to put member banks at a competitive disadvantage relative to nonmembers, to create discontent and threats of withdrawal among members, and to lessen the willingness of Federal Reserve officials to apply appropriate restrictive measures to members. For these reasons it has recently been proposed several times that, as a minimum, nonmembers should be required to hold reserves as high as those of member banks, and there is considerable support for legislation to require all commercial banks to join the Federal Reserve. .

To these proposals there is strong opposition, especially from bankers and state bank commissioners. These opponents bolster their position with several arguments. (1) The Federal Reserve already has adequate credit control powers since its members hold more than 85 percent of total commercial bank assets and deposits. Moreover, the presence of nonmembers is disadvantageous only when the Federal Reserve tries to increase reserve requirements of members to excessive levels, and this should not be done anyway. (2) Such an extension of federal power would violate states' rights, in this case the right of states to regulate the banks that they charter. (3) The ability of banks to abstain from Federal Reserve membership or to withdraw if already in the System is a desirable part of our governmental system of "checks and balances"; it acts as a check on the severity of Federal Reserve actions. (4) A requirement that all banks hold their reserves

in the form of deposits at the Federal Reserve would cause some of the bigger banks to lose at least part of their profitable interbank deposits. The opposition to both universal membership and the extension of federally determined reserve requirements to all commercial banks is by no means confined to the bankers whose institutions are now outside the System.

The location of control over Federal Reserve activities also continues to be a subject of intense controversy. Involved here are the relation of the Federal Reserve to the executive branch of the government and the distribution of control within the System. The Federal Reserve is based on the principle of "independent central banking." It is, of course, responsible to Congress; it was created by Congress and must make reports to Congress, and Congress can at any time change its basic legislation, give it directives, or even abolish it. It is not, however, responsible to the executive branch. This "independence" from the executive branch is based on several considerations: (1) The administration in power is likely to have an easy-money inflationary bias, partly because easy money and mild inflation tend to be popular and to increase the ability of the incumbent political party to remain in power, and partly because the Treasury is likely to insist on easy money and low interest rates to keep down interest charges on the national debt and to facilitate its refunding and new borrowing operations. (2) Control of the central bank is likely to inject "politics" into that bank's operations—patronage, discrimination on the basis of party affiliation, and so on. (3) Successful monetary management requires greater continuity among top officials than would be likely to result from responsibility to the President, whose term may not last more than four years. (4) The existing arrangement elicits from the commercial banks more confidence and coöperation than they would give to a "politically dominated" institution.

On the other hand, several arguments are advanced for terminating the "independence" of the Federal Reserve and for making it responsible to the executive branch. (1) Monetary policy, like other governmental policies, should be controlled by people responsible to the electorate. (2) The present arrangement makes difficult the appropriate coördination of monetary policy with the other economic poli-

cies of the government. It is intolerable that the Federal Reserve should follow policies in conflict with those determined by the elected representatives of the people. (3) Especially serious are the overlapping of powers and the conflict of interest between the Federal Reserve and the Treasury during inflation periods. At such times the debt management policies of the Treasury, when it emphasizes low interest rates, are in conflict with the Federal Reserve objective of curbing inflation. Some people would resolve this conflict between institutions, if not between objectives, by making the Federal Reserve responsible either to the Treasury or to the President. Others, however, would secure coördination by instructing the Treasury to adjust its debt management policies to the monetary policies of the Federal Reserve.

It is still too early to forecast the outcome of this controversy over the relationship between the Federal Reserve and the executive branch. Some method of achieving better coördination of monetary, debt management, and other economic policies is clearly needed. But it is to be hoped that the tradition of an "independent" central bank will not be discarded without full consideration of the resultant dangers.

Less intense but nevertheless important are the continuing controversies over the location of control within the Federal Reserve System. Some who believe that centralization has gone too far would transfer some power back to the Reserve banks, or at least from the Board to the Federal Open-Market Committee on which the Reserve banks are represented. Others would concentrate still more power in the Board.

FEDERAL RESERVE "CHORES"

Having examined the structure and control of the Federal Reserve System, we can now begin to study its functions. We shall look first at its service functions or "chores," leaving its credit control functions for later chapters. In performing these chores the Federal Reserve has improved the quality of banking and greatly increased the convenience derived by the public from banks.

Banking Supervision

The supervision and examination of banking in this country are not exclusively a Federal Reserve function, but are shared with several other authorities. The Comptroller of the Currency has jurisdiction over all national banks. State banking authorities have jurisdiction over state banks. And the Federal Deposit Insurance Corporation has jurisdiction over all banks with deposit insurance, which includes all members of the Federal Reserve System and most nonmembers. Though there are still many drawbacks to this system of overlapping jurisdiction, a considerable amount of coöperation among the regulatory authorities has been achieved. Each Reserve bank has its staff of bank examiners, and the member banks must make periodic reports as to their condition. In addition to requiring reports and examining member banks, the Federal Reserve exercises other important supervisory powers, among which are the powers to:

1. Fix maximum rates of interest that member banks may pay on time and savings deposits. The principal purpose of this limitation is to prevent banks from bidding these rates so high as to weaken their condition.[10]
2. Remove officers and directors of member banks for continued violation of banking laws or for continued unsafe or unsound banking practices.
3. Suspend a member bank's borrowing privileges in the Federal Reserve if it is found to be making undue use of bank credit for speculation in securities, real estate, or commodities.
4. Permit national banks, where appropriate, to exercise trust powers.
5. Permit holding companies, when it is not against the public interest, to vote the stocks of member banks controlled by them.
6. Permit member banks to establish branches in foreign countries.

Clearing and Collection of Checks

The Federal Reserve System has greatly enhanced the speed, convenience, and cheapness of clearing and collecting checks and other similar items. Before 1914 a check might spend two weeks or more in

[10] Banks are not allowed to pay interest on demand deposits.

the process of being cleared and collected, especially if it had to move long distances. The maximum time now required for actual clearance and collection is less than a week, and banks clearing checks through the Federal Reserve receive payment in three days or less, depending on the distance the check must travel. The whole process is completed with virtually no shipment of coin or currency.

To illustrate the high development of the clearance and collection system for checks and other similar instruments, let us look at the process in a few typical situations. The processes often vary in detail from those described below, but the principles involved are similar. Let us suppose that Smith deposits with the First Hartford Bank in Connecticut a check for $100 given him by Jones. If Jones' check is drawn on the First Hartford Bank, the process of clearance is simple; the bank simply adds $100 to Smith's deposit account and deducts $100 from Jones' account.

Suppose, however, that Jones has written the check on another bank in the same city—the Second Hartford Bank. After Smith has deposited the check with the First Hartford Bank, it may be cleared in either of two general ways. The two banks may informally exchange their claims against each other at the end of the day, the net debtor then paying the other bank with a check drawn on another bank—probably the Federal Reserve bank of the district. Final payment is thus made by transferring a deposit credit at the Federal Reserve from the account of the Second Hartford Bank to that of the First Hartford Bank. Or the banks may clear and collect checks through a local clearing house. Each bank in the area takes to the clearing house at an appointed time each day all the checks and other matured claims that it has against the other members of the clearing house. There the clearing house officials compare the total amounts of checks presented by one bank against all other banks with the total amount of checks presented by all other banks against it, and then pay it the net amount due it or collect the net amount owed by it. These net payments are usually made with checks, often with checks drawn on the Reserve bank of the district. Actual coin or currency is almost never used to pay net differences at a clearing house.

If the check Jones gives to Smith is drawn on a bank located in

another city in the same Federal Reserve district, say in Springfield, Massachusetts, the clearance and collection procedure is somewhat as follows. Smith deposits the check with the First Hartford Bank, which credits his account and sends the check, along with others, to the Federal Reserve Bank of Boston for clearance and collection. The Boston bank then sends the check to Springfield, and the Springfield bank deducts the amount of the check from Jones' deposit account. After the lapse of sufficient time for notification if the check is not good, the Boston bank then deducts the amount of the check from the Springfield bank's reserve account with it and adds the same amount to the Hartford bank's reserve account. Payment of the check has been achieved quickly and with no shipment of coin or currency.

The procedure is only slightly more complicated if Jones' check is drawn on a bank in another Federal Reserve district, say on the Los Angeles Commercial Bank. Smith deposits the check with the Hartford bank, which credits his deposit account and sends the check, along with others, to the Federal Reserve Bank of Boston. The latter then sends the check, along with others, via air mail to the Federal Reserve Bank of San Francisco, which then sends it to the Los Angeles Commercial Bank. If the San Francisco bank is not notified within an appointed time that the check is not good it deducts the amount of the check from the Los Angeles bank's reserve account with it. And at or about the same time the Boston bank adds the amount of the check to the Hartford bank's reserve account. At this point Smith has been paid, Jones has paid, Smith's bank has been paid, and Jones' bank has paid. But the San Francisco bank still owes the Boston bank the amount of the check if it has not been offset by counterclaims. How is a net balance paid between Reserve banks? This is accomplished without any shipment of coin or currency by the simple expedient of book entries in the Interdistrict Settlement Fund, which is maintained by the Board of Governors in Washington. Each Reserve bank establishes a credit in the Interdistrict Settlement Fund. Any net balance due a Federal Reserve bank at the end of a day is added to its account in the Fund, and any net claim of other Reserve banks against it is deducted from its account.

It is by arrangements of this type that payments can be made to all

points within the country quickly and without the inconvenience and expense of coin or currency shipments. Federal Reserve facilities for clearing and collection are available without charge to all member banks and to all nonmembers who will remit the par value of checks drawn on them. The Federal Reserve will not, however, clear and collect checks drawn on nonmembers who refuse to pay the full face amounts of checks drawn on them. The "nonpar banks" are still an inconvenience in the banking system.

Wire Transfer of Funds

In addition to providing a rapid and efficient system for clearing and collecting checks and other similar paper, the Federal Reserve System operates highly useful facilities for the telegraphic transfer of funds. The government and bank customers as well as the banks themselves can transfer funds of any amount from one end of the country to the other almost instantaneously. Suppose, for example, that Jones in Los Angeles wishes to transfer by wire $1 million to Smith in Hartford. Jones gives his bank a check for that amount, and his bank telegraphs the Federal Reserve Bank of San Francisco, asking it to transfer the funds. The San Francisco bank deducts the amount from the reserve account of the Los Angeles bank and telegraphs the Federal Reserve Bank of Boston, telling it to transfer the funds to Smith at the First Hartford Bank. The Boston bank adds the amount of the check to the Hartford bank's reserve account and wires the Hartford bank to credit Smith's account. The whole process is completed within a very short time. The Federal Reserve Bank of San Francisco settles with the Boston bank through a transfer on the books of the Interdistrict Settlement Fund.

Fiscal Agency Functions

The Reserve banks do an enormous amount of work as fiscal agents of the federal government and of its various offices and corporations. They hold the principal checking accounts of the Treasury Department, assist in the collection of taxes, cash government checks, transfer great sums of money from one part of the country to another for government account, receive applications for the purchase of federal

securities, redeem federal securities as they fall due, pay interest coupons, and perform a host of other useful functions for the government. Government funds are now far safer and government fiscal operations are carried out much more efficiently and with far less disturbance to general financial and monetary conditions than at any time before 1914. And all these functions are carried on in addition to the Federal Reserve's activities in maintaining credit conditions that are favorable to borrowing by the Treasury.

SELECTED READINGS

Bach, G. L., *Federal Reserve Policy-Making*, Knopf, New York, 1950.

Beckhart, B. H., *The Discount Policy of the Federal Reserve System*, Henry Holt, New York, 1924.

Board of Governors of the Federal Reserve System:

The Federal Reserve System, Its Purposes and Functions, Washington, 1939.

Banking Studies, Washington, 1941.

Banking and Monetary Statistics, Washington, 1943.

Federal Reserve Bulletins (monthly).

Annual Reports.

Burgess, W. R., *The Reserve Banks and the Money Market*, Harper, New York, 1946.

Glass, Carter, *Adventure in Constructive Finance*, Doubleday Doran, New York, 1927.

Goldenweiser, E. A., *American Monetary Policy*, McGraw-Hill, New York, 1951.

Harding, W. P. G., *The Formative Period of the Federal Reserve System*, Houghton Mifflin, Boston, 1925.

Hardy, C. O., *Credit Policies of the Federal Reserve System*, Brookings Institution, Washington, 1932.

Harris, S., *Twenty Years of Federal Reserve Policies*, Harvard University Press, Cambridge, 1933.

Kemmerer, E. W., *The A B C of the Federal Reserve System*, Princeton University Press, Princeton, 11th ed., 1938.

Reed, H., *Federal Reserve Policies, 1921–1930*, McGraw-Hill, New York, 1930.

U.S. Congress, Joint Committee on the Economic Report:

Subcommittee on Monetary, Credit, and Fiscal Policies,

Statements on Monetary, Credit, and Fiscal Policies, 1949.

Hearings on Monetary, Credit, and Fiscal Policies, 1949.

Report on Monetary, Credit, and Fiscal Policies, 1950.

Subcommittee on General Credit Control and Debt Management,
Replies to Questions and Other Materials, 1952.
Hearings, 1952.
Report, 1952.
(All published by the Government Printing Office, Washington, D.C.)
Warburg, P., *Federal Reserve System*, Macmillan, New York, 1930.
Willis, H. P., *The Federal Reserve System*, Ronald, New York, 1923.
Willis, H. P., and Steiner, W. H., *Federal Reserve Banking Practice*, Appleton-Century, New York, 1926.

CHAPTER 14

The Federal Reserve and Monetary Management

Though its service functions or "chores" are very useful, by far the most important function of the Federal Reserve is monetary management—that is, regulation of the quantity of money, of the supply and availability of loan funds for business, consumer, and government spending, and of the behavior of interest rates. Federal Reserve powers in these areas are inescapably great, and through them the System can exert an important influence on the behavior of real output, employment, and price levels. If these powers are used in an appropriate manner the Federal Reserve can act as a powerful stabilizing factor, but if they are used in other ways the System can be a potent destabilizing influence.

The monetary or credit management activities of the Federal Reserve are of two broad types: (1) general monetary or credit controls, and (2) selective credit controls. The immediate objective of the general controls is to regulate the total supply of money and credit, the general availability of loan funds, and the general level of interest rates. Their purpose is not to determine the allocation of the available supply of credit among the various types of borrowers or among its various possible uses. This allocative function is left to the private market. Though the selective credit controls may affect the total supply of money and credit, their immediate purpose is to regulate the

amount of credit used for specified or selective purposes, such as credit extended to purchase consumption goods, to purchase and carry securities listed on the national exchanges, or to purchase new residential construction. To the extent that the Federal Reserve employs such selective controls it does interfere with the allocative functions of the private credit market. Further discussion of these selective controls will be postponed to a later chapter; the remainder of this chapter will discuss the general monetary and credit controls.

GENERAL CREDIT CONTROLS

In carrying out its general monetary and credit management functions—its control over the total supply of money and credit and the general level of interest rates—the Federal Reserve relies largely on two types of powers. (1) One is its power to alter the height of member bank reserve requirements. As we have already seen, the Federal Reserve Act not only provides that all the legal reserves of member banks must be in the form of deposits in the Reserve banks, but it also gives the Board of Governors power to alter, within limits, the percentages of reserves required against deposits in member banks. By raising the percentage reserve requirements for member banks the Board can inhibit the creation of money by the banking system and exert an anti-expansionary or even a contractionary influence. And by lowering these requirements the Board can permit and even encourage an expansion of money and credit. (2) The other type of power is its power to create and destroy bank reserves, and to alter the terms on which reserves are made available to the commercial banking system. The Federal Reserve can create additional bank reserves by increasing its loans and security holdings. And it can destroy bank reserves by decreasing its loans and security holdings. Prior to the mid-1930's, when the Federal Reserve was first given the power to alter member bank reserve requirements, the System carried on its general monetary management function almost exclusively through its ability to regulate the dollar volume and cost of commercial bank reserves, and even now regulation of the volume and cost of bank reserves is a major method of general monetary management. It is for

this reason that we shall analyze fully the various Federal Reserve and Treasury powers over the volume of bank reserves.

It is important to note that the volume of Federal Reserve loans and security holdings is by no means the only factor determining the size of member bank reserve balances. There are several other important determinants, and some of these are not subject to direct control by the Federal Reserve. In order to place Federal Reserve policy in its proper perspective we shall first examine all the factors affecting the dollar volume of member bank reserves, see which of them are subject to Federal Reserve control and which are not, and then see what the System can do to regulate the behavior of member bank reserves. In doing so it will be necessary to repeat and amplify some of the material presented in Chapters 4 and 10.

DETERMINANTS OF MEMBER BANK RESERVES

In analyzing this problem, we are fortunate in having an excellent and easily available statistical series showing the size of member bank reserves and the various factors affecting their volume. These statistics, which are issued weekly by the Board of Governors, show the size of member bank reserve balances as of the close of business on the preceding Wednesday and analyze the factors that tend to increase or decrease them. This information is also carried in the major Thursday afternoon and Friday morning newspapers, in many financial publications, in the monthly *Federal Reserve Bulletin*, and in several other periodicals. In addition to the weekly figures, the *Federal Reserve Bulletin* also carries end-of-month and monthly and annual averages of member bank reserves and related items.

Table 29 presents the statement for October 31, 1951, in the form of a balance.[1] The column on the left, labeled Sources, includes all the sources of funds capable of being used as member bank reserves. If there were no competing uses for these funds, member bank reserves at any time would be equal to the sum of total Reserve bank

[1] For back figures and an excellent description of this series and of the method of deriving it, see Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, pp. 360 ff., or *Federal Reserve Bulletin*, July, 1935.

credit plus our monetary gold stock plus Treasury currency outstanding. There are, however, competing uses for these funds, as shown by the column on the right, headed Uses. Some of the funds supplied by total Reserve bank credit, the monetary gold stock, and outstanding Treasury currency are used to supply coin and paper money for circulation, some are used as Treasury cash holdings, some to provide

TABLE 29. Member Bank Reserves and Related Items, October 31, 1951
(In millions of dollars)

Sources			Uses	
Discounts and advances	$ 186		Money in circulation	$28,410
U.S. government securities	23,552		Treasury cash holdings	1,288
Other Federal Reserve credit	690		Treasury deposits with Reserve banks	494
			Nonmember deposits at the Federal Reserve and other Federal Reserve accounts	1,598
Total Federal Reserve credit		$24,427	Member bank reserve balances	19,557
Monetary gold stock		22,234		
Treasury currency		4,686		
Total		$51,347	Total	$51,347

Treasury deposits at the Reserve banks, and some to supply nonmember deposits at the Reserve banks and other Federal Reserve accounts. It should be clear that member bank reserve balances at any time are equal to the total volume of funds supplied by the sources in the left column minus the amounts of these funds absorbed by other uses, shown in the column on the right. This can be put in the form of an equation:

Member bank reserve balances at any time = (SOURCES: Total Reserve bank credit outstanding + Monetary gold stock + Treasury currency) − (COMPETING USES: Money in circulation + Treasury cash holdings + Treasury deposits at the Reserve banks + Nonmember deposits and other Federal Reserve accounts)

For example, Table 29 shows that on October 31, 1951, member bank reserve balances were $19,557 million; they were equal to the

$51,347 million supplied on that date by total Federal Reserve credit, the monetary gold stock, and Treasury currency, minus the $31,790 million absorbed by competing uses.

The above discussion related to the factors determining the size of member bank reserves *as of a given date*. Changes in these factors over any given period of time determine the change in the volume of member bank reserves during the same period. Increases in total Federal Reserve credit, in the monetary gold stock, and in Treasury currency tend to increase member bank reserves, and decreases in these "source" factors tend to decrease bank reserves. On the other hand, increases in the amounts of funds absorbed by competing uses tend to reduce bank reserves, and decreases in the amounts of funds employed in competing uses tend to increase bank reserves. This is shown in Table 30, which compares member bank reserves and related items on October 31, 1951 with the situation a year earlier.

The table shows that during the year preceding October 31, 1951, member bank reserves tended to be increased by increases in Federal Reserve credit and Treasury currency and by decreases in Treasury cash holdings and nonmember deposits at the Federal Reserve and other Federal Reserve accounts. On the other hand, member bank reserves tended to be reduced by the decline in the monetary gold stock and by increases in money in circulation and in Treasury deposits at the Federal Reserve. Member bank reserves were permitted to rise $2909 million because the factors making for an increase were that much greater than those making for a decrease.

Anyone who wishes to understand the operation of our monetary and banking system must become thoroughly familiar with the relationship discussed in the preceding sections of this chapter. The best way to do this is to consult *Federal Reserve Bulletins* or other publications giving statistics of the types presented in Tables 29 and 30 and to analyze the various factors that determine the behavior of bank reserves.

The following sections will analyze more fully the various factors affecting the volume of bank reserves and will examine the methods that may be used by the Federal Reserve and the Treasury to control them. In each case, it will be assumed that changes in a factor are

TABLE 30. Member Bank Reserves and Related Items, October 25, 1950, and October 31, 1951
(In millions of dollars)

	October 25, 1950	October 31, 1951	Changes Tending to Increase Member Bank Reserves	Changes Tending to Decrease Member Bank Reserves
Discounts and advances	$ 50	$ 186		
U.S. government securities	19,229	23,552		
Other Federal Reserve credit	473	690		
Total Federal Reserve credit	19,753	24,427	+4,674	
Monetary gold stock	23,290	22,234		−1,056
Treasury currency	4,618	4,686	+68	
Money in circulation	27,121	28,410		+1,289
Treasury cash holdings	1,300	1,288	−12	
Treasury deposits at the Federal Reserve	420	494		+74
Nonmember deposits at Federal Reserve and other Federal Reserve accounts	2,172	1,598	−574	
Member bank reserve balances	16,649	19,557	—	—
Total changes tending to increase member bank reserves			5,328	
Total changes tending to decrease member bank reserves				2,419
Net increase in member bank reserves			2,909	

directly reflected in member bank reserve accounts. It is convenient to begin with the monetary gold stock.

Monetary Gold Stock

Since the effective date of the Gold Reserve Act of 1934, all the monetary gold in this country has been held by the Treasury. Our monetary gold stock at any time is therefore equal to the value of the Treasury's gold holdings. The monetary gold stock is one of the major sources of funds for use as member bank reserves and for other competing purposes. This is true even though the gold itself is buried at Fort Knox, for the Treasury ordinarily issues gold certificates equal

to the value of its gold holdings, including that in the Fort Knox vaults, and these certificates are held by the Reserve banks.[2] That this is true can be shown by tracing a transaction in which the National City Bank imports $100 million of gold from France. Upon receipt of the gold the National City will send it, as required by law, to the Reserve bank, which will add $100 million to the National City's reserve account. The Reserve bank will then send the gold to the Treasury, which in return will give it $100 million in gold certificates. The Treasury may then store the gold at Fort Knox. But though the gold is buried at Fort Knox the effect of its entry into the monetary

TABLE 31. Monetary Gold Stock of the United States on Selected Dates
(In millions of dollars)

Date	Monetary Gold Stock	Change from Preceding Date
August, 1917	$ 2,896	
November, 1924	4,230	$+1,334
August, 1928	3,831	−399
September, 1931	4,688	+857
January, 1934	4,036	−652
November, 1941	22,786	+18,750
December, 1945	20,065	−2,721
October, 1949	24,584	+4,519
May, 1951	21,755	−2,829

system has been to increase member bank reserves by $100 million and to increase by the same amount Reserve bank reserves in the form of gold certificates. Conversely, a reduction in our monetary gold stock tends to reduce member bank and Reserve bank reserves by a corresponding amount. Suppose, for example, that the Chase National Bank exports $100 million of gold. Not possessing the gold itself, it will have to secure the metal through the Reserve banks and will give a check on its reserve account in payment, thereby reducing its reserves. And the Reserve banks will surrender $100 million of gold certificates to the Treasury in payment for the metal. Thus the effect of the withdrawal of monetary gold is to reduce member bank reserves and Reserve bank reserves by equal amounts.

Fluctuations in our monetary gold stock have been a major factor in determining the size of member bank reserves, though many of

[2] We shall deal later with the case in which the Treasury "sterilizes" gold.

these changes have been offset by Federal Reserve action. Some of the major changes in our gold stock are shown in Table 31, but many changes are omitted. The increases and decreases before 1934 reflect changes in the physical amount of gold held in our monetary system, for the price of gold remained constant in that period. But the great increase following January, 1934, was a resultant of (1) the great increase in the physical quantity of gold in our monetary system, and (2) the rise in the price of gold from $20.67 to $35 an ounce.[3]

It should be noted that the Federal Reserve has no direct control over the behavior of the monetary gold stock. It must buy at a fixed price of $35 an ounce all the gold that is offered to it, and it must passively sell gold for all purposes permitted by law and by Treasury regulations. Such controls as it has are indirect and operate through credit policy and its effects on the balance of international payments.

Treasury Currency Outstanding

A second source of funds usable for member bank reserves, money in circulation, and other competing purposes is outstanding Treasury currency. This represents the types of money for which the Treasury is primarily responsible—silver dollars and silver certificates, other coin, United States notes (greenbacks), Federal Reserve bank notes, and national bank notes. We must avoid the common mistake of believing that an increase in the amounts of these types of money outstanding leads to a corresponding increase in the total amount of coin and currency in circulation. Such an increase usually has the effect of increasing member bank reserves. Suppose, for example, that the Treasury issues an additional $100 million of money in the form of greenbacks, silver certificates, or coin. It usually issues the money by depositing it with the Reserve banks and taking in payment a deposit account. Then when it writes checks on this Reserve bank deposit the funds are transferred to member bank reserve accounts. The Reserve banks may, and usually do, pay the new currency into circulation and retire an equal amount of Federal Reserve notes, but the total amount of coin and currency in circulation would not be di-

[3] See pp. 166–170.

rectly affected by the new Treasury issue; the effect would be to raise bank reserves. Even if the Treasury initially paid the new currency into circulation, the effect would be, in the absence of an increased demand for coin and currency for circulation, that the extra currency would flow back to banks and be sent to the Reserve banks to be added to reserve balances. Whenever it is proposed that outstanding Treasury currency be increased, we should remember that the effect will be to add to commercial bank reserves and to permit, though not necessitate, a multiple expansion of checking deposits. Conversely, a decrease in Treasury currency outstanding tends to decrease the volume of funds available for use as member bank reserves or for competing purposes.

Table 32 compares the amount of Treasury currency outstanding at the end of September, 1951, with the amount at the end of 1932

TABLE 32. Treasury Currency Outstanding
(In millions of dollars)

Types	December 31, 1932	September 30, 1951	Change
Silver dollars and silver certificates	$ 540	$2836	$+2296
Other silver and minor coin	435	1453	+1018
U.S. notes (greenbacks)	347	347	0
Federal Reserve bank notes	3	240	+237
National bank notes	711	81	−630
Total	$2036	$4957	$+2921

before the New Deal monetary legislation. The $2921 million increase reflects largely the increase in silver dollars, silver certificates, and minor coin. The Treasury never used its power to issue additional greenbacks, and this power was repealed in 1945. The Federal Reserve has no power over the volume of Treasury currency, and the Treasury's discretionary power is limited. It must buy all newly mined silver at the price of 90.5 cents an ounce fixed by Congress, though it has discretion as to the use of the seigniorage profit. The prospect is that Treasury currency will continue to grow slowly as a result of silver purchases and the issue of subsidiary and minor coins, but this may be partially offset by the continued retirement of Federal Reserve and national bank notes.

Federal Reserve Credit

A third but by no means least important source of funds for bank reserves and other competing uses is Federal Reserve credit—that is, Federal Reserve assets in the form of loans, securities, and certain other types of debt claims against others. The Reserve banks operate on principles that are in many respects similar to those of commercial banks. We have seen that commercial banks create money by acquiring assets, largely in the form of loans and securities. Moreover, they increase and decrease the money supply by increasing and decreasing their holdings of the debt obligations of others. The Reserve banks too are dealers in debts. They too issue their promises to pay on demand, taking in exchange the debts of others. And they too increase and decrease the volume of their outstanding debts payable on demand by increasing and decreasing their holdings of the debts of others. But there is at least one great difference: The Reserve banks create and destroy "high-powered money"—money capable of being used as member bank reserves, each dollar of which can support several dollars of deposits in commercial banks.

The various types of debt obligations purchased and sold by the Reserve banks may be classified as follows: (1) discounts and advances, which are merely Federal Reserve loans to banks; (2) U.S. government obligations; and (3) other Federal Reserve credit. This last category, in turn, includes (a) holdings of acceptances, or "bills bought," (b) industrial advances, and (c) Federal Reserve "float." By increasing and decreasing its holdings of these various types of debt obligations, the Federal Reserve tends to increase and decrease the supply of bank reserves.

When the Federal Reserve was first established, it was expected to regulate the volume of bank reserves primarily by discounts and advances—its loans directly to commercial banks. By increasing these loans it tends to increase the volume of bank reserves. For example, suppose that the Reserve banks increase their loans to banks by $200 million. In this case Federal Reserve assets in the form of loans are increased by $200 million and the commercial banks receive an equal addition to their reserve balances at the Federal Reserve. On the

other hand, when the Reserve banks decrease the volume of their loans to banks, they collect by subtracting an equal amount from the banks' reserve balances.

However, with the passage of time, Federal Reserve purchases and sales of U.S. government securities became increasingly important; for more than twenty years these "open-market operations" in federal securities have been a major instrument of policy. In general, the Federal Reserve creates bank reserves by increasing its holdings of government securities, and it reduces bank reserves by reducing its holdings of governments. It will be useful to divide these open-market operations into two classes: (1) purchases from and sales to commercial banks, and (2) purchases from and sales to others than banks.

Purchases and sales between the Federal Reserve and commercial banks directly affect the volume of bank reserves without any *direct* effect on the public's money supply. For example, when the Federal Reserve purchases securities from banks, the effect is to decrease the commercial banks' holdings of these securities and to increase their reserve balances; deposits at commercial banks are not directly affected. And when the Federal Reserve sells securities to commercial banks, the effect is to increase their holdings of these securities and to decrease their reserve balances. Here again, there is no direct effect on deposits in commercial banks. Indirectly, however, the change in commercial bank reserves may have an important effect on commercial bank loans, securities, and deposit liabilities.

Purchases and sales between the Federal Reserve and nonbank investors directly affect both bank reserves and the money supply in the hands of the public. For example, suppose that the Federal Reserve buys $100 million of governments from a customer of some bank and pays for them with a check on a Reserve bank. The seller will deposit the check in his bank and get a deposit credit, and his bank will send the check to the Federal Reserve which will credit the bank's reserve balance. A Federal Reserve sale of securities to a nonbank buyer has just the reverse effect; it directly reduces both bank reserves and deposits at commercial banks. Suppose, for example, that the Federal Reserve sells $50 million of securities to a customer of a bank, who pays for them with a check on his bank. On receiving the check, the

Federal Reserve will deduct the amount of it from the bank's reserve balance, and then send the check to the bank on which it is drawn, which will deduct it from the customer's deposit account.

We shall later analyze these open-market operations in detail. At this point it is enough to point out that the Federal Reserve creates and destroys "high-powered" money by purchasing and selling government obligations, and that these open-market operations are now a major instrument of Federal Reserve policy.

It will be useful to look briefly at "other Federal Reserve credit" and its components. The item "acceptances held" or "bills bought" refers to Federal Reserve holdings of acceptances, mostly banker's acceptances, purchased in the open market. In the early days of the Federal Reserve, operations in these obligations were important in Federal Reserve policy. For more than two decades, however, Reserve bank operations in acceptances have been very small, and policies on buying and selling acceptances have been an unimportant method of monetary management. It is therefore sufficient to say that open-market operations in these obligations have effects comparable to those of open-market operations in the government security market.

"Industrial advances" are another component of other Federal Reserve credit. These are Federal Reserve loans to borrowers other than banks. Prior to the great depression the Federal Reserve never made such loans; it was considered inappropriate for the Reserve banks to compete with member banks. Now, however, the Federal Reserve may make such loans under unusual and exigent circumstances when the borrower can show that he is unable to get credit from normal sources at reasonable cost. Its loans of this type have never been large, but by increasing and decreasing them the Federal Reserve can increase and decrease both the volume of commercial bank reserves and deposits at commercial banks.

The remaining item is "Federal Reserve float." This arises out of the check clearing and collection process when the Reserve banks credit the accounts of depositing banks before deducting from the accounts of banks that are to make payment. Suppose, for example, that Bank A deposits $100,000 in checks with the Reserve banks and that this amount is credited to the bank's reserve account two days

before it is deducted from the reserve accounts of the banks on which the checks are drawn. During this two-day period the Reserve banks will have increased total member bank reserves by $100,000. This "float" item is not large, however, and ordinarily does not fluctuate very much, so we need not discuss it further.

Table 33 shows the types and volume of Federal Reserve credit outstanding on various selected dates. From this table and the pre-

TABLE 33. Outstanding Federal Reserve Credit on Selected Dates

	Monthly Averages in Millions of Dollars				
Date	Total Federal Reserve Credit	Discounts and Advances	Bills Bought	U.S. Government Securities	Other Federal Reserve Credit
August, 1917	$ 455	$ 134	$159	$ 74	$ 88
October, 1920	3,522	2,780	303	305	134
July, 1924	879	315	44	467	53
September, 1929	1,427	969	229	165	64
November, 1932	2,211	313	34	1,851	13
October, 1939	2,832	6	0	2,763	63
February, 1946	23,934	367	—	23,150	417
May, 1950	18,005	116	—	17,486	403
November, 1951	24,785	343	—	23,364	1078
February, 1952	23,826	365	—	22,552	909

ceding discussion several important points stand out. (1) Total Federal Reserve credit at any time represents the Federal Reserve's contribution to the supply of funds available for member bank reserves and competing uses. This is the amount of "money" issued by the Federal Reserve in payment for assets in the form of debt claims against others. (2) The volume of Federal Reserve credit outstanding has fluctuated widely. By increasing its credit, the Federal Reserve has issued additional funds for member bank reserves and competing uses. By decreasing its outstanding credit the Federal Reserve has withdrawn funds from member bank reserves and competing uses. (3) The composition of Federal Reserve credit has undergone marked changes since the establishment of the System. In the early years, most Federal Reserve credit was in the form of loans to member banks and acceptances (bills) purchased in the open market. During the last two decades Federal Reserve purchases and sales of accept-

ances have been negligible, and only a small part of Reserve bank credit has been in the form of loans to banks. By far the largest part has been in the form of U.S. government securities. Open-market purchases and sales of these securities are now the principal method used by the Federal Reserve to regulate the volume of commercial bank reserves and the cost of these reserves to the banking system. Later sections will discuss the methods used by the Federal Reserve to regulate the volume and cost of its credit.

We have now discussed the three sources of funds for member bank reserves and competing uses—the monetary gold stock, Treasury currency, and Federal Reserve credit. We now analyze the competing uses of these funds—money in circulation, Treasury cash holdings, Treasury deposits at the Federal Reserve, and nonmember deposits in the Federal Reserve and other Federal Reserve accounts. It will be remembered that increases in these competing uses tend to reduce member bank reserves, and that decreases tend to add to member bank reserves.

Money in Circulation

Money in circulation includes all coin and currency outside the Reserve banks and the Treasury, that is, the amounts held by commercial banks and the public in general. Commercial bank holdings are small, however, and do not fluctuate very much; so most of this coin and currency is outside the commercial banking system and its amount reflects the demands of the public for money in these forms. Neither the Federal Reserve nor the Treasury has any direct control over the quantity of coin and currency in circulation; each person is free to determine for himself the extent to which he will hold coin and currency and the extent to which he will exchange this type of money for bank deposits. The monetary authorities can influence the quantity of coin and currency demanded by the public only indirectly through their general effects on the volume of business activity, the value of retail trade, the size of pay rolls, and the general confidence in the safety of banks.

The use of funds to supply "money in circulation" prevents the use of the same funds for member bank reserves; these two uses are com-

petitive. An increase in the money in circulation tends to reduce bank reserves, for the banks secure the coin or currency for their customers by drawing on their reserve balances at the Reserve banks. On the other hand, a decrease in the coin and currency in circulation tends to increase member bank reserves, for the excess money is shipped to the Reserve banks to be credited to member bank reserve accounts.

It is also important to remember that an increase in the public's desire to hold money in the form of coin or currency rather than checking deposits can exert a strong deflationary pressure on the total money supply. A dollar of coin or currency held by the public supports only one dollar of money, whereas a dollar reduction in bank reserves may force a multiple contraction of deposits. The truth of this statement was demonstrated in the period from late 1930 to March, 1933, when the surge of bank failures was accompanied by a growing distrust of banks. In the early part of 1930 before confidence in banks waned, the amount of coin and currency held by the public averaged about $4300 million. By February, 1933, however, another $2 billion in coin and currency had been withdrawn from the banks, thereby draining bank reserves and accentuating the deflationary trend. On the other hand, a reduction in the coin and currency in circulation tends to increase bank reserves and to liberalize credit.

We noted in an earlier chapter that the amount of coin and currency in circulation undergoes fairly wide seasonal fluctuations and that under the pre-1914 National Banking System these increases and decreases tended to decrease and increase bank reserves and to disturb credit conditions. These seasonal fluctuations of money in circulation no longer exert a marked effect on credit conditions, because the Reserve banks often vary the amount of their credit in such a way as to offset these changes wholly or partially. For example, the Reserve banks can purchase acceptances or government securities and completely offset a seasonal rise in the money in circulation. It must not be inferred, however, that all changes in the quantity of coin and currency in circulation are offset by changes in the volume of Reserve bank credit.

This is the appropriate place to discuss Federal Reserve notes. As

indicated earlier, one of the major criticisms of our monetary system before 1914 was the inflexibility or inelasticity of the supply of paper money. No one in the entire economy was empowered to create and issue additional money of this type to meet increased demands for it accompanying crises, seasonal peaks of business, or other developments that created a need for more coin or paper money. Nor was anyone authorized to retire money of this type when the public's demand for it declined. To provide a more elastic currency was one of the principal reasons for establishing the Federal Reserve System. Federal Reserve notes, the paper money authorized to meet this need, make up by far the largest part of the paper money we use today.[4] In late 1951 total paper money outstanding amounted to about $27 billion, of which more than $24 billion was in the form of Federal Reserve notes. These circulating debts, which have full legal-tender powers, are issued by the individual Reserve banks under the supervision of the Board of Governors. In issuing these notes the Reserve banks must meet both legal reserve and collateral requirements. They must hold a gold certificate reserve equal to at least 25 percent of the amount of Federal Reserve notes outstanding.[5] They must also deposit collateral equal to 100 percent of the outstanding notes, though the gold certificate reserve may also be counted as collateral. The remaining collateral, equal to 75 percent of the outstanding notes, may be in the form of either gold certificates or various kinds of promissory notes, bills of exchange, acceptances, or United States government securities. Before 1932, when the types of paper eligible to serve as collateral were much more restricted, there were times when the Reserve banks' ability to issue Federal Reserve notes was restricted by the 100 percent collateral requirement. But now that the Reserve banks may count as collateral almost all the types of paper

[4] For some years the Federal Reserve was also empowered to issue Federal Reserve bank notes, which were "backed" by U.S. government securities. We shall not discuss these further, both because they were never issued in large amounts and because the Federal Reserve has discontinued their issuance. For a short account of this type of money, see Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, p. 328.

[5] Prior to 1945 the legal reserve requirement against Federal Reserve notes was 40 percent.

they ordinarily purchase, this requirement is no limitation on note issues; in the process of making loans or purchasing securities the Reserve banks acquire paper for use as collateral against new note issues. However, the requirement of a 25 percent gold certificate reserve can act as a limiting factor.

The quantity of Federal Reserve notes outstanding, as well as other types of coin and paper money, is determined largely by the public. When the public wishes more coin and paper money, the commercial banks get them from the Federal Reserve by drawing on their reserve accounts. And when the public returns money from circulation the banks return it to the Federal Reserve in exchange for additions to their reserve accounts.

Treasury Cash Holdings and Treasury Deposits at the Reserve Banks

Because they are so closely related and because their fluctuations have the same effects on the general credit and monetary situation, we shall consider Treasury cash holdings and Treasury deposits at Reserve banks together. Both these uses of funds are competitive with member bank reserves; increases in both tend to reduce these reserves, and decreases in both tend to increase them. Through this power to increase and decrease its holdings of cash and deposits at the Reserve banks the Treasury can exert marked influence on the size of member bank reserves.

The Treasury can determine the quantity of funds in its possession and the form in which it will hold those funds. It may hold them in any one of three general forms: (1) as cash in its own vaults, (2) as deposits at the Reserve banks, and (3) as deposits with commercial banks. By adding to its holdings of cash in its own vaults or of deposits at the Reserve banks, the Treasury tends to drain funds from member bank reserves, for it adds to its holdings by depositing with the Reserve banks checks drawn on member banks. These are then deducted from member bank reserves. On the other hand, it can transfer funds to member bank reserves by depositing with member banks or by giving to customers of these banks checks drawn on its

deposits at the Reserve banks. We shall later see how the Treasury itself may engage in monetary management by regulating the size and location of its cash and deposit holdings.

Nonmember Deposits at Reserve Banks and Other Federal Accounts

This item also represents a competitive use of funds supplied by total Reserve Bank credit, the monetary gold stock, and the Treasury currency outstanding. Increases in it tend to reduce member bank reserves, and decreases in it to release funds to be added to member bank reserves. This item is not large and fluctuates only little, so it is not an important cause of fluctuations in member bank reserves and need not concern us further.

Summary of Factors Affecting the Volume of Member Bank Reserves

We have now examined all the factors that directly determine the volume of member bank reserves. The volume of these reserves at any time is equal to the sum of the "sources" (monetary gold stock plus Treasury currency plus total Federal Reserve credit) minus the sum of money in competing uses (money in circulation plus Treasury holdings of cash and deposits at the Federal Reserve plus nonmember deposits at the Federal Reserve and other Federal Reserve accounts). And over a period of time the volume of member bank reserves varies directly with the "sources" and inversely with the "competing uses."

Though all these factors influence the behavior of bank reserves, some fluctuate much more than others, especially during short periods of time. Nonmember deposits at the Federal Reserve and other Federal Reserve accounts move only slowly and within rather narrow limits. In practice, therefore, they are not an important source of change in member bank reserves. Even Treasury currency outstanding has in the past changed but slowly, and has not been a major source of change in member bank reserves during short periods. This leaves four principal factors that account for major changes in member bank reserves: (1) Federal Reserve credit, (2) the monetary gold stock, (3) money (coin and paper money) in circulation, and (4)

Treasury holdings of cash and Treasury deposits at the Federal Reserve.

It is important to note that the Federal Reserve has *direct* control over only one of these major factors—the volume of Federal Reserve credit. It has no direct control over the behavior of the monetary gold stock, or coin and paper money in circulation, or Treasury holdings of cash and deposits. It must therefore rely on its control of the volume of Federal Reserve credit and its control of member bank reserve requirements to prevent the behavior of these other factors from having undesired effects on the monetary and credit situation.

LIMITATIONS ON THE QUANTITY OF FEDERAL RESERVE BANK CREDIT

We have seen that the Reserve banks can create deposits with themselves by making loans and by purchasing securities in the open market. They can issue Federal Reserve notes in the same way. What is the limit to the volume of Federal Reserve notes and deposits with themselves that these banks can create? The answer is to be found in their reserve requirements. Under the terms of the Federal Reserve Act, the Reserve banks are required to maintain gold certificate reserves equal to at least 25 percent of their outstanding deposits and Federal Reserve notes. In other words, they are not to have outstanding at any time deposits and Federal Reserve notes amounting to more than four times their holdings of gold certificates. In an indirect way this requirement of reserves sets a maximum limit to Federal Reserve loans and security purchases, for these lending and investing operations create Federal Reserve notes or deposits at the Federal Reserve banks.

It would be a mistake, however, to assume that these reserve requirements set an inflexible upper limit to the volume of Federal Reserve credit. In the first place, the Board of Governors is empowered to suspend the reserve requirements of the Reserve banks for a period not exceeding 30 days and to renew the suspension an indefinite number of times, each renewal not to exceed 15 days. The only penalty is a graduated but not prohibitive tax on the amount of a Reserve bank's reserve deficiency, and a requirement that the Re-

serve banks raise the interest rates on their loans by the amount of the tax. The Board has never used this power and would probably be reluctant to do so, but it remains available. In the second place, reserve requirements can be lowered if they threaten to limit the expansion of Reserve bank credit and if Congress believes this limitation would be undesirable. As noted earlier, the reserve requirements of the Reserve banks prior to 1945 were 35 percent against deposits and 40 percent against Federal Reserve notes. Thus, the average reserve requirement against total Reserve bank deposits and outstanding Federal Reserve notes was somewhere between 35 and 40 percent. By the middle of 1945, the actual ratio of reserves to combined Federal Reserve deposits and notes fell below 45 percent and it was feared that the Reserve banks would soon face the alternative of ceasing to expand their loans and investments to facilitate war finance or of suspending their reserve requirements. Congress, wanting these banks to continue easy credit conditions, lowered the reserve requirements to 25 percent. That further reductions will occur in the future is not impossible. In fact, many students of monetary management would free central banks of all reserve requirements in order to achieve maximum flexibility, leaving the control of credit entirely to the discretion of central bank authorities.

It is also essential to note that the Reserve banks, unlike commercial banks, ordinarily do not expand their loans and investments to the maximum permitted by their reserves. We have seen that a commercial bank is privately owned and that its primary objective, from the point of view of its owners, is to make as large profits as it can without an excessive sacrifice of safety. Thus a commercial bank is motivated to expand its loans and investments to the maximum permitted by its reserves unless it is deterred by the fear of risk. But the primary purpose of the Reserve banks is not to make profits, but to regulate the volume and conditions of credit in the general social interest; and the attainment of this end usually necessitates some sacrifice of potential profits by these banks. That they do ordinarily lend and invest far less than would be permitted by their reserves is shown in Table 34. Only once before 1945 did the reserve ratio fall close to its legal minimum. This was in 1920, and the primary motive

for the expansion of Federal Reserve credit at that time was not to expand earnings but to facilitate war finance. The same motive, facilitation of war finance, accounts for the great expansion of Reserve bank loans and security holdings in the period immediately preceding

TABLE 34. Ratios of Reserve Bank Reserves to Their Deposits and Outstanding Federal Reserve Notes

Year (Average for June)	Percentage of Reserves to Deposits and Outstanding Federal Reserve Notes	Year (Average for June)	Percentage of Reserves to Deposits and Outstanding Federal Reserve Notes
1917	70.9	1935	73.8
1918	57.4	1936	78.8
1919	50.6	1937	79.6
1920	41.3	1938	82.5
1921	65.2	1939	85.4
1922	77.8	1940	88.5
1923	76.7	1941	91.1
1924	82.5	1942	89.3
1925	76.3	1943	73.8
1926	75.4	1944	56.3
1927	77.8	1945	44.9
1928	68.0	1946	42.7
1929	74.5	1947	47.7
1930	82.4	1948	51.2
1931	84.3	1949	54.2
1932	58.4	1950	56.3
1933	68.3	1951	46.6
1934	69.5		

1946. During most of the time since 1914 the Reserve banks have held large excess reserves, thereby retaining a high degree of freedom to expand as well as contract their credit for management purposes.

TYPES OF DEBTS PURCHASED AND SOLD BY THE FEDERAL RESERVE

Because of the key importance of Federal Reserve credit in monetary management, we shall now study it in more detail. The following sections will have two main purposes: (1) to describe the types of loans and securities acquired by the Reserve banks, and (2) to analyze the methods employed by the Federal Reserve to regulate its

holdings of these assets and the terms on which they are purchased and sold.

Federal Reserve Loans to Banks

The Reserve banks lend to member and sometimes nonmember banks in two general ways: (1) by discounting (sometimes called rediscounting) paper previously held by the borrowing banks, and (2) by purchasing the member banks' own promises to pay secured by the deposit of collateral. The original Federal Reserve Act assumed that all or most Reserve bank loans would be made by rediscounting customers' paper held by commercial banks. Rediscounting is done in the following way: The borrowing bank endorses some of its customers' eligible paper and sends it to the Reserve bank, which "discounts" it by subtracting interest at the rate established by the Reserve bank and crediting the remainder to the borrowing bank's reserve account. In effect, discounting or rediscounting is merely the sale of customers' paper by a bank to its Reserve bank. This method of lending presents several mechanical difficulties—many pieces of paper may have to be handled in one transaction, the denominations of the customers' paper may not correspond with the amount the commercial bank wishes to borrow, the maturity of the paper may be either too distant or too near, and so on. Almost all Reserve bank loans now take the form of "advances," that is, loans on the borrowing bank's own notes. In making these advances, however, the Reserve banks always require the deposit of collateral security with a value at least equal to the amount of the borrowing bank's promissory note. In some cases the value of the collateral must exceed the amount of the loan.

What kinds of paper will the Reserve banks discount for borrowing banks or accept as collateral for advances to them? Though many changes have occurred since 1914, the Federal Reserve Act still contains remnants of pre-1914 banking theory. The original Federal Reserve Act was based on the theory that the Reserve banks should take only "short-term self-liquidating agricultural, industrial or commercial paper which was originally created for the purpose of providing funds for producing, purchasing, carrying or marketing of

goods." The theory was that the banks should not take paper whose proceeds were "used to finance fixed investments of any kind; or any investments of a purely speculative character; or for carrying or trading in stocks and bonds except obligations of the United States; or to finance relending operations except relending by coöperative marketing associations and factors." The theory that this short-term, self-liquidating paper should be given preferential status still survives in the provision that the Reserve banks may discount (or rediscount) only paper of this type, but this provision is now of only limited importance, for most Reserve bank loans take the form of advances, and other type of bank assets may be used as collateral for these advances.

The so-called "commercial loan theory of banking" on which the lending provisions of the original Federal Reserve Act were based has lost most of its adherents since 1914 and has virtually ceased to serve as a guide to Reserve bank lending. There are several reasons for this. (1) The mechanical difficulties of discounting customers' paper or of using it as collateral for advances to commercial banks. Much the simpler method of Reserve bank lending is through advances to banks with securities of the Federal government as collateral. (2) Inadequacy of member bank holdings of eligible commercial paper. Because of changes in the business structure and in commercial bank lending practices after World War I, bank holdings of high-quality commercial paper declined markedly. The decline was especially great during the depression following 1929. As a result, it was necessary to make other types of bank assets eligible as a basis for borrowing if the Reserve banks were to be of maximum usefulness to their members. (3) The basic fallaciousness of the commercial loan theory. With the passage of time it became increasingly evident that the restriction of commercial bank and Reserve bank loans to "commercial paper" could not attain any of the objectives claimed for it. It cannot automatically adjust the volume of credit to the amount that is socially desirable, for harmful inflations and deflations of the volume of credit can occur even if both commercial banks and Reserve banks make only "commercial loans." Moreover, it has become increasingly clear that "commercial paper" is often less liquid than some other types of

assets, especially call loans on securities and short-term government obligations. An individual commercial bank can achieve "liquidity" more easily by selling highly marketable securities than by calling its commercial loans. The "liquidity" of any asset for the commercial banking system as a whole depends on the ability and willingness of the Reserve banks to buy it or lend on it and to issue money or bank reserves in exchange. Thus, the liquidity of the commercial banking system as a whole is enhanced by broadening the Reserve banks' lending powers, not by limiting the types of paper on which they can lend. It is hard to see how any asset can be "illiquid" for the Reserve banks if it can be used as a basis for issuing Federal Reserve notes, which have full legal-tender powers.[6]

Because of the factors indicated above, the types of assets on which the Reserve banks may lend have been greatly broadened. The present powers of the Federal Reserve to lend to member banks may be summarized as follows: (1) The Reserve banks may discount (or rediscount) for member banks only short-term commercial paper of the type described above. Only infrequently, however, do banks borrow in this way. (2) By far the greater part of Reserve bank loans take the form of advances to banks, with collateral in the form of eligible short-term commercial paper or United States government securities. Most of these advances have government securities rather than commercial paper as collateral. Now that the banks have such great holdings of government securities they need worry but little about the eligibility of their other assets for rediscount. (3) Though virtually all Reserve bank loans to banks take the above forms, the Banking Act of 1935 provides that a Reserve bank can also make advances to a member bank on its note "secured to the satisfaction of the Federal Reserve Bank" and complying with rules and regulations prescribed by the Board of Governors. The effect of this provision is to give the Federal Reserve System almost complete freedom to determine the types of collateral it will accept. But loans made under this provision must bear interest at a rate not less than ½ of

[6] For a good short criticism of the commercial loan theory as applied to Reserve banks, see W. R. Burgess, *The Reserve Banks and the Money Market*, Harper, New York, 1936, pp. 41–67.

1 percent above the highest rate applicable to loans of the types under (1) and (2) above. As a result, banks will not borrow under this section so long as they have an adequate supply of eligible commercial paper or government obligations. There is no doubt that the trend has been toward greater freedom for the Federal Reserve System to determine the types of loans it will make.

Let us look now at the various methods used by the Federal Reserve to regulate the cost and volume of its loans to banks. When the Federal Reserve Act was passed, there were wide differences of opinion as to the right of a member bank to borrow at the Reserve banks. Some claimed that any member bank with eligible paper had a "right" to borrow from the Federal Reserve, subject only to the limitation that it should not absorb more than its "fair share" of the Federal Reserve's lending capacity. Others insisted that such borrowing was a privilege which should be subject to control by the Federal Reserve System. The System has always taken the latter view and insisted on its right to control both the conditions and the amounts of its loans.

In evaluating the effectiveness of Federal Reserve control over the volume of its loans we must constantly remember an institutional fact in the American banking system—"the tradition against rediscounting" or, as it is sometimes expressed, "the tradition against continuous borrowing." This tradition developed during the pre-1914 period when banks sometimes borrowed from other banks, especially their correspondents in the big cities. It was considered justifiable for a bank to borrow in this way for short periods or during emergencies, but not continuously over long periods of time. To remain continuously in debt to other banks over a long period was considered *prima facie* evidence of risky banking. Though the tradition seems of doubtful validity in view of the willingness of banks to contract large debts with their depositors, it has carried over to the present time and greatly influences the ability of the Reserve banks to control the volume of their loans to commercial banks. It probably assists the Federal Reserve System in keeping down the volume of bank borrowings when that is desirable, but it decreases its ability to persuade banks to increase their borrowings.

The Federal Reserve has two principal instruments with which to regulate the quantity and terms of its loans: (1) its discount rates, and (2) a series of powers grouped together as "moral suasion" or "direct action." Each Reserve bank is empowered to fix its discount rates (interest rates on loans) "subject to review and determination by the Board of Governors," and these rates must be established every 14 days, or oftener if deemed necessary by the Board. Thus, control of Reserve bank discount rates is effectively lodged in the Board of Governors. Each Reserve bank has its own discount rate, but the rates of the various Reserve banks are often at the same level and rarely differ from each other by more than half a percentage point. We can therefore use the discount rate of the Federal Reserve Bank of New York as a rough indicator of the System's discount rates.

To discourage member bank borrowing the Reserve banks can raise their discount rates. Thus, the discount rate of the New York bank was raised to 7 percent in 1920 and was brought up to 6 percent in 1929. Conversely, the Reserve banks lower their discount rates to encourage member banks to borrow from them. The New York bank's rate was lowered to 3 percent during the 1924 recession, to 1 percent in the latter part of the great depression, and, during World War II, to an even lower level on paper secured by government obligations.

Changes in Reserve bank discount rates affect the credit situation in two principal ways. An increase in the rate represents an increase in the cost of member bank borrowing at the Federal Reserve, and a decrease represents a decrease in the cost of such borrowing. These changes in the cost of borrowing tend to affect the rates charged by member banks on their own loans. Member bank charges on loans do not vary closely with Reserve bank discount rates, however. Increases in Reserve bank discount rates may be relatively ineffective if member banks are not heavily in debt to the Reserve banks. Largely because of the tradition against continuous borrowing by member banks, reductions in Reserve bank discount rates usually do not lead member banks to take large new loans from the Federal Reserve in order to expand their own credit. In addition to altering the cost of borrowing at the Reserve banks, changes in discount rates have psychological effects. Increases are often considered to be a general warn-

ing that the Federal Reserve intends to tighten credit and will employ all its powers to this end. Thus rate increases may induce a tightening of credit by causing bankers and others to call loans and otherwise try to anticipate Federal Reserve tightening operations. Conversely, a reduction in discount rates may be generally construed as assurance that the Reserve banks intend to maintain easy credit conditions, thereby encouraging banks to lend more liberally.

"Moral suasion" and "direct action" are terms applied to a whole series of actions that the Reserve banks may take to influence both the volume of member bank borrowing and the lending policies of the member banks. Let us look first at the types of moral suasion that may be employed to restrict credit. In its mildest form, moral suasion may consist merely of general admonitions to borrow sparingly from the Reserve banks and to arrest any excessive expansion of credit. Speeches by individual Federal Reserve officials, joint statements by the Board of Governors and representatives of the Reserve banks, press releases, circular letters to banks—all these and other broad methods may be used to discourage excessive expansion. If these methods fail, more specific action may be taken. Individual banks may be required to explain the continued high level of their borrowings and be warned to bring their policies into line with those advocated by the Federal Reserve. Loans to a bank may be rationed, and in extreme cases a bank's privilege of borrowing from the Federal Reserve may be suspended if it is found to be making undue use of credit for any purpose "inconsistent with the maintenance of sound credit conditions."

Moral suasion is also used in attempts to arrest contractions of credit and induce an expansion. Member banks are told that the Federal Reserve approves of liberal credit extensions, that its lending facilities are freely and cheaply available to member banks who will make loans, and that in general banks should not be deterred by the tradition against borrowing. As a means of arresting credit contractions and inducing expansion the efficacy of moral suasion seems to be limited. Member banks may be permitted to borrow freely but they may refuse to take advantage of the opportunity.

From the preceding discussion it is clear that Reserve banks have

only a very imprecise control over the volume of their own loans to member banks. The Reserve banks fix their discount rates and the other conditions of their lending, but member banks are the ones that make the decision as to the amounts to be borrowed under the terms fixed by the Reserve banks. The only exception to this occurs in the rare circumstances when the Reserve banks limit the amount of their loans by rationing. The ability of the Federal Reserve to induce an expansion of its loans to banks is especially limited; it may reduce its discount rates to a low level and implore banks to borrow, but the banks may be unresponsive. This is particularly true during depression periods when banks consider lending highly risky. It is in such periods that banks are likely to take most seriously the tradition against continuous borrowing.

Acceptances

Before the passage of the original Federal Reserve Act, acceptances were not widely used in this country. National banks were not permitted to accept time drafts drawn on them for the benefit of their customers, and we had no well-developed acceptance market. Critics found many faults with this system. They complained that banks were deprived of legitimate business, that industry was deprived of a convenient and cheap method of short-term finance, and that temporarily available short-term funds tended to be diverted into security speculation rather than channeled into the financing of commerce and industry. To remedy this situation the Federal Reserve Act permitted national and other member banks to accept time drafts drawn on them, thereby assisting in bringing forth a supply of acceptances, and provided that the Reserve banks might buy acceptances in the open market, thereby helping to create a market for them.

During the first two decades of its operation the Federal Reserve purchased and sold large amounts of acceptances in the open market. Most of its purchases were from banks and acceptance dealers. Some purchases were "unconditional"; acceptances purchased in this way were held by the Reserve banks until maturity. Others were made under repurchase agreements, in which the seller agreed to repurchase the acceptances within 15 days. In purchasing acceptances, the Reserve banks operate as follows: They fix their buying rate (the ap-

plicable discount rate) and then purchase all acceptances offered to them at that rate. Only rarely do they refuse to buy safe acceptances at the established buying price. Instead, they try to increase or decrease the amount offered to them by lowering or raising the applicable discount rate.

Through its willingness to buy, the Federal Reserve unquestionably enhanced the liquidity of acceptances and promoted the practice of financing short-term business needs in this way. In fact, there were times when the Federal Reserve allowed its solicitude for the acceptance market to interfere with its objective of restricting credit in general. This was especially true in the latter half of 1928 when the Reserve banks held down their buying (discount) rate on acceptances and added nearly $300 million to their holdings while they were otherwise trying to restrict credit.

For nearly twenty years Federal Reserve operations in acceptances have been almost negligible. This is partly because the outstanding volume of acceptances has declined to low levels and partly because banks and others have found it more convenient to sell U.S. government obligations to get Federal Reserve credit. It is, of course, possible that acceptances will again become important in the future.

U.S. Government Obligations

As already noted, one of the striking developments in Federal Reserve operations has been the rise of open-market operations in federal securities as a means of creating Federal Reserve credit and as an instrument of monetary management. In the early days of the System, operations in these securities were on only a small scale. The Reserve banks extended their credit largely by loans to banks and by open-market operations in acceptances; hence open-market purchases and sales of federal obligations were considered a relatively unimportant instrument for monetary management. Gradually, however, the situation changed. Even in the 1920's open-market operations in government obligations became increasingly important. It came to be recognized that open-market sales of these securities tended to tighten credit, both by reducing bank reserves and by forcing banks to borrow more heavily from the Reserve banks, thereby invoking the tradition against continuous borrowing and increasing the effectiveness of dis-

count rates. On the other hand, Federal Reserve purchases of federal securities in the open market tended to ease credit both by increasing bank reserves and by enabling banks to reduce their debts to the Federal Reserve. During this period open-market operations in governments were regarded as a supplement to discount policy and moral suasion—as a means of enhancing their effectiveness. But since 1932 these operations have been given a more important role, for they have been the principal method of regulating the volume of total Federal Reserve credit and the principal instrument for determining the total supply and cost of credit.

SUMMARY

This chapter has described the various factors determining the volume of member bank reserves and the powers of the Federal Reserve to regulate not only the volume but also the cost of these reserves. Only one of the factors affecting bank reserves is subject to direct control by Federal Reserve authorities; this is Federal Reserve credit. To produce a desired behavior in the volume and cost of member bank reserves, the System must therefore rely on its power to regulate the volume and cost of its credit. To encourage an expansion or discourage a contraction of bank reserves, it can lower its interest rates on loans to banks, use moral suasion to encourage banks to borrow, establish a low buying (discount) rate for acceptance purchases, and buy government securities in large amounts at high prices and low yields. And to encourage a contraction or discourage an expansion of bank reserves, it can increase its interest rates on loans to banks, use moral suasion and other direct actions to discourage member banks from borrowing and from expanding their own credit, raise buying (discount) rates on acceptances, and sell government securities in the open market.

The next chapter will discuss other instruments of monetary management and relate them to the ones already described.

SELECTED READINGS

See references at the end of Chapter 13.

CHAPTER 15

Instruments of Monetary Management

The purpose of this chapter is to describe and discuss the various instruments of monetary management in the hands of the Federal Reserve and the Treasury—all the methods that have been used to regulate the money supply, the availability and cost of credit, and the rate of spending. Several of them have already been mentioned, but it will be useful to elaborate on some of them and to relate them to the other instruments of policy. We shall first discuss general monetary or credit controls and then go on to describe selective controls.

GENERAL MONETARY OR CREDIT CONTROLS

By this term we mean, as indicated earlier, controls directed at regulating the total supply, availability, and cost of money and credit without necessarily regulating the allocation of credit among its various possible borrowers or uses. These controls are of two principal types: (1) Federal Reserve control of member bank reserve requirements, and (2) various measures affecting the volume and cost of member bank reserves. Each of these will be discussed in turn.

Member Bank Reserve Requirements

Prior to 1935 member bank reserve requirements were rigidly set by the Federal Reserve Act and could not be altered by Reserve offi-

cials.[1] However, in the banking act of that year Congress empowered the Board of Governors to alter these requirements, with the legal limitation that it could not set them below the level previously in effect or raise them to more than double their previous level. Thus, the Board may now alter member bank reserve requirements within the following limits:[2]

The Board first used this power in 1936. Since then it has at times raised reserve requirements to eliminate some or all excess bank reserves, and even to create a deficiency of bank reserves, and to decrease the volume of deposits that could be created on the basis of any remaining excess reserves and of any additional reserves received. On other occasions it has reduced requirements to create or increase excess reserves in the banking system and to permit the creation of more bank deposits on the basis of each dollar of excess reserves. Thus the Board has utilized this power as an instrument of monetary and credit control. Its various actions are indicated in Table 35.

Though the Board's power to regulate member bank reserve requirements is a useful instrument of monetary management it does raise a number of issues. The first relates to the logic of the classification on which reserve requirements are based. The present classifica-

[1] Limited power to alter reserve requirements was granted in legislation enacted in 1933.

[2] In general, central reserve city banks are those in New York and Chicago; reserve city banks are those located in about 60 other specified large cities; country banks are those located outside the specified central reserve and reserve cities. In some cases, however, banks in the outlying sections of large cities may qualify for lower reserve requirements. Thus, banks in the boroughs of Brooklyn and the Bronx are classified as reserve city banks and those in the boroughs of Queens and Richmond as country banks.

In 1948 the Board was temporarily given power to raise reserve requirements to somewhat higher levels, but this power expired in June, 1949.

	Lowest Level at Which Requirements May Be Set	Highest Level at Which Requirements May Be Set
On net demand deposits		
At central reserve city banks	13%	26%
At reserve city banks	10	20
At country banks	7	14
On time deposits		
At all member banks	3	6

tion was taken over from the National Banking System and was apparently based on the theory that the function of reserves was to assure the liquidity of a bank, and that banks in larger cities needed greater liquidity because most of them held deposits of other banks

TABLE 35. Member Bank Reserve Requirements
(Percent of deposits)

Period in Effect	Net Demand Deposits[a]			Time Deposits (All Member Banks)
	Central Reserve City Banks	Reserve City Banks	Country Banks	
June 21, 1917–Aug. 15, 1936	13	10	7	3
Aug. 16, 1936–Feb. 28, 1937	19½	15	10½	4½
Mar. 1, 1937–Apr. 30, 1937	22¾	17½	12¼	5¼
May 1, 1937–Apr. 15, 1938	26	20	14	6
Apr. 16, 1938–Oct. 31, 1941	22¾	17½	12	5
Nov. 1, 1941–Aug. 19, 1942	26	20	14	6
Aug. 20, 1942–Sept. 13, 1942	24	20	14	6
Sept. 14, 1942–Oct. 2, 1942	22	20	14	6
Oct. 3, 1942–Feb. 28, 1948	20	20	14	6
Feb. 27, 1948–June 11, 1948	22	20	14	6
June 11, 1948–Sept. 16, 1948	24	20	14	6
Sept. 16, 1948–Sept. 24, 1948	24	20	16	7½
Sept. 24, 1948–May 1, 1949	26	22	16	7½
Sept., 1949–Jan. 11, 1951[b]	22	18	12	6
Jan. 11, 1951–Jan. 16, 1951	23	19	12	6
Jan. 16, 1951–Jan. 25, 1951	23	19	13	6
Jan. 25, 1951–Feb. 1, 1951	24	20	13	6
Feb. 1, 1951 and after	24	20	14	6

[a] Demand deposits subject to reserve requirements, i e., demand deposits other than war loan deposits, minus cash items in process of collection and demand balances due from domestic banks.
[b] The reductions between May and September 1949 were made in several steps.

and were therefore subject to drains both by their customers and by their depositor banks. This reasoning is now unacceptable. The purpose of reserve requirements is not to assure liquidity but to limit the creation of money. Moreover, many of the banks in cities to which high reserve requirements apply do not hold interbank deposits, whereas some "country banks" do. In the interest of logical consistency and of equity for the various types of banks a reconsideration of member bank reserve requirements is in order. About all that can be said for the present set of requirements is that they do help to limit

the money supply and that the banking community is accustomed to them.

Another problem created when the Board increases reserve requirements arises from bankers' objections to this action. In the view of many bankers, especially those not well versed in the principles of monetary management, required reserves are but sterile assets which yield no return, and in increase in reserve requirements simply requires that a large percentage of their assets be held sterile. Of course, the volume of bank earning assets can also be held down or reduced by Federal Reserve actions limiting the dollar volume of bank reserves, but bankers do not object to these actions so much—partly at least because they do not understand them so well.

Other problems arise from the fact that the Board's jurisdiction over reserve requirements covers only member banks, not nonmembers. Some member bankers complain that setting their reserve requirements much higher than those of nonmembers is inequitable and places them at a competitive disadvantage, and some even talk of withdrawing from membership in the Federal Reserve. The higher reserve requirements for members appear to be one reason why some nonmembers elect to stay out of the System. It is partly for these reasons that many economists believe that all commercial banks should be compelled to join the Federal Reserve, or at least that nonmembers should be forced to hold reserves as high as those required of comparable member banks.

The scope of the Board's discretionary authority over reserve requirements has also been widely debated. Some would give the Board much wider discretion, especially in raising the requirements above their present maximum levels. Others believe that the present range of discretionary power is sufficient if the System will exercise its other powers courageously.

Federal Reserve Instruments for Controlling the Volume and Cost of Its Credit

Since they were discussed in the preceding chapter, it will be sufficient at this point to list and comment briefly on the various methods used by the Federal Reserve to regulate the volume and cost of its

credit, thereby regulating the volume and cost of bank reserves and exerting certain other influences on the general credit situation. Four instruments are included in this category.

1. *Discount Rates or Interest Rates Charged on Federal Reserve Loans.* By increasing its discount rates, the Federal Reserve can make it more expensive for banks to secure reserves by borrowing, and by lowering discount rates it can make the acquisition of reserves in this way less expensive. Changes in discount rates are most effective when many banks are in debt to the Federal Reserve or expect to be in the near future. They are not very effective when the banks are out of debt to the Federal Reserve and expect to remain so. Moreover, the ability of discount rate reductions to induce banks to borrow in order to make available more credit on easier terms is lessened by the tradition against continuous borrowing. In general, discount rates are now a less effective instrument of monetary management than they were when the Federal Reserve extended its credit to a greater extent by lending to banks.

2. *Moral Suasion and Other Direct Action.* The Reserve banks do not merely establish discount rates and then lend passively and without complaint all that banks wish to borrow. Instead, they often use moral suasion and other direct action to influence not only the amount of bank borrowings but also the lending and security purchasing policies of banks. At times they use publicity, interviews, and other devices to persuade banks to borrow less and to tighten their credit policies. On occasion, as in 1947 and 1951, they encourage banks and other lenders to follow "voluntary credit restraint" programs to curtail "nonessential" credit. On other occasions they attempt to elicit a more liberal credit policy on the part of banks, urging them to liberalize their lending and to use Federal Reserve credit if necessary.

3. *Acceptance Buying Rates.* By increasing its buying (discount) rates on acceptances, the Federal Reserve can not only increase the cost of acquiring reserves by selling these obligations, but it can also raise the prevailing market yield on them. And by lowering its buying rate it can both lower the cost of securing reserves by selling acceptances to the Reserve banks and reduce market yields on them. In the

early days of the System this was an important policy instrument, but during the last two decades it has been of little significance.

4. *Open-Market Operations in U.S. Government Obligations.* For about twenty years this has been the principal instrument used by the Federal Reserve to influence the volume and cost of bank reserves, and also to regulate, both directly and indirectly, the behavior of interest rates in the market. In general, the Federal Reserve can liberalize credit by purchasing large amounts of governments at high prices and low yields, and it can tighten credit by selling these securities, or by purchasing them only at lower prices and higher yields. As indicated earlier, the theory of open-market operations has changed during the life of the System. Prior to 1937, the Federal Reserve tended to ignore the direct effects of its purchases and sales on the prices and yields of government obligations. It adjusted the dollar volume of its holdings in such a way as to produce the desired effect on member bank reserves and member bank indebtedness to the Reserve banks. Since that time the System has paid much more attention to the effects of its operations on the prices and yields of government securities. In fact, during much of the time since 1941 the primary objective of its open-market policy has been to stabilize prices and yields on government securities, and to this end it purchased all such securities offered to it at the established price and yield. Under this policy it had to abandon control over the volume of its holdings, but it closely controlled the level of yields and interest rates on these securities and on private obligations as well. With all investors free to sell their government securities at the Federal Reserve support prices, they did so whenever yields on private obligations tended to become more attractive, thereby preventing yields on private obligations from rising significantly *relative* to those on governments.

Two important points relative to Federal Reserve open-market policy in government obligations are worth emphasis. (1) The System must choose between accurate control of the volume of its government holdings on the one hand and stabilization of interest rates on the other. If it is to have accurate control of its holdings it must allow interest rates and the prices and yields of outstanding obligations to fluctuate. If it is to stabilize interest rates and yields it must

abandon accurate control of the volume of its holdings, and buy and sell to the extent necessary to assure such stability; the initiative in this case is with other investors. (2) So long as investors can shift freely between government securities and other obligations, the Federal Reserve can dominate the entire structure of interest rates by regulating yields on the federal debt. This debt now makes up about half of all outstanding interest-bearing debt in the country, and it is equal to many times the annual increase of debt. If the Federal Reserve buys and sells in such a way as to establish a certain structure of yields on these obligations, it also establishes, within narrow limits, the structure of yields on private loans and securities. The reason is that private investors will buy in one branch of the money market and sell in another until they see no further advantage in shifting their funds. This applies not only to banks but to other investors as well. In short, Federal Reserve operations in the government security market can dominate the entire money market.

Treasury Instruments of Monetary Management

The preceding sections have described the various instruments of general monetary management in the hands of the Federal Reserve. But the Treasury also exercises a number of powers which have important "monetary effects." In some of these powers the Treasury has only little discretion; its conduct is narrowly limited by law. In other cases, however, its discretionary powers are broad indeed. It is convenient to start with powers over which the Treasury has only little discretion; these are the government's revenue and expenditure policies.

With federal expenditures and revenues at high levels and with the possibility of current surpluses or deficits, revenue-expenditure relationships have an important influence on the behavior of the economy. In general, current surpluses have a contractionary or at least an anti-expansionary effect, and deficits have an expansionary or at least an anti-contractionary effect. These effects are of two types: (1) income effects, and (2) asset effects. Let us look first at the income effects. A current tax surplus tends to reduce private money incomes after taxes, since taxation extracts from private money incomes more

than government expenditures contribute to them. On the other hand, current tax deficits tend to increase private money incomes after taxes, since government expenditures contribute to private money incomes more than current taxes extract from them. These income effects of surpluses and deficits occur despite the use to which the Treasury puts its tax surpluses and despite the sources of the funds used to cover deficits.

Current surpluses and deficits also have asset effects, that is, effects on the total volume of assets held by the public. When the Treasury has a tax surplus it reduces the assets of the public; the public must surrender either government securities or money to cover the surplus of tax collections. When the Treasury has a deficit it increases the assets of the public; it must issue to the public government securities or money equal to the excess of its expenditures over tax collections. These changes in the total assets held by the public depend on the size of the Treasury's current surpluses or deficits.

It is to be emphasized that the effect on the *composition* of the public's assets, as contrasted with their size, depends on the use to which the Treasury puts a current tax surplus and on the sources of the money used to cover a current deficit. The same is true of the behavior of bank reserves. This is an area in which the Treasury has broad discretionary powers; it can use the money representing a tax surplus in various ways, and it can secure from many sources the money used to cover a current deficit. And these different uses of surpluses and different sources of money to cover deficits can have quite different effects on both the composition of the public's assets and the behavior of bank reserves. To explain these effects it is necessary to examine the discretionary powers of the Treasury over the size and location of its money balance and its borrowing and debt retirement operations.

The Treasury has wide discretion as to the form in which it will hold its money balance. It may hold this balance as cash in its vaults, as deposits at Federal Reserve banks, or as deposits at commercial banks, and it may shift its balance as it sees fit. It may therefore affect the volume of commercial bank reserves by shifting the location of its balance. It can decrease bank reserves by withdrawing its balance

from commercial banks and shifting it to the Federal Reserve.[8] On the other hand, it can increase bank reserves by shifting its balance from Federal Reserve banks to commercial banks.

The Treasury also has wide discretion as to the size of its balance as well as its location. It can build up its balance out of a current tax surplus or the sale of securities. It can decrease its balance by using part of it to meet a current deficit or to repurchase some of its outstanding securities. These Treasury purchases and sales of securities may be divided into two groups, though both have similar effects. The first includes operations for the trust accounts in the Treasury, the principal of which are the Federal Old Age and Survivors Insurance Trust Fund, the Unemployment Insurance Trust Fund, the National Service Life Insurance Fund, the Government Employees Retirement Fund, and the Railroad Retirement Account. At the end of 1951 the total assets of these funds were more than $42 billion. The Treasury has some discretion as to the form in which these assets are held. Thus it can draw in money by selling government securities held in these trust accounts, or it can pay out money to purchase securities for these accounts. The Treasury also has broad discretion as to the amount of its general borrowing and debt retirement operations. It can borrow more than is necessary to meet its expenditures, using the excess to build up its balance. Or it can draw down its balance to retire part of its debt.

A second area in which the Treasury has wide discretion is in determining the source from which it will borrow and the types of creditors whom it will repay. It is useful to distinguish three different types of lenders to the government: (1) Federal Reserve banks, (2) commercial banks, and (3) nonbank investors. The Treasury can borrow from any one of these classes of investors and use the money to meet its current expenditures, to build up its money balance, or to retire securities held by other types of investors. Or it may use money resulting from a current tax surplus, a reduction of its money balance, or borrowings from other types of investors to retire securities held by any class of these investors. Widely differing monetary effects can

[8] Since changes in Treasury cash in vault have the same effects as changes in Treasury deposits at the Federal Reserve they are not treated separately.

TABLE 36. Treasury Transactions with Restrictive Monetary Effects

1. Transactions directly reducing both the public's money supply and the volume of commercial bank reserves. The Treasury builds up its cash in vault or its deposits at the Federal Reserve, or repays debt owed to the Federal Reserve, using money acquired in the following ways:
   a. From a current tax surplus. The taxpayers lose deposits without any compensating increase in their other assets, and their banks lose reserve balances.
   b. From sales of securities to nonbank investors. The purchasers of securities lose deposits and their banks lose reserve balances.
2. Transactions reducing commercial bank reserves without a direct effect on the public's money supply. The Treasury builds up its cash in vault or its deposits at the Federal Reserve, or it repays debt to the Federal Reserve, using money obtained in the following ways:
   a. By shifting its balances from commercial banks.
   b. By selling securities to commercial banks.
3. Transactions reducing the public's money supply without reducing bank reserves and without creating excess reserves in the banking system. (This assumes that banks must hold reserves against Treasury deposits.) The Treasury builds up its balances at commercial banks, using money acquired in the following sources:
   a. From a current tax surplus.
   b. From sales of securities to nonbank investors.
4. Transactions with indeterminate monetary effects.
   a. The Treasury uses money acquired through a current tax surplus or through borrowing from nonbank investors to retire debt held by commercial banks. Though the direct effect is to reduce the public's money supply, the reduction in the banks' deposit liabilities without a reduction in their reserves creates enough excess reserves to permit the banks to restore the money supply to its former level.
   b. The Treasury uses money acquired through a current tax surplus or through the sale of securities to nonbank investors to purchase securities from other nonbank investors. Here the effect is to transfer money from the nonbank taxpayers or purchasers of securities to the nonbank sellers of securities.

be achieved, depending on the sources of the money and the uses to which it is put.

In short, we find that the Treasury has wide discretionary powers over the following: (1) the uses to which it will put any current tax surplus; (2) the location of its money balance; (3) the size of its

money balance; (4) the amount of securities that it will buy and sell, either for trust fund accounts or for its own account; and (5) the types of investors to which it will sell securities or from which it will purchase securities. By using these powers in various combinations, the Treasury can exert monetary effects ranging all the way from highly restrictive to highly expansionary. Table 36 lists some of the principal Treasury transactions with restrictive monetary effects, in the order of their probable degree of monetary restrictiveness. It excludes the contractionary income effects of tax surpluses. It will be noted that the monetary effects of the transactions in category 4 are indeterminate.

Table 37 lists some of the principal Treasury transactions with expansionary monetary effects, in the order of their probable degree of expansionary monetary effects. It excludes the expansionary income effects of deficit spending.

The preceding discussion has brought out the fact that the Treasury has broad discretionary powers which it can and does use to influence the behavior of the public's money supply and the volume of bank reserves. These powers are closely related, and in many respects similar, to those of the Federal Reserve. If used in a supplementary manner, they can increase the effectiveness of Federal Reserve actions. But if used in a conflicting manner they may defeat, at least partially, the monetary management activities of the Reserve System. The influence of Treasury debt management policies on monetary management is even more pervasive than the earlier listing of Treasury transactions might indicate. In fact, with the federal debt well above $250 billion and making up about half of all interest-bearing debt in the country, it is practically impossible to separate debt management from monetary management. This is especially true when the Treasury fixes the interest rates and other attributes of its issues and the Federal Reserve then maintains general credit conditions which will assure the success of Treasury financing. Under these conditions, the Treasury in effect determines general credit conditions, for it determines the rates on government securities to be maintained by the Federal Reserve, and in maintaining these rates on governments the Federal Reserve maintains

TABLE 37. Treasury Transactions with Expansionary Monetary Effects

1. Transactions directly increasing both the public's money supply and the volume of commercial bank reserves. The Treasury reduces its cash in vault or its deposits at the Federal Reserve, or it borrows from the Federal Reserve and uses the money for the following purposes:
   a. To cover a current deficit. Those receiving the excess Treasury expenditures gain deposits and their banks gain reserve balances.
   b. To purchase securities from nonbank investors. The nonbank sellers of securities gain deposits and their banks gain reserves.
2. Transactions increasing commercial bank reserves without a direct effect on the public's money supply. The Treasury reduces its cash in vault or its deposits at the Federal Reserve or it borrows from the Federal Reserve and uses the money in the following ways:
   a. To increase its deposits at commercial banks.
   b. To purchase securities from commercial banks.
3. Transactions increasing the public's money supply without increasing bank reserves and without reducing excess reserves in the banking system. (This assumes that banks must hold reserves against Treasury deposits.) The Treasury draws down its balances at commercial banks, using the money for the following purposes:
   a. To cover a current excess of expenditures over tax receipts.
   b. To purchase securities from nonbank investors.
4. Transactions with indeterminate monetary effects.
   a. The Treasury borrows from commercial banks and uses the money to cover a current deficit or to retire debt held by nonbank investors. Though the direct effect is to increase the public's money supply, the increase in the banks' deposit liabilities without an increase in their reserves reduces their excess reserves or creates a deficiency of reserves. The critical question here is whether the banks' reserve position is such that they must reduce their other credit to offset the increase in their loans to the Treasury.
   b. The Treasury borrows from nonbank investors and uses the money to cover current deficits or to purchase securities from other nonbank investors. Here the effect is to transfer money from the nonbank purchasers of securities to the recipients of government expenditures or to other nonbank sellers of securities.

comparable conditions in the entire money market. If, therefore, the Treasury insists on the maintenance of low yields on all its issues and the Federal Reserve acquiesces, there will be low yields and easy credit in all branches of the money market. But if the Treasury agrees to permit the prices of its outstanding issues to decline and is willing

to pay higher interest rates on its new issues, the Federal Reserve has greater freedom to restrict credit in general.

The height of interest rates is not the only aspect of debt management that impinges on monetary policy. Other attributes of federal securities are also important. If the Treasury issues securities that are especially attractive to nonbank investors and vigorously tries to sell them outside the banking system and to keep them in the hands of nonbank investors, it may reduce the amount of the national debt that will be monetized. But if its issues are not made attractive to these investors, more of the debt will have to be purchased by the Federal Reserve and commercial banks. We cannot here do justice to the complex problem of managing a national debt as large as ours is today. It is clear, however, that debt management cannot be completely separated from monetary management and that we need a debt management policy that will supplement and assist, rather than conflict with, monetary policy.

SELECTIVE CREDIT CONTROLS

The preceding sections described the principal Federal Reserve and Treasury instruments for *general* monetary and credit control. These controls are aimed primarily at regulating the total supply of credit, not at determining who will get it or for what purpose it will be used. This allocative or rationing function is left to the private market. We come now to the selective credit controls wielded by the Federal Reserve, the principal of which are the regulation of margin requirements on loans for the purchase or carrying of securities listed on the national exchanges, the regulation of consumer credit, and the regulation of credit for the purchase of new residential construction. These selective controls are deliberately used to interfere with the allocative function of the private credit market in order to restrict the amount of credit used for the purposes specified.

These controls are implemented in two principal ways. (1) Minimum percentage "down payments" or "maximum loan values" are fixed for the specified assets to be acquired or held. By raising the percentage of the minimum down payment on an asset, which is the

same as lowering the percentage of its loan value, the Federal Reserve can decrease the amount of credit that can be legally demanded or supplied for purchasing or carrying the asset. All three selective controls employ this device. (2) Minimum periods are set for the repayment of loans for these purposes. By shortening the period of repayment the Federal Reserve can increase monthly carrying charges, thereby both decreasing the demand for these types of loans and increasing the amount of their current income that borrowers must use to cover monthly carrying charges. This device is employed in both consumer credit and real estate credit regulation.

It is interesting to note that selective controls may restrict the amount of credit used without tending to raise interest rates. Since general credit restrictions operate by limiting total lending ability, they tend to raise interest rates. But to the extent that selective controls directly limit the demand for credit they may actually tend to lower interest rates.

The three types of selective controls have somewhat different backgrounds. Let us look first at Federal Reserve Regulations T and U, which fix maximum loan values, or minimum margin requirements, on securities listed on the national exchanges. "Margin requirements" are the percentage differences between the market value (100 percent) and the maximum loan value of the securities; roughly speaking, they are the minimum percentage "down payment." These regulations grew out of American experience during the late 1920's when large amounts of credit were used to finance stock market speculation. At that time the Federal Reserve had no power, except moral suasion, to reduce the amount of credit used for this purpose except by restricting credit in general, and this could have adverse effects on business activity. In fact, some believe that Federal Reserve general restrictive actions in 1929, aimed primarily at the use of credit in security speculation, were partially responsible for the depression that followed. With this background, Congress in 1934 gave the Federal Reserve power to fix and alter at its discretion the height of margin requirements on loans for purchasing and carrying securities listed on the national exchanges. Since that time the Board has raised margin requirements to restrict the use of credit for this purpose, and it has

lowered them to permit a more liberal use of credit for loans on these securities. At times, margin requirements have been set as low as 25 percent; on one occasion, in 1946, they were raised as high as 100 percent, thereby preventing any loans on these securities.

Selective control of consumer credit under Regulation W has had a somewhat checkered career. First instituted in 1941, it remained in effect until 1947, was then withdrawn until September, 1948, was again in effect from that time until June, 1949, was again withdrawn

TABLE 38. Minimum Down Payments and Maximum Maturities Under Regulation W in Early 1952

Listed Articles and Loans	Minimum Down Payment (Percent)	Maximum Maturity (Months)
Passenger automobiles	33⅓	18
Major appliances (radio, television, phonographs, refrigerators and food freezers, cooking stoves, ranges, dishwashers, ironers, washing machines, clothes driers, sewing machines, suction cleaners, room-unit air conditioners, and dehumidifiers	15	18
Furniture and floor coverings	15	18
Home improvement materials, articles and services (plumbing, heating and other household fixtures)	10	36
Loans for unlisted purposes	—	18

until after the outbreak in Korea, was reinstituted in the autumn of 1950, and was again withdrawn in 1952. This regulation operates by regulating minimum down payments and maximum periods for repayment of loans. Only the latter applies to consumer loans for unlisted purposes, but both apply to credit extended for the purchase of certain specified consumer goods. The consumers' goods included in this list in early 1952 are shown in Table 38. It will be noted that the terms were more restrictive for some articles than for others.

Regulation X, the selective control over credit extended to finance new residential construction, was first applied in 1950 as part of the anti-inflation program initiated after the outbreak in Korea and was suspended in 1952. It utilized the same devices as Regulation W—minimum down payments and maximum periods for repayment. Also, like Regulation W, the terms were not uniform for all loans of this

general type. Instead, they were designed to favor low-cost housing and housing for veterans. Thus, higher down payments and shorter periods of repayment were set for higher-cost housing and on loans to nonveterans.

The use of selective credit controls raises a number of questions on which there is still wide disagreement. The first involves the relation of selective credit controls to general credit control. Should selective controls be considered a substitute for the more general controls, or should they be considered merely as supplements? It is clear that the three regulations employed up to this time cannot be complete substitutes for general controls; they fail to cover broad areas of credit—for example, they leave business credit untouched—and they leave open the possibility of serious inflation through an expansion of types of credit not covered. Some people, however, would extend selective controls to other areas in the economy so that they could be a substitute for general credit control. Others object to such an extension, pointing to the administrative difficulties, the interference with the allocative mechanism of private markets, and the long-run dangers inherent in detailed government intervention of this type.

There is also disagreement as to the purposes of these selective controls. At least three possible purposes can be listed. (1) To aid in an overall anti-inflation program by helping curb the total volume of credit and the rate of total spending. By decreasing the demand for credit for these selected purposes, such controls may help to hold down the total volume of credit and money, thereby limiting, both directly and indirectly, the rate of total spending. (2) To aid in preventing price increases on the specific assets to which the selective controls apply. Thus the restriction of loans on automobiles or new houses may help hold down the prices of these commodities in a period when an expanding military production program necessitates curtailment of their supply. (3) To aid in regulating the use of resources and in diverting them from less essential to more essential uses. This point was emphasized by many during the expanding military program following the outbreak of fighting in Korea. They argued that by restricting credit for the purchase of durable consumers' goods and new housing it would be possible to hold down private

demands for these things, thereby facilitating the shift of productive resources from these goods to military output, and doing this without restricting the supply of credit for plant expansion and other "essential" purposes.

We cannot here attempt to resolve these difficult questions as to the proper role of selective credit controls. It is clear that they can be used to restrict the amount of credit used for selected purposes, and that such government regulation of the specific uses of credit may be justified in periods of national emergency. But there is no general agreement on other questions concerning selective controls—their relation to general credit control, the degree of their effectiveness, the desirability of their use under more normal peacetime conditions, and their administrative feasibility.

SUMMARY OF FEDERAL RESERVE AND TREASURY INSTRUMENTS OF MONETARY MANAGEMENT

We have examined the various instruments of monetary and credit management in the hands of the Federal Reserve and the Treasury, and have noted how each of these operates to restrict or expand the volume of money and credit. It will be useful at this point to consider all these instruments together and find out how they might be used in conjunction with each other for restrictive or liberalizing purposes. It should not be inferred, however, that all need be used at once. Let us first summarize the restrictive actions.

Restrictive Actions

General Restrictive Actions by the Federal Reserve

Instrument	Action Taken	Effects of Action
Discount rates on loans to banks.	Increase discount rates.	Discourages member bank borrowing from the Federal Reserve and also indicates Federal Reserve opposition to easy credit policies by the banks.

GENERAL RESTRICTIVE ACTIONS BY THE FEDERAL RESERVE

Instrument	Action Taken	Effects of Action
Moral suasion and direct action.	Discourage banks from borrowing at the Federal Reserve and urge them to restrict their own credit.	Makes banks somewhat less willing to lend liberally and encourages them to attempt to curtail their credit in order to repay the Reserve banks. The effectiveness of this instrument is lessened in banks that are out of debt to the Federal Reserve and expect to remain so.
Bill buying rate (discount rate applicable to Federal Reserve purchases of acceptances in the open market).	Raise the rate.	Tends to reduce the volume of acceptances sold to Reserve banks, thereby serving to increase the cost and hold down the volume of bank reserves.
Open-market operations in government securities.	Sell securities in the open market, or at least lower the prices and raise the yields at which they will be bought.	Tends to reduce bank reserves and force banks into debt at the Federal Reserve, or at least increase the cost of getting reserves by selling securities to the Federal Reserve.
Member bank reserve requirements.	Raise reserve requirements.	Tends to restrict credit (1) by lowering excess bank reserves or creating a deficiency of reserves, and (2) by decreasing the amount of expansion possible on the basis of any remaining excess reserves or any further addition to reserves.

The Treasury list includes only the Treasury actions that have the most restrictive monetary effects. It omits the contractionary income effects of tax surpluses and some actions with less restrictive monetary effects. (See page 338.)

GENERAL RESTRICTIVE ACTIONS BY THE TREASURY

Instrument	Action Taken	Effects of Action
Location and size of the Treasury balance.	Increase Treasury cash in vault or deposits at the Federal Reserve, or repay debts to the Federal Reserve by drawing in money in the following ways: (1) attaining a current tax surplus; (2) selling securities to nonbank investors; (3) withdrawing balances from commercial banks; (4) selling securities to commercial banks.	Such uses of money from sources (1) and (2) decrease both the public's money supply and commercial bank reserves. Such uses of money from sources (3) and (4) decrease commercial bank reserves without directly affecting the public's money supply.
Other debt management policies.	Attempt to sell to and to keep in the hands of nonbank investors a larger quantity of governments, even if higher interest costs are required. In this and other ways try to avoid forcing Federal Reserve to buy securities.	Tends to reduce monetization of debt, and especially to avoid necessity of Federal Reserve purchases.

SELECTIVE CREDIT RESTRICTION BY THE FEDERAL RESERVE

Instrument	Action Taken	Effects of Action
Regulations T and U (margin requirements on securities listed on national exchanges).	Raise margin requirements, that is, lower the loan values of these securities.	Tends to decrease amount of credit used for purchasing and carrying these securities.

SELECTIVE CREDIT RESTRICTION BY THE FEDERAL RESERVE

Instrument	Action Taken	Effects of Action
Regulation W (consumer credit).	Raise percentage of required down payment and shorten period of payment.	Tends to decrease amount of credit used for these purposes and to hold down demand for listed articles. May also lessen other spending by causing a larger part of current income to be used for the listed articles.
Regulation X (credit on new residential construction).	Raise percentage of down payments and shorten period of repayment.	Tends to decrease amount of credit used for this purpose and to hold down total demand for new housing.

This long list of possible restrictive actions by the Federal Reserve and the Treasury suggests two important points: (1) To fight inflation these agencies do not have to rely on just one restrictive instrument; they have many at their command. (2) The effectiveness of anti-inflationary monetary policies depends not only on the timeliness and vigor of Federal Reserve actions but also on the degree of cooperation between the Federal Reserve and the Treasury in pursuing this objective. An easy-money policy, or even a "neutral" policy, on the part of the Treasury may defeat Federal Reserve efforts to curb inflation. For example, Federal Reserve restrictions may be offset, at least in part, by government deficit spending and by Treasury actions increasing bank reserves and the money supply, and the Federal Reserve may be prevented from pursuing a restrictive policy if the Treasury insists on the maintenance of low interest rates on government obligations. On the other hand, a restrictive monetary policy may be quite effective in curbing inflation if the Treasury and the Federal Reserve coöperate in working toward this objective.

Critics have advanced at least three reasons why a restrictive monetary policy should be used only sparingly to fight inflation. (1) A

policy restrictive enough to stop inflation may precipitate a business depression. It cannot be denied that a monetary policy can be so restrictive as to have this result, but it is by no means clear that this necessarily follows. (2) A restrictive monetary policy decreases the volume of funds available for capital investment and slows down the advance of productivity. Though an overly restrictive policy may have this result, three points should be made. (a) Inflations are often the result of a nation's attempt to build up its capital supply faster than would be justified by the country's desire to save out of its current income, the excess investment being financed by the creation of new money. (b) It is not necessarily good to promote capital formation at the expense of current consumption. (c) Real capital formation is not necessarily increased by an expansion of money spendings for capital goods when productive facilities are already fully employed; the result may be only an increase in price levels.

(3) It is alleged that monetary policy cannot stop an inflation without raising interest rates to high levels, thereby greatly increasing service charges on the national debt, transferring large amounts of income from debtors to creditors, and lowering markedly the prices of outstanding debt obligations. Though this may be true when inflation is progressing at a very rapid pace, it is of doubtful validity in most inflations. Those supporting this view have a narrow view of the *modus operandi* of monetary policy. They usually argue as follows: (a) Monetary policy operates only through interest rates, and changes in interest rates operate only by changing the cost of investment. Therefore, a restrictive monetary policy can limit or reduce investment spendings only by raising interest rates. (b) Because expectations as to the profitability of new investment are usually high in periods of inflation, and also because interest rates are in most cases only a small part of the total cost of doing business, the demand for loans is interest-inelastic; that is, the demand for loans, and spendings for investment as well, are relatively insensitive to changes in interest rates. (c) It follows that very large increases in interest rates would be required for a significant restrictive effect to be apparent on the demand for loans and on expenditures for investment. This is an oversimplified and even misleading analysis, for it fails to take into

account other avenues through which restrictive monetary policies operate.

When commercial banks suffer a worsening of their reserve positions, they do not restrict the volume of their credit solely by raising their interest rates. In fact, many of their interest rates move only sluggishly. They also employ various other rationing devices—refusing loans to marginal borrowers, asking customers to scale down their requests for credit, raising their standards of credit worthiness, requiring more collateral, and so on. By these various actions the banks may decrease the availability of credit far more than would be indicated by the limited rise of interest rates. The same is true of other lenders.

The transition from an easy-money to a tighter-money policy may also have important effects on expectations as to future economic events. It may change expectations in a way favorable to the anti-inflation program. To make this point, we shall use a hypothetical example. Suppose that for some time the monetary authority has been following an easy-money policy, and that for this and other reasons people expect a continuation of low interest rates, a rising level of demand, rising prices, and high profits. Suppose now that the monetary authority vigorously reverses its policy, clearly announcing its intention to restrict credit to fight inflation and taking overt actions to this end. This can have a sobering effect on the entire economic community; it can lead to less optimism as to the future course of demand, prices, and profits, and it can create expectations of rising interest rates. In this new situation, lenders may curtail the current availability of credit, both because of their expectation of higher interest rates in the future and because of their less optimistic appraisal of the credit worthiness of borrowers. Moreover, borrowers may decrease their demand for loans and spend less rapidly the money already in their possession, partly because of the new uncertainty as to the future demand for their products and partly because of the new uncertainty as to the availability of credit in the future.

Though economists differ in their evaluations of the various effects of a restrictive monetary policy, it is clear that the effects of such a policy are by no means limited to a rise in interest rates. It is also

clear, however, that general monetary policy cannot be very restrictive if interest rates are not free to rise.

Liberalizing Actions

Let us now examine the various actions that may be taken by the Federal Reserve and the Treasury to increase the supply and decrease the cost of money and credit.

GENERAL LIBERALIZING ACTIONS BY THE FEDERAL RESERVE

Instrument	Action Taken	Effects of Action
Discount rates on loans to banks.	Decrease discount rates.	Both by reducing the cost of borrowing and by signifying the Federal Reserve's desire for any easy-money policy, this tends to encourage an easy money policy among banks. Its effectiveness may be reduced by the persistent tradition against rediscounting.
Moral suasion.	Encourage banks to borrow at the Federal Reserve and to lend liberally.	May encourage banks to liberalize their lending, but may be relatively ineffective in the face of the tradition against continuous borrowing and a deflation psychology.
Bill-buying rate.	Reduce the rate.	Tends to increase the quantity of acceptances offered to Reserve banks and to lower market interest rates on the obligations.
Open-market operations in government securities.	Buy securities in the open market, or at least raise the prices and	Tends to increase bank reserves, reduce the cost of securing reserves by

General Liberalizing Actions by the Federal Reserve

Instrument	Action Taken	Effects of Action
	lower the yields at which they will be bought.	selling these obligations, and lower market yields on these obligations.
Member bank reserve requirements.	Lower reserve requirements.	Tends to liberalize credit (1) by creating excess reserves in the banking system, and (2) by increasing the potential expansion of credit on each dollar of excess reserves.

General Liberalizing Actions by the Treasury

Instrument	Action Taken	Effects of Action
Location and size of the Treasury balance.	Decrease Treasury cash in vault and deposits at the Federal Reserve, or borrow at the Federal Reserve and use the money for the following purposes: (1) to cover a current deficit, (2) to purchase securities from nonbank investors, (3) to increase balances at commercial banks, (4) to purchase securities from commercial banks.	The use of such money for purposes (1) and (2) increases both the public's money supply and commercial bank reserves. Its use for (3) and (4) increases bank reserves without directly affecting the public's money supply.
Other debt management policies.	Lower interest rates and sell securities to Federal Reserve and commercial banks rather than to nonbank investors.	Tends to increase the monetization of debt, to increase bank reserves, and to lower the market structure of interest rates.

LIBERALIZATION OF SELECTIVE CREDIT CONTROLS BY THE FEDERAL RESERVE

Instrument	Action Taken	Effects of Action
Regulations T and U (margin requirements on securities listed on national exchanges).	Lower margin requirements; that is, raise the loan values of these securities.	Permits more liberal use of credit for purchasing and carrying these securities.
Regulation W (consumer credit).	Remove this control entirely, or at least lower the required down payment and lengthen the period of repayment.	Permits more liberal use of credit for these purposes.
Regulation X (credit on new residential construction).	Remove this regulation entirely, or at least reduce down payments and lengthen period of repayment.	Permits more liberal use of credit for these purposes.

This list emphasizes the great powers of the Federal Reserve and the Treasury to improve the reserve positions of commercial banks, to increase directly the money supply in the hands of the public, and to lower interest rates on government securities and other obligations. In the Federal Reserve's early days, when it extended credit primarily through loans to member banks, its expansive power was more limited. It could only lower its discount and bill-buying rates and beg the banks to borrow, but a negative attitude on the part of the banks could prevent an expansion of bank reserves and the money supply. Now, however, the Federal Reserve can take the initiative. It can create excess reserves in the banking system by lowering reserve requirements. Both it and the Treasury can purchase large amounts of securities from commercial banks, thereby adding still further to bank reserves. And both can purchase large amounts of securities from nonbank investors, thereby directly increasing the public's holdings of money as well as adding to bank reserves. This last point deserves emphasis; the Federal Reserve and Treasury do not have to rely solely

on the commercial banks to increase the public's money supply. They can do this directly by purchasing securities from insurance companies, investment trusts, savings banks, business corporations, and other investors, thereby increasing their liquidity.

This is the crucial question: Can these two agencies, by means of these powers, succeed in preventing and curing depression by raising the rate of spending to the level required to provide full employment? It will be noted that the liberalizing actions of the Federal Reserve and Treasury are largely permissive in nature: they can greatly increase the lending power of banks and others and encourage them to lend by supplying them with additional money, but they cannot force either an expansion in private loans or an expansion in private spendings. For lending capacity to be translated into spending for output sufficient to support full employment, two further conditions must be met: (1) Banks and other lenders must be willing to provide adequate amounts of credit on terms acceptable to borrowers, and (2) borrowers must be willing to borrow adequate amounts and translate them into actual spending for output. These results may be difficult to achieve, especially in depression periods when the profits expected from new investment are low.

Private investors cannot be expected to lend at negative or zero rates of interest, and they may prefer to hold idle money rather than lend adequate amounts at low positive rates of interest. For this there are at least three reasons. (1) The low interest rates may be insufficient to cover the inconvenience and cost of making and supervising loans. (2) Interest rates may not be considered high enough to offset the chance of borrowers failing to repay. And (3) investors may expect that interest rates will rise again later. At the same time, because of their pessimistic expectations as to risk and the profitability of new investment, potential borrowers may be willing to borrow and spend adequate amounts only at extremely low or even negative rates of interest. A liberal monetary policy can do something to improve expectations, but there remains the possibility of a "credit deadlock" —the possibility that the lowest interest rates that can be established will still be too high to elicit a sufficient volume of private investment to provide full employment.

When such a situation occurs, monetary policy may need to be supplemented by other devices, such as government guarantee of loans, subsidies or other inducements to private investment, or deficit spending, in which the government acts as borrower and injects the money into the income stream. This does not, however, mean that an easy-money policy is useless as an anti-deflationary instrument. It can reduce the tendency of lenders to call loans in order to increase their own liquidity; it can exert some pressure leading to a greater availability of credit and lower interest rates; it can probably create somewhat more optimistic or less pessimistic expectations as to the future course of business; and it can prevent government borrowing from increasing the cost and reducing the availability of credit for private use. Moreover, a timely and vigorous easy-money policy may by itself be sufficient to maintain or restore full employment if initiated before expectations have deteriorated seriously.

SELECTED READINGS

Board of Governors of the Federal Reserve System:
"Supply and Use of Member Bank Reserve Funds," *Federal Reserve Bulletin*, July, 1935.
Banking and Monetary Statistics, Washington, 1943, pp. 360–402.
Banking Studies, Washington, 1941.
Federal Reserve Bulletins.
Annual Reports.
Currie, L., *The Supply and Control of Money in the United States*, Harvard University Press, Cambridge, 1934.
Dodwell, D. W., *Treasuries and Central Banks*, King, London, 1934.
Douglas, P. H., *Controlling Depressions*, Norton, New York, 1935.
Ebersole, J. F., "Money Management Powers of the Treasury and the Federal Reserve Banks," *Harvard Business Review*, Autumn, 1936.
Goldenweiser, E. A., *American Monetary Policy*, McGraw-Hill, New York, 1951.
Johnson, G. G., Jr., *The Treasury and Monetary Policy 1933–1938*, Harvard University Press, Cambridge, 1939.
Paris, J. D., *Monetary Policy of the United States 1932–1938*, Columbia University Press, New York, 1938.
Taus, E. R., *Central Banking Functions of the United States Treasury, 1789–1941*, Columbia University Press, New York, 1943.

U.S. Congress, Joint Committee on the Economic Report:
Subcommittee on Monetary, Credit, and Fiscal Policies,
Statements on Monetary, Credit, and Fiscal Policies, 1949.
Hearings on Monetary, Credit, and Fiscal Policies, 1949.
Report on Monetary, Credit, and Fiscal Policies, 1950.
Subcommittee on General Credit Control and Debt Management,
Replies to Questions and Other Materials, 1952.
Hearings, 1952.
Report, 1952.
(All published by the Government Printing Office, Washington, D.C.)

CHAPTER 16

Objectives of Federal Reserve Monetary Policies, 1914–1945

Having examined the various instruments used by the Federal Reserve to carry out its function of monetary and credit management, we now look at the purposes for which these powers have been used. We shall find that the objectives of Federal Reserve policy have been not one but many, that they have changed from time to time, and that the relative weights given to the various objectives—some of them conflicting with each other—have also varied. It will be convenient to deal with the System's peacetime objectives before considering its objectives in time of war.[1]

PEACETIME OBJECTIVES OF FEDERAL RESERVE CREDIT POLICIES

It seems clear that the founders of the Federal Reserve System did not contemplate any basic change in the existing monetary and banking system; their objective was merely to alleviate a few of the shortcomings of that system. To establish more effective supervision of the banks in this country, to integrate more closely the functioning of state and national banks, to prevent bank panics by supplying a

[1] For an interesting discussion of this subject, see Arthur Hersey, "Historical Review of Objectives of Federal Reserve Policy," *Federal Reserve Bulletin*, April, 1940.

more elastic type of currency and making available to banks a source of additional reserve funds in times of stringency, to decrease the number of bank closings, to prevent "speculative excesses," and to ameliorate the fluctuations of interest rates—these were the types of results expected from the new Federal Reserve System. The Federal Reserve Act itself offered but little policy guidance, providing only that discount rates should be established ". . . with a view of accommodating commerce and business." As late as 1923 the Federal Reserve Board stated that Reserve bank open-market operations in securities should ". . . be governed with primary regard to the accommodation of commerce and business and to the effects of such purchases and sales on the general credit situation."[2] Such vague pronouncements could offer little or no useful guidance to credit policy; they could only act as a substitute for clear thinking and prolong the earlier tendency of Federal Reserve officials to believe that they should function merely as passive lenders and assume no positive responsibility for the course of monetary and credit developments. As Dr. E. A. Goldenweiser testified:

> . . . the idea that the Federal Reserve Board has broader responsibilities than the mere accommodation of commerce and business and the serving of agriculture, trade and industry, is an idea which has been forced upon the Federal Reserve System by actual experience and which has been gradually developed in the System.
>
> The accommodation of commerce and business, which is the only objective that was mentioned in the Federal Reserve Act, is a vague phrase, and has all the attributes of a statesmanlike pronouncement. It is vague, it is a glittering generality like the Declaration of Independence, and its contents can be changed as circumstances change.[3]

In the following section we shall discuss more fully the implications of "accommodating commerce, industry and agriculture." What we must emphasize here is that in the beginning both Congress and Federal Reserve officials were much influenced by the strong laissez-faire philosophy of the pre-1914 period, the functions of the Federal Reserve System were narrowly construed, and it was expected to be

[2] Federal Reserve Board, *Annual Report*, 1923, p. 116.
[3] Hearings on H.R. 5357, 74th Congress, First Session, 1935, p. 434.

largely passive rather than a strong controlling body. This attitude was abandoned only slowly, and probably tardily, as the System faced a variety of disquieting disturbances growing out of World War I, the depression following that war, world monetary disturbances and our own speculative mania during the 1920's, and the devastation wrought by the great depression after 1929. Only gradually did the Federal Reserve assume its present responsibilities as a powerful and active monetary authority.

The Accommodation of Commerce, Industry, and Agriculture

Though the term "accommodation of business" is indeed a glittering generality without specific content, it was nevertheless used during the early years of the Reserve System to justify two courses of action—or inaction. In the first place, the Federal Reserve seems to have been much impressed by the commercial loan theory of commercial and central banking. Time and again officials of the System maintained that the quantity of money and bank credit would be properly and almost automatically adjusted to "the needs of trade" if commercial and central banks would make only "short-term, self-liquidating loans based on the legitimate short-term needs of agriculture, industry, and commerce." Proper control of the form and use of Federal Reserve and commercial bank credit—that is, control of the "quality" of credit—would make unnecessary any specific attention to the quantity of credit. This theory of central banking was propounded at length in the famous 1923 *Annual Report* of the Federal Reserve Board.

> It is the belief of the Board that there will be little danger that the credit created and contributed by the Federal Reserve banks will be in excessive volume if restricted to productive uses.
>
> A characteristic of the good functioning of the economic system is to be found in the smooth unobstructed movement of goods from the producer through the channels of distribution to their several ultimate uses. The characteristic of the good functioning of the credit system is to be found in the promptness and in the degree with which the flow of credit adapts itself to the orderly flow of goods in industry and trade. So long as this flow is not interrupted by speculative interference there is little likelihood of the abuse of credit supplied by the

Federal Reserve banks and consequently little danger of the undue creation of new credit. The volume of credit will seldom be at variance with the volume of credit needs as they are deflected in the demands of productive industry as long as (1) the volume of trade, production, and employment and (2) the volume of consumption are in equilibrium. Credit for short-term operations in agriculture, industry, and trade, when these operations are genuinely productive and nonspeculative in character, that is to say, credit provided for the purpose of financing the movement of goods through any one of the successive stages of production and distribution into consumption, is a productive use of credit. But when the effect of the credit used is to impede or delay the forward movement of goods from producer to consumer, unless such delay is made necessary by some unavoidable cause, e.g., the interruption of transportation facilities, credit is not productively used. The withholding of goods from sale when there is a market or the accumulation of goods for an anticipated rise of price is not a productive use. It is the unproductive use of credit that breeds unwarranted increase in the volume of credit; it also gives rise to unnecessary maladjustment between the volume of production and the volume of consumption, and is followed by price and other economic disturbances. Administratively, therefore, the solution of the economic problem of keeping the volume of credit issuing from the Federal Reserve banks from becoming either excessive or deficient is found in maintaining it in due relation to the volume of credit needs as these needs are derived from the operating requirements of agriculture, industry, and trade, and the prevention of the uses of Federal Reserve credit for purposes not warranted by the terms or spirit of the Federal Reserve Act.[4]

The implications of this theory of Federal Reserve credit policy are obvious: The System should try to assure that commercial banks extend only "short-term self-liquidating" credit based on "an orderly movement" of goods and services—refusing credit for the "speculative" purchase and holding of either commodities or securities—and Reserve banks likewise should lend only on short-term commercial paper of the "eligible" type. Having thus regulated the *quality* of credit, the Federal Reserve could then passively permit the *quantity* of credit to be adjusted automatically to "the legitimate needs of trade."

As was pointed out in a preceding chapter, the commercial loan

[4] Federal Reserve Board, *Annual Report*, 1923, pp. 34–35.

theory of banking is clearly fallacious and, when used as a guide to credit policy, can lead central banks into serious errors. Almost unlimited inflation or deflation can result, even though bank credit is extended solely on the basis of production and trade. Suppose, for example, that entrepreneurs decide to borrow larger amounts from banks to meet pay rolls or purchase inventories; they can easily do this since ordinarily they have unused borrowing power. This original increase in the money supply would increase the spending power of the community and would tend to increase the value of business assets and business output. This induced rise in the value of their assets and output would increase the borrowing power of enterprisers, and it would be likely to induce a further increase in bank loans and checking deposits, a further increase in spending and prices, and so on. In short, each expansion of credit would provide the basis for a still further increase in credit, spending, and prices. On the other hand, an original decline of bank credit—by reducing the money supply, spending, and prices—could induce still further declines of borrowing, the money supply, spending, and prices. Certainly no mere control of the types or "quality" of commercial bank and Reserve bank credit can assure proper behavior of the quantity of credit and money.

Closely related to this theory of "accommodating business" was the desire of Federal Reserve officials to stabilize interest rates. Commerce, industry, and agriculture should at all times be "accommodated" at "reasonable" rates of interest. One searches in vain, however, for a definition by Federal Reserve officials of these "reasonable" or "natural" levels of interest rates. We shall see later that interest rates must be kept at "appropriate" levels if savings are to be used actively for investment in new capital goods in such quantities as to provide high and stable levels of employment. Inappropriate interest rates can have highly unstabilizing effects on business and employment. But these "appropriate" rates are not, as the Federal Reserve seemed to believe in its early years, stable over a period of time. When investment spending tends to rise to excessive levels relative to savings, interest rates should be increased, sometimes markedly. And when borrowing to finance investment spending tends to be deficient relative to savings, interest rates should certainly be

reduced, often drastically, to increase the amount of savings demanded for use. A policy of stabilizing interest rates through good times and bad can serve only to accentuate business fluctuations. Failure of these rates to drop markedly as the profitability of business declines must aggravate the fall of business borrowing, spending for capital goods, employment, production, and prices. And failure of these rates to rise sufficiently during highly profitable boom periods must accentuate the rise of business borrowing, spending for capital goods, and prices. In an economy characterized by marked shifts in the profitability of business, interest rates should not be stabilized but should be deliberately varied in such a way as to make their maximum contributions to business stability.

As long as Federal Reserve officials continued to think in terms of "accommodating business" they tended to follow passive credit policies. But the sheer impact of events forced them to look at other objectives and after a time to assume the initiative and take more aggressive action.

The Maintenance of a Stable Ratio of Reserves to Liabilities at Reserve Banks

Some apparently believed that the new Reserve banks should follow a policy of lending and purchasing securities, thereby creating member bank reserves and issuing Federal Reserve notes, up to the maximum amounts permitted by their legal reserves. This would have meant that total Reserve bank credit would have tended to increase and decrease proportionally with increases and decreases in our gold stock. There seem to have been two reasons for this belief: (1) The Reserve banks, like commercial banks, should try to maximize their profits, and they could do so only by lending up to the limit permitted by their reserves. (2) Such policies were in accord with "the rules of the gold standard game." These people believed that a gold inflow should cause the Reserve banks to expand their own credit, and that a gold outflow should lead to a tightening of Reserve bank credit.

In practice, the maintenance of a stable ratio of reserves to deposit and note liabilities has not been an important objective of Federal Reserve credit policy. The Reserve banks have usually kept their re-

serve ratio far above the minimum required by law and have not tried to stabilize it. On only three occasions—once in 1920, once in 1931, and once in 1933—did their reserves fall so close to the legal minimum that they felt obliged to raise their discount rates and otherwise restrict credit in order to protect their reserve position. At all other times their credit policies have been aimed at other objectives. Upon the receipt of gold, the Reserve banks have sometimes kept the volume of their credit stable, at other times they have reduced their credit in the face of the gold inflow, and at still other times they have expanded their credit under these conditions. Their response to gold outflows has been at least as varied. In short, the Reserve banks have not ordinarily allowed their credit policies to be dictated by their reserve position. Neither have they attempted to maximize their profits; in fact, they frequently take actions that will clearly reduce their profits.

The Restraint of Security Speculation

On several occasions Federal Reserve credit policies have been influenced by a desire to restrain speculation in securities, or at least restrict the use of credit for this purpose. This objective was one of the dominating determinants of credit policy in the period immediately preceding October, 1929, and it has been influential at other times, as in 1936–37 and during and immediately after World War II.

Many remember painfully the mania for security speculation that culminated in the great crash of October, 1929. As measured by the Standard Statistics index, common-stock prices in September, 1929, had risen 70 percent above the levels of late 1927, about 125 percent above 1926 levels, and 225 percent above 1923 levels. Unprecedented numbers of Americans fought to share in the huge speculative profits of the new era, some of them borrowing large amounts of money to finance their stock purchases. In October, 1929, stockbrokers had borrowed more than $9 billion for their own accounts and for their customers, and it has been estimated that other loans on securities amounted to at least $7500 million. Thus, total loans on security collateral that month amounted to at least $16,500 million. It is true, of course, that the volume of loans on security collateral is

not an accurate measure of the amount of borrowed funds that is being used for security speculation; some of the proceeds of such loans can be used to finance commodity production and trade, and some of the proceeds from loans on commercial paper can be used for security speculation. Yet it was clear to everyone that great quantities of credit were being used to finance speculative security purchases. A large part of these loans were made by commercial banks; another large amount was lent for speculative purposes by nonbanking corporations, individuals, and foreign sources. At least $3600 million of outstanding loans to brokers in October, 1929, came from these nonbank sources.

Though insisting that it "neither assumes the right nor has it any disposition to set itself up as an arbiter of security speculation or values," the Federal Reserve Board was strongly opposed to the excessive use of credit for security speculation.[5] There were several reasons for this opposition. (1) It was feared that increases in loans for this purpose would induce an overexpansion of the total volume of bank credit and money, with general inflationary consequences. Those who believed in the commercial loan theory of banking thought that the extension of loans for speculative purposes was especially likely to bring about general overexpansion. (2) It was feared that the greatly increased use of loan funds for speculative purposes would absorb funds from the market and increase the general level of interest rates, to the detriment of business and of financial conditions at home and abroad. The Federal Reserve, seeing no signs of overexpansion of production, trade, or prices in our commodity markets, wished to maintain low interest rates for "legitimate" purposes in order to maintain a high level of economic activity. Moreover, it did not want to see interest rates here rise to such high levels as to attract large amounts of foreign funds, thereby endangering the ability of foreign countries to retain their gold stocks and to continue to prosper. (3) It was feared that the collapse of security prices following an excessive rise would endanger prosperity by generating a generally pessimistic outlook and making it difficult for business enterprises to sell new securities.

[5] *Ibid.*, 1929, p. 2.

But how was the Federal Reserve to restrain the use of credit for security speculation? This became a subject of bitter controversy between the Federal Reserve Board and the officers of several Reserve banks. Two general methods presented themselves: (1) a general tightening of credit conditions which would affect speculative borrowers as well as others, and (2) selective controls which would attempt to reduce the availability of credit for security speculation without restricting it for "legitimate" purposes. Each had its shortcomings. A general restriction of credit and a rise in interest rates would hit "legitimate" borrowers as well as speculators, and many believed that production and trade would be more sensitive to increased interest rates than would speculative borrowing. On the other hand, selective controls were largely untried and their effectiveness was doubtful. Under existing legislation the power of the Federal Reserve to exercise such selective control was largely limited to moral suasion. It could only issue general warnings, plead with banks to limit speculative loans, warn individual banks not to abuse their borrowing privileges by using Reserve bank funds to make security loans, and in extreme cases refuse to lend to a bank or force it to repay its borrowings. Such measures were clumsy and of little use in dealing with the banks that were largely out of debt to the Federal Reserve and yet were lending heavily for speculative purposes.

Both general and selective restrictive actions were taken. Between November, 1927, and the autumn of 1929 the Reserve banks sold more than $400 million of government securities in the open market, raised their bill-buying rate from 4½ to 5⅛ percent, and increased their discount rates by varying amounts, the New York Reserve bank rate being raised in a series of steps from 3½ to 6 percent. These general restrictive actions were supplemented sporadically, mostly in the early part of 1929, by moral suasion aimed at curtailing security loans while maintaining ample credit for legitimate purposes. In public speeches, circular letters, interviews, and otherwise, banks were told that:

1. Funds were being "absorbed" in security loans, to the detriment of legitimate business.

2. The Federal Reserve Act did not contemplate the use of Reserve bank credit for the creation or extension of speculative credit, and a member bank could not reasonably claim the right to borrow for the purpose of making or maintaining security loans.
3. The Federal Reserve Board had authority to interfere with the loan practices of member banks which were maintaining speculative security loans with the aid of Reserve bank credit.
4. The coöperation of member banks in limiting security loans was necessary.[6]

Though Federal Reserve actions of this period did tighten credit, it seems unlikely that they either significantly reduced the speculative use of credit or directly hastened the collapse of security prices. In fact, some believe, perhaps wrongly, that the Federal Reserve tended only to hasten the decline of "legitimate" business both here and abroad. It was largely because of the impotence of the Federal Reserve in this period, coupled with the subsequent revulsion against the evils of speculation, that legislation was enacted in 1933–35 increasing the selective controls available to the Federal Reserve. The new legislation gave it much greater power to regulate the use of credit for security speculation. (1) Member banks are forbidden to act as agents of corporations and individuals in making loans on securities. The purpose of this prohibition is to prevent inflows of loan funds from these nonbank sources from defeating Federal Reserve attempts to restrict speculative credit. (2) The Board of Governors is empowered to fix "margin requirements" on security loans. This power is proving useful in limiting the speculative demand for credit. (3) The Board may also direct any member bank to refrain from increasing its loans on security collateral for any period up to a year. It is hoped that these new selective controls will enable the Federal Reserve to prevent the excessive use of credit for security speculation without necessitating a general restriction of credit.

The Stabilization of Business Activity

Federal Reserve officials have insisted that stabilization of business activity has always been one of the primary objectives of their credit

[6] *Ibid.*, 1929, p. 3.

policies. Typical of these statements is one made by a spokesman for the Federal Reserve Bank of New York in 1931:

> The economic life of the country moves in a constantly changing current from depression to prosperity and back again. Broadly speaking, it has been the policy of this bank to exercise its influence toward restraint at times when business and speculative activity appeared to be excessive, and to remove credit restraints at times of business depression in the hope that this policy might aid in avoiding the extremes of business expansion and contraction and encourage greater business stability. . . .[7]

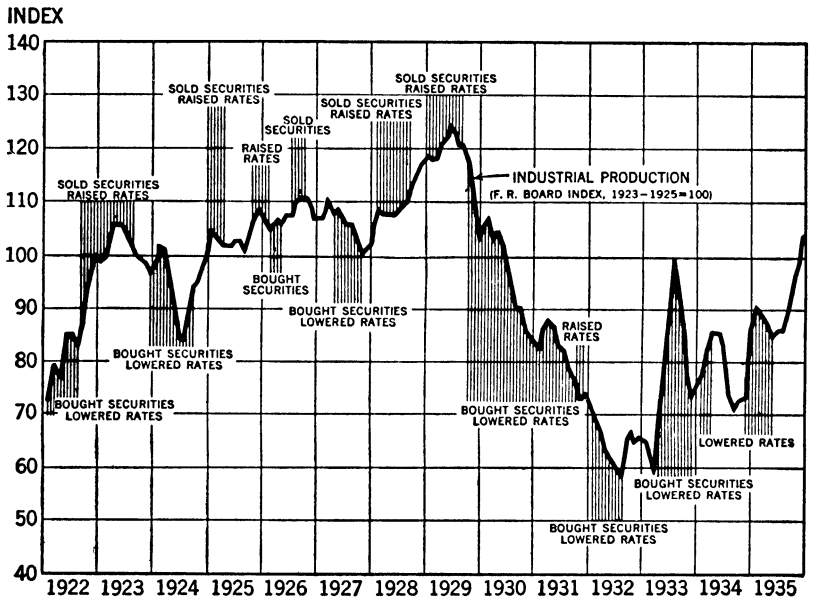


FIG. 11. Timing of Federal Reserve Open-Market Operations and Discount Rate Changes Compared with Changes in the Volume of Industrial Production.[8]

Federal Reserve officials and W. R. Burgess have prepared charts showing that the restrictive and liberalizing policies of the Federal Reserve have actually been timed in such a way as to tighten credit

[7] Appendix to Hearings on S. Res. 71, 1931, p. 761.

[8] Reproduced from W. R. Burgess, *Reserve Banks and the Money Market*, copyright, 1927, 1936, 1946, by Harper & Brothers.

when business activity was rising rapidly and to ease it when business was declining.

Though it is undoubtedly true that stabilization of business activity has been one of the important objectives of the System's credit policy, we must not assume that it has long been the dominating purpose. In the first place, it has had to compete with many other objectives. This was especially true in the earlier period. And in the second place, it was only after 1931 that the Federal Reserve was willing to take really aggressive action to bring about business recovery. Inclined to be passive before that time, it was disposed to do no more than "remove credit restraints at times of business depression in the hope that this policy might aid in avoiding the extremes of . . . business contraction." In 1935 Governor Eccles of the Board proposed the following congressional mandate to the Federal Reserve: "It shall be the duty of the Federal Reserve Board to exercise such powers as it possesses to promote conditions making for business stability and to mitigate by its influence unstabilizing fluctuations in the general level of production, trade, prices, and employment, so far as may be possible within the scope of monetary action."[9] Prior to about 1932 most Federal Reserve officials would have been strongly opposed to any mandate imposing such a clear responsibility on the System and requiring such positive and aggressive action from it. It seems likely that stabilization of business activity will be the most important peacetime objective of the Federal Reserve during the coming years. Its aggressive antidepression policy from 1933 to 1940 and the spirit expressed in the Full Employment Act of 1946 both suggest that in the future the Federal Reserve will not be able to maintain passive policies in the face of widespread unemployment. But that it will act promptly to stop an overexpansion of credit and spending seems less certain.

Price Stabilization

It has been proposed on several occasions that Congress should order the Federal Reserve to use its powers to maintain stable commodity price levels. Officials of the System have opposed every one of these proposals, though they have emphasized the desirability of

[9] Hearings on H.R. 5357, p. 251.

maintaining relatively stable prices and have insisted that their policies do in fact tend toward doing so. They have given several reasons for their opposition to the proposed legislation. (1) There are technical defects in the proposals. Board members have criticized the ambiguity of proposals to stabilize "the general level of prices," pointing out the diverse behavior of the different types of price indexes. One member, Mr. Hamblin, emphasized this point in 1928: "For example, in the period from 1925 to 1927 the Bureau of Labor wholesale indexes show a price decline of about 12 per cent; but if you take the curve of the cost of living, the decline was barely 2 percent. If you take a composite index like Mr. Snyder's, there was hardly any decline at all."[10] The Board would still have opposed the legislation, however, even if it had specified the particular index to be stabilized. (2) Not all price declines are undesirable. Though admitting that price declines are usually harmful, the Board has insisted that those arising from general increases in efficiency are actually beneficial. If the decline in prices is accompanied by at least proportional decline in costs, no decrease in the profitability of production and employment need occur. (3) Price changes are but tardy indicators of more basic difficulties. Federal Reserve officials have contended that changes in price levels are poor guides for a credit policy because they tend to appear only after basic maladjustments have been under way for some time. "Credit administration must be cognizant of what is under way or in process in the movement of business before it is registered in the price index. The price index records an accomplished fact."[11]

For these reasons the Federal Reserve has continued to oppose all proposals that would make price stabilization the sole, or even the dominant, objective of peacetime credit policies. But it still insists that a high degree of price stability would follow from a successful policy of business stabilization.

Restoration and Maintenance of the Gold Standard Abroad

During much of the period since the end of World War I, the Federal Reserve System has had to consider not only the domestic

[10] Hearings on H.R. 11806, 1928, p. 393.
[11] Federal Reserve Board, *Annual Report*, 1923, p. 32.

but also the international effects of its policies. This country emerged from that war as the strongest monetary power in the world. Our gold holdings far exceeded those of any other country, and we tended constantly to add to our gold stocks at the expense of other countries. They, on the other hand, found it difficult to reëstablish and maintain gold standards without our coöperation. Prior to World War II our coöperation with other nations on monetary matters was far from complete. Instead of taking the lead in setting up a formal international body to facilitate coöperation, we refused to become a member of the one available organization for this purpose—the Bank for International Settlements—and the Federal Reserve often followed policies that were vigorously opposed by the officials of foreign central banks. Nevertheless, Federal Reserve credit policies have frequently been influenced by the System's desire to aid other countries in the restoration or continuance of gold standards and the maintenance of relatively easy credit conditions abroad. This aid has taken two general forms: (1) maintenance of easy credit conditions and low interest rates in this country, and (2) loans or commitments to lend to foreign central banks or governments.

The maintenance of easy credit here tends to help foreign countries acquire and retain gold and to maintain easy credit conditions in their money markets both by increasing our purchases of goods and services from them and by keeping investment funds in their markets. As we have already seen, easy credit conditions here tend to expand our money supply, our spendings for goods and services, and our national money income. With a high national income, we tend to buy more goods and services abroad. This tendency is accentuated to the extent that our prices rise. With a higher level of employment and income, we increase our purchases of goods and services from other countries, thereby giving them more funds with which to acquire and retain gold.

A liberal credit policy here also helps other countries retain gold and maintain easy credit conditions in their money markets by inducing a flow of credit to those countries, or at least by discouraging credit from flowing out of them. This is true of both short-term and long-term loan funds. During almost the entire period between the

two World Wars, there was a large volume of short-term funds capable of moving from one international financial center to another, depending on credit conditions in the various centers. By lowering interest rates in New York we could induce an outflow of funds from this country to such centers as London, Paris, or Berlin, or at least discourage a flow of funds from those centers to New York. Moreover, easy credit here encouraged Americans to make long-term loans abroad, and the ability of many countries to retain gold without tightening credit depended on the continued outflow of loan funds from this country. The abrupt termination of our foreign lending in 1929 was one of the principal factors leading to the breakdown of gold standards abroad.

In 1924 and 1927 the Federal Reserve deliberately adopted more liberal credit policies, purchasing securities in the open market and reducing discount rates, to help other countries restore and maintain gold standards. An unwillingness to intensify the monetary difficulties of other nations was one, but only one, of the reasons why the Federal Reserve did not adopt even more restrictive credit policies in 1928–29.

The Reserve banks have also assisted other countries in reëstablishing or maintaining gold standards by extending credits to their central banks or governments. A partial list of these credits is given in Table 39. This table shows that prior to 1932 the Reserve banks entered into twelve formal agreements to extend credits to the central banks of nine different countries. In some cases the Reserve banks alone extended aid; in others they acted in collaboration with other central banks. Even when these credit agreements were not utilized they often proved helpful, because they served to establish confidence in the currency affected and to halt credit withdrawals from the threatened country.

Though these various Federal Reserve actions were unquestionably of assistance to other countries, they were too sporadic to take the place of thoroughgoing international coöperation. With the establishment of the International Monetary Fund and the International Bank for Reconstruction and Development we now have a more adequate mechanism for coöperation. Whether we also have the necessary good will and wisdom remains to be seen.

TABLE 39. Credits Extended to Foreign Central Banks by Federal Reserve Banks[12]

Date	Bank Receiving Credit		Amount
1925	Bank of England		$200,000,000
1925	Banking Office of the Ministry of Finance of Czechoslovakia	(approx.)	5,000,000
1925	Bank of Poland		10,000,000
1925	National Bank of Belgium		10,000,000
1927	Bank of Poland		5,250,000
1927	Bank of Italy		15,000,000
1929	Bank of Roumania		4,500,000
1929	National Bank of Hungary		2,000,000
1931	National Bank of Austria		1,083,000
1931	National Bank of Hungary		5,000,000
1931	German Reichsbank		25,000,000
1931	Bank of England		125,000,000

WARTIME OBJECTIVES OF FEDERAL RESERVE CREDIT POLICIES

During major wars the dominant objective of central bank policies is to create, or provide the basis for the creation of, new money with which to meet the government expenditures that are not met by taxes or by borrowings from nonbank sources. That central banks become the engines of inflation is the sad conclusion to which one is forced by the financial histories of modern wars. It has certainly been true of the Federal Reserve during both World Wars.

World War I

Though small in comparison with World War II, our government expenditures during World War I were far higher than they had ever been during any earlier peace or war period. In the two years between July 1, 1917, and June 30, 1919, the federal government spent $31,341,000,000. Only 27 percent of this expenditure was covered by taxes, the remaining 73 percent, or $22,506,000,000, being met by borrowing. The federal debt was raised from about $1 billion at the beginning of 1917 to nearly $26 billion at the end of 1919. Some of

[12] For a comprehensive study of these credits, see A. Goldstein, "Federal Reserve Aid to Foreign Central Banks," *Review of Economic Studies*, February, 1935, pp. 79–98.

the new bonds representing this debt increase—in fact, large amounts of them—were sold to individuals and business concerns who purchased them out of their current incomes. When receipts from these security sales proved far too small to meet the government's needs, it resorted to an inflationary expansion of bank credit to make up the difference. In effect, the commercial banks created new deposits for the Treasury, which then used them to pay the government's expenses. These new deposits were created in two principal ways. In the first place, the commercial banks themselves purchased large amounts of government bonds, paying for them with newly created deposit credits. It is estimated that these banks added nearly $4500 million to their holdings of government securities during the three years preceding July, 1919. In the second place, banks created a large volume of new deposits by making loans to individuals and corporations who in turn used them to buy government securities. With the full encouragement of the Federal Reserve and the Treasury, individuals and corporations subscribed to government bonds and immediately borrowed enough money from the banks to pay for them. The results were almost as inflationary as they would have been had the banks lent directly to the Treasury. The total money supply, including both checking deposits and circulating coin and currency, rose about $10 billion, or more than 70 percent, in the three years following our entrance into the war in April, 1917.

The prime objective of Federal Reserve credit policies from early 1917 until about the end of 1919 was to facilitate Treasury finance. In addition to acting as a nation-wide bond-selling organization and otherwise serving as fiscal agent for the Treasury, the Federal Reserve supplied the banks with large amounts of reserves so that the Treasury would be able to borrow all the money it needed at low rates of interest. Total Reserve bank credit outstanding rose from less than $500 million in the middle of 1917 to more than $3500 million at the end of 1919. Most of this was in the form of loans to member banks. The Federal Reserve used almost every propaganda device at its disposal to encourage banks to buy government securities or lend to anyone willing to borrow in order to buy these securities. Moreover, it assured them that the Reserve banks were willing and even eager to lend re-

serve funds for this purpose at rates of interest no higher than those borne by the securities or by the bank loans on these securities as collateral. The Reserve banks themselves both supplied funds to the Treasury and added to member bank reserves by purchasing more than $200 million of Treasury obligations.

Thus, World War I marked a great change in our methods of inflationary war finance. Inflation was accomplished during the Revolutionary War by the issue of government paper money in the form of continental currency. The Civil War inflation was financed by issues of paper money in the form of greenbacks and national bank notes, and to a lesser extent by the creation of additional checking deposits. The inflation of World War I was bank-financed; no increase of government-created paper money occurred. The Reserve banks created additional Federal Reserve notes to meet the increased demand for currency and lent additional reserves to commercial banks, which in turn used the increased reserves as a basis for creating billions of dollars' worth of new checking deposits.

World War II

To assure that the Treasury would not lack for money with which to meet all government expenditures again became the primary objective of Federal Reserve policy during World War II. And the Treasury's needs proved to be tremendous. Between mid-1940, when the acceleration of our defense program began, and mid-1946, when wartime deficits ended, government expenditures amounted to more than $383 billion. This was more than twice as much as the federal government had spent during the preceding 150 years, nearly 100 times as much as it spent during the Civil War, and ten times as much as it spent during World War I.

Though tax collections were greatly increased and amounted to nearly $197 billion for the period, this still left a cash deficit of almost $187 billion that had to be covered by borrowing. In fact, the Treasury's cash borrowings for the period were $199 billion, of which $187 billion was used to cover its deficit and the other $12 billion to increase its money balance. Efforts were made to sell these issues to nonbank buyers, and these investors did increase their holdings by

$109 billion. But the commercial and Federal Reserve banks increased their holdings by a total of $89.6 billion, of which $68.3 billion was taken by commercial banks and $21.3 billion by the Federal Reserve. It was largely through this process that the money supply—coin and paper money outside banks plus privately owned checking deposits—was increased from $39 billion in June, 1940, to $106 billion in June, 1946, or an increase of 174 percent.

TABLE 40. Cash Operating Outgo, Income, and Deficits of the Federal Government, 1940–1946[13]
(In millions of dollars)

Fiscal Year Ending June 30	Cash Operating Outgo	Cash Operating Income	Cash Operating Deficit
1941	$ 14,060	$ 9,371	$ 4,689
1942	34,585	15,291	19,294
1943	78,979	25,245	53,735
1944	94,079	47,984	46,095
1945	95,986	51,051	44,945
1946	65,683	47,784	17,899
Total	$383,372	$196,716	$186,657

On the day after Pearl Harbor, the Board of Governors announced that it would see that the Treasury was supplied with all the money it needed for war finance. Then in March, 1942, the Federal Open-Market Committee agreed with the Treasury that in general the level of interest rates on government securities should not be allowed to rise during the war and pledged the full coöperation of the System in preventing a rise in these rates. This promise was fully kept.

Though the Federal Reserve used several methods to assure the success of Treasury financing and prevent interest rates from rising, only one of these need be described for it was by far the most important and would have been sufficient by itself. This was open-market policy. The Federal Reserve stood ready to buy willingly, and without limitation as to amount, all government obligations offered to it at the officially agreed-upon prices and yields. Thus the prices

[13] Source: L. V. Chandler, *Inflation in the United States, 1940–1948*, Harper, New York, 1951, p. 62. Much of the material in this and the following chapter is taken from this book.

of government obligations could not fall below, nor could yields rise above, those at which the Federal Reserve was a willing buyer. The pattern of yields stabilized by the Federal Reserve is of some interest. It was very low on short maturities and ranged upward to a top of 2½ percent on the longest marketable securities, those due in 25 years. On 90-day maturities it was ⅜ of 1 percent; on 9–12-month

TABLE 41. Federal Borrowings, Their Use and Their Sources, 1940–1946[14]
(In millions of dollars)

Fiscal Year Ending June 30	Federal Cash Operating Deficit	Increase or Decrease (−) of Treasury's General Fund Balance	Net Cash Borrowing	Net Increase in Amount of Federal Interest-Bearing Debt Held			
				By Nonbank Investors	By Federal Reserve and Commercial Banks	By Commercial Banks	By Federal Reserve Banks
1941	$ 4,689	$ 742	$ 5,431	$ 2,143	$ 3,318	$ 3,600	$ −282
1942	19,294	358	19,652	12,869	6,761	6,300	461
1943	53,735	6,515	60,250	28,498	30,757	26,200	4,557
1944	46,095	10,662	56,757	32,913	23,899	16,200	7,699
1945	44,945	4,529	49,474	27,173	22,691	15,800	6,891
1946	17,899	−10,460	7,439	5,431	2,191	200	1,991
Total increase for period	$186,657	$12,346	$199,003	$109,027	$89,617	$68,300	$21,317

maturities it was ⅞ of 1 percent; on 5-year maturities it was 1½ percent; and on 10-year maturities it was 2 percent.

Table 42 shows that under this policy Federal Reserve holdings of governments rose from $2.3 billion at the end of 1941 to $24 billion at the end of 1945. This increase provided enough new money to

[14] *Ibid.*, p. 72. This table was computed from various tables in *Treasury Bulletins*. It should be noted that the figures relating to debt reflect only the debt held outside the federal government itself; they do not include an increase of about $22 billion in federal debt held by government agencies and trust funds. These securities involved no borrowing outside the government itself; as the Treasury collected and spent social security taxes it issued to the trust funds under its control government securities indicating a future obligation to pay social security benefits.

meet the increased demand for coin and currency in circulation and also to make large net additions to bank reserves. The table also shows that after the end of 1942 Federal Reserve purchases were concentrated in short-term maturities; in fact, its holdings of longer-term maturities actually declined during the latter part of the war. This was due partly to the very large Treasury issues of short maturities and partly to the yield curve being maintained. Private investors tended to shun the short maturities with their low yields and to purchase the longer maturities with higher yields. At their Federal Reserve support prices these longer-term obligations were just as

TABLE 42. Maturities of Governments Held by the Reserve Banks, 1941–1946
(Last Wednesday of the month; in millions of dollars)

Date	Within 90 days	90 days to 1 year	1 year to 2 years	2 years to 5 years	Over 5 years	Total
Dec., 1941	$ 96	$ 97	$247	$ 477	$1337	$ 2,254
Dec., 1942	1,199	886	242	1408	2254	5,989
Dec., 1943	7,256	2457	224	488	1190	11,615
Dec., 1944	12,703	4064	760	620	918	19,065
Dec., 1945	15,839	7000	0	508	691	24,038
June, 1946	17,877	4436	46	449	582	23,390

liquid as the shortest maturities. They could be riskier than the short obligations only if purchased above the support price or if the support price were withdrawn or lowered.

This passive open-market policy had several important consequences. (1) The Federal Reserve thereby abandoned control over the volume of its government holdings, the volume of bank reserves, and the money supply. To prevent the yields on governments from rising it had to buy all the securities offered to it, regardless of the identity of the seller and regardless of the purpose for which the newly created money would be used. Thus banks and nonbank investors alike could get new money from the Federal Reserve at will, the only cost being the yield sacrificed on the securities sold. (2) By holding down interest rates on government securities the Federal Reserve also held down interest rates on loans to private borrowers and assured a highly liberal supply of credit for private uses. The

reason was that all holders of governments retained complete freedom to sell these holdings and shift to other assets.

In view of this extremely liberal monetary policy, which placed no effective limit on the supply of credit and permitted no rise in interest rates, it may at first seem strange that loans to private borrowers failed to expand much more than they actually did during the war period. To some extent the expansion was held down by selective controls and moral suasion. Regulations on consumer credit and loans on securities were kept in effect and all government bank supervisory authorities joined in urging banks and other lenders to curtail loans for nonproductive purposes and to refuse loans for the accumulation of inventories of consumers' goods beyond minimum requirements. But these restrictions were far less important than a number of other factors that held down the private demand for loans—a limited supply of civilian goods, large private savings, and a comprehensive system of direct controls, including price and wage ceilings, rationing of many consumers' goods, and a number of controls limiting the availability of materials, labor, and facilities for private capital formation. The limited demand for consumer credit is easy to explain. The great increase in government expenditures coupled with inadequate tax collections produced large increases in personal incomes after taxes, while the limited supply of consumers' goods and the price ceilings on these goods limited consumption spendings. The result was an abnormally high rate of personal saving. At the same time, the supply of durable consumers' goods, which are usually the basis of most consumer borrowing, was curtailed. Under these conditions consumers had little reason to use much consumer credit no matter how liberal its supply might be. The same was true of business. Business firms were accumulating large amounts of savings, the amount of labor and materials available to them for capital accumulation was narrowly limited by direct government controls, and price and wage ceilings limited their ability to bid up the prices of available supplies. Thus their investment spendings and their effective demand for credit were held in check neither by a limited desire to spend nor by restrictions on the supply of credit; they were effectively limited by the com-

prehensive system of direct government controls over prices, wages, and availability of materials, labor, and facilities.

This point is very important. An easy-money policy which assured an unlimited supply of low-cost credit did only little harm during the war period when private demands for credit were held down by the comprehensive system of direct government controls over prices and materials. But the same liberal monetary policy became much more dangerous in the postwar period when the direct controls were dropped, thereby freeing from restraint private demands for credit.

SELECTED READINGS

Burgess, W. R., *Reserve Banks and the Money Market*, Harper, New York, rev. ed., 1946.

Goldenweiser, E. A., "Federal Reserve Objectives and Policies," *American Economic Review*, June, 1947, pp. 320–338.

Goldenweiser, E. A., *American Monetary Policy*, McGraw-Hill, New York, 1951.

Hardy, C. O., *Credit Policies of the Federal Reserve System*, Brookings Institution, Washington, 1932.

Harris, S. E., *Twenty Years of Federal Reserve Policy*, Harvard University Press, Cambridge, 1933.

Hersey, A., "Historical Review of Objectives of Federal Reserve Policy," *Federal Reserve Bulletin*, April, 1940.

Johnson, G. G., Jr., *The Treasury and Monetary Policy 1933–1938*, Harvard University Press, Cambridge, 1939.

Sproul, A., "Monetary Management and Credit Control," *American Economic Review*, June, 1947, pp. 339–350.

Thomas, W., "Monetary Controls," in Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, pp. 323–350.

U.S. Congress, Joint Committee on the Economic Report:

Subcommittee on Monetary, Credit, and Fiscal Policies, *Report*, 1950. *Statements on Monetary, Credit, and Fiscal Policies*, 1949.

Subcommittee on General Credit Control and Debt Management, *Monetary Policy and Management of the Public Debt*, 1952.

All published by Government Printing Office, Washington, D.C.

CHAPTER 17

American Monetary Policies Since World War II

During World War II, when the dominant objective of the country was to win the war, there was little controversy over monetary policy. Many complained about the inadequacy of taxes and the excessive reliance on borrowing to cover government expenditures, but few objected to the use of Federal Reserve powers to assure the success of Treasury financing and prevent a rise in interest rates during the war period itself. The postwar period has been far different; it has witnessed one of the most heated controversies in American monetary history. Some have insisted on the continuance of the extremely easy-money policy of the war period and opposed any use of restrictive monetary measures to combat the current inflation. Others have believed that the Federal Reserve should abandon its easy-money policy and vigorously use its powers for restrictive purposes. There have also been controversies centering on the types of restrictive measures that should be employed.

ECONOMIC CONDITIONS AT THE END OF THE WAR

To understand these controversies and the policies actually followed, it is necessary to examine general economic conditions at the end of the war and some of the principal postwar developments. When the war came to an end the situation was highly inflationary.

By V-J Day the official price indexes showed that the cost of living had risen 30 percent and wholesale prices 37 percent since 1939; and the increases would have been even greater if black markets, quality depreciation, and the disappearance of low-profit items had been taken into account. Moreover, prices and wages were being held down only precariously and with great effort by widespread price and wage controls backed up by rationing of many consumers' goods and numerous controls over the supply and use of labor and materials. Almost all groups in the country were complaining that their particular prices and wages were too low and making clear their determination to better their position as soon as possible. As price and wage controls, as well as other direct controls, were relaxed or abandoned soon after the end of the war, prices surged upward. Between August, 1945, and August, 1948, the first postwar peak, the cost of living rose another 35 percent and wholesale prices 61 percent. In short, more than 60 percent of the entire increase in the cost of living between 1939 and August, 1948, and nearly 70 percent of the total rise of wholesale prices occurred after the end of the war.

By the end of the war the private sectors of the economy, both individuals and business firms, had accumulated huge amounts of liquid savings. It is estimated that during the six years 1940–45 inclusive, personal savings amounted to nearly $133 billion and corporate net savings totaled almost $29 billion. The ability of the private sectors to save such huge amounts was due primarily to the government's deficit spending during the war period, when it paid into private incomes so much more than it extracted from them in taxes. But the high liquidity of these savings was largely the result of the Treasury's borrowing policies. Primarily because of the Treasury's borrowing from the Federal Reserve and commercial banks, the public's holding of money increased to about three times its 1939 levels. Even the public's holdings of government securities were almost completely liquid. Savings bonds were redeemable on demand at a fixed scale of values, much of the marketable debt was of short maturity, and even the longest-term marketable bonds were redeemable on demand at the Federal Reserve's support prices.

Another important factor at the end of the war was the large

accumulation of deferred demands. Many consumers wanted to replenish their supply of durable goods which had been available in only limited quantities during the war, and some had large deferred demands for nondurable goods and for services. Many business firms also had large deferred demands for construction and other capital goods, as did state and local governments.

The monetary policies in effect at the war's end should also be kept in mind. As we have seen, the dominant objective of Federal Reserve policy was to prevent the yields on government securities from rising above the levels agreed upon with the Treasury. To this end it stood ready to purchase all governments offered to it at its support prices and without limit as to amount. Thus it had no control over the volume of its holdings of governments, the volume of bank reserves, or the money supply. In the process of stabilizing the yields on government securities it was assuring a highly liberal supply of credit for private purposes and preventing any increase in its cost.

MAJOR ISSUES IN POSTWAR MONETARY POLICY

It was under these conditions that monetary policy had to be reconsidered in the postwar period. Some wanted to abandon the wartime easy-money policies and adopt more restrictive policies to curb inflation. Others wanted to continue the wartime policy with little if any change. The position of those who favored a more restrictive policy is easy to understand. It is the conventional theory of central banking that during inflation the supply of money and credit should be curtailed and interest rates allowed to rise to permit this result. The position of those who favored continuation of the wartime easy-money policy despite the current inflation requires more explanation, for it represented a radical departure from the traditional theory of central banking in a peacetime inflationary period.

Outstanding among the proponents of a continuing easy-money policy and low interest rates were the Treasury and the Council of Economic Advisors, though the group included many others. These people defended their position with several arguments. (1) Increased interest rates on the national debt would add greatly to the already

large interest burden. They pointed out that with interest charges already amounting to about $5 billion a year and averaging about 2 percent, every increase of one-half of a percentage point in the average rate would add about $1.25 billion per year to federal interest charges. (2) Fluctuating prices and yields on governments would complicate the Treasury's refunding operations—a serious matter, with about $50 billion of the debt maturing within a year and nearly $100 billion within five years. (3) To permit government bond prices to decline even a fraction of a point below par might set off waves of panicky selling and destroy faith in the government's credit. Some officials foresaw an almost limitless decline. In this case they were guilty of posing false alternatives; they were implying that the only choice was between an inflexible price and yield policy and a Federal Reserve policy of completely abandoning the government securities market. But almost no one suggested that the Federal Reserve should refrain entirely from buying securities at any price. Rather, the critics of the inflexible policy wanted only that the System should be free to lower its support prices and raise yields when that was desirable for restrictive purposes. And there should have been no doubt as to the ability of the Federal Reserve to stop a panicky decline of security prices.

(4) A decline of government security prices would impose capital depreciation on financial institutions and other investors and might lead to a loss of confidence in these institutions. Here the extent of the permitted decline is important. A drastic decline might be serious, whereas a limited decline would not. Moreover, the loss of real purchasing power promoted by an inflationary easy-money policy should also be taken into account. (5) A restrictive policy accompanied by only a moderate rise in yields on governments would not be an effective anti-inflation measure. A policy restrictive enough to have a significant anti-inflationary influence would greatly increase the Treasury's interest costs and impose intolerably large capital losses on bondholders. Those upholding this argument usually assumed that monetary policy exerts its restrictive effects solely by raising interest rates. They ignored the other restrictive effects mentioned earlier. (6) Low interest rates and generally easy credit conditions would facilitate the process of reconversion, help to maintain high levels of production

and employment, and promote a more rapid expansion of capital and productivity. In an unqualified statement the Council of Economic Advisors indicated that it favored low interest rates at all times and under all conditions, even during inflation, because they promoted investment and economic progress.

Thus the advocates of a continuing easy-money policy had two major objectives. One was to hold down interest charges on the national debt, to facilitate Treasury refunding operations, and to stabilize the prices of government bonds outstanding. The other was to assure a liberal supply of low-cost credit for private purposes, even in the midst of inflation, in order to promote production and employment and speed up the rate of capital formation. It is difficult, if not impossible, to determine the relative weights attached to these objectives, but it is certain that considerations relating directly to the prices and yields of government securities were weighted heavily in making decisions.

Thus, the major issues in postwar general monetary policies were of three related types. (1) Issues relating to the proper objectives of these policies. Some wanted to give a dominant position to general economic stabilization, including price stabilization, and to give other considerations a minor position. Others gave a dominant position to the height of service charges on the national debt, Treasury financing operations, and the prices of government bonds. Still others weighted heavily the promotion of the rate of private investment even though current conditions were inflationary. (2) Issues relating to the effectiveness of a restrictive general monetary policy as an anti-inflation device. Some believed that such a policy could significantly retard the inflation without causing a steep rise in interest rates and without precipitating a deflation. Others believed that very large increases in interest rates would be required for any appreciable anti-inflationary effect, and that such a policy would seriously reduce real output and employment and might touch off a spiraling deflation. (3) Issues relating to the relative roles of the general monetary policy and other types of controls in an anti-inflation program. Some would rely primarily on broad, impersonal controls such as restrictive fiscal and monetary policies, an important role being assigned to the general

monetary policy. Others would rely solely on fiscal policy, selective credit controls, and direct price and wage controls.

Let us now examine the monetary policies actually followed since World War II. For purposes of analysis it will be useful to divide this period into three parts: (1) from 1945 to 1948, (2) from late 1948 to June, 1950, and (3) after the outbreak of fighting in Korea.

MONETARY POLICY, 1945–1948

It will be convenient to deal first with the Federal Reserve open-market policy and then describe other aspects of Federal Reserve and Treasury monetary policies during this period, which was one of continued inflation. Until July, 1947, or for nearly two years after V-J Day, the Federal Reserve continued its wartime open-market policy without change. It continued to buy passively all the securities offered to it at the officially agreed-upon yields, which were ⅜ of 1 percent on maturities within 90 days, ⅞ of 1 percent on 9–12-month maturities, and higher rates on longer maturities, with a top of 2½ percent on 25-year marketable bonds. This policy not only prevented a rise in yields on government obligations, but also prevented any increase in the cost and any decrease in the availability of credit for private use. In fact, because of the very low yields maintained on short maturities, the yields on long-term debts declined somewhat. Treasury bonds sold substantially above par.

Throughout this period Federal Reserve officials never objected to preventing the yields on long-term government bonds from rising above 2½ percent. Instead, they repeatedly stated their belief that these yields should not be allowed to rise above this level, as well as their determination to prevent such a rise during "the foreseeable future." They did, however, object to maintaining such low rates on short maturities, especially the ⅜ of 1 percent yield on obligations maturing within 90 days. Even during the war period they began to complain that this rate was too low, that it made Federal Reserve credit available too cheaply to all comers, and that it increased the volume of securities that the Federal Reserve had to buy. But for a long time the Treasury refused to raise the rate, and the Federal

Reserve continued to buy these short-term obligations to assure the success of Treasury issues. Not until July, 1947, did the Treasury acquiesce in a rise in these rates.

At that time the Federal Open-Market Committee discontinued its ⅜ of 1 percent buying rate on 90-day obligations and announced that thereafter the yield on these securities would be allowed to find its proper position relative to the rate on 9–12-month obligations, which for the time continued to be pegged at ⅞ of 1 percent. It emphasized, however, that the System would continue to purchase and hold these securities to the extent necessary to maintain an orderly market. In August, 1947, the Federal Open-Market Committee discontinued its ⅞ of 1 percent buying rate on 9–12-month obligations and embarked on a policy of preventing their market yields from rising above the rate on new Treasury issues of these securities. Thus the Treasury continued to determine the rates maintained by the Reserve System. Thereafter the Treasury gradually, and in several cases reluctantly and only after long delays, raised its rate on new issues of these types, so that by the end of 1948 the rate on 9–12-month maturities stood at 1¼ percent and that on 90-day obligations at 1.15 percent. In the meantime, the System had permitted a decline in the prices of long-term government bonds. As noted earlier, the prices of these securities were substantially above par in 1946. In the early part of 1947 both the Federal Reserve and the Treasury sold some long-term securities in order to hold down their prices. Then in the latter part of 1947 they bought again to retard a decline in these prices, and just before Christmas the Federal Reserve lowered the support prices to a fraction above par. At these prices it purchased as much as was necessary to prevent further declines; it was still determined to prevent yields on the longest maturities from rising above 2½ percent. This policy was followed through 1948.

This, then, is the general outline of the Federal Reserve open-market policy from V-J Day through the end of 1948: (1) Until July, 1947, nearly two years after the end of the war, it continued its wartime open-market policies without change. This permitted no rise in interest rates on either government or private obligations, and

no decrease in the availability of credit for private use. In fact, the very low yields maintained on short maturities tended to decrease somewhat the yields on longer obligations. (2) From mid-1947 through 1948, interest rates were allowed to rise a little. The rate on 90-day obligations rose from ⅜ of 1 percent to 1.15 percent, that on 9–12-month obligations from ⅞ of 1 percent to 1¼ percent; the yields on longer maturities rose much less. But three aspects of this policy should be noted: (a) The rise in rates was very limited in extent, and even after the increase these rates were very low as compared with those in any other peacetime inflationary period. (b) The Treasury determined the level of short-term yields that would be maintained, though the Federal Reserve gave advice. (c) The Federal Reserve continued to maintain rates acceptable to the Treasury, and it continued to refuse to allow the price of any long-term government bond to fall below par.

Having surveyed Federal Reserve open-market policies during the period, let us now look at other aspects of monetary policy from the end of the war to the end of 1948. These other aspects included: (1) increases in discount rates, (2) increases in member bank reserve requirements, (3) moral suasion, (4) selective control over margin requirements on security loans and over consumer credit, and (5) the Treasury's use of some of its tax surplus and of money acquired in other ways to exert an anti-expansionary effect. Each of these will be described briefly.

In several steps the Federal Reserve increased its discount rates on loans to banks. Early in 1946 it abolished its ½ of 1 percent preferential discount rate on loans secured by short-term government obligations, leaving its regular rate at 1 percent. In 1948 this rate was increased in two steps to 1½ percent.

For several years prior to the end of the war member bank reserve requirements had been close to the upper limit of the Board's discretionary power; hence the restrictive power in this instrument was quite small. Reserve officials repeatedly asked for an amendment of the law to permit further increases in these requirements, but the power was not forthcoming until August, 1948, and then on only a

temporary basis until the end of June, 1949. The Board raised reserve requirements three times in 1948, with the estimated effect of increasing the required reserves of member banks by $2.5 billion.

Moral suasion was also employed. Throughout the period Federal Reserve officials warned banks and the public that an excessive expansion of credit was inflationary and might lead later to collapse. Late in 1947 all federal bank supervisory authorities and the executive committee of the state bank supervisors issued a joint statement pointing out the inflationary effects of the current expansion of bank credit, warning against speculative loans, asking that the terms of consumer credit not be liberalized, and urging banks not to overexpand their risk assets relative to their capital. The American Bankers Association conducted its own voluntary campaign to prevent "undue" expansions of credit.

Selective credit restrictions were also used by the Federal Reserve. Margin requirements on security loans never went below 75 percent during this period, and from January, 1946, to February, 1947, they were 100 percent. Regulation W, controlling consumer credit, was also in effect except during the period from November, 1947, to September, 1948.

The Treasury took several actions with anti-expansionary effects. During these years it had a total tax surplus of nearly $14 billion. The collection of this surplus had an anti-expansionary income effect. The Treasury used part of this money, together with some acquired by selling securities and drawing down its balances at commercial banks, to drain off bank reserves by repaying debts to the Federal Reserve and building up its deposits at the Reserve banks. However, it used only part of its available funds for these purposes.

It seems likely that these various Federal Reserve and Treasury actions, other than the Federal Reserve's open-market policy, did have some anti-inflationary effects. But a large part of these effects was offset by the Federal Reserve's open-market policy whereby it purchased all securities offered to it at low yields. For example, this policy robbed the increases in discount rates of most of their effectiveness. Banks were practically out of debt to the Federal Reserve and knew that they could remain so, for they could replenish

their reserves by selling to it short-term government securities on which yields were below the discount rate. Moral suasion was also robbed of much of its effectiveness for the same reasons. This same thing applied to increases in member bank reserve requirements; banks could repair their reserve positions and continue to expand their loans and deposits by selling low-yield governments to the passive Federal Reserve. Even the loss of bank reserves resulting from the Treasury's repayments of debt to the Federal Reserve and increases in its deposits at the Reserve banks could be repaired easily by the sale of governments to the Federal Reserve. And banks and others showed little reluctance to sell government securities to the Reserve banks in order to maintain a liberal supply of credit for private use and keep interest rates on private loans in line with the current yields on government obligations.

In short, the dominant instrument of Federal Reserve policy in this period was its open-market policy. The Federal Reserve and the Treasury probably did exert some anti-inflationary influence through their other instruments, but the Federal Reserve's willingness to purchase governments in unlimited amounts at the sellers' initiative provided banks and other investors with an easy method of offsetting, at least in large part, the anti-expansionary effects of the other instruments. Though the Federal Reserve allowed some increase in yields on governments, these increases were narrowly limited, and it could create but little uncertainty as to the future behavior of interest rates so long as it was committed to a policy of preventing the yields on the longest-term marketable bonds from rising above 2½ percent.

MONETARY POLICY, LATE 1948 TO MID-1950

The first postwar peak of price levels was reached in August, 1948, with the cost of living 76 percent above 1939 levels and wholesale prices up 121 percent. There followed more than a year of mild deflation. By the end of 1949 the cost of living had fallen 5 percent below the 1948 peak and wholesale prices were down 11 percent. In fact, the year 1949 was one of mild recession, with a moderate decline in both production and employment, largely because of the

fact that business firms had ceased to build up their inventories and were meeting part of the demand for their products by selling from accumulated inventories. Under these conditions the Federal Reserve halted its vain attempts to restrict credit and initiated an easier money policy. It removed its controls over consumer credit, lowered member bank reserve requirements, and stood ready to buy government securities at lower yields. The Treasury also lowered the yields on its new issues of short-term securities to some extent.

Under these conditions of mild deflation the controversy between the Federal Reserve and the Treasury died down. In such a situation there is no necessary conflict between the objective of general economic stabilization, including stability of general price levels, and the objectives of holding down interest costs on the national debt, facilitating Treasury financing operations, and preventing decreases in the prices of outstanding bonds.

By early 1950 the decline in business activity and prices had stopped. There was still some unemployment, but economic activity was at a high level. As to the future course of business activity and price levels there was wide disagreement among economic forecasters. The outbreak of fighting in Korea late in June, 1950, ended this uncertainty and ushered in a new upsurge of inflation.

MONETARY POLICY AFTER THE OUTBREAK OF FIGHTING IN KOREA

The outbreak of fighting in Korea and this country's decision to intervene touched off a surge of buying on the part of consumers and business firms. Remembering the scarcities and price increases of World War II, consumers rushed into the markets to get ahead of the hoarders. Business firms also hastened to replenish their inventories and make net additions to them. Only later, toward the end of 1950, did the rise in government expenditures for military purposes add its inflationary effects to the rise in private spending. Much of this latter increase was financed by sales of liquid assets, decreases in holdings of idle money balances, and expansions of credit. The velocity of money rose appreciably, redemptions of savings bonds

rose, consumer credit expanded, and business loans increased markedly. Between May, 1950, and March, 1951, the cost of living rose 8 percent and wholesale prices 19 percent. During the rest of 1951 price levels remained relatively constant, the cost of living rising slightly and wholesale prices declining a little.

With the resurgence of inflation in 1950, the controversy between the Federal Reserve and the Treasury flared anew. The Federal Reserve wanted to restrict credit in order to curb the rise of prices, while the Treasury insisted that it continue to hold interest rates at an inflexibly low level. This controversy had begun to develop even before the Korean outbreak. Foreseeing a possible revival of inflation, the Federal Reserve had on two occasions—one late in 1949 and the other early in 1950—requested the Treasury to postpone public announcement of rates on its future short-term issues in order to see whether a rise in rates might be in order. On both occasions the Treasury responded by announcing immediately that the forthcoming issues would bear yields no higher than those currently being maintained in the market. And on both occasions the Federal Reserve obediently continued to hold market rates in line with those on the new Treasury issues. But in August, 1950, the controversy came out into the open and the Federal Reserve publicly defied the Treasury. On the same day and at almost the same hour the two issued conflicting public announcements. The Federal Open-Market Committee announced the System's determination to fight the current inflation and to use all its powers to this end. At the same time the Treasury announced a new $13-billion issue of short-term securities with yields no higher than those currently prevailing in the market. Despite this Treasury challenge the Federal Reserve proceeded to tighten credit somewhat. To prevent the Treasury's financing from failing, the System purchased most of the new issues at the yields fixed by the Treasury. Then it sold some of its other holdings in the market on terms that raised the market yields of short-term obligations. Later short-term Treasury issues bore slightly higher yields. It will be noted that this controversy in 1950 related only to short-term issues; the Federal Reserve continued to prevent the prices of long-term government bonds from falling below par.

In early 1951 the controversy spread to the prices and yields of the long-term bonds. In January of that year the Secretary of the Treasury publicly announced that during the defense period all the government's issues of marketable securities, for new money as well as for refunding purposes, would bear interest rates no higher than 2½ percent. He also implied, without stating it specifically, that the Federal Reserve had agreed to this policy. Reserve officials denied that this was true. The President and the Council of Economic Advisors then leaped into the fray to support the Treasury position, and after a White House conference with Federal Reserve officials the President publicly announced that the Federal Reserve had in effect agreed to the Treasury's announced policy. This the Federal Reserve denied. After several weeks of further controversy the Federal Reserve and the Treasury announced early in March, 1951, that they had reached an "accord." Under this accord the Treasury refunded part of its longest-term marketable bonds by issuing a long-term nonmarketable 2¾ percent bond, and the Federal Reserve gained freedom to permit fluctuations in the prices and yields of marketable federal issues. Operating under this policy, the System allowed short-term yields to rise slightly and by early 1952 had permitted the prices of long-term government bonds to decline as much as 5 percent below par.

The 1951 accord marked an important shift from the open-market policy that had been followed for about ten years. Under it the Federal Reserve acquired somewhat greater freedom to raise market rates of interest, to increase the cost of securing new money for bank reserves and other purposes, to force capital losses on those selling government securities to get money, and to create uncertainty as to the future course of interest rates. In short, this was an important step toward restoring to the Federal Reserve its power to restrict credit. It would, however, be a serious mistake to think that the System has fully regained its prewar freedom to restrict credit. It has not abandoned its concern for the market behavior of prices and yields on government securities, and it continues to assure the success of new Treasury issues.

Federal Reserve officials have repeatedly stated since March, 1951, that they will continue to maintain "orderly conditions" in the gov-

ernment securities market, buying and selling in such a way as to prevent "disorderly movements" of prices and yields. The types, the rates, and the extents of change in the prices of government securities that will be considered "disorderly" remain to be defined. Under one set of definitions the Federal Reserve might merely prevent erratic changes and excessive rates of change but not put limits on the extent of change. In this case the Federal Reserve would have a high degree of freedom to restrict credit. But if it also places narrow limits on the extent of change in the prices and yields of these securities its restrictive powers will be more circumscribed. Moreover, it is important to note that the Federal Reserve continues to assure the success of new Treasury issues. The power of the Federal Reserve to restrict credit will therefore depend to a great extent on the Treasury's willingness to increase yields on its new issues and to adjust other attributes of these securities so as to limit the need for Federal Reserve purchases.

How effective for anti-inflationary purposes was the Federal Reserve policy permitting yields to rise and security prices to fall after February, 1951? It is impossible to answer this question with certainty. Inflationary pressures did decrease markedly at about the time that the prices of long-term bonds were permitted to decline, and during the remainder of 1951 and into 1952 price levels rose very little. But a number of other factors were also operative. For one thing, the accumulation of inventories in late 1950 and early 1951 acted as a cushion against inflation in the later period. A number of other restrictive monetary actions were taken. (1) The Federal Reserve raised its discount rates in August, 1950. (2) Early in 1951 it used most of its remaining power to raise member bank reserve requirements, though these effects were small. (3) Acting under powers granted by new legislation, it imposed selective controls on consumer credit and on residential housing credit. (4) With the approval of the Federal Reserve, commercial bankers and several other types of institutional lenders initiated a voluntary credit restraint program to prevent or lessen the extension of credit for "nonessential" purposes. Several nonmonetary restrictive actions were also taken. Tax rates were increased slightly, and a comprehensive though somewhat

loose system of direct price and wage controls was introduced. With so many factors operating, it is impossible to allocate credit for arresting the inflationary process that had been so rapid during the first eight months after the Korean outbreak. Most observers agreed, however, that part of the credit should be given to the Federal Reserve's more restrictive open-market policy.

CONCLUSIONS

The marked changes in the objectives of Federal Reserve policies and in the nature of open-market operations since World War II deserve close consideration, for they are likely to continue to be controversial issues, especially in times of actual or threatened inflation. These changes in policy grew out of two important developments: (1) an almost pathological fear of deflation and unemployment, together with the contention that a general monetary policy restrictive enough to inhibit inflation would discourage production and employment and perhaps precipitate a cumulative decline; and (2) the desire to hold down interest charges on the national debt, to facilitate Treasury financing operations, and to prevent "undue" declines in the prices of outstanding government obligations.

It is of course true that a monetary policy can be restrictive enough to produce deflation and unemployment. It may even be true that once inflation has become rapid it cannot be stopped quickly and completely by either monetary or fiscal policy without causing some temporary unemployment. But no one has yet produced convincing evidence that a more restrictive monetary policy in the postwar period would have had to produce serious unemployment in order to slow down the rate of inflation. Moreover, there is ample evidence that a policy of encouraging inflation by a continuing easy-money policy is likely to increase rather than decrease the degree of economic instability. Such a policy encourages "bunching" investment expenditures in boom periods, rather than spreading them more evenly over a period of time. The purpose of a flexible monetary policy which will hold down the availability of credit and increase its cost in periods of excessive investment and will increase the availability of credit and

decrease its cost in periods of threatened deficiency of investment is to stabilize employment and production. Even if a continuing easy-money policy did for a time speed up the rate of capital formation, it is frightening to contemplate the long-run economic and social effects of a policy so inflationary that it would continuously and progressively penalize those members of the community whose incomes and wealth are relatively fixed in terms of money.

The relationship between monetary management and national debt management needs thorough reconsideration. Questions of the following types must be considered. How important is it to hold down interest rates on the national debt? Is this objective as important as the prevention of inflation? To what extent should monetary and debt managers seek to stabilize the prices of outstanding government securities in a period of inflation? What declines in the prices of these securities are desirable and what are undesirable? What changes should be made in the attributes of the securities representing the debt? This writer believes that the Treasury has in the past taken too narrow a view of its function, has paid too much attention to the height of the interest rates it has to pay, and has not tried to use its great powers for purposes of general economic stabilization. What is needed is a reformulation of the objectives of debt management policies, and the use of these policies to supplement and assist Federal Reserve policies aimed at general economic stabilization. Only when the Treasury takes such a constructive view of its debt management function will it become easily possible to restore to general monetary policy its ability to cope effectively with inflationary forces.

The failure to use open-market policy as an effective method of restricting credit and fighting inflation has been accompanied by a tendency toward greater reliance on other types of controls. Some wished to rely largely on a restrictive fiscal policy which would secure a tax surplus by increasing taxes relative to government expenditures. Such a policy is, of course, a useful and very important part of an anti-inflation program, but postwar experience indicates the danger of relying on it exclusively, to the neglect of monetary policy. In practice it may be politically impossible to achieve a tax surplus of the necessary magnitude or to do so quickly enough, and at least

some of the restrictive effects of the surplus may be offset by an easy-money policy. The postwar period also saw greater reliance on selective credit controls and voluntary credit restraint programs. These may have a useful role in monetary management even when the Federal Reserve is free to use general credit restriction, but there is little doubt that the extent of their use has been increased by the System's unwillingness to employ general credit restriction. This failure to restrict general credit has also accounted to some extent for the greater use of direct price and wage controls in dealing with manifestations of inflationary pressures.

The failure to use open-market operations to restrict credit has led to proposals that the Federal Reserve be given various new powers to fight inflation. Though these have not been granted, we shall consider them briefly because they indicate some of the possible developments in the future. (1) Greater power over regular reserve requirements of commercial banks. It has been proposed that the Federal Reserve be given control over the reserve requirements of nonmember as well as member banks, and that it be empowered to raise requirements to much higher levels. (2) Additional reserve requirements on increases of bank deposits above levels on some base date. For example, banks might be required not only to meet their regular reserve requirements on existing deposits but also to hold additional reserves equal to 100 percent of any increase of deposits above levels on some base date. This would prevent banks from increasing their earning assets above a base-date level. (3) Special reserves in the form of specified types of government securities. Thus, banks might be required to hold government securities equal to at least 25 percent of their deposit liabilities. These government securities would be "immobilized" and could not be sold to get money for lending. (4) Loan quotas on banks. Under this plan, each bank's holdings of loans and securities other than government securities would be limited by a quota, which would probably be determined by its holdings of these debts on a base date. (5) Control of the banks' loans on some basis of "essentiality." Under such a program the banks would be permitted and perhaps even encouraged to make loans for

"essential" purposes, but would be refused permission to lend for "nonessential" purposes.

Some of these powers might be useful additions to the array of Federal Reserve instruments for monetary management even if the System felt free to use its open-market operations for restrictive purposes. It is indeed dangerous to assume that no further additions to the central bank's power should be made. But it is also clear that many of these proposals would not have been made if the Federal Reserve had been free to use its open-market powers for restrictive purposes.

We are thus led back to a statement made earlier in this book. The Federal Reserve has great powers which can be used either to promote general economic stability, including stability of price levels, or to promote instability. Before World War II it was generally assumed that in periods of peacetime inflation the System would follow restrictive policies in order to defend the purchasing power of the dollar. But during much of the period since World War II the Federal Reserve has continued to follow relatively easy-money policies even in the midst of inflation because of considerations relating to debt management and of a very high rate of private investment. This has been a revolutionary change in the peacetime objectives of the Federal Reserve, and it remains one of the major issues in the monetary policy of the United States.

SELECTED READINGS

See references at the end of Chapter 16.

CHAPTER 18

Some Commercial Banking Problems in the United States

Our earlier discussions of commercial banks dealt primarily with the general functions of these institutions and with the control of their operations as a part of monetary and credit management. This chapter will investigate the other principal problems of commercial banking in this country, some of which have important implications for the behavior of money and credit. More specifically, we shall study problems related to the structure of our commercial banking system, bank failures, deposit insurance, and bank supervision.

THE STRUCTURE OF COMMERCIAL BANKING IN THE UNITED STATES

One of the most striking characteristics of our commercial banking system is the large number of banks it contains. At the end of 1950 we had 14,015 commercial banking corporations operating a total of 18,839 banking offices. In contrast, Canada had only 10 chartered banks which served its large territory through about 3300 branches. England had only 13 joint-stock (incorporated) banks, and five of these—usually called "The Big Five"—held over 90 percent of the total assets of the system and operated about 8000 branches. Thus, both Canada and England had only a few commercial bank corporations, each operating a large number of branch offices over a wide

area. In our system, on the other hand, single-office bank corporations predominated; less than 1200 of our commercial bank corporations operated more than one banking office. Our system was far from homogeneous, however. It contained (1) independent unit banks, (2) branch banks, (3) group banks, and (4) chain banks.

By an independent unit bank we mean a single bank corporation which operates a single banking office and is not controlled by another bank or by any person, group, or corporation that controls other banks, and which does not itself control other banks. In short, the banking corporation operates but one office and is not closely related to other banks through either ownership or control. Most of our commercial banks are of this type. By a "branch bank" we mean a single bank corporation that directly owns and operates two or more banking offices; multiple banking offices are operated directly by a single corporation with only one group of owners and one board of directors. Some branch banks are relatively small, with only two or three banking offices located in a small area. At the other extreme are large branch banks with more than 500 branches spread over an entire state. By "group banking" we mean the arrangement whereby two or more separately incorporated banks are brought under the control of a "holding company." For example, Banks A, B, C, and D, each with its separate charter, are brought under the control of Holding Company II, which owns at least enough of their stock to control them.[1] In some cases the holding company is itself a bank; in others it does not engage directly in banking. The banks that are controlled by the holding company may each operate only a single office, or they may themselves be branch banks. Some banking groups include only three or four banks; others, more than fifty banks each. By "chain banking" we mean any arrangement by which two or more separately incorporated banks are brought under common control by the use of some device other than a holding company. Thus, two or more banks may be owned by the same individual or group of individuals or they may have interlocking directorates. In general, chain banking systems are built around a key bank that is considerably

[1] The holding company is usually a corporation, but it sometimes takes other legal forms, such as a business trust.

larger than the other banks in the chain. In 55 of the 96 chain banking systems in this country at the end of 1939, the key bank had more deposits than all the other banks in the chain. Though branch banking differs markedly in form, and to some extent in functioning, from group and chain banking, it should be clear that these three systems have much in common. They are all methods of establishing "multiple-office banking," in which a number of banking offices are brought under common control.

These, then, are the forms of bank organization which fight, often bitterly, to maintain and improve their position in the commercial banking system. And since the form of bank organization is subject to government regulation, Congress and the state legislatures often become the arenas in which the fights occur. To bring out the principal issues involved, let us look closely at the controversy between branch banking and independent unit banking.

Branch Banking vs. Independent Unit Banking

Even within the banking fraternity itself there is a sharp cleavage of opinion on the question of branch banking. In general, large banks in the principal cities would like freedom to establish branches in the outlying sections of their own cities and in other towns and cities. The smaller banks, especially those outside the principal cities, fear and oppose the establishment of branches that will compete with them. Their attitude toward branch banking is comparable to that of independent grocers toward the great food chains. In fact, many of the arguments employed in this controversy are closely related to those used to attack or support "bigness" or "smallness" of business firms in general.

The advocates of independent unit banks stress both the advantages of this type of bank and the shortcomings, real or only alleged, of branch banking. Some of their principal arguments are as follows:

1. The single-office independent unit bank is likely to have more flexible management. The bank's officials, reared in the community and thoroughly familiar with the credit worthiness of its

customers, can make decisions on loans and other matters much more quickly than can a branch manager who must await the rulings of a distant main office.

2. A locally owned and locally controlled bank will be much more interested in local economic development than will the local office of a widespread branch banking system. Moreover, bright and enterprising young men who do not have much collateral are more likely to be accommodated by a locally controlled bank than by a bank branch. Advocates of independent unit banks often contrast the allegedly sympathetic and understanding local banker with the coldly impersonal manager of a branch office.
3. Branch banking is likely to be monopolistic. Even if a town or city had branches of more than one bank, the big systems would, it is alleged, enter into either explicit or implicit agreements as to service charges, interest rates, types and amounts of service rendered, and so on.
4. Branch banking is likely to drain loan funds away from small towns and small firms and lend them in larger cities and to large firms.
5. Giant branch banking systems concentrate too much economic power in financial institutions. Fear of domination by "Wall Street" is widespread.

The advocates of branch banking deny the validity of most of the above assertions and emphasize both the shortcomings of independent unit banks and the advantages of branch banking. Their arguments usually run somewhat as follows:

1. Independent unit banks are often too small to achieve either economy or efficient operation. A small bank with only a few hundred thousand dollars' worth of earning assets and a few thousand dollars of gross income each year can hardly support the usual pretentious bank building and hire all the capable and well-trained experts that are needed for efficient banking. A large branch banking system, on the other hand, need not rely on impressive buildings to create a feeling of public confidence; it can centralize many of its operations, such as the analysis and purchase of securities; it

can purchase supplies in quantity rather than small lots; it can attract and train capable personnel; and it can avoid the favoritism and nepotism that have plagued banking for so long.

2. Independent unit banks are often too small to accommodate the larger local business enterprises. Because of both prudence and legal restraints, an independent unit bank with its limited lending power may be unable to lend a firm as much as it needs. A branch of a large and widespread branch banking system is not restricted in this way, for it can draw on the resources of the entire system.
3. Independent unit banks often suffer from inadequate diversification of their assets. If such a bank lends large amounts to specialized local enterprises, its success may be largely dependent upon the prosperity of a specialized type of farming, mining, or industry. A widespread branch banking system, on the other hand, can lend liberally in each of the areas in which it has a branch and still achieve wide diversification of its assets, both geographically and by types of enterprise.
4. Independent unit banks are unable to achieve a high geographical mobility of credit. The concentration of lending power in the larger cities, especially in the large eastern cities, is well known. Under a system of independent unit banks there is no easy and reliable mechanism for siphoning these funds into sections where credit is scarcer and interest rates higher. Small firms that are not known widely enough to be able to sell their obligations in the great financial centers are placed at a special disadvantage. Advocates of branch banking say that this system would provide an easy way of shifting loan funds around the country. The pipe lines that would be constructed between the large and small places would be used not to drain funds from the small places but to pump funds to them and to lower interest rates there.
5. Branch banks would be just as interested in local developments as would independent unit banks, for they too would want to prosper.
6. Branch banks are less prone to fail than are independent unit banks. Certainly American banks have had a high failure rate as compared with the banks of other countries. To some extent, no doubt, this is because of the greater fluctuations of economic ac-

tivity here. But it does seem likely that branch banking would be less unsafe here because of its better management, its more economical operations, its wider diversification of assets, and the ability of each branch to secure the help of others in the system in time of need.

7. Branch banks would be no more likely to act monopolistically than are independent unit banks, which often have a local monopoly or enter into monopolistic agreements through their clearing house associations.

The controversy over the relative merits of independent unit banking and branch banking still continues, with the legal status of branch banking in a state of flux but tending to improve somewhat. State laws on the subject are highly diverse. Some states—about thirteen—either expressly prohibit branch banking or have no permissive legislation. At the other extreme, a few permit state-wide branch banking. Others permit state-wide branches but investigate a place's "need" for additional banking facilities before authorizing a branch there. Still other states permit branches, but only within the main-office city, the main-office county, or some other area smaller than the state.[2]

Federal legislation relative to branch banking has varied widely. The First and Second Banks of the United States, as we have seen, were widespread branch banking systems. The National Bank Act of 1864 contained no specific mention of branch banking and this was construed to prohibit it, though under an amendment in 1865 a state bank converting into a national bank was permitted to retain its existing branches. For more than fifty years after 1865 the only branches operated by national banks were those possessed by state banks at the time they became national banks. Since the passage of the Federal Reserve Act in 1913, federal legislation relative to branch banking has been liberalized in several respects. The principal provisions of federal laws relating to the establishment of branches are now as follows:

[2] For a good discussion of this whole subject, see C. E. Cagle, "Branch, Chain, and Group Banking," in Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, pp. 113–140.

1. Both national banks and state banks that are members of the Federal Reserve System may establish branches in their main-office cities if the laws of the state in which they are located *specifically authorize* state banks to establish such branches.
2. Both national banks and state banks that are members of the Federal Reserve may establish branches outside their main-office cities—but in no case beyond the borders of the state in which they are located—if, in the words of the federal statute, "such establishment and operation are at the time authorized to State banks by the statute law of the State in question by language specifically granting such authority affirmatively and not merely by implication or recognition, and subject to the restrictions as to location imposed by the law of the State on State banks." No member of the Federal Reserve, whether it is a national or a state bank, may establish such branches unless it meets the minimum capital requirements laid down by federal law; these are more onerous than most of the state laws.
3. A national bank may neither establish nor move a branch without the consent of the Comptroller of the Currency, and state member banks may move or establish branches only with the consent of the Board of Governors of the Federal Reserve System.
4. State banks that are insured by the Federal Deposit Insurance Corporation but are not members of the Federal Reserve may establish a new branch or move an old one only with the approval of the FDIC.

Our description of the legal status of branch banking in this country has brought out not only the confused state of this legislation but also the following facts: (1) Federal legislation is never more liberal than state legislation applicable to the same area, and it is sometimes more restrictive; and (2) there is some doubt as to the wisdom of allowing individual states to formulate national policy on a subject that has such important nation-wide implications. Despite legal restrictions, branch banking has expanded markedly during the last fifty years, as is shown in Table 43.

In 1949 branches of banks made up nearly a quarter of all commercial banking offices in this country, and branch banking systems held more than 50 percent of all commercial bank deposits. These figures emphasize the importance of branch banking in this country. It is important to remember, however, that very few of our branch banking systems are at all comparable to those of Canada and England, which cover wide areas and have large numbers of branches. None of our branch systems is more than state-wide in scope and most of them operate only in a smaller area. Of the 1162 banks operating

TABLE 43. Branch Banking in the United States on Selected Dates[3]

Year	Number of Banks Operating Branches	Total Number of Branches Operated	Location of Branches	
			In Main-Office City	Outside Main-Office City
1900	87	119	25	94
1920	530	1281	773	508
1930	751	3522	2391	1131
1940	954	3525	1602	1923
1949	1162	4386	1881	2505

branches in 1949, about 27 percent had branches only in the main-office city, 75 percent had no branches outside the main-office county, and 94 percent confined their branches to their main-office counties and contiguous counties. Only 6 percent had branches beyond contiguous counties. Moreover, most of them had only a few branches. As Table 44 shows, 55 percent of the branch system operated only one branch and 93 percent had not more than nine branches. It seems clear that branch banking cannot realize its full advantages unless permitted a wider scope of operation than is possible in most states. This is especially necessary if branch systems are to achieve proper diversification of assets and a desirable degree of credit mobility. For these purposes it may be desirable to permit branch systems to extend across state lines.

[3] Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, p. 297; and *Federal Reserve Bulletin*, July, 1950, p. 899.

TABLE 44. Size and Geographical Extent of Branch Banking in the United States, June 30, 1949[4]

Number of Branches per Bank	Number of Banks in Class	Total Number of Branches of Banks in Class	Location of Branches			
			In Main-Office City	Outside Main-Office but in Main-Office County	In Contiguous County	In Noncontiguous Counties
1	645	645	175	363	103	4
2	209	418	123	227	61	7
3	101	303	125	129	46	3
4	53	212	104	73	27	8
5– 9	76	483	256	117	65	45
10–14	35	408	193	77	69	71
15–19	13	219	96	32	38	53
20–49	22	647	373	51	70	153
53	2	106	87	16	3	—
68	1	68	68	—	—	—
75	1	75	75	—	—	—
76	1	76	76	—	—	—
80	1	80	22	—	38	20
127	1	127	62	37	9	19
519	1	519	46	—	69	404
Total	1162	4386	1881	1122	598	787

Group Banking

State and federal legislation relative to group banking is too diverse to be detailed here.[5] In general, however, this type of banking is subject to fewer restrictions than is branch banking. Group banks that are members of the Federal Reserve System are regulated by the Board of Governors. The status of group banking in the United States is indicated in Table 45. Some of these systems include only a few banks and cover only a small area; others include many banks located in from two to seven states.

A full analysis of group banking would force us to review the whole subject of holding company operations. Certainly we must have enough government regulation to save group banking from the evils

[4] Source: *Federal Reserve Bulletin*, July, 1950, p. 899.

[5] For a good discussion of this subject, see Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, pp. 130–138, 433–435.

that have too often plagued holding company structures. Experts are now fairly well agreed that properly regulated group banking can be employed to avoid many of the shortcomings of independent unit banking. Most of them believe, however, that group banking has virtually no advantage that branch banking does not have, and that it cannot realize all the advantages of the latter.

TABLE 45. Group Banking in the United States, December 31, 1939[6]

Number of Banks in Each Group	Number of Group Banking Systems	Number of Banks in Group Systems	Number of Branches Operated by Banks in Group Systems
5 or under	20	69	60
6–10	11	75	68
11–18	7	102	645
21	1	21	67
75	1	75	8
85	1	85	21
Total	41	427	869

Chain Banking

Because it involves common control of two or more banks through such devices as interlocking directorates or common ownership by a person or group of persons, the exact extent of chain banking is difficult to determine. It is estimated, however, that its status at the end of 1939 was approximately as follows:[7]

Number of chains	96
Number of banks in chains	499
Number of branches operated by chain banks	75

Chain banking seems to have no net advantages over group banking and it is probably inferior to branch banking, at least in its ability to achieve diversification of assets and geographical credit mobility.

BANK FAILURES IN THE UNITED STATES

Another outstanding characteristic of American commercial banks has been their high rate of failures. Theirs is the doubtful distinction

[6] *Ibid.*, p. 434.
[7] *Ibid.*, p. 431.

of having one of the highest failure rates, if not the highest, to be found in any important commercial banking system. Whereas in countries like Canada or England decades often elapse without a single bank failure, in this country hardly a year passed, prior to 1934, without several hundred failures. As shown in Table 46, we have suffered more than 17,600 bank failures since 1864; more than 14,000 of these occurred between 1921 and 1933. Losses to depositors in failed banks during the period 1921–33 are estimated at nearly $2 billion, and stockholders of banks have also lost large amounts.

Why have commercial bank failures been so common in this

TABLE 46. Bank Suspensions in the United States[8]

Period	National Banks	State Banks	Total
1864–1896	328	1,234	1,562
1897–1920	256	1,177	1,433
1921–1929	766	4,645	5,411
1930–1933	1947	6,865	8,812
1934–1950	72	343	415
Total	3369	14,264	17,633

country? To some extent a high failure rate might be expected because of the nature of commercial banking operations, which we discussed in an earlier chapter.[9] Bank deposits and other similar liabilities are stated in fixed amounts of dollars and are normally equal to a high percentage of a bank's total assets; hence a relatively small percentage decline in asset values can wipe out all of the stockholders' equity and endanger the safety of depositors' claims. Moreover, most of a bank's liabilities are payable on demand or on short notice, whereas a considerable part of its assets can be liquidated only over a longer period of time. But these points of vulnerability are common

[8] Sources: For the period 1864–96, Cyril B. Upham and Edwin Lamke, *Closed and Distressed Banks*, Brookings Institution, Washington, 1934, p. 245.

For 1897–1941, Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics*, Washington, 1943, p. 283.

For the period since 1941, *Annual Reports of the Federal Deposit Insurance Corporation.*

The figures are not strictly accurate or comparable for different periods, but they indicate the general situation faithfully enough for our present purposes.

[9] See pp. 237–242

to the commercial banks of all countries; they are not peculiar to our own. We still must explain why the failure rate in this country is so much higher than that abroad. Such an explanation must include at least three factors: (1) the structure of our banking system, especially the prevalence of small independent unit banks; (2) the "overbanked" condition of some sections at the outbreak of World War I; and (3) the wide cyclical swings to which our economy is subject.

Whatever may be the relative merits of large independent unit banks and branch banking systems, it is clear that small independent unit banks are especially liable to failure. Their management is often not well trained, nepotism is far from unknown, a large percentage of their assets is likely to be loans to local agriculture, industry, or trade, and the safety of their loans is likely to depend on the prosperity of local specialized enterprises. Even in a city like Detroit, where a bank customarily lends to many types of local businesses, the ability of practically all borrowers to pay may depend on the demand for automobiles. The prosperity of an entire Kansas town and the solvency of its independent unit banks may depend on the wheat market. Thus, independent unit banks, especially small banks of this type, are likely to be weak in the face of unfavorable economic developments. Moreover, a large proportion of our banks are small and are located in relatively small places. This was especially true at the end of World War I, after the great expansion in the number of banks had left many areas "overbanked." Many places did not have an excessive amount of banking resources, but they had too many small banks to achieve economy, efficiency, or safety.

Table 47 shows that the number of commercial banks in this country rose from 2726 in 1880 to 28,659 in 1920 and that most of this increase was in the number of state banks. Moreover, there was a tremendous increase in the number of small banks. It was not unusual for a village with 2000 inhabitants to have three or more banks, and many small or medium-sized towns were similarly overbanked. The great surge of bank failures hit the smaller banks especially hard, as is shown in Table 48. More than half of all bank failures between 1921 and 1936 involved banks with total loans and investments of less than $250,000, and more than 85 percent of them

were of banks with total loans and investments of less than $1 million. The total number of small banks was, of course, large, but their failure rate was far above that of the larger banks.

We have just seen that the structure of the American banking system makes it more vulnerable than the systems of most other countries. It may also be true that the strain on our system caused by business depressions has been greater than in most other countries. The continuing depression in agriculture between the two wars was highly deleterious to banks in the farming areas, though the pressure

TABLE 47. Number of Commercial Banks in the United States on Selected Dates[10]

Year	National Banks	State Banks	Total Commercial Banks
1880	2076	650	2,726
1900	3731	5,007	8,738
1914	7518	17,498	25,016
1920	8024	20,635	28,659
1934	5417	9,604	15,021
1940	5164	9,234	14,338
1951	4946	9,161	14,107

was probably no greater than in other agricultural countries. The great depression following 1929, however, was worse here than in most other countries and was a potent force in bank failures. Bank failures and business depressions are mutually aggravating; a depression tends to break banks, and bank failures deepen a depression.

Why are bank failures considered so much worse than failures of other business firms? There are several reasons. (1) Depositors, many of whom are in the economic classes that can ill afford to lose their money, are injured. (2) Large volumes of deposits are frozen in failed banks and hence are unavailable for purchasing the output of industry and agriculture. This is especially serious in times of general depression. (3) The failure of one bank often leads to widespread bank failures as depositors become frightened. (4) A surge of bank failures often gives rise to widespread hoarding of coin and currency,

[10] Board of Governors of the Federal Reserve System, *Banking Studies*, Washington, 1941, p. 418. The 1951 figure from *Federal Reserve Bulletin*.

which drains reserves from the banks and tends to tighten credit. (5) Anticipating cash withdrawals by depositors, banks may follow niggardly lending policies in their attempts to achieve liquidity, thereby discouraging production and employment. (6) Bank failures may damage business "confidence" and deepen business depressions. For all these reasons we cannot expect to have a satisfactory monetary policy in this country until we have greatly decreased the bank failure rate or at least offset the effects of such failures.

TABLE 48. Bank Suspensions in the United States by Size of Bank, 1921–1936[11]
(All banks, other than private and mutual savings)

Size Group, Measured by Total Loans and Investments	Number of Active Banks, June 30, 1920	Total Suspensions in Group 1921–36	Number of Suspensions in 1921–36 per 100 Active Banks in 1920	Percentage of Total Suspensions
Under $150,000	6,548	5,287	80.7	36.9
$150,000 to 249,000	5,114	2,666	52.1	18.6
250,000 to 499,000	6,977	2,966	42.5	20.7
500,000 to 999,000	4,991	1,787	35.8	12.5
$1,000,000 to $1,999,000	2,733	870	31.8	6.1
2,000,000 to 4,999,000	1,573	505	32.1	3.5
5,000,000 to 9,999,000	508	151	29.7	1.0
$10,000,000 to $49,999,000	369	92	24.9	0.6
50,000,000 and over	72	9	12.5	0.1
Total	28,885	14,333		100.0

What can be done to decrease this rate? We noted in an earlier chapter that one means is to prevent banks from making overly risky loans and investments and to force them to maintain "adequate" capital. It seems probable that little more can be done along these lines without making banks overly cautious in their lending and investing. Some people expected that the Federal Reserve System, with its ability to lend to banks, would halt failures, but it has proved incapable of solving the problem. The solution must come largely from other sources. One of these is a marked change in our banking structure. An extension of branch banking, especially into agricultural

[11] Source: *Federal Reserve Bulletin*, September, 1937, pp. 891, 895, 896. The table does not include 196 suspended banks whose size was not known.

areas and small towns and cities, seems essential. Another is general economic stabilization. General business stability would go far toward protecting banks. Still another source is deposit insurance; this merits more detailed discussion.

DEPOSIT INSURANCE

The protection of bank creditors through insurance plans is not a new device. It was used in a few states before the Civil War to protect the holders of bank notes, but it was not applied to bank deposits until after 1900. Beginning in 1907, a total of eight states—Oklahoma, Kansas, Nebraska, Texas, Mississippi, South Dakota, North Dakota, and Washington—instituted deposit insurance plans for the state banks under their jurisdiction. Every one of these plans failed, and it came to be widely believed that "history shows the inevitable failure of deposit insurance." This, however, was a misreading of history. History had merely shown that these particular types of plans were unworkable; it shed but little light on the probable success of broader and better-managed plans. Among the important reasons for the failure of these plans were the following: (1) Their coverage was too narrow. Each plan included only the state banks within the state, the states were primarily agricultural and often heavily reliant on a single crop, the insured banks were typically small, and these states had long had high bank failure rates. (2) The banks were not properly examined before they came under the plans, with the result that many were near insolvency at the time. (3) The plans were not soundly financed, and the insurance premiums were often inadequate. That such plans as these should fail was only to be expected.

During the surge of bank failures after 1929 a demand for deposit insurance under the sponsorship of the federal government became widespread.[12] The Banking Act of 1933 provided a temporary plan for such insurance, but this was superseded in 1935 by the permanent plan which we shall describe here. This plan is administered by the

[12] For a history of congressional proposals for deposit insurance during the period 1886–1933, see *Report of the Federal Deposit Insurance Corporation*, Washington, 1950, pp. 63–101.

Federal Deposit Insurance Corporation (hereafter referred to as the FDIC). The FDIC received its charter from the federal government and is managed by a board of directors made up of the Comptroller of the Currency and two men appointed by the President of the United States with the advice and consent of the Senate. To meet its expenses and the claims of depositors, the FDIC has had four principal sources of funds: (1) Its initial capital of $289 million subscribed by the Treasury and the Federal Reserve banks. This contribution, together with interest on it, has recently been repaid to the Treasury. (2) The annual insurance premiums it collects from insured banks. These premiums were $\frac{1}{12}$ of 1 percent of deposits until 1950, at which time the law was amended to provide refunds to the insured banks in years when FDIC income exceeds its expenses and losses. (3) Its earnings on its accumulated funds. (4) Its ability to borrow. It is authorized to incur debts to the Treasury not to exceed $3 billion at any one time, and it may also borrow from others. At the end of 1950 the FDIC had accumulated a surplus of $1.2 billion.

All member banks of the Federal Reserve System, including both national and state bank members, are legally required to participate in the FDIC plan. Nonmember state banks may at their option secure this insurance if they can meet FDIC standards, as may also mutual savings banks. That the FDIC now covers most of the commercial banks of the country is indicated in Table 49. At the end of 1950 nearly 95 percent of all commercial banks, holding more than 98 percent of all commercial bank deposits, were in the insurance plan. It should be noted, however, that the FDIC does not cover all the deposits in insured banks. From 1935 to 1950, only the first $5000 of each deposit account was insured; in 1950 this was raised to $10,000. With this increased limit, nearly 99 percent of the total number of deposit accounts in insured banks are fully covered, but more than half of the dollar volume of deposits in these banks remains uninsured.

The insurance premiums charged by the FDIC have been criticized from several points of view. (1) Large banks complain that all the members of the plan pay uniform premiums, whereas the failure rate is much greater for small banks than for large banks. They would

like nonuniform premium rates based on the probability of loss to the FDIC. Though this proposal has merit, at present there are insufficient actuarial data to support classified premium rates. (2) Large banks object to having assessments based on total deposits while the insurance covers a maximum of $10,000 of each deposit. They point out that a bank dealing mainly with small depositors has most of its total deposits covered, whereas a bank with large deposit accounts has only a small percentage of its total deposits insured.

When an insured bank gets into serious financial difficulties, the FDIC may proceed in any one of four ways. (1) It may allow the bank to close and pay each depositor's claim not in excess of $10,000

TABLE 49. Insurance Status of Commercial Banks in the United States, December 30, 1951[13]

Insurance Status	Number of Banks	Percent of All Commercial Banks	Total Deposits of Commercial Banks (In billions)	Percent of All Commercial Bank Deposits
Insured with FDIC	13,446	94.9	$153.5	98.3
Noninsured	718	5.1	2.6	1.7
Total	14,164	100.0	$156.1	100.0

by giving cash or a deposit credit at another insured bank. (2) It may allow the bank to close and, if adequate local banking facilities are not available, open a new national bank in which it makes deposit accounts available to those who held insured deposits in the closed bank. Under both of these procedures only the first $10,000 of each deposit account is protected. (3) If the FDIC finds that continued operation of the bank is essential to provide adequate banking facilities for the community, it may lend to the bank, purchase assets from it, or make deposits with it in order to continue it in operation. (4) If the FDIC finds that such action will reduce its losses, it may make loans or purchase assets to facilitate a merger or consolidation of the distressed bank with another insured bank in the same area. In this way it enables another insured bank to assume the liabilities of the closed bank without weakening itself. It will be noted that under

[13] Source: *Ibid.*, p. 226.

procedures 3 and 4 all deposits in the distressed banks are protected against loss—those above $10,000 as well as those below. In practice, the FDIC has usually employed procedures 1 or 4, and in recent years it has almost always used procedure 4. Thus for several years it has in effect protected all deposits in insured banks, though there is no assurance that this will continue.

The importance of the FDIC is greatly underestimated by those who consider it merely a passive insurance company that protects "small" depositors. In the first place, it can decrease the bank failure rate through its examination and supervision of insured banks. It promises to be especially useful in raising the standards of the thousands of small state banks that are not members of the Federal Reserve System. In the second place, the FDIC has greatly improved the handling of distressed and failed banks. In a typical case before 1935, a distressed bank would be forced to close, the community would lose the bank's service, depositors' claims would be frozen for long periods of time, and an appointed receiver would slowly, and often expensively, liquidate its assets. Now when an insured bank gets into difficulties the FDIC can quickly pay off insured deposits, maintain adequate banking facilities in the community, and handle the failed bank's assets more economically. In the third place, the presence of deposit insurance may prevent sporadic bank failures from generating an epidemic of runs on banks. Before the advent of deposit insurance, bank failures, runs on banks, and even the threat of such runs could exert a serious deflationary force. Not only the actual withdrawal of coin and currency from the banking system but also the very fear of such withdrawals could lead bankers to follow highly restrictive credit policies. Deposit insurance may help to prevent both actual runs on banks and the fear of them in future depression periods. It should be recognized, however, that the present limitation of insurance to the first $10,000 of each deposit account limits the usefulness of the FDIC for this purpose. The importance of this point is emphasized by the fact that more than half of the total dollar volume of deposits in insured banks remain uninsured and that in the past large depositors have often led in withdrawing deposits from distressed banks.

The present deposit insurance plan is subject to several criticisms. (1) No depositor can be sure of the actual amount of protection he will get, and the FDIC may make arbitrary decisions. As already noted, it may limit its insurance coverage to $10,000 of each deposit account, or it may follow procedures that actually protect all deposits, no matter how large. No depositor can know in advance which plan will be followed, and FDIC officials have not indicated clearly the principles that guide their decisions. Runs on banks by large depositors remain a danger, and a serious loss of confidence in banks could occur if the FDIC were to protect all deposits during prosperity periods and shift to a policy of protecting only the first $10,000 of each account during depressions. (2) The present plan may be at least as costly as, and possibly costlier than, a plan specifically providing 100 percent insurance of all deposits. There are several reasons for this. (a) The present plan encourages depositors to spread their deposits among many banks in order to increase their insurance coverage. (b) At the first rumor that a bank may be getting into financial difficulty, large depositors are encouraged to withdraw their funds, thereby draining the bank of its best assets and leaving only the worst ones to be claimed by the FDIC. (c) To the extent that the limitation of insurance coverage permits bank runs, increases the number of bank closings, and intensifies deflation, it may increase losses to the FDIC. (3) The 718 noninsured banks remain a potential point of infection. Though they comprise only about 5 percent of all commercial banks and hold less than 2 percent of all deposits, failures among them could create distrust in other banks. Moreover, their depositors should be considered. If they freely chose noninsured rather than insured banks, they probably deserve little sympathy. But in some cases they have little or no choice, for they do not have easy access to an insured bank. This is especially true in small one-bank towns.

It is for reasons of this type that many economists favor 100 percent insurance of deposits and a requirement that all banks join the FDIC plan. Others, however, believe that nonmember state banks should continue to have the option, and argue that to insure all de-

posits would remove from depositors the incentive to bring pressure on banks to follow sound and safe practices.

THE CHARTERING, SUPERVISION, AND EXAMINATION OF BANKS

As suggested earlier, there remain many unsolved problems relating to the chartering, supervision, and examination of commercial banks. In part, these arise from the fact that banks are chartered by the federal government and the forty-eight states and that there are many supervisory authorities. Only three of these problems will be mentioned here: (1) federal-state relationships in this field, (2) coordination of the various federal supervisory authorities, and (3) the objectives of bank supervision.

Almost from the beginning of our history, the relative responsibility of federal and state governments for the chartering, supervision, and regulation of banks has been a controversial issue. Many have contended that these functions should be exclusively federal. They argue that monetary management should be a function of the central government, not of the several states; that to perform this function satisfactorily the federal government needs clear authority; and that the presence of state banks operating under widely differing laws and not clearly subject to federal regulation weakens the banking system and lessens the effectiveness of monetary management. Some critics of the present arrangement would go so far as to deprive the states of their power to charter banks. Others oppose such action, both because it is unlikely that the states can be deprived of a power they have exercised for more than 150 years and because such action is not necessary in accomplishing the desired purposes. They would allow the states to continue to charter banks, but would subject these banks to federal regulations designed to strengthen the banking system and to increase the effectiveness of monetary management. Proposals to require all checking deposit banks to join the Federal Reserve and abide by its regulations, to require all banks to meet the reserve requirements applicable to member banks, and to require all banks to

insure their deposits and abide by FDIC regulations are in line with this principle.

To this point of view many are opposed, including state bank supervisory authorities, numerous bankers, and various others. They offer several arguments against an extension of federal authority over banks. (1) Such an extension would violate states' rights. (2) State supervision is already satisfactory. (3) Further federal regulation might prevent the appropriate adjustment of banking structures and policies to the peculiar needs of the various regions. (4) Further centralization of control might lead to the nationalization of the banking system. (5) The presence of state banks and their ability to avoid many federal regulations act as a check on arbitrary and excessively drastic actions by federal authorities.

These controversies over the relative roles of the federal and state governments in chartering and regulating banks seem likely to continue.

There are also unsolved problems relating to the organization of federal bank supervisory authorities and the division of power among them. Three principal agencies are involved: (1) the Comptroller of the Currency, who charters, supervises, and examines national banks; (2) the Federal Reserve, which has supervisory and examination powers over all member banks, both national and state; and (3) the FDIC, which has certain supervisory and examination powers over all insured banks. The overlapping of jurisdiction and the possible conflicts among these authorities, as well as the possible conflicts between them and the 48 banking supervisory authorities, are evident. In practice these agencies have worked out arrangements under which there is less duplication of effort and actual conflict than might be expected, but conflicts have occurred and some waste is inevitable under this type of organization.

The danger of conflict among these agencies is increased by the fact that they may at times try to use their powers of supervision and examination to achieve different objectives. For example, there have been times when some but not all Federal Reserve officials wished to use their power of supervision and examination as a flexible instrument of monetary management. They would employ these powers to

restrict the availability of credit during inflation and to encourage banks to lend liberally in time of actual or threatened depression. To this both the Comptroller and the FDIC are strongly opposed. They believe that almost the sole purpose of supervision and examination should be to assure that each individual bank follows sound and safe policies. Such a concept might lead them to encourage banks to reduce their loans in a depression period.

There are numerous other problems relating to the chartering, supervision, and examination of banks that cannot be touched upon here. Enough has been said, however, to indicate that there are important unsolved questions in this field.

SELECTED READINGS

Board of Governors of the Federal Reserve System:
Banking and Monetary Statistics, Washington, 1943, pp. 281–322.
Banking Studies, Washington, 1941.

Chapman, J. M., and Westerfield, R. B., *Branch Banking*, Harper, New York, 1942.

Federal Deposit Insurance Corporation, *Annual Reports*.

Robb, T. B., *Guaranty of Bank Deposits*, Houghton Mifflin, Boston, 1921.

Upham, C. B., and Lamke, E., *Closed and Distressed Banks*, Brookings Institution, Washington, 1934.

U.S. Congress, Joint Committee on the Economic Report:
Subcommittee on Monetary, Credit, and Fiscal Policies, *Report*, 1950.
Statements on Monetary, Credit, and Fiscal Policies, 1949.
Subcommittee on General Credit Control and Debt Management, *Monetary Policy and Management of the Public Debt*, 1952.

(All published by Government Printing Office, Washington, D.C.)

CHAPTER 19

The Functions of Financial Institutions

Up to this point we have concentrated our attention on the types of financial institutions that are capable of creating and destroying money. These include the Treasury, the Federal Reserve, and more than 14,000 commercial, or checking deposit, banks. Though differing in other respects, these institutions have in common the power to create debts which serve as means of payment, and by purchasing and selling assets they can and do increase and decrease the money supply. Furthermore, they have broad powers over the availability of credit and the behavior of interest rates. We come now to a large group of other financial institutions which lack this power over the money supply. They can neither create nor destroy money; they are purely intermediaries which can make available for use only the money they get from others. Some of this money they get from the banks that do have money-creating power; some of it they get from savers. But even without the power to create and destroy money they can exert great influence on both the direction and size of the flow of spendings, for they are an important part of the saving-investment process. To emphasize the importance of these intermediary financial institutions, it will be useful to look briefly at the processes by which savings can be returned to the market as spendings for output.

SAVINGS AND THEIR USES

Everyone is familiar with the fact that in any given period large numbers of economic units "save" part of their income; that is, they

do not spend all their current income after taxes for consumption goods and services. It will be useful to divide current saving into three classes. (1) Personal saving is, of course, the part of personal income after taxes that people do not spend currently for consumption. The motives for such saving are numerous—to provide against old age, to educate children, to prepare for emergencies, to gain social prestige, and so on. (2) Business saving includes all current income remaining at the disposal of business firms and not spent during the period for consumption. This category includes not only the undistributed net profits of business but also its capital consumption allowances. Here, too, there are many motivations for saving—to meet future emergencies, to repay debt, to equalize dividend payments through time, to purchase capital goods, and so on. (3) Government "saving" is a somewhat unfamiliar term, but it is used here to mean the same thing as a tax surplus, that is, an excess of the government's income over its expenditures in a period. Like personal and business saving, it is a method of withholding part of income from expenditure for output.

Several points relating to the act of saving deserve emphasis. (1) An economic unit, be it a family, business, or governmental unit, may elect to save part of its income during a period without making an accompanying decision to spend for real capital goods. This is clear in the case of a family, but it is also true of business and governmental units. (2) Any of these economic units may elect to save a portion of its income without electing to part with its money savings in order to retire debts, purchase securities, or buy real capital goods; it has the alternative of holding idle money balances. Whether it will hold money to represent its savings or part with the money and hold securities and other things will depend on the amount of income it expects from the nonmonetary assets, the expected risk on these assets, and the cost of acquiring, holding, and supervising them. (3) An act of saving, *taken by itself*, tends to reduce the level of national income and does not automatically and inevitably promote the creation of real capital goods. Saving, taken by itself, tends to contract the national money income, for it represents a part of income that is not returned to the market as spendings for consumption goods and

services. Moreover, an act of saving by a person, business unit, or government unit—that is, the mere decision not to spend a part of income for consumption purposes—does not automatically and inevitably promote the creation of real capital goods. It may release productive factors from consumption goods industries for use in capital goods industries, but these factors will actually be employed to produce capital goods only if someone stands ready to spend money for them.

Having examined the act of saving, which by itself is contractionary and does not automatically induce real capital formation, let us now look at the various "outlets for savings" or "offsets to saving." These are the various methods of channeling savings into actual expenditures for output. Taken by themselves, they create national money income, for they are expenditures for output. They are of four types. (1) Consumer "dissaving," that is, expenditures for consumption goods in excess of current income after taxes. During any period many families spend for consumption purposes more than their current income. It may be to purchase expensive durable consumers' goods, to offset a decline in current income, to meet large medical or hospital bills or other unusually heavy expenses, and so on. But whatever the motive behind it, dissaving by some consumers is an offset to saving by other units in the economy. This is seen most easily in the case in which the savings of one group are borrowed and spent for consumption goods by another group. (2) Government deficits. Spendings for output by government units in excess of their current income are also offsets to saving. For example, the government can borrow the savings of others and spend them for output. (3) Foreign expenditures for output in excess of our spending for foreign goods and services. This, too, is an offset to savings. For example, foreigners may borrow savings here and spend them for American output. (4) Private domestic investment, that is, private expenditures for current output in the form of new construction, producers' durable equipment, and additions to inventories. That these expenditures are also offsets to saving is clear, as in the case in which the savings of some units in the economy are borrowed and spent by business firms for new capital goods.

Several points about these four "offsets to saving" are worth noting. (1) They include all the ways that savings by some units in the economy can be routed back into the market as spending for current output. (2) Taken by themselves, they are income-creating, for they are spendings for current output. (3) For these types of spending to occur, two conditions must be met. In the first place, there must be an incentive to spend for these purposes. Some consumers must want to spend for consumption in excess of their current incomes. Government units must be willing to spend more than their current incomes. Foreigners must wish to spend for our output more than we are spending for theirs. And private business firms must foresee enough profits on new capital goods to make purchasing them worth while. In the second place, these potential spenders must be able not only to get the necessary money but also to get it on terms they consider "favorable enough." The amount of spending for these four purposes depends to a great extent on the availability and cost of money.

Let us now review our principal findings relative to saving and "offsets to saving." We have found that the savings of an economic unit is simply the amount of its current income that is not spent for consumption.[1] An act of saving, taken by itself, tends to lower the national money income and does not automatically promote real capital formation. Moreover, saving is in the form of money out of current income, and the saver need not surrender it for securities or real assets. Savings can reënter the market as spendings for output only through the four "offsets to saving"—consumer dissaving, government deficits, foreign spending for our output in excess of our spending for foreign output, and private domestic investment. Moreover, real capital formation can occur only to the extent that business firms and others actually spend for current output in the form of new capital goods. Thus, acts of saving by some members of the economy can be kept from depressing the national money income only to the extent that they are offset by the above four types of spending. This raises a highly important question: By what proc-

[1] In the case of government units, it is the amount of current income not spent for current output. This definition will be refined later.

esses can savings be routed back into the market as spending for output?

In some cases the savers themselves spend their current savings for new capital goods. Thus a farmer may save (not spend for consumption) part of his current income and use it to buy new capital goods in the form of a tractor, milking-machines, or electric motors. An urban family may save part of its income and in the same period use these savings to construct a garage. Or a business firm may use its current savings to buy new plant and equipment. The extent to which savers use their own current savings to buy new capital goods should not be minimized. In these cases current savings flow into investment expenditures for current output without going through the money market and without necessarily involving transactions in securities. But the fact remains that many savings during a period are not spent for investment by their savers. Moreover, many economic units—consumers, governments, foreigners, and business firms—spend more than their current income. Where this is true, money savings can be translated into spending for output only by means of a market process in which the owners of money savings surrender their money in exchange for claims of other types.

The market in which money savings and other claims are exchanged for each other is called "the money market." These other claims are of two general types: (1) ownership claims, of which corporation stocks are the outstanding example; and (2) debt claims of many kinds, including bonds, mortgages, shorter-term promissory notes, acceptances, and book credits. Economic units wishing to spend beyond their current income and the amount of money already in their possession usually get the needed money from others by selling either ownership or debt claims. In some cases they get money by selling their own holdings of these claims against others. Thus a family, business firm, or government unit may sell some of its own holdings of stocks or debt instruments issued by others in order to get money to spend. But economic units may also issue such claims against themselves to get the necessary money. Families and government units borrow money by issuing various types of debt claims against themselves, and business firms get money by issuing ownership claims

against themselves as well as by issuing bonds, promissory notes, and other debt claims.

We can say, therefore, that the money market in the broad sense includes all the transactions in which money is supplied in exchange for securities of various types and in which securities are supplied in exchange for money. This is an integral and necessary part of the process of translating into spendings for output all the money savings that are not currently spent for new capital goods by their own savers.

Let us now look at the processes by which the potential suppliers of money and the potential demanders of money are brought together in the money market. In some cases savers and demanders of money deal directly with each other without any intermediary. For example, one person may lend directly to another for consumption purposes; an individual saver may lend directly to a home builder and take a mortgage claim, or he may purchase an ownership claim directly from a partnership or corporation. Though still used to some extent, these direct dealings between savers and the ultimate demanders of money are far too expensive and in other ways highly inadequate as a means of bringing savers and the demanders of money together and of routing savings into their most profitable uses. How much would be lent if each saver had to perform for himself the functions of exploring all the possible outlets for his savings, analyzing the credit worthiness of potential borrowers, attending to all the complex details of drawing up credit contracts, and protecting his own interests after the loan was made? Many savers—doctors, salesmen, ministers, teachers, skilled workers, and various others—have neither the training nor the experience required for these functions; and even those with more training and experience in this field would find it very expensive and inconvenient to do all these things each time they wanted to part with money for an earning asset. Imagine the difficulty General Motors would experience if it attempted to sell $100 million of new securities by house-to-house solicitation. In this field, as in others, specialization is necessary for maximum efficiency, and there are many types of specialized financial institutions whose social purpose is to facilitate the exchange of money for other claims and to decrease the costs involved in the process.

GENERAL FUNCTIONS OF FINANCIAL INSTITUTIONS

We shall not be able to describe all the types of financial institutions that are involved in the process of exchanging money for debt instruments and shares of ownership. We can, however, describe the principal functions that they perform and then survey briefly some of the most important financial institutions. These institutions can facilitate the flow of funds into investment by performing one or more of the following general functions: (1) investigation and credit analysis; (2) the purchase, holding, and sale of securities; (3) diversification and insurance against risk; and (4) increase of liquidity.

Investigation and Credit Analysis

Knowledge is an important element in having efficient money markets. We need to gather and compare information as to the yields that can be secured on investment in various geographical areas, in various industries, and in various business firms. We also need information as to the future abilities of concerns to pay dividends, interest, and principal. This information is necessary from the social point of view if new capital is to be routed to the industries and firms in which it can contribute most to output. It also reduces risk, since risk is born of uncertainty, and it enables the owners of investable funds to reduce their losses.

Investigation and credit analysis are carried on by many institutions. Much of the basic material comes from the balance sheets and profit and loss statements published by business firms, from regulatory agencies such as public utility commissions and the Securities and Exchange Commission, from government research, from specialists in market analysis, and from Better Business Bureaus. Some firms, such as investment counselors, economic advisory services, and financial publications, use this information, together with that gathered by themselves, and sell their specialized services to individual savers and financial institutions. But much investigation and credit analysis are carried on by financial institutions that perform other services as well. For example, investment banks rarely agree to market a new issue of

securities without analyzing the probability that the issuer will be able to meet his obligations; insurance companies investigate securities carefully before purchasing them; and savings banks analyze securities before buying them with the depositors' money.

The Purchase, Holding, and Sale of Securities

In the absence of financial institutions, each owner of investable funds would have to do for himself the routine and technical tasks of seeking securities, insuring that they were valid, purchasing them, providing safekeeping for them, making sure that the issuer did not dissipate its assets or otherwise threaten the investor's interests, collecting income and principal payments, and selling the securities. Financial institutions now assist in these operations in many ways. Investment banks, brokers, and dealers assist buyers in purchasing and selling securities; they sometimes carry an inventory for sale. We shall see later that the money markets include many institutions that correspond to jobbers, brokers, wholesalers, and retailers in commodities. Theirs is the function of acting as intermediaries between buyers and sellers. Financial institutions that collect and use the funds of others also carry out these routine and technical operations of buying, selling, and holding securities, of collecting income and principal, and of insuring that the savers' interests are protected. Thus depositors in savings banks entrust all these operations to the management.

Diversification and Insurance Against Risk

We are all aware of the risk of putting all our eggs in one basket—one mishap, and all is lost. The same principle applies to holding all of one's wealth in the form of one type of security. Yet only a very wealthy person owns enough funds to be able to secure wide diversification. Financial institutions that collect the funds of many people and use them to buy a widely diversified list of securities can meet this need. For example, a savings bank can accept money on deposit from 20,000 people and use the aggregate sum to purchase many kinds of securities issued by a large number of firms operating in several industries located in various geographical areas. In effect, each

depositor has a proportional claim against a highly diversified group of securities; the safety of his claim depends not on the value of one security but on the value of the diversified list. Diversification reduces risk, for the future value of a large group of securities is easier to predict than the value of a single security. A decrease in the value of one security will have only a small effect on the value of the combined holdings, and a decline in one may be at least partially offset by a rise in others.

In addition to reducing the total amount of risk by a wide diversification of assets, financial institutions can distribute the remaining risks unequally among those who provide the funds, thereby distributing risks in accordance with the willingness of investors to bear them. For example, an investment trust may acquire $60 million of funds with which to buy other securities by selling (1) $20 million of its own 3 percent bonds. The holders of these bonds may be given a first claim against both the assets and the income of the trust. (2) $20 million of its own 4 percent preferred stock. This stock may be given a claim against both assets and income that is subordinate to that of the bondholders but prior to that of the holders of common stock. And (3) $20 million of its own common stock. The claims of these stockholders are subordinate to those of both the bondholders and the preferred stockholders. By accepting the position of residual claimants the venturesome buyers of the common stock shoulder more than their proportional share of the risk on both principal and income accounts and protect the holders of preferred stock and bonds. By accepting claims that are subordinate to those of the bondholders, holders of the preferred stock decrease the risk of those who hold bonds. By such an unequal distribution of risk a financial institution can secure funds from different groups of people who vary greatly as to their willingness to bear risk.

Some institutions specialize in insuring investors against loss. Thus, the Federal Housing Administration insures mortgages on urban homes, the Federal Deposit Insurance Corporation insures the safety of funds entrusted to commercial and savings banks, and the Federal Savings and Loan Insurance Corporation insures the safety of funds left with savings and loan associations. These institutions assume

risks of future losses and charge a fixed annual premium for the service.

Increase of Liquidity

We saw earlier that the illiquidity of securities is one of the reasons why people are reluctant to hold them, preferring to hold money balances instead. Financial institutions operate in several ways to provide a higher degree of liquidity to those who part with money and hold other claims. In the first place, a highly organized securities market, including dealers, speculators, brokers, and stock exchanges, greatly increases the speed and economy of selling securities when one wishes to exchange them for money. These marketing mechanisms do not, of course, provide perfect liquidity; they do not assure stable security prices. They permit an individual seller to dispose of his securities easily and without serious loss when others are in a buying mood, but not when there is a surge of mass selling. Moreover, the various classes of securities still differ greatly as to their marketability. Some enjoy a highly organized market; among these are the federal debt, securities of large and well-known corporations, and banker's acceptances. But the marketability of consumption debts, uninsured mortgages, and the securities of small and little-known business firms is still relatively low.

In the second place, financial institutions increase the liquidity of securities by standing ready to lend on them. The security holder can borrow money for use while he seeks a good market in which to sell.

In the third place, financial institutions that pool the funds of many savers may give each saver claims that are more liquid than the securities held by the financial institution itself. For example, a depositor in a savings bank may be permitted to withdraw his funds almost at will despite the fact that many of the securities held by the bank are relatively illiquid; the owner of shares in a savings and loan association may be permitted to withdraw his funds on short notice despite the fact that the association's assets consist largely of relatively illiquid mortgages. Financial institutions may meet these withdrawals of money in several ways: out of new money left with them by other savers, out of relatively small money balances held for the purpose,

out of borrowings from other financial institutions, and out of funds acquired by selling some of their most liquid securities.

In the fourth place, there are specialized financial institutions that increase the liquidity of other financial institutions. We have already mentioned this role of the Federal Reserve banks. A considerable part of the liquidity of banker's acceptances is traceable to the willingness of the Reserve banks to purchase all offered to them at the established rate of discount. The shorter-term government securities were made almost completely liquid during and immediately after World War II by the Federal Reserve's policy of standing ready to purchase them at a fixed price. The general liquidity of member banks is increased by their ability to borrow at the Reserve banks. Other institutions perform a somewhat similar function, though they do not have the Federal Reserve's power to manufacture money. Thus, the Federal Home Loan Banks lend to savings and loan associations and other similar institutions, the Federal Intermediate Credit banks lend on various types of agricultural paper, and the Federal National Mortgage Association provides a continuous market for certain classes of insured mortgages. Other similar cases could be cited. All arrangements that permit one financial institution to secure money from others in time of need enable it to issue more liquid claims to individual savers, thereby encouraging them to make their money available for use at lower rates of return.

Summary

We found earlier that the reluctance of people to part with money and to hold other claims is traceable to the fact that the holding of these other claims involves the disadvantages of (1) the inconvenience of purchasing, holding, and disposing of the claims; (2) the illiquidity of the claims; and (3) the risk of losing the principal value. To the extent that financial institutions reduce the inconvenience, illiquidity, and risk of holding other claims they increase the amount of money offered for use and reduce the cost of investable funds to those who use them.

Having outlined the general functions performed by financial institutions, we can now study some of their principal types.

SECURITIES MERCHANTS

We shall apply the term "securities merchants" to financial institutions whose primary function is not to buy and hold securities, either short-term or long-term, but to act as intermediaries in facilitating the flow of securities from sellers to buyers. Some act as dealers, buying securities on their own account for the purpose of selling them to others. Some act as brokers, buying or selling for the account of others. Some deal solely or largely in newly issued securities. Others trade solely or largely in securities that have already been sold at least once since they were issued. But whether these institutions act as dealers or brokers and whether they handle newly or already issued securities, the term "merchant" is appropriate, because their functions are similar to those of commodity merchants who act as intermediaries between other buyers and sellers.

Many securities transactions are consummated without the use of any intermediary, for the buyer deals directly with the seller. A farmer may sell his mortgage directly to a bank which will hold it, a municipality may sell its bonds directly to local lenders, or the owner of an old security may sell it directly to an acquaintance. In recent decades "private placements" have become highly important, as large lenders, especially the mammoth insurance companies, have purchased new issues directly from public utility companies, large industrial corporations, and governmental units. In a great many cases, however, the purchase and sale of both new and old securities are facilitated by securities merchants.

Investment Banks

An investment bank is an institution, usually either a partnership or a corporation, whose primary purpose is to market new issues of long-term securities, which may be either debts or shares of ownership. In some cases an investment bank acts alone in distributing a new security issue; in other cases two or more investment banks—sometimes scores of them—act together as a "syndicate." In marketing a new issue, an investment bank or a syndicate performs three principal functions: (1) investigation and purchase; (2) underwrit-

ing; and (3) selling. To illustrate these functions let us suppose that the Excelsior Machine Company wishes to sell a new issue of 100,000 shares of $100-par-value preferred stock.

The first step the investment bank will take is to investigate the worth of the new shares; this will necessitate a study of the industry, of the company's position in the industry, of the assets and probable earning power of the company, and of the rights carried by the new shares. A reputable investment bank will refuse to sell a new issue if investigation shows that it is unlikely to be "a good buy." Several investment banks may investigate the issue simultaneously to see if they wish to bid for it. New issues are often awarded to an investment bank as a result of direct negotiation, without competitive bidding. One of the most controversial subjects in this field is whether or not competitive bidding for new issues should be required. The investment bank which is awarded the issue is often called "the originating house."

The next step is underwriting, by which is meant a guarantee that the issuer will receive on a specified date the purchase price of the issue whether or not all the securities have been sold to the ultimate investors. This relieves the issuing firm of the risk that the sale of the securities may be delayed or that the sale price will be less than was anticipated. In some cases a single investment bank bears the entire risk of underwriting. More often, however, a number of them form a syndicate for this purpose and divide the risk. By such reciprocal sharing of new issues investment banks spread the risk and secure a more stable employment of their facilities.

The final step is selling the new issue. The underwriting syndicate may also perform the selling function, or a separate selling syndicate may be formed. The securities are often sold directly by the syndicate members through their main offices, branches, and traveling salesmen to individuals and financial institutions such as commercial and savings banks, investment trusts, and insurance companies. Frequently, however, at least some of the securities are sold to smaller securities dealers who retail them in different localities. An issue may be distributed throughout the country and even in foreign countries by the main offices, branches, and traveling salesmen of the investment banks and by the smaller retail houses.

Investment banks receive compensation for their services by selling the securities to their ultimate buyers at a price higher than that paid to the issuing firm. For example, the issuing concern may receive $96 a share, whereas the price to the final buyers is $100 a share. The $4 margin may be divided as follows: $1 a share to the originating house for finding, investigating, and purchasing the issue; $1 a share to the members of the underwriting syndicate; and $2 a share to the members of the selling syndicate. The size of the margin varies considerably, depending on such factors as the amount of competition for the issue, the cost of investigation and purchasing, the risk involved in underwriting, and the estimated cost of selling.

Investment banks unquestionably perform a highly useful service in our economy, and they seem to have functioned honestly and efficiently in most cases. Nevertheless, they have at times exposed themselves to serious criticism. (1) In their zeal for profits they have on occasion, especially in boom periods, sold securities at prices far in excess of any reasonable level. And in order to do this, some have failed to provide buyers with full information and have even made false or misleading statements. (2) It appears that they have sometimes refrained from competing with each other for an issue of securities, thereby enabling the originating house to reap monopoly profits out of an abnormally wide spread between sale and purchase prices. (3) In some cases the management of an investment bank has been so closely associated with the management of the corporation which is putting out a new issue that "arm's-length dealing" has been impossible. This situation permits at least two kinds of abuse: The investment bank may exploit the issuing corporation by paying it too low a price for the securities, or, in its efforts to help the corporation, the bank may sell to the public securities that are of questionable value. The state and federal laws that we shall study later were inspired by abuses of these types.

Securities Exchanges and Their Members

The market for newly issued securities is usually called a "primary market." Another essential part of our financial system is the "secondary market," in which "old" securities—stocks and bonds that are already issued and have been sold at least once—are bought and

sold. Many types of institutions function in this secondary market. Among the most important are the securities exchanges and their members. These exchanges are often called stock exchanges, though they help to provide markets for bonds as well as for shares of ownership. Stock exchanges do not themselves deal in securities. "A stock exchange is an organization whose members deal in admitted securities in accordance with established rules. Its primary function is to bring together, through the medium of brokers, buyers and sellers of securities and thereby to enhance the marketability of stocks and bonds."[2] Most stock exchanges are unincorporated. Virtually every financially important country has at least one stock exchange; the United States has about 37. The New York Stock Exchange is by far the largest in this country, accounting for about 65 percent of all securities transactions that occur through the nation's stock exchanges. The New York Curb Exchange accounts for another 20 percent, leaving only 15 percent to be divided among the other 35 exchanges. The New York Stock Exchange will be used to illustrate the functions of stock exchanges in general.

Though the New York Stock Exchange, like the others, does not itself deal in securities, it does perform a number of functions, among the most important of which are the following: (1) It provides physical facilities for trading. These include a building, the "floor" on which the trading occurs, communication and reporting facilities, and various other auxiliary services. (2) It formulates and administers rules governing the conduct of its various classes of members. (3) It determines which securities may and which may not be traded on the exchange; it admits new securities, expels others, and sets minimum standards of accounting and financial reporting for the firms whose securities are admitted to trading.

Trading on the exchange is limited exclusively to its members—to those who "have seats on the exchange." Others can trade on it only through these members. The New York Stock Exchange limits the number of its members to 1375. On the basis of their functions, the members are classified as follows: (1) commission brokers who buy

[2] *Encyclopædia of the Social Sciences*, Macmillan, New York, 1937, vol. xiv, p. 397.

and sell for outside customers; (2) floor brokers who execute orders for other members, especially for commission brokers; (3) specialists in one or only a few securities who act as floor brokers for other brokers and as traders for their own account; (4) floor traders who buy and sell only for their own account; (5) odd-lot dealers who buy and sell lots of less than 100 shares; they deal with commission brokers and other exchange members; (6) bond brokers and dealers who buy and sell bonds for customers and for their own account; we need not discuss this group further, for its functions are similar to others that we shall describe; and (7) inactive members. These members rarely appear on the exchange floor but retain their membership as a means of enhancing their prestige, as an investment, or as a method of reducing the commissions paid on their transactions through other members.

Commission brokers are the most widely known members of stock exchanges, for they are the ones who execute orders for outsiders. Through their branch offices located in many cities these brokers make their services available in every part of the country. As a result of a "buy" order placed with his branch office in Seattle a commission broker may purchase stock on the floor of the exchange from another commission broker who received a "sell" order through his branch office in Mobile. Thus, the commission brokers execute on the floor of the exchange the buy and sell orders received from all parts of this country and from foreign countries, thereby creating one of the most highly organized and centralized markets to be found in the entire economic system.

Commission brokers perform many services for the buyers and sellers of securities. For the sellers they execute the sale, deliver the securities to the buyer's broker, collect the sale price, and remit the proceeds—less commissions, of course. If the seller has "sold short," i.e., has sold securities that he does not own or cannot deliver quickly, the broker borrows the necessary securities in order to make delivery to the purchaser. For the buyer of a security the broker executes the purchase, pays for the security, has its ownership transferred to the buyer, delivers the security to the buyer, and collects the purchase price plus a commission. If the buyer wishes to "buy on margin"—to

pay only part of the purchase price and borrow the remainder—the broker arranges for the loan, pledging securities as collateral. As another phase of their service, brokers supply their customers with information and advice.

In many transactions on the floor of the exchange one commission broker deals directly with another commission broker. Smith's broker may execute his buy order by purchasing from Brown's broker, who has been ordered to sell. In other cases, however, a commission broker may deal with or through some other type of exchange member. If he is very busy, he may hire a floor broker to execute some of his orders on the floor. If the order is for an "odd lot" of securities—less than 100 shares—he may deal with an odd-lot dealer or broker. He may find it advantageous to deal with a member of the exchange who is a specialist in the particular security. Or he may buy from or sell to a floor trader who operates only for his own account. The brokers who do not deal with outsiders facilitate the operations of the commission brokers; moreover, the floor traders can serve the useful purpose of providing a continuous market, buying for their own account when they think the price of a security is going "too low" and selling for their own account when they think the price is going "too high."

Stock exchanges and their members unquestionably fulfill a highly useful purpose in increasing the marketability and therefore the liquidity of securities. But they have not escaped serious criticisms, some of which have been well founded in the past. On occasion stock exchange officials have failed to use their full regulatory powers to force the members to act in the social interest, and some members have participated in various "rigging" operations which instead of stabilizing securities prices have actually produced and accentuated their fluctuations, in order to increase the speculative profits of certain members and their customers. The exchanges and their members too often facilitate general public participation in stock speculation of an unstabilizing character. Margin purchases and short sales are viewed with special suspicion. Government regulation has gone far toward eliminating gross abuses, but it has not succeeded in limiting speculation to the price-stabilizing varieties.

Over-the-Counter Securities Markets

Though about 6000 of the most important securities in this country are listed on the various stock exchanges, more than ten times that number have not been admitted to trading on any exchange floor. These include most bank and insurance company stocks and many other securities, especially those of smaller corporations. These are traded in a branch of the secondary market loosely called the "over-the-counter market." This has often been characterized as a nation-wide web of telephone and telegraph wires, because brokers and dealers in various parts of the country use these methods of communication to secure information as to the supply of and demand for specific securities and to make purchases and sales for their own and their customers' accounts. This market is neither as highly organized nor as highly centralized as the markets provided by stock exchanges, but the brokers and dealers who operate in it serve a useful function in enhancing the marketability of securities that are not admitted to trading on the organized exchanges.

Public Auctions of Securities

Though less important than stock exchanges and the over-the-counter market, public auctions are the third part of the secondary market for securities. The most famous of these is the Auction Exchange in New York City, where weekly auctions are held.

Commercial Paper Houses

The types of securities merchants described in the preceding sections deal largely in stocks and longer-term debt instruments. But there are other types of institutions that perform comparable functions in increasing the marketability of short-term debt instruments. Two of the most important of these are commercial paper houses and bill brokers and dealers.

Commercial paper houses have functions similar to those of investment banks, except that they deal in short-term commercial paper in the form of promissory notes. Suppose, for example, that the Excelsior Machine Company of Waterbury, Connecticut, wishes to

borrow $10 million for six months to meet pay rolls, purchase inventories, or fill other short-term needs. Because of the limited lending power or high interest rates at local banks it may want to borrow in more favorable markets, but it may lack the facilities required for selling its paper economically. A commercial paper house can provide these facilities. It will investigate the company's credit standing and, if this is good, agree to sell the paper. In some cases a commercial paper house acts as a broker, selling short-term promissory notes for the issuer's account and charging a small commission, usually about ⅛ of 1 percent, for the service. More often, however, it buys the issue outright and resells it at a slightly higher price to buyers located throughout the country or in foreign countries.

Commercial paper houses increase the mobility of credit in our independent unit-banking system. They secure a supply of short-term promissory notes in areas with a limited credit supply and high interest rates and sell them in areas where credit is more plentiful and interest rates are lower. They also tend to reduce the monopoly power of local banks over their borrowers. Their assistance is necessarily limited, however, to concerns that are at least medium-sized and that have a high enough credit standing to permit wide sale of their paper.

Bill Brokers and Dealers

Bill brokers and dealers perform functions similar to those of commercial paper houses, except that they increase the salability of acceptances—primarily bank acceptances—rather than promissory notes. Acting either as brokers or as dealers for their own account, they buy and sell acceptances in all parts of this country and in foreign countries.

TRUST FUNCTIONS

Trust functions are executed by institutions bearing various names. Commercial banks and savings banks often have trust departments, and institutions called "trust companies" often engage in commercial or savings bank activities. We shall confine our discussion here to the trust functions exercised by such institutions. Similar functions are frequently performed by individuals, especially by lawyers.

The essential basis of the trust function is confidence in the one who is trusted—confidence in both his honesty and his judgment, for the one acting in this capacity does so for the account of others. We shall use the term "trust function" to include both (1) a trust in the narrow sense, and (2) agency. A trust is created when legal title is given to one person (the trustee) by a second person (the truster) for the benefit of a third party (the beneficiary). The truster and beneficiary may, of course, be the same person; for example, Smith as truster may entrust $100,000 to a trust company to be managed for his own benefit. The trustee holds legal title to the things entrusted to it but is bound to administer them for the benefit of the beneficiary. An agency relationship is created when one person, called the "agent," is authorized by another, called the "principal," to represent and act for the principal in dealings with third persons. The main difference between a trust and an agency relationship is that the trustee holds legal title whereas an agent does not.

Trust Functions for Individuals

Institutions perform many trust functions for individuals. They hold and administer trusts set up by living trusters for themselves, their families, friends, and charitable institutions. They execute wills and manage estates. They act as administrators, guardians, and conservators under court appointments. Acting in these and other comparable fiduciary capacities for individuals, the institutions executing trust functions secure control of large amounts of wealth and account for a significant part of the buying and selling of securities.

In most cases the trustee is obligated to segregate and invest separately the funds in each trust account; hence the advantages of pooling funds are not secured. In a few cases, however, the funds in various trust accounts are pooled or commingled so as to permit wider diversification.

Trust Functions for Corporations

Trust institutions also carry on several types of fiduciary activity for corporations. (1) They act as trustee for bond issues in which the mortgage is held by a trustee for the benefit of the bondholders. Suppose that a corporation wishes to sell investors 10,000 bonds with a

par value of $1000 each, the entire issue to be secured by a $10-million first mortgage on the company's assets. A trust institution is likely to be selected to hold the mortgage for the benefit and protection of the bondholders. As trustee it is supposed to protect their interests and to enforce the safeguarding provisions of the mortgage. At times, however, trusts have been criticized for their laxity. (2) They act as registrar of stock and as transfer agent. In these capacities they keep official records of the stock ownership of corporations and record the transfer of title when shares of stock are sold. (3) They act as fiscal agents. In this capacity they act for corporations in collecting and expending funds. (4) They act as custodians of money and other valuable assets. (5) They act as depositories under corporate reorganization plans. For example, when the financial structure of a corporation is reorganized, a trustee receives the old securities from the various classes of stockholders and creditors and issues to them the securities to which they are entitled under the reorganization plan. (6) They act under court appointment as receivers in bankruptcy cases.

FINANCIAL INSTITUTIONS THAT BUY AND HOLD SECURITIES FOR THEIR OWN ACCOUNT

In the preceding sections of this chapter we have discussed two general types of financial institutions: (1) securities merchants, whose primary function is to facilitate the purchase and sale of securities, and (2) institutions that act in a fiduciary capacity, managing the funds of others and usually keeping separate portfolios for each trust account. We now come to a third and highly important type of financial institution—those that buy and hold securities for their own account. These institutions collect investable funds by selling shares of ownership, by borrowing from other institutions and from individuals, and by retaining earnings; and they use the accumulated funds to make loans of various maturities or to buy shares of ownership in other concerns. The balance sheets of these institutions are useful in analyzing both the sources and the uses of funds under their control. The liability side of their balance sheets shows the types of claims issued by them to get money—the various types and

amounts of debts issued by them and the types and amounts of ownership claims against them. The asset side shows the various types of claims purchased by these institutions with their accumulated funds.

SOURCES OF CONSUMER CREDIT

Though we have emphasized the importance of translating savings into actual spendings for new capital goods, we must also remember that the savings of some members of the community can be translated into a demand for output by being lent to others who will spend them for consumers' goods. Fluctuations in the amount of outstanding consumers' loans sometimes exert an important influence on the total demand for output, tending to swell the demand as consumers increase their purchases with new borrowings and to reduce demand as consumers pay off existing loans. Consumers receive credit in two principal ways: (1) by giving the sellers from whom they purchase goods or services a promise to pay for them in the future, and (2) by borrowing money from other individuals or institutions in order to purchase goods and services "for cash." At the end of 1951 these two forms of outstanding consumer credit totaled nearly $20 billion.

Consumer Credit Extended by Sellers of Goods and Services

Credit extended to consumers by sellers of goods and services may be evidenced by either charge accounts or promissory notes, and it may be paid off with a single payment or a series of installment payments. "A dollar down and a dollar a week" has become a familiar method of purchasing. It is estimated that at the end of November, 1951, consumers' debts to sellers of goods and services amounted to about $12.7 billion, of which $7.4 billion was in the form of installment sales credits. In order to make sales on credit and still be able to carry adequate inventories and finance their other needs, the sellers must secure funds by selling ownership shares, by purchasing on credit from their own suppliers, or by borrowing from others.

Loans to Consumers

In addition to securing credit from the sellers from whom they purchase, consumers often borrow money from other individuals and

from financial institutions of several kinds. Some of these loans are retired with a single payment. For example, Brown may borrow $100 from a bank and promise to pay the entire amount with interest in a single payment at the end of six months. Consumer borrowings of this type from commercial banks alone were estimated at about $1.4 billion at the end of November, 1951.[3] This type of loan is often unsatisfactory, however, because of the limited incomes of most consumer-borrowers and their consequent difficulty in retiring any substantial debt by a single lump-sum payment. To facilitate payment, many consumer loans require that the debt be retired by a series of installment payments. The amounts and sources of these loans outstanding in selected years are shown in Table 50.

TABLE 50. Estimated Consumer Installment Loans Outstanding[4]
(In millions of dollars)

End of Period	Total	Commercial Banks	Small-Loan Companies	Industrial Banks	Industrial Loan Companies	Credit Unions	Miscellaneous Lenders	Insured Repair and Modernization Loans
1929	$ 652	$ 43	$ 263	$219		$ 32	$ 95	—
1932	516	31	257	143		27	58	—
1940	2005	692	505	$132	$104	189	99	$284
1946	2431	956	616	117	98	184	110	350
November, 1951	5868	2509	1211	299	225	535	170	919

Commercial Bank Installment Loans to Consumers

One of the most striking developments shown in Table 50 is the rise in consumer installment loans issued by commercial banks. Only a few commercial banks had entered the personal loan field before 1929, but the number increased rapidly thereafter as the banks sought profitable new outlets for their funds and the need for additional and

[3] For statistics relating to consumer credit, see *Federal Reserve Bulletin*, various issues.

[4] Source: *Federal Reserve Bulletins*.

cheaper sources of consumer loans became more widely understood.[5] Early in 1947 more than 12,000 banks had personal loan departments. Some of their loans were made for general consumer purposes, but many of them were for financing specific purchases, such as automobiles, refrigerators, furniture, or home repairs and modernization.

Small-Loan Companies

Most of the small-loan companies in the consumer loan field are either personal finance companies or remedial loan associations. Personal finance companies are specialized institutions that secure funds by the sale of stock or by borrowing, often from commercial banks, and then make small loans (usually not more than $500) to individuals. In more than thirty states and the District of Columbia they are subject to the Uniform Small Loan Law, which requires that they secure a license, post a bond, submit to inspection and regulation by the state banking department, and charge not more than a stated interest rate. This rate is usually 3½ percent per month on unpaid balances, though it is less in some states. Loans on unsecured notes signed by both husband and wife are becoming increasingly common, but specific security in the form of wage assignments or chattel mortgages on such articles as furniture and automobiles is still required in many cases.

Remedial loan associations are now less important than the personal finance companies. Most of them were established by philanthropists who were shocked by the excessively high rates of interest charged on small loans by loan sharks and pawnbrokers. Their capital funds were subscribed largely by public-spirited citizens, and their dividends are commonly limited to about 6 or 8 percent.

Industrial Banks

The name "industrial banks" is likely to be misleading; it is justified only on the basis that most of the loans they make are to the industrial classes. They might better be called "small-loan banks." This

[5] For a good discussion of this trend, see Frieda Baird, "Commercial Bank Activity in Consumer Instalment Financing," *Federal Reserve Bulletin*, March, 1947, p. 264.

group includes the Morris Plan banks, the first of which was established in Norfolk, Virginia, in 1910; the Wimsett System, the Citizens' System, the Trustees' System, the Hood System, the Morgan Plan banks, and several others. These institutions secure funds in three principal ways: (1) by selling stock, (2) by retaining earnings, and (3) by accepting money on deposit from borrowers and savers. The funds so acquired are usually put out as relatively small loans, though some of the banks now make large loans as well. Payment is ordinarily made on the installment plan. Interest charges vary considerably, the real annual costs to borrowers ranging from 10 to 34 percent, with 16 to 18 percent being common.

Industrial Loan Companies

Among the most important industrial loan companies are the installment finance companies. These lend to both consumers and businesses. Most of their loans to consumers are on expensive durable goods, such as automobiles, refrigerators, electric stoves, furniture, and washing machines, by far the largest part of them being for the purchase of new or used automobiles. The operation of these companies can be clarified by the following example. Suppose that Jones buys a new $2000 automobile and covers $1000 of the purchase price with cash or a traded-in car; he plans to borrow the remaining $1000. An installment finance company will pay $1000 to the seller of the car and take in return the buyer's promise to make from 12 to 24 monthly installment payments large enough in the aggregate to retire the loan and to cover interest charges that actually amount to from 9 to 15 percent per year. Finance companies usually protect their claims by means of a conditional sales plan or a chattel mortgage. Under the first plan the buyer does not receive a clear title to the car until the entire debt is paid. Under the second, the title passes to the buyer at the time of sale, but the lender receives a chattel mortgage on the car. In a somewhat similar way a finance company lends to dealers, holding title to the merchandise until it is sold or accepting chattel mortgages on it. Finance companies secure the funds that they lend from three major sources: (1) from the sale of stock to the public and to business firms; in several cases the manufacturers of durable

goods have bought stock in companies that finance installment purchases of their products; (2) from the sale of short-term or long-term debt instruments in the open market; (3) from loans secured directly from banks and other lending institutions.

Credit Unions

Credit unions are in effect coöperative banks modeled after the credit coöperatives of Europe. They secure funds by selling stock and collecting savings deposits from their members. They cater especially to small savers, selling stock for as little as $5 a share and accepting savings deposits of as little as 25 cents a month. The funds accumulated in this way are lent to members. Credit unions were first introduced in this country in 1909 and until 1934 operated solely under state charters. In 1934, however, the Federal Credit Union Act was passed, permitting federal incorporation. At the end of 1949 there were more than 10,000 credit unions in this country, of which about 4600 had federal charters. The latter are supervised by the Social Security Agency.

Miscellaneous Lenders

Miscellaneous lenders to consumers are of several types, but two of the most important are pawnbrokers and individuals. Pawnbrokers advance funds in two ways: (1) by making loans and accepting as collateral valuable articles such as jewels, watches, musical instruments, furs, and even Phi Beta Kappa keys; and (2) by purchasing valuable articles and giving the seller an option of repurchasing them at a higher price within a specified period. For example, a pawnbroker might give you $10 for your watch and allow you to redeem it for $15 at any time within six months. This type of business is now subject to regulation, both to limit its charges and to control traffic in stolen goods, but it is not yet free from sharp practices.

Individuals who lend to consumers vary greatly. At one extreme are the kindly people who lend liberally, at low interest rates, and largely for humanitarian reasons. At the other extreme are the unlicensed and illegal "loan sharks" who charge interest rates ranging from 100 percent to more than 1000 percent per year. The unfor-

tunate person who becomes indebted to a loan shark may require years to rid himself of the debt and may face violence if he defaults on his payments.

INTEREST RATES ON CONSUMER CREDIT

Interest rates on consumer credit are typically high. A consumer is fortunate indeed if the total cost of a loan, including interest and other charges, is less than 10 percent a year on the credit actually used; costs of 11 to 20 percent are quite common, and costs of as much as 40 percent are not rare. To some extent this is due to the monopolistic power of lenders, for a consumer's credit worthiness is usually not widely known and he has access to only a limited number of suppliers of credit. This factor was especially important a few decades ago when the number of lenders in this field was much smaller and lending practices were less well regulated. But it must be recognized that the costs of making and servicing small loans to consumers are high. The cost of credit investigation is large in proportion to a small loan, the risk of loss is frequently high—though less than is generally believed—and the collection and clerical costs involved in installment payments are large.

DISCOUNT COMPANIES

Though discount companies do not lend to consumers, they increase the availability of consumer credit by lending to businesses on the basis of their "receivables"—that is, on the notes and charge accounts owed by the customers. To illustrate the operation of a discount company let us assume that Jones, a furniture dealer, is badly in need of funds with which to pay for inventory and meet his other obligations, and that he has outstanding claims against his customers amounting to $100,000. These may be evidenced by either charge accounts or promissory notes payable over a period of time. A discount company is unlikely to advance the full face value of Jones' claims against his customers, but it may advance as much as 80 per-

cent, or $80,000. To protect its claims, it may use either the so-called "notification plan" or the "nonnotification plan." Under the notification plan, Jones' debtors are notified that the claims against them have been sold and that they are to pay the discount company. The discount company returns to Jones any amount collected in excess of the loan, minus the charges on it. Under the nonnotification plan, the debtors are not informed that the claims against them have been assigned to the discount company, Jones collects from them for the account of the discount company, and the company relies on his honesty in forwarding the collected funds to it. For obvious reasons a borrowing merchant usually prefers the nonnotification plan.

Interest charges on loans by discount companies are usually high, running around 18 percent a year. Businesses therefore avoid loans of this type if they can secure adequate funds from banks or from open-market sources. Discount companies secure their funds primarily in three ways: (1) by selling shares of stock, (2) by borrowing directly from banks, and (3) by selling collateral trust notes in the open market. These collateral trust notes are promissory notes issued by the discount company and secured by the deposit of receivables with a trustee.

SELECTED READINGS

Beckhart, B. H. (ed.), *The New York Money Market*, Columbia University Press, New York, 1932, vol. iii.

Biddle, C. P., and Bates, G. E., *Investment Banking*, McGraw-Hill, New York, 1931.

Brandeis, L. D., *Other People's Money*, Stokes, New York, 1932.

Foulke, R. A., *The Commercial Paper Market*, Bankers Publishing Co., New York, 1931.

Fowler, J. F., Jr., *Introduction to Wall Street*, Harper, New York, 1930.

Hardy, C. O. (ed.), *Consumer Credit and Its Uses*, Prentice-Hall, New York, 1938.

Herzog, P. W., *The Morris Plan of Industrial Banking*, McGraw-Hill, New York, 1929.

Kirkbridge, F. B., Starrett, J. E., and Willis, H. P., *The Modern Trust Company*, Macmillan, New York, 1925.

Lavington, F., *The English Capital Market*, Methuen, London, 1921.
Leffler, G. L., *The Stock Market*, Ronald, New York, 1951.
Loeser, J. C., *The Over-the-Counter Securities Market*, National Quotation Bureau, New York, 1940.
Securities and Exchange Commission, *Annual Reports*, Government Printing Office, Washington.
Shultz, B. E., *The Securities Market*, Harper, New York, 1942.

CHAPTER 20

Some Other Financial Institutions

THE SAVINGS BANK FUNCTION

Among the most important institutions that collect money savings from members of the community, pool them, and use them to purchase various types of securities are the institutions performing the savings bank function. We shall not discuss here the other functions, such as commercial banking, that are also executed by some of these institutions. Those who entrust their money to savings banks receive time or savings deposits in return. These are in effect debts of the savings banks which are payable only after the passage of a period of time; they are not payable on demand, as are checking deposits, and they are not generally circulated as money. They are evidences that money has been deposited and promises that money will be repaid later.[1] In the case of savings deposits, repayment by the bank is legally required within a stated period of time—usually 30, 60, or 90 days—after the depositor gives notice of his desire to withdraw his funds. Time deposits are those that are left with the bank for a period of time that is specified at the time the deposit is made. This period rarely exceeds a year, though such deposits are often left for a longer time. In some cases, however, the banks do not insist on their legal right to delay payment but allow withdrawal practically on demand.

[1] The statement that savings deposits are not money is probably too sweeping. It must be admitted that when a savings bank actually redeems its deposits on demand and does not insist on its right to pay only after a stated period of time, the savings or time deposits act as money.

Though this practice may be unobjectionable in periods of prosperity, it opens up dangerous possibilities of runs by depositors in times of distress. The owners of time and savings deposits usually receive interest from the banks. The general range of the interest rates paid was from 1 to 2½ percent in 1952, but it was higher in earlier periods when bank assets yielded higher returns.

We shall discuss here the savings bank function as carried out by three general types of institutions: (1) mutual savings banks, (2) postal savings banks, and (3) others, mostly the savings departments of commercial banks. The amount of funds gathered by these institutions is shown in Table 51. Institutions that control $59,700 million of investable funds cannot fail to be an important element of our financial system.

TABLE 51. Time and Savings Deposits in the United States, June 30, 1950[2]

Type of Institution	Number of Banks	Amount of Time and Savings Deposits (In millions of dollars)
Mutual savings banks	530	$19,923
Postal savings banks	8,235[a]	3,097
Others (mostly commercial banks)	14,144	36,719
Total	22,909	$59,739

[a] Offices and branch stations.

Mutual Savings Banks

Mutual savings banks are coöperative banks; they issue no capital stock and are owned by, and operated for the benefit of, their depositors. Each is governed by its board of trustees, which is usually self-perpetuating. They were originally founded to promote thrift among small savers and to provide safety as well as income for small savings. This purpose is still shown in their operations. Most of them accept deposits only from individuals, funds from corporations being refused, and they usually place a maximum limit on the amount of deposits held for each individual. This limit is ordinarily in the range

[2] Sources: *Federal Reserve Bulletin*, January, 1952, p. 50; *Annual Report of the Postmaster General*, 1950, p. 129.

of $2500 to $5000, exclusive of accumulated interest. The large volume of funds controlled by mutual savings banks—more than $20 billion in 1952—represents deposits by considerably more than 15 million individuals. Most of these banks are located on the Atlantic seaboard and in New England.

In line with their purpose of providing safety as well as income to their depositors, mutual savings banks avoid buying assets that are known to be highly risky, and they usually make but few short-term loans. They concentrate on government securities, real estate mortgages, and the higher-grade public utility and industrial bonds.

Approximately a third of these banks—they hold about two-thirds of all deposits in mutual savings banks—are insured by the Federal Deposit Insurance Corporation. Many of the others have their own guaranty fund plans.

Postal Savings Banks

After nearly forty years of agitation, a postal savings bank system was established in this country in 1910. Among several advantages urged for the system were: (1) It would stimulate saving by people in moderate circumstances, especially by those who distrusted other financial institutions. (2) It would provide a safe repository for savings and prevent hoarding. (3) It was needed to give assistance to savers in the agricultural South and West, where existing facilities for saving were in many cases inadequate, poorly distributed, and unsafe.

Postal savings banks are, in effect, departments of post offices which operate as branch offices for a board of trustees consisting of the Postmaster General, the Secretary of the Treasury, and the Attorney General. Service to the small individual depositor is emphasized. Deposits are accepted only from individuals, no person may have more than one postal savings account, except in unusual cases no deposit account may exceed $2500 (exclusive of interest), and deposits of as little as $1 are accepted. To facilitate the accumulation of a dollar the postal savings offices furnish free postal savings cards to which may be affixed 10-cent postal savings stamps. The depositors receive interest at the rate of 2 percent a year, though no interest is paid on amounts left for less than a year. Virtually all the money

deposited in these banks is now invested in securities of the federal government, though small working balances are placed in depository commercial banks. Of the system's $3218 million of assets in June, 1950, all but $181 million were in the form of federal securities. Before World War II, however, a much larger proportion of the assets was in the form of deposits with banks, which paid interest to the postal savings system at a rate slightly above 2 percent.

Table 52 shows the scope and growth of the postal savings banks. After an early period of growth, their business virtually ceased to rise during the decade of the 'twenties. A 2 percent return and a promise of safety were not very attractive to savers in a period of high confidence in securities and other financial institutions. But deposits surged into the system during 1930–33 as private financial institutions failed in droves and people came to distrust many of those that remained in business. The number of depositors in postal savings rose by nearly 2 million and deposit balances increased by more than $1 billion. The rate of growth declined again as confidence in the banking system was restored in 1933, but it rose rapidly during the period of high prosperity induced by World War II. This rise was accentuated by the decrease in interest rates in other types of savings institutions. Table 51 shows that in 1950 about 3,780,000 individuals had $3097 million on deposit with the postal savings banks.

Private financial institutions have often objected to the operation of a postal savings system by the government, alleging that it is unnecessary and constitutes unfair competition. One might admit that the loss of these safe depositories would not constitute a serious hardship during prosperity periods, but he could hardly agree that they are not highly useful during a time of widespread bank failures. In fact, it can be argued that they assist even private financial institutions during such periods by reducing the hoarding of coin and currency. For example, deposits with the postal savings banks rose by $1033 million between June, 1929, and June, 1933, and during the same period these banks were able to redeposit with other banks large sums that might otherwise have disappeared into hoards of coin and currency.

TABLE 52. Postal Savings Banks[3]

Date (June 30)	Number of Offices and Branch Stations in Operation	Number of Depositors (000)	Deposits Held (In millions of dollars)	Balance per Depositor (Exclusive of Interest)
1911	400	12	$ 1	$ 57
1917	7161	675	132	196
1920	6314	509	157	309
1929	6770	417	154	369
1933	7888	2342	1187	507
1941	8038	2883	1304	452
1946	8089	4136	3120	754
1950	8235	3780	3097	819

Other Institutions Performing Savings Bank Functions

Most of the other time and savings deposits are held by the savings departments of commercial banks. But before discussing them, we should mention stock savings banks. These function in much the same way as mutual savings banks, but they are owned by their stockholders rather than by their depositors. Both the number of these institutions and the amount of savings deposits held by them are rather small.

The volume of time and savings deposits held by the savings departments of commercial banks is shown in Table 53. We have already seen that mutual savings and postal savings banks tend to specialize in the collection of savings from the relatively small individual saver, accepting deposits only from individuals and limiting the amount deposited by any one person. It is much more difficult to generalize about the practices of the savings departments of commercial banks. Virtually all of them welcome small savings depositors and offer them services comparable to those of mutual savings banks. But some of them, especially the larger banks, also accept time deposits from corporations, other business firms, educational institutions, and governmental units. For example, the Chase National Bank may accept a time deposit of several million dollars from a

[3] *Annual Report of the Postmaster General*, 1950, pp. 128–129.

corporation that has money (usually checking deposits) that it does not need for some time.

It is impossible to generalize about the types of assets purchased with the time and savings deposits accumulated by the commercial banks, for these banks do not segregate the assets behind time and savings deposits from those behind demand deposits and other liabilities. Some have criticized this practice and have insisted that such segregation should be required for two reasons: (1) The banks should hold only the safest kinds of assets behind the savings of small depositors, and (2) savings depositors are likely to suffer more than

TABLE 53. Time and Savings Deposits at Commercial Banks[4]
(In millions of dollars)

End of Period	All Commercial Banks	Member Banks	Nonmember Banks
1938	$14,862	$11,369	$3493
1941	15,952	12,347	3605
1946	33,840	27,190	6650
November, 1950	37,540	30,114	7426

demand depositors in a period of bank runs. Banks may dispose of most of their good assets to meet the claims of their demand depositors, leaving only the poorer assets to meet the delayed claims of their time and savings depositors.

LIFE INSURANCE COMPANIES

Life insurance companies engage in two principal types of business: (1) they insure lives, and (2) they sell annuities. Both of these functions involve the collection of great sums of money from millions of people, and much of this money is used by the insurance companies to buy securities. In insuring lives, the companies typically do not charge an annual premium that is just sufficient to cover operating expenses and insurance outpayments during that year. If they did, each policyholder would pay premiums that increased in amount as he grew older and as the probability of his death during the year

[4] *Federal Reserve Bulletins.*

increased. For example, the purchaser of a $1000 policy might pay about $7 a year when he was 30 years old, about $11 when he was 45, about $22 when he was 55, and about $38 when he was 64. To avoid this rise in premiums, most policies provide for collections during their earlier years that are greater than would be necessary to meet operating expenses and insurance outpayments during those years, the excess amounts plus earnings on them being used to keep down premiums in later years. For example, a man of 30 may buy a $1000 "straight life" or "ordinary life" policy for which he promises to pay $19 a year until he dies. He pays far more than the actuarial cost of insuring his life while he is young, the excess amount being invested and used to meet the higher actuarial costs as he grows older. In effect, he saves in his early years to meet the increased cost of insuring his life when he is older. Some other types of insurance involve even more saving. For instance, a "single-payment" policy requires a single lump-sum payment, which, together with the earnings on it, covers the entire cost of the insurance. A "twenty-payment life" policy requires payments during twenty years that are sufficient, together with the earnings on them, to meet the entire cost of the insurance. It is largely because of policies of these types that performance of the life insurance function involves the accumulation of such a huge volume of investable funds.

Annuities are relatively simple in principle although complex in detail. An annuity company collects funds, either in a lump sum or in installment payments, invests these funds in income-earning assets, and then after the date selected by the annuitant pays him a fixed annual income based on (1) the amount of funds accumulated in his account, and (2) his average life expectancy. The companies engaged in the annuity business control a large volume of investable funds.

Table 54 shows the growth of assets held by life insurance companies in the United States. By the end of 1949 the total admitted assets of these institutions had risen to more than $59 billion. More than 65 percent of these assets were in the form of bonds; bonds of the federal government loomed large though bonds of other governmental units and of many kinds of business firms were also included. Real estate mortgages, both farm and urban, were next in impor-

tance, making up about 22 percent of the total. Insurance companies have long been one of the principal sources of real estate credit. Loans to policyholders for premium payments and other purposes were next in importance. Life insurance companies in this country do not ordinarily buy stocks, but in recent years they have tended, especially the very large ones, to invest directly in residential real estate. For example, the Metropolitan Life Insurance Company owns a number of large apartment developments.

TABLE 54. Assets of Life Insurance Companies in the United States[5]
(In millions of dollars)

End of Year	Number of Companies	Total Admitted Assets	Bonds Owned	Real Estate Mortgages Owned	Premium Notes and Loans
1900	76	$ 1,742	$ 7	$ 501	$ 88
1920	272	7,320	3,589	2,175	859
1930	352	18,880	6,352	7,577	2807
1940	305	30,802	16,983	5,958	3091
1944	305	41,054	28,537	6,675	2134
1949	435	59,630	39,274	12,906	4430

Fire, marine, and casualty insurance companies also accumulate funds and use them to buy securities, but their total assets are far less than those of life insurance companies.

INVESTMENT TRUSTS

Investment trusts, sometimes called investment companies, are incorporated or unincorporated institutions that collect funds by selling their own stocks or bonds, or both, and use the funds secured in this way to buy a diversified list of stocks or bonds, or both. They do not ordinarily make short-term loans. They are called trusts because their assets are often held by a trustee to protect the interests of those who have purchased their securities.

Investment trusts did not become an important part of our financial structure until the 1920's. No more than 40 had been established in

[5] *Statistical Abstract of the United States*, 1951, pp. 426–427. These statistics cover only the legal-reserve life insurance companies. Fraternal insurance companies with a few hundred millions of assets are excluded.

this country before 1921, but they grew rapidly after that time, especially during the boom later in that decade.[6] About 140 were created from 1921 through 1926, 140 in 1927, 186 in 1928, 265 in 1929, 131 in 1930, and about 300 during 1931–36. Their total assets rose from about $1 billion at the end of 1926 to more than $7 billion at the end of 1929. About 360 of these institutions, with total assets of about $3750 million, were still in operation in 1946. Since that time investment trusts have expanded markedly both in number and in total assets.

Investment trusts vary greatly as to the types of assets purchased. Some stress diversification over a wide area, purchasing both stocks and bonds in many corporations connected with many industries. Some purchase only stocks. A few concentrate on bonds. Some specialize in holding the securities of a single industry, such as insurance company stocks, bank stocks, or electric utilities stocks. These trusts also differ greatly as to the types of their own securities that are issued. Some issue only one—common stock—so each shareholder is in effect a pro rata claimant against the asset value and earnings of the trust's diversified portfolio. Others issue not only common stock but also preferred stock and even bonds. In this case the risk of holding common stock is greatly increased, because the holders of the bonds and preferred stocks are given fixed or semifixed prior claims against both assets and earnings. The risk is especially great when the trust's assets are composed largely of common stocks, which are likely to fluctuate widely in value.

A well-managed investment trust can unquestionably perform a useful function in investigating, purchasing, and holding securities; in providing diversification and reducing risk; in dividing the remaining risk unequally among various types of investors; and in increasing liquidity. It is unfortunate, therefore, that some investment trusts, especially some of those formed during the speculative hysteria in the late 'twenties, abused their powers. Some of them specialized in stock speculation; and some used "other people's money" primarily for the benefit of their promoters, who were investment banks with

[6] See Emanuel Stein, *Government and the Investor*, Farrar & Rinehart, New York, 1941, p. 186.

securities to sell or brokers who wanted the commissions to be earned on the trusts' purchases and sales through them. Excessive promotion and management fees were far from unknown. It was largely because of abuses of these types that Congress passed the Investment Company Act of 1940, placing investment trusts under the regulation of the Securities and Exchange Commission.

BUILDING AND LOAN ASSOCIATIONS

Building and loan associations, or savings and loan associations as they are often called, collect funds and use them primarily to make loans on urban residential real estate. In the beginning most of these institutions were temporary coöperative home-builders' clubs. A group of people—perhaps 200—would form a temporary association and agree to pay into it $20 a month, the funds collected in this way to be lent to members to finance the purchase or construction of houses. Borrowers gave the associations mortgages on their homes and paid them off in monthly installments. An association would be dissolved when all its members had homes and the mortgages were completely retired. Though most building and loan associations are still operated on the mutual plan, the modern institutions differ from the early ones in at least two important respects: (1) They are no longer temporary, they are permanent—an association continues to operate even though all its original members withdraw. And (2) they collect savings from people who have no intention of borrowing to build or buy a home, as well as from those who are or expect to become borrowers. In some cases a person who entrusts his savings to an association receives a deposit credit comparable to a time or savings deposit at a savings bank. More often, however, the savers purchase shares in the association, paying for them in installments over a period of time.

Table 54 shows the number and principal assets of savings and loan associations in this country. After a period of rapid growth during the prosperous 1920's, the associations suffered seriously as real estate values fell sharply and defaults on mortgages became widespread during the depression. Not until the prosperity that came with and followed World War II did their assets again rise rapidly. Before

1933 all these associations operated under state charters, but a law of that year authorized the establishment of federal savings and loan associations which operate under charters granted by the Federal Home Loan Bank Administration. We shall discuss later the assist-

TABLE 55. Savings and Loan Associations in the United States[7]

Year	Number of Associations	Total Assets (In millions of dollars)	Total Mortgage Loans (In millions of dollars)
1922	10,009	$ 3,343	$ 3,009
1929	12,342	8,695	7,791
1933	10,596	7,018	5,559
1944	6,279	7,458	4,983
1949	5,983	14,622	11,714

ance given by the government to these and other institutions that lend on real estate.

FEDERAL FINANCIAL INSTITUTIONS

All the financial institutions studied up to this point, except the postal savings banks, are "private" in the sense that they are owned and managed by individuals or groups of individuals rather than by governmental units. But one of the most striking developments of the past forty years, especially in the period since 1932, has been the rise of financial institutions sponsored by the federal government. Some of these are wholly owned and operated by the government itself; others are owned partially by it and partially by other credit institutions or by borrowers; and still others that were originally owned by the government are now wholly owned by private groups. These institutions perform many functions. They have lent billions of dollars, they have insured the safety of billions of dollars' worth of loans by other institutions, they have participated in the risks of many other loans, they insure the safety of savings deposited in several types of private institutions, and they stand ready to lend on many types of assets to institutions in need of funds. The influence of these activ-

[7] *Statistical Abstract of the United States*, 1951, p. 407.

ities on other financial institutions and financial practices has already been tremendous, and it promises to be even greater in the future.

In the remaining pages of this chapter we shall describe briefly some of the principal federal financial institutions and outline their functions. The reader is warned, however, that these institutions are highly complex, especially in the details of their operations, and that we shall in some cases oversimplify in order to make them more comprehensible.

FEDERAL AGRICULTURAL CREDIT INSTITUTIONS

Federal Land Banks and National Farm Loan Associations

The growth of federal lending institutions began with the passage of the Federal Farm Loan Act in 1916. For many years groups of farmers, especially those in the South and West, had been critical of existing farm mortgage credit facilities. They complained: (1) That private individuals and institutions would not lend for long enough terms; they usually refused to lend for more than five or ten years—a period too short to enable a farmer to pay for his land. (2) That existing institutions did not provide sufficient mobility of credit from the large cities, especially from the eastern seaboard, to the rural credit-deficit areas, thereby retarding the development of rural areas. This complaint was heard most frequently in the South, the Midwest, and the West. (3) That interest rates on farm mortgages were too high. The Federal Farm Loan Act of 1916 attempted to remedy the situation by establishing a nation-wide system of farmers' mortgage credit coöperatives with federal sponsorship and assistance. This system includes two types of institutions: national farm loan associations and Federal Land banks.

There are now about 1200 national farm loan associations spread throughout the rural areas of the country. They are chartered and supervised by the Farm Credit Administration in Washington. Each association is a local coöperative made up of 10 or more persons who own or are about to become owners of land qualified as security for a Federal Land bank loan. No member of an association may borrow more than $50,000, and each must subscribe for stock in the associa-

tion equal to 5 percent of the amount of his loan. Each national farm loan association performs several functions, among them being: (1) To receive advances from the Federal Land bank of the district and to distribute these advances to its member-borrowers. (2) To endorse mortgages given by its shareholders to the Federal Land bank. This is an important function; the members of an association in effect guarantee each other's mortgages by pledging their shares in the association, though their liability is limited to the amount of their shares. (3) To exercise various other collection, supervisory, and promotional functions.

The funds lent on farm mortgages through the national farm loan associations are secured from the Federal Land banks. Here again we encounter the magic number "12"; the country is divided into 12 districts, each with its Federal Land bank. All the capital stock of these banks was originally subscribed by the federal government, but this has now been retired so the banks are completely owned by the national farm loan associations and other borrowers.[8] They are therefore a coöperative form of farm credit institution. The capital accounts of these banks provide only a small part of the funds available to them for lending; a much larger part comes from the sale of their own debt instruments, called "consolidated federal farm loan bonds." These are sold throughout the country, especially in the credit-exporting areas. Hence they are a very effective means of channeling loan funds from areas where credit is relatively plentiful and cheap to areas where it has in the past been scarcer and more expensive. The rate of interest charged by these banks on new loans may not exceed by more than 1 percent the rate borne by their last bond issue, and the differential has at times been less. Interest rates are uniform throughout the country regardless of the rates prevailing in other lending institutions in the various regions.

The Federal Farm Mortgage Corporation

The Federal Land banks and national farm loan associations are permanent institutions and are not designed to offer risky emergency

[8] In some cases the banks make direct loans to farmers instead of lending through the national farm loan associations. Direct borrowers must subscribe to the bank's stock in an amount equal to 5 percent of the loan obtained.

relief; their purpose is to make "sound" loans on a "businesslike basis." But when farm prices fell rapidly during the great depression and thousands of farmers defaulted on their mortgages, with many more threatening to do so, there arose a feeling that some source of relief loans was highly desirable to help not only debtor-farmers but also lending institutions that were heavily laden with farm mortgages of doubtful quality. The Federal Farm Mortgage Corporation was formed in 1934 to meet this need.[9] The funds of the FFMC were secured in two principal ways: (1) from a $200-million government subscription to its capital stock, and (2) from the sale of Federal Farm Mortgage Corporation bonds which are fully and unconditionally guaranteed by the federal government. These funds were used to make both first- and second-mortgage loans on farm real estate which was too risky for the Federal Land banks. Other mortgage holders have received a large part of the funds lent by the FFMC, for these funds were used by farmers to pay off mortgages that were already in default or threatened to become so. The authority of the FFMC to make new loans expired in 1947.

Lenders on Farm Mortgages

Table 56 shows the importance of the Federal Land banks and the FFMC as lenders on farm mortgages. In 1940 they held more than 40 percent of all outstanding farm mortgages. By 1950, however, their share had fallen below 20 percent. This ratio varies considerably in the different agricultural regions, being smaller in the East where private credit is cheaper and more plentiful, and larger in the high-interest, scarce-credit areas of the South and Midwest.

Federal Intermediate Credit Banks

For many years, especially during the period of credit restriction and bank failures that began in 1920, farmers complained that short-term and intermediate-term credit facilities were inadequate. In response to this complaint, 12 Federal Intermediate Credit banks were

[9] From May, 1933, until the establishment of the FFMC in January, 1934, this need was partially met by Land Bank Commissioner loans made out of a $200-million fund appropriated by Congress.

established, one in each of the 12 Land bank districts. These institutions do not themselves make loans directly to farmers; they attempt to increase the availability of short-term and intermediate-term credit to agriculture by standing ready to make loans to, or to discount paper for, institutions that do lend to farmers. Prior to 1933 most of their advances were made to commercial banks, livestock loan companies, and other similar financing institutions. Since 1933, however, they have also lent to two other types of federally sponsored institutions—production credit associations and Banks for Coöperatives. Most of

TABLE 56. Estimated Total Farm Mortgage Debt, and Amounts Held by Principal Lending Groups[10]
(In millions of dollars)

Jan. 1	Total Farm Mortgages Outstanding	Federal Land Banks and Federal Farm Mortgage Corporation	Life Insurance Companies	Commercial Banks	Farmers Home Administration	Joint-Stock Land Banks	Individuals and Others
1930	$9630	$1202	$2118	$997	$ —	$638	$4675
1940	6586	2723	984	534	32	92	2221
1945	4933	1557	934	450	193	5	1794
1950	5413	965	1172	885	189	—	2202

the funds lent by the 12 Federal Intermediate Credit banks are secured by selling in the money markets debenture bonds backed by farmers' promissory notes which have been taken in return for funds advanced to the institutions that lend to farmers.

Production Credit Corporations and Production Credit Associations

After 1929, as farm prices and farm incomes fell, as banks in agricultural areas failed in great numbers, and as loans became increasingly hard to get, farm groups again complained that existing facilities for short-term and intermediate-term credit were inadequate. Though commercial banks and other private lending institutions could borrow from or discount paper at the Federal Intermediate Credit banks,

[10] Source: *Statistical Abstract of the United States*, 1951, p. 410.

they were often unwilling to assume the risk of lending. And in some areas only a few banks were left. The production credit system was established in 1933 to remedy this alleged inadequacy by making loans directly to farmers. This system includes two types of institutions: (1) production credit associations, and (2) Production Credit Corporations.

The local production credit associations are somewhat similar to the national farm loan associations, but their purpose is to facilitate the flow of short-term and intermediate-term credit. There are now 502 of these associations, each including 10 or more farmers or stockmen in an allotted territory. Loans are made for such purposes as the production, harvesting, and marketing of crops; the breeding, fattening, and marketing of livestock; poultry raising; and other short-term and intermediate-term projects. The funds lent by the associations are acquired chiefly in two ways: (1) By selling stock. Most of the original stock was purchased by the Production Credit Corporations with money supplied by the Treasury. Now, however, most of this stock has been retired with money subscribed by borrowers from the associations, who must buy stock equal to 5 percent of their loans. (2) By borrowing from or discounting paper with the Federal Intermediate Credit banks. On June 30, 1950, the 502 associations had total assets of $669 million, of which $602 million came from the following sources:

Sales of stock to borrowers	$ 67,000,000
Sales of stock to Production Credit Corporations	18,000,000
Borrowings from Federal Intermediate Credit banks	517,000,000
	$602,000,000

Their outstanding loans to farmers amounted to more than $530 million.

There are 12 regional Production Credit Corporations, one in each farm credit district. The general purpose of these institutions is to assist local production credit associations in serving their respective territories. To this end they provide promotional aids, supervision, and subscriptions to the capital of the local associations. The 12 Production Credit Corporations originally had total capital stocks of $120 million, all provided by the federal government. By mid-1950 all but $42 million of this had been repaid to the Treasury.

Banks for Coöperatives

For many years it has been the established policy of the federal government to encourage the formation of both marketing and purchasing coöperatives among farmers. Farmers' coöperatives have benefited from the promotional activities of the Department of Agriculture, immunity from antitrust laws, certain tax advantages, and federal assistance in securing credit. Prior to 1933, federal assistance in the financing of coöperatives was given mostly through the Federal Intermediate Credit banks and the short-lived Federal Farm Board, but in that year a new system of 13 banks was formed for the purpose. This system includes the Central Bank for Coöperatives, which is located in Washington, and 12 district banks, one in each of the farm credit districts. In general, the Central Bank for Coöperatives makes loans to coöperatives that operate in more than one farm credit district, as well as handling other loans that are too large for the 12 district banks; the district banks make the smaller loans. This system provides complete credit facilities for coöperatives—loans on commodities, loans for operating capital, and loans to finance long-term facilities. Interest rates are relatively low and are uniform throughout the country. In early 1950 they were 2¼ percent on commodity loans, 3 percent on loans for operating capital, and 4 percent on facility loans.

The funds lent by the Banks for Coöperatives are obtained from two sources. The first source is the sale of their stock to the federal government and to coöperatives, the latter subscribing in an amount equal to 5 percent of their borrowings. In 1950 capital subscriptions by the federal government amounted to about $178,500,000, and those of coöperatives to about $14,100,000. The second source of funds is loans from the Federal Intermediate Credit banks.

Other Federal Credit Facilities for Agriculture

Several other federal agencies lend to farmers and to institutions directly serving farmers. Among these are (1) the Rural Electrification Administration, (2) the Farmers Home Administration, and (3) the Commodity Credit Corporation.

The Rural Electrification Administration makes self-liquidating

loans covering 100 percent of the cost of constructing electric facilities to serve rural people. These loans are made not directly to individual farmers, but to coöperatives and other concerns engaged in rural electrification programs. In 1950 the outstanding loans by the REA amounted to about $1.5 billion. Most of these funds the REA had borrowed from the federal government.

The Farmers Home Administration provides credit only for farmers who are unable to obtain the loans they need at prevailing rates and terms from banks, coöperative lending agencies, or other responsible sources in their communities. This agency's emphasis is on rehabilitation and assistance for smaller farmers. It makes both long-term and short-term loans. It makes loans up to forty years at 3½ percent interest to buy, repair, improve, or enlarge farms, and it insures similar privately made loans for the same purposes. It also makes production and subsistence loans up to $3500 for the buying of livestock, seed, fertilizer, farm equipment, supplies, and other farm needs; for the refinancing of indebtedness; and for family subsistence. These loans run for periods up to five years, and they bear 5 percent interest. Funds for these long- and short-term loans are provided by Congress.

The purpose of the Commodity Credit Corporation, which was established in 1933, is to make loans to farmers, or to guarantee such loans made by others, as a means of supporting the prices of farm products. The Corporation also buys and stores farm products for the same purpose. The loans it makes or guarantees are nonrecourse loans. For example, if a farmer borrows $1.60 a bushel on his wheat, he has the option of paying the loan and claiming the wheat or of allowing the Corporation to keep the wheat. In this way the Corporation prevents the prices realized by the farmer from falling below the amount that it will lend on eligible products. Since these loans are obviously risky, this agency secures its funds by selling its stock and its debt obligations to the federal government.

The Administrative Control of Federal Agricultural Credit Institutions

Control of the various federal agricultural credit institutions was widely scattered through the federal government prior to 1933, but

since that time the trend has been toward centralization and coordination. The Rural Electrification Administration, the Farmers Home Administration, and the Commodity Credit Corporation are still separate agencies under the Department of Agriculture. All the others are under the control of the Farm Credit Administration. Fig. 12 shows the organization of the Farm Credit Administration in

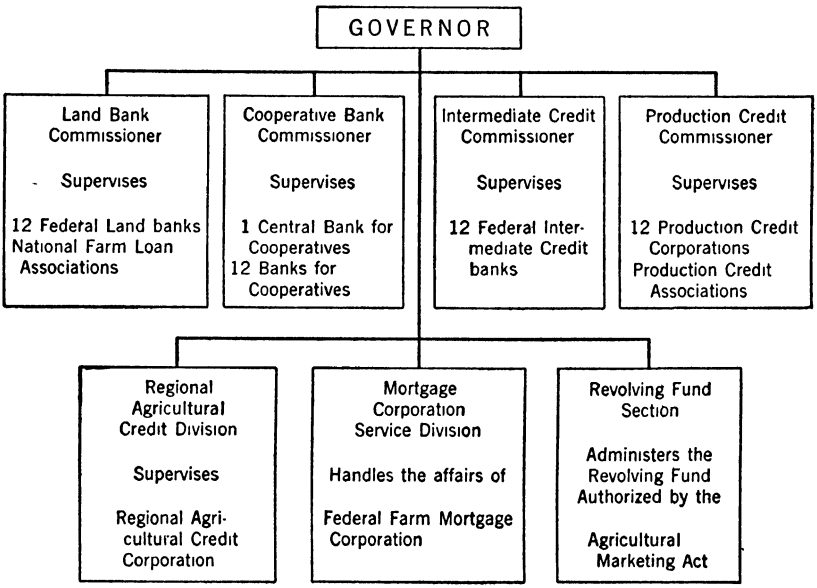


FIG. 12. Federal Farm Credit Administration in Washington.

Washington, which is made up of a governor and four commissioners. Fig. 13 shows the organization of each of the 12 farm credit districts.

The Importance of Federal Loans to Agriculture

Our brief survey has brought out the fact that the various financial institutions sponsored by the federal government stand ready to supply almost all types of credit needed by farmers and their coöperatives. Table 57 shows the outstanding volume of loans for these institutions in 1951. Federal Land banks are shown separately because they are now privately owned. These figures, large as they are, probably under-

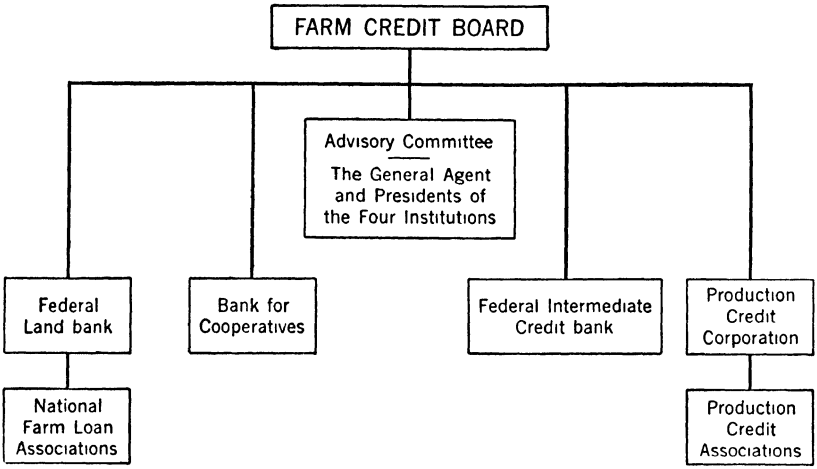


FIG. 13. Organization in Each of the Twelve Farm Credit Districts.

state the effects of federal credit agencies on the market for agricultural credit. By standing ready to lend, these agencies exert an important influence on the availability and terms of credit from private sources. They not only set an upper limit on interest rates but also make credit available for longer terms than were customary before these institutions became so numerous.

TABLE 57. Outstanding Loans by Federal Agencies for Agricultural Purposes, September 30, 1951[11]
(In millions of dollars)

Lending Agency	Outstanding Loans
Federal Farm Mortgage Corporation	$ 37
Federal Intermediate Credit Banks	742
Banks for Cooperatives	356
Commodity Credit Corporation	503
Rural Electrification Administration	1693
Farmers' Home Administration	559
All other	6
Total	$3896
Add: Federal Land banks	985
	$4881

[11] Sources: *Federal Reserve Bulletin*, January, 1952, p. 68; *Survey of Current Business*, December, 1951, pp. 5–15.

FEDERAL FINANCIAL INSTITUTIONS IN THE URBAN MORTGAGE FIELD

Not until the 1930's, during the great depression, did the federal government enter the field of urban mortgage finance. The situation in urban housing was desperate; new construction and even repair work were at a virtual standstill, real estate prices were falling rapidly, hundreds of thousands of home mortgages were in default and many other defaults were imminent, foreclosure sales were numerous, and financial institutions were in dire straits, many of them already

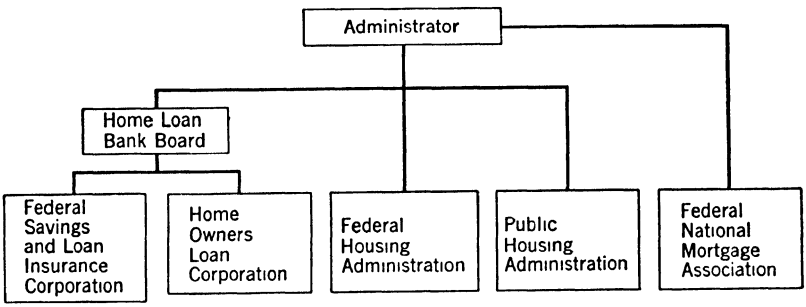


FIG. 14. Housing and Home Finance Agency.

bankrupt and others in danger of becoming so. It was felt that federal financial assistance would serve the multiple purpose of preventing homeowners from losing their homes, assisting financial institutions that were heavily laden with illiquid mortgages of poor quality, reviving the flow of loans to finance new construction, encouraging business recovery by increasing employment in construction industries, and providing decent housing for the "ill-housed third of a nation." It was against this background and for these purposes that the federal government established a number of housing credit agencies that have practically revolutionized residential credit practices in less than twenty years.

The various agencies and institutions that will be discussed here are under the general supervision of the Housing and Home Finance Agency. An outline of the organization of this agency is shown in Fig. 14.

The Home Loan Bank Board

The Home Loan Bank Board is a government agency in Washington which supervises the following federally sponsored financial institutions in the field of urban residential finance: (1) the Home Owners Loan Corporation, (2) the 11 Federal Home Loan banks, (3) the Federal Savings and Loan Insurance Corporation, and (4) federal savings and loan associations.

The Home Owners Loan Corporation, which was formed in 1933, was one of the first federal financial institutions in the urban mortgage field. It was frankly a temporary emergency institution for the purpose of helping distressed homeowners and of bailing out mortgage holders. It secured its funds from a $200-million government subscription to its capital stock and from its power to sell no more than $4750 million of bonds that were fully guaranteed by the government. It has made no new loans since June, 1936, but it made more than a million loans amounting to nearly $3100 million during its three years of active lending. About 90 percent of this amount, or $2750 million, was disbursed in exchange for defaulted mortgages. Banks and trust companies received more than $900 million, savings and loan associations nearly $800 million, mortgage companies nearly $200 million, insurance companies $165 million, and individuals and estates nearly $700 million. There can be little doubt that the HOLC helped many homeowners escape serious injury from the drastic deflation, put many financial institutions in a more solvent and more liquid condition, and helped revive the flow of new urban mortgage loans. Though it was generally expected that the HOLC would suffer heavy losses, it now appears likely to show a net profit of about $14 million, thanks largely to the war and postwar inflation of real estate prices.

The 11 Federal Home Loan banks were authorized in 1932 to perform for lenders on urban residential real estate the same kinds of functions that the Federal Reserve banks perform for their member commercial banks, though the Home Loan banks do not, of course, have the power to create money. Each of these banks is governed by a board of directors of 12 members, of whom four are appointed by the

Home Loan Bank Board in Washington, the other eight being elected by its member institutions. Three principal types of financial institutions are eligible for membership: savings and loan associations, mutual savings banks, and insurance companies. All federal savings and loan associations are required to join, and the state-chartered institutions are permitted to join if they meet the entrance requirements and submit to the supervision of the district bank. Table 58 shows the membership in the Home Loan bank system at the end of 1950.

TABLE 58. Membership in the Federal Home Loan Bank System, December 31, 1950[12]

Type of Institutions	Number of Institutions	Assets of Member Institutions (In millions of dollars)
Federal savings and loan associations	1526	$ 8,457
State-chartered savings and loan associations	2368	7,068
Mutual savings banks	29	635
Insurance companies	7	90
Total	3930	$16,250

The Home Loan banks are "bankers' banks"; they do not lend directly to homeowners and other individual mortgagors, but only to member institutions. Members can secure either long-term or short-term loans when in need of funds. These loans amounted to $816 million at the end of 1951. The Home Loan banks acquire money in three principal ways: (1) By selling stock. Originally, most of the stock of these banks was purchased by the federal government; but a large part of the government-held stock has been retired, so the banks are now largely owned by their member institutions. (2) By accepting deposits from member institutions. (3) By creating and selling consolidated Federal Home Loan bank obligations. Up to the present time these banks have borrowed only from private investors, but they are empowered to borrow up to $1 billion from the Treasury. The principal sources of the $1.1 billion of assets in the hands of

[12] Source: *Statistical Abstract of the United States*, 1951, p. 405.

the Home Loan banks at the end of 1950 are shown in Table 59.

The Federal Savings and Loan Insurance Corporation was established in 1934 to protect people leaving their money with savings and loan associations in somewhat the same way that the Federal Deposit Insurance Corporation protects depositors in banks. Under the original plan each account in a member institution was insured up to $5000, but the coverage has since been raised to $10,000. All federal savings and loan associations are required to join, and state-chartered associations may join if they are found acceptable. At the end of 1950 this insurance plan covered 1526 federal savings and loan associations and 1334 state-chartered associations with aggregate assets of $14 billion. To meet its outpayments, the FSLIC has several sources of money. (1) The government's $100-million stock subscription. (2) Admission fees and annual premiums. Each insured institution must pay an admission fee equal to $\frac{1}{25}$ of 1 percent of its liabilities and an annual insurance premium equal to $\frac{1}{8}$ of 1 percent of its liabilities. (3) Earnings on its accumulated assets. (4) Its power to incur debt to the Treasury not in excess of $750 million at any time.

TABLE 59. Principal Sources of Assets of the Federal Home Loan Banks, December 31, 1950[13]
(In millions of dollars)

Source	Amount
Paid-in capital by the government	$ 56
Paid-in capital by member institutions	183
Surplus	30
Member deposits	224
Outstanding consolidated obligations	560
Total	$1053

The Federal Housing Administration

The Federal Housing Administration, founded in 1934, promises to be the most important of the federal institutions in the housing finance field. It does not itself make any loans; its function is to insure private lending institutions against loss on loans secured by mortgages on one- to four-family dwellings or on large-scale rental

[13] *Ibid.*, p. 405.

housing projects, and on loans for property repair and improvement. A loan is insured only if it is considered sound, if provision is made for its retirement in installments over a period of time, if the interest rate is not above a stipulated height—4½ percent in most cases—and if other FHA regulations are complied with.

The amounts of loans insured by the FHA since 1935 are shown in Table 60. These figures indicate the gross amount of insurance

TABLE 60. Loans Insured by the Federal Housing Administration, 1935–1950[14] (In millions of dollars)

	Title I Loans			Mortgages on			
Year	Total	Property Improvement	Small Home Construction	1- to 4-Family Houses (Title II)	Rental and Group Housing (Title II)	War and Veterans Housing (Title VI)	Military Housing (Title VIII)
1935	$ 320	$ 224	$ —	$ 94	$ 2	$ —	$ —
1936	557	246	—	309	2	—	—
1937	495	60	—	424	11	—	—
1938	694	160	13	473	48	—	—
1939	954	208	25	669	51	—	—
1940	1,026	251	26	736	13	—	—
1941	1,186	262	21	877	13	13	—
1942	1,137	141	15	691	6	284	—
1943	942	96	1	243	—	601	—
1944	886	125	—	216	7	537	—
1945	684	189	—	219	4	272	—
1946	755	321	—	347	3	85	—
1947	1,787	534	—	446	—	808	—
1948	3,338	614	7	880	—	1836	—
1949	3,821	594	13	1,855	7	1339	12
1950	4,384	694	7	2,466	21	1031	123
Total, 1935–1950	$22,966	$4719	$128	$10,945	$188	$6806	$135

written and do not reflect repayments on principal. Nevertheless, the volume of outstanding mortgages with FHA insurance exceeded $7 billion at the end of 1950. The FHA insurance encourages long-term amortized mortgages and small down payments. Thus, down payments are in some cases as low as 5 percent and mortgages may run

[14] Source: *Federal Reserve Bulletin*, March, 1947, p. 317; *ibid.*, January, 1950, p. 77.

for more than twenty years. In general, preference is given to low-cost houses and to veterans by permitting smaller down payments and longer periods for repayment in these cases. The Veterans Administration assists in insuring housing loans to veterans.

The FHA has brought about almost revolutionary changes in home financing. Prior to 1934, most home mortgages were written for only relatively short periods, usually no more than ten years; first mortgages were usually limited to 50 percent of the value of the real estate, so that borrowers wanting larger loans had to resort to expensive second and even third mortgages; in many cases no provision was made for the orderly retirement of mortgages; and mortgage credit was based solely on the credit worthiness of little-known borrowers. For all these reasons home mortgages were considered highly illiquid and of low marketability. The FHA, because it stands ready to insure very long-term amortized first mortgages equal to 90 percent or more of the value of the real estate, has changed all this. People can now borrow and buy homes, making monthly payments that are in some cases less than the rent they would have to pay. Both the geographical mobility of mortgage credit and the liquidity of mortgages have been greatly increased. Protected by FHA insurance and no longer having to depend exclusively on the credit worthiness of an unknown borrower, institutions in sections with a large supply of credit can lend safely in credit-deficient areas. Suppose that Jones in Kingman, Kansas, wishes to borrow $8000 to buy a house, but that credit is scarce in that locality. An eligible lender in the area—a commercial bank, for example—could make the mortgage loan, have it insured by the FHA, and then sell it to the Metropolitan Life Insurance Company of New York or to any other similar lender. This would have been impossible on a wide scale before FHA insurance was introduced. The protection afforded by FHA insurance has greatly increased the marketability of home mortgages and has made people more willing to lend in this field.

The Federal National Mortgage Association

The purpose of the Federal National Mortgage Association, established in 1938 and empowered to incur debt to the Treasury not to

exceed $2.75 billion, is to provide a secondary market for home mortgages insured by the FHA and the Veterans Administration. It does not make loans directly to borrowers, but rather purchases these mortgages from some lending institutions and sells them to others, thereby increasing the geographical mobility of home mortgage credit and providing a continuing and wide market for these obligations. In September, 1951, it held $1.7 billion of these securities, most of them mortgages on veterans' homes.

The Public Housing Administration

We shall mention only briefly the two principal functions of the Public Housing Administration. The first is to administer various war and defense housing projects owned by the federal government. The second is to make loans and pay subsidies to state and local governments for the purpose of promoting slum-clearance and low-rent housing.

THE RECONSTRUCTION FINANCE CORPORATION

The Reconstruction Finance Corporation, established in 1932, has been one of the most extensive of the federal financial institutions. Its original purpose, for which it used money supplied by the government, was to assist financial institutions, railroads, farmers, and state and local governments that were suffering under the impact of the depression. During the depression it lent billions of dollars to financial institutions, purchased preferred stock of banks to restore their solvency, and lent large amounts to distressed railroads and others.

Though originally established to combat deflation and unemployment, the RFC was given many other duties during and following World War II. To promote our defense and war effort, it made large loans to business to construct war plants, built war plants for its own account, purchased and stock-piled great quantities of materials and supplies, and wrote large amounts of insurance against damage from enemy action. At the end of the war it was given broad powers to dispose of government surplus property. After the outbreak of hos-

tilities in Korea it was again given a wide variety of functions. However, we are interested only in its continuing lending power. With money supplied by the government's $100-million stock subscription and by its power to borrow from the Treasury, it makes loans to private borrowers, participates in such loans with private lenders, and insures the safety of loans made by private lenders. It is supposed to engage in such activities only when the borrower is unable to get adequate credit from normal sources on reasonable terms. In September, 1951, the RFC's outstanding loans amounted to $732 million, but it was also insuring the safety of other loans.

THE EXPORT-IMPORT BANK

The purpose of the Export-Import Bank, which was formed in 1934 and reconstituted and enlarged in 1945, is to facilitate both short-term and long-term foreign lending as a means of assisting the foreign trade of the United States. The Bank facilitates foreign lending both by making loans itself and by guaranteeing those made by others. Funds for these purposes are acquired from a government stock subscription of $1 billion and from the authority to sell no more than $2500 million of its debt obligations to the Treasury.

OTHER FEDERAL FINANCIAL INSTITUTIONS

We can deal only briefly with other federal financial institutions that make or insure loans to private borrowers. The Federal Reserve banks make industrial loans or insure the safety of such loans when credit is unavailable from normal sources on reasonable terms. During World War II and again after the outbreak in Korea the military services insured the safety of loans to private borrowers for defense production purposes. The Maritime Administration insures mortgages on all types of passenger and cargo ships, tugs, towboats, barges, dredges, and fishing ships owned by citizens of the United States to provide money for the construction, reconstruction, or reconditioning of such craft.

SUMMARY OF FEDERAL FINANCIAL INSTITUTIONS

Our survey, brief and incomplete as it has been, has indicated the extensiveness of the financial institutions sponsored by the federal government. They are most influential in the farm and urban-housing credit fields, but they are quite important in other fields as well. Their influence on the operation of the money market would be great even if it were limited to the volume of outstanding loans made by

TABLE 61. Outstanding Loans, Other than Interagency, of Selected Federal Credit Institutions, September 30, 1951[15]

Institution	Amount (In millions of dollars)
Federal Farm Mortgage Corporation	$ 32
Federal Intermediate Credit banks	742
Banks for Coöperatives	353
Commodity Credit Corporation	499
Rural Electrification Administration	1,692
Farmers Home Administration	456
Federal National Mortgage Association	1,715
Public Housing Administration	560
Federal Home Loan banks	747
Reconstruction Finance Corporation	732
Export-Import Bank	2,312
All other	4,065
Total	$13,905

institutions in which the federal government has a financial interest, such as those listed in Table 61. But the influence of federal financial institutions is far greater than the volume of their actual loans suggests.

SELECTED READINGS

Fowler, J. F., Jr., *American Investment Trusts*, Harper, New York, 1928.

Horton, D. C., Larsen, H. C., and Wall, N. J., *Farm Mortgage Credit Facilities in the United States*, U.S. Department of Agriculture, Washington, 1942.

Moulton, H. G., *Financial Organization and the Economic System*, McGraw-Hill, New York, 1938.

[15] Source: *ibid.*, January, 1952, p. 68.

Murray, W. G., *Agricultural Finance*, Iowa State College Press, Ames, 1946.

Reigal, R., and Doubman, J. R., *The Building and Loan Association*, Wiley, New York, 1927.

Sparks, E. S., *History and Theory of Agricultural Credit in the United States*, Crowell, New York, 1932.

Stein, E., *Government and the Investor*, Farrar & Rinehart, New York, 1941.

Sutcliffe, W. G., and Bond, L. A., *Savings Banks and Savings Department Management*, Harper, New York, 1930.

Walk, E. G., *Loans of Federal Agencies and Their Relationship to the Capital Market*, University of Pennsylvania Press, Philadelphia, 1937.

CHAPTER 21

The Federal Government and the Money Markets

The two preceding chapters have described briefly some of the many types of financial institutions whose purpose is to facilitate the flow of money from savers to those who will channel it back into the market as spendings for capital accumulation, consumer dissaving, and government deficits. Most of these institutions are privately owned and privately operated, and in peacetime they conduct most of the business done in the money markets. This fact should not be forgotten during our discussion of the role of the federal government. Nevertheless, the federal government is playing an increasingly important part in financial processes. Not only directly through its own operations, but also indirectly through its influence on private operators in the money markets, it can and does affect both the structure and the functioning of these markets.

The purpose of this chapter is to outline the principal types of federal intervention in the money markets, to suggest the great overall effects of this intervention when considered as a totality, and to discuss some of the questions raised by the existence and exercise of these federal powers. We shall omit similar activities of state and local governments because of their wide variety. It is evident, however, that state and local policies would have to be included in any comprehensive discussion of the total effects of government intervention in financial processes.

THE PRINCIPAL TYPES OF FEDERAL INTERVENTION

Table 62 outlines the principal types of federal activities that directly affect the structure and functioning of money markets. Two facts regarding this table should be noted. (1) It includes only activities that have important *direct* effects in this area; it makes no attempt to deal with activities whose effects are more indirect, no matter how important these indirect effects may be. (2) It includes only the most important types of intervention; some of the less important types are omitted. Close study of the table will indicate both the extent and the variety of government activities in the area, and the following discussion will suggest some of the effects of these activities.

TABLE 62. Some Important Federal Activities That Directly Affect the Structure and Behavior of Money Markets

Activity	Principal Federal Agencies
A. Monetary and debt management	Federal Reserve, Treasury
1. General monetary and debt management	
2. Selective credit controls	
a. Over margin requirements on security loans	Federal Reserve
b. Over consumer credit	Federal Reserve
c. Over residential real estate credit	Federal Reserve, Veterans Administration, Federal Housing Administration
B. Federal tax and expenditure policies	Congress, various others
C. Chartering of financial institutions	
1. National banks	Comptroller of the Currency
2. National farm loan associations	Farm Credit Administration
3. Production credit associations	Farm Credit Administration
4. Federal savings and loan associations	Home Loan Bank Board
5. Federal credit unions	Federal Security Agency
D. Supervision and examination of financial institutions and practices	
1. Of commercial banks	Comptroller of the Currency, Federal Reserve, Federal Deposit Insurance Corporation
2. Of various agricultural credit institutions	Farm Credit Administration
3. Of various lenders on residential real estate	Home Loan Bank Board, Federal Savings and Loan Insurance Corporation, Federal Housing Administration
4. Of federal credit unions	Federal Security Agency

TABLE 62.—(*Continued*)

Activity	Principal Federal Agencies
5. Of stock exchange practices, investment trusts, investment advisers, etc.	Securities and Exchange Commission
E. Provision of money to private financial institutions through purchase of stock, loans, and purchase of securities	
1. Loans to commercial banks	Federal Reserve, Federal Deposit Insurance Corporation
2. Purchase of government securities from banks and other investors	Federal Reserve, Treasury
3. Loans to and purchases of assets from institutions making agricultural loans	Federal Reserve, Federal Intermediate Credit banks, Federal Farm Mortgage Corporation
4. Loans to and purchase of assets from institutions lending on residential real estate	Federal National Mortgage Association, Federal Home Loan banks, Home Owners Loan Corporation, Federal Savings and Loan Insurance Corporation
5. Purchase of stock in private lending institutions	Reconstruction Finance Corporation, Treasury, others
F. Provision of loans to borrowers other than financial institutions, and insurance of private loans to such borrowers	
1. Loans and insurance of loans to many classes of such borrowers	Reconstruction Finance Corporation, Federal Reserve
2. Insurance of loans to producers for defense purposes	Various federal procurement agencies
3. Insurance of loans on urban residential real estate	Federal Housing Administration, Veterans Administration
4. Loans and insurance of loans to small farmers	Farmers Home Administration
5. Loans and insurance of loans on farm products	Commodity Credit Corporation
6. Loans for rural electrification and rural telephones	Rural Electrification Administration
7. Loans to farm coöperatives	Banks for Coöperatives
8. Loans, insurance of loans, and subsidies for slum clearance and low-rent housing	Public Housing Administration
9. Loans and insurance of loans on ships and other maritime craft	Maritime Administration
10. Loans and insurance of loans to promote American imports and exports	Export-Import Bank
G. Insurance of savings in private financial institutions	
1. Insurance of deposits in commercial and mutual savings banks	Federal Deposit Insurance Corporation
2. Insurance of claims against savings and loan associations	Federal Savings and Loan Insurance Corporation

MONETARY AND DEBT MANAGEMENT

Since monetary and debt management has already been discussed at length, it will be sufficient here to recall some of the conclusions reached earlier. We found that through their general monetary and debt management powers, the Federal Reserve and the Treasury can greatly influence, and even dominate, the cost, availability, and total supply of money and credit. By following expansionary policies they can increase the total supply of money and its availability, and lower the general structure of interest rates. And by following restrictive policies they can decrease the supply and availability of money and raise interest rates. We also concluded that these policies operate not only by changing the level of interest rates and the cost of borrowing money, but also by affecting the credit rationing policies of lenders and by conditioning private expectations as to the future course of interest rates, business activity, price levels, and risk. They therefore affect not only the capacity of individuals and financial institutions to lend, but also their willingness to save, to lend, to hold money idle, and to spend for consumption or investment purposes. In addition, selective credit controls can influence the amount of money that may be legally demanded or supplied for specified purposes.

FEDERAL TAX AND EXPENDITURE POLICIES

Now that federal expenditures and taxes have reached such high levels, federal fiscal policies inevitably exert great influences, both direct and indirect, on the behavior of the national money income, real output, employment, price levels, the rate of saving, and the demand for money in financial markets. Since its expenditures create money income for the other sectors of the economy, the federal government can tend to raise the level of the national money income by increasing its rate of expenditures, and it can tend to lower the level of this money income by decreasing its rate of expenditures. Moreover, by raising effective tax rates it can tend to lower private money incomes after taxes, and by lowering effective tax rates it can tend to increase private money incomes after taxes. Thus federal tax-expenditure relationships have important direct effects on both the level of the na-

tional income and the capacity of the private sectors to spend and save, a high level of expenditures relative to taxes tending to expand both money income and spending-saving power, and high taxes relative to expenditures having the opposite effect. These are not, however, the only effects of federal fiscal policies on the behavior of money markets.

In the first place, federal deficits or surpluses are likely to require Treasury operations in the money market. If running a deficit, the Treasury is likely to offer additional securities in the money market, and the effect of this on money market conditions will depend on the nature of the borrowing and on accompanying monetary policies. For example, Treasury borrowing from the Federal Reserve may actually increase the supply of credit for other purposes and lower interest rates, whereas its borrowing from commercial banks and nonbank investors may lessen the supply of investable funds for other purposes and raise interest rates. On the other hand, the effect of a current tax surplus on money market conditions depends on the accompanying monetary policy and the use to which the surplus is put. For instance, if the money representing the tax surplus is used to retire securities held by commercial banks and nonbank investors, it may tend to increase the supply of investable funds and to lower interest rates. But the credit supply may be reduced if the tax surplus is used to retire debt held by the Federal Reserve or to build up Treasury deposits in Reserve banks. For these reasons, Treasury policies relative to its borrowing and repayment of debt have important direct effects on money market conditions.

In the second place, the effects of fiscal policies depend not only on the size but also on the nature of federal taxes and expenditures. Some types of taxes may markedly reduce the rate of private saving, whereas others affect saving but little and fall largely on consumption. Also, some taxes may discourage private investment and the demand for investable funds much more than others. The same is true of expenditure policies; different types of expenditures may have quite different effects on the distribution of income among various economic classes, on the rate of saving, and on the willingness to spend for investment and to offer new securities in the money market.

In the third place, fiscal policies often influence the behavior of the

economy, including the saving-investment process, far more than is indicated by their direct effects. These policies operate both directly through changes in the national money income and private spending and saving power, and also indirectly through their effect on private expectations as to the future course of employment, real output, prices, profits, and interest rates. For example, a highly expansionary fiscal policy not only may add directly to the effective money demand for output and to private money incomes after taxes, but also may further augment these increases by creating more optimistic expectations regarding the future course of effective money demand and profits. A restrictive fiscal policy may have opposite effects.

For all these reasons federal fiscal policies have a powerful influence, both directly and indirectly, on the behavior of money markets.

THE CHARTERING OF FINANCIAL INSTITUTIONS

The federal government is not, of course, the only governmental unit that grants charters to financial institutions. In fact, by far the largest number of such institutions in this country have received their charters from state governments. Nevertheless, the federal government has been active in this field. National banks, national farm loan associations, production credit associations, Federal Savings and Loan Associations, federal credit unions, Federal Land banks, and Federal Home Loan banks are outstanding examples of federally chartered financial institutions.

The government's policies relative to chartering financial institutions may have important effects on both the structure and the functioning of money markets. A highly restrictive policy of granting few charters, requiring very large amounts of capital to start new institutions, and narrowly limiting the powers of these institutions may inhibit the creation of adequate financial facilities. On the other hand, a highly liberal policy of granting many charters, requiring little original capital, and placing few limitations on the powers of these institutions may promote the creation of financial facilities but endanger the safety of money left with them. The federal government has tried to steer a middle course. To prevent the creation of excess facilities and

to promote safety, it has limited the number of charters granted, set minimum capital requirements, and placed limitations on the powers and activities of institutions chartered by it. At the same time it has promoted the creation of financial institutions not only by standing ready to charter them but also by actively encouraging their establishment, supplying capital funds, and itself taking the initiative in establishing them. The Federal Land banks, national farm loan associations, Banks for Coöperatives, and Federal Savings and Loan Associations are cases in point.

SUPERVISION AND EXAMINATION OF FINANCIAL INSTITUTIONS AND PRACTICES

As indicated earlier, the federal government and its agencies have broad powers to supervise, to regulate, and in many cases to examine numerous types of financial institutions. In general, they supervise all the institutions they charter, but they also supervise many state-chartered institutions and regulate some of their practices. For example, the Federal Reserve and the Federal Deposit Insurance Corporation supervise their state-chartered members as well as national banks; the Federal Home Loan banks supervise all their member institutions; the Federal Savings and Loan Insurance Corporation supervises all the associations whose liabilities it insures; and the Farm Credit Administration has extensive supervisory powers. The broad powers exercised by the Securities and Exchange Commission are worth special notice.

The Securities and Exchange Commission, which was established in 1934, is an independent quasi-judicial body made up of five commissioners appointed for five-year terms by the President with the advice and consent of the Senate. Its purpose is to administer seven important laws relating to transactions in securities. Five of these will be discussed here.[1]

The Securities Act of 1933 has as its purpose the protection of buyers against worthless, fraudulent, and misrepresented security is-

[1] Because they are of less direct interest to our treatment of the money market, we shall not deal here with the Public Utility Holding Company Act of 1935 and Chapter X of the Bankruptcy Act.

sues. The problem is not new; American investors have lost billions of dollars in buying securities that were worth far less than was claimed for them. Protective laws in effect prior to 1933 proved inadequate. Federal laws against use of the mails to defraud could be circumvented by using other methods of communication; moreover, it was sometimes difficult to establish the fact that failure to supply buyers with complete, accurate, and pertinent information constituted fraud. State "blue-sky laws"—so called because some salesmen would sell patches of blue sky if they could find sufficiently gullible buyers—were generally ineffective. They did not reach interstate sales of securities, they were not uniform in the various states, they were usually administered in a lax way, and embarrassed victims of misrepresentation often failed to inform the authorities of the fraud. It became evident that only federal legislation, aggressively administered, could cope with the problem.

The Securities Act of 1933 is often called "the truth-in-securities act." This name is an accurate indicator of its purpose. It is not the function of the SEC to prohibit the sale of risky securities or to place a stamp of approval on those that are relatively safe. Instead, the Act is designed to compel disclosure of accurate and adequate pertinent information concerning securities publicly offered and sold in interstate commerce or through the mails, so that investors will be in a position to exercise informed judgment about those that are offered to them. In order to secure full disclosure, offerers of securities subject to the Act must file registration statements with the SEC a stipulated period of time before the securities go on sale, and must also supply a comparable amount of information to the public in their prospectuses. The SEC may require amendments to registration statements and postpone sales if it finds that the information filed is materially misleading, inaccurate, or incomplete. Persons responsible for filing false information with the SEC subject themselves to the risk of fine and imprisonment. Offerers of securities may also be sued for damages by the purchasers if, when the registration statement became effective, it contained untrue statements of material fact or omitted required information.

At an earlier point we mentioned some of the past abuses in secu-

rities trading, both in securities exchanges and in over-the-counter markets. These included misrepresentation, wash sales, other rigging operations, and unfair use of "inside information" by corporation officials and by brokers and dealers in securities. *The Securities Exchange Act of 1934* specifically prohibits some practices, authorizes the SEC to regulate others, and provides for registration with the SEC of national securities exchanges, members of securities exchanges, companies whose securities are listed on these exchanges, brokers and dealers who operate in over-the-counter markets, and national associations of these brokers and dealers. Anyone violating the rules or failing to supply complete and accurate information is subject to punishment and may have his trading privileges suspended. The Act also gives the Board of Governors of the Federal Reserve System full power to determine margin requirements. Trading in over-the-counter markets is regulated both by the SEC itself and to some extent by a trade association, the National Association of Securities Dealers, Inc., which is under the surveillance of the SEC.

An earlier chapter pointed out that some investment companies (investment trusts) have been guilty of practices detrimental to at least certain classes of their security holders. *The Investment Company Act of 1940* is designed to prevent these evils. It requires investment companies to register with the SEC. The SEC is empowered to apply for court orders enjoining an investment trust's plans for reorganization, merger, or consolidation that would be grossly unfair to any class of security holders, and for similar orders to restrain other acts involving gross misconduct or abuse of trust by the management of such a company.

The fourth law pertains to indentures. An indenture is, in effect, a contract between an issuing corporation and the holders of a particular security issue; it sets forth the rights of the security holders and contains provisions for protecting their claims. Indentures for bond and other debt issues are usually deposited with a trustee who is supposed to act for the security holders and protect their interests. In some cases these arrangements have not worked satisfactorily. Some indentures have been loosely drawn and have failed to provide adequate protection. Likewise, trustees have frequently failed to enforce

fully the protective features of the indentures. Too often they have been passive in their attitude, related too closely to the issuing corporation to press the claims of its creditors, or involved as trustee for two or more issues of securities with conflicting interests.

The Trust Indenture Act of 1939 provides, in general, that issues of bonds, notes, debentures, and other similar debt securities exceeding $1 million in principal amount may not be offered for sale to the public unless they are issued under a trust indenture which conforms to specific statutory standards designed to protect purchasers. It also sets up standards for trustees under indentures, with a view to insuring that they will be competent, independent, and free of interests that conflict with those of the particular class of security holders in whose behalf they are supposed to be acting.

Many individuals and institutions, lacking either the information or the time to make their own investment decisions, have employed supposedly expert and unbiased investment advisers or counselors to aid them. But some of these advisers have been far from unbiased; they have merely posed as such while working for manipulative pools or having other interests at variance with those of their customers. *The Investment Advisers Act of 1940* makes unlawful any practices that constitute fraud or deceit, requires registration of advisers who receive compensation for their services, and provides that advisers must disclose the nature of their business and their interest in transactions executed for clients. Those who violate the rules of the Act are subject to punishment and to revocation of their right to engage in this type of business.

Through these various activities the SEC has done much to make adequate and accurate information available to investors, to prevent the exploitation of both purchasers and sellers of securities, and in these ways to reduce risk, raise the net incomes of security holders, and restore and maintain public confidence in the honesty of issuers and dealers in securities.

Let us now consider the principal purposes and effects of the various types of federal supervision and regulation of financial institutions and practices. Perhaps the most important purpose is to protect the

safety of savings and to prevent exploitation of those who do business in the money markets. To the extent that this purpose is realized it probably increases the general willingness to surrender money in exchange for other claims, and thereby tends to increase the supply of investable funds. But supervision and regulation have other important effects. (1) They may affect the relative supply of money available in the various branches of the money market. Largely in the interest of safety, many financial institutions are forbidden by law to buy certain types of securities or are limited as to the amount of them they may hold. For example, many are not permitted to hold stocks, and some are limited as to the proportion of their assets that may be in the form of mortgages or higher-risk corporate bonds. In addition, regulatory authorities often use their discretionary power in such a way as to encourage the purchase of some types of assets and discourage the holding of others. As a result, there is at least a potential danger of a relative oversupply of money for safe kinds of securities and a relative undersupply of money for the purchase of securities on which the risk is inevitably greater. The routing of a large proportion of national savings through insurance companies, savings banks, and other closely regulated financial institutions enhances this danger. It is at least arguable that in some cases safety has been overemphasized at the expense of the availability of money for the purchase of ownership shares and other riskier securities. Especially if there is in fact a shortage of "venture" capital, these regulations of financial institutions may merit reconsideration.

(2) Regulatory policies may have important effects on the supply and cost of investable funds in the various phases of the business cycle. A policy of condemning the acquisition and holding of riskier types of securities during depression and of being more tolerant toward them during prosperity can accentuate economic fluctuations by contributing to a smaller supply of investable funds when business is bad and a greater supply when business is booming. On the other hand, a policy calling for caution during booms and greater tolerance during depressions might serve to decrease general economic stability.

Though not by any means exhaustive, this discussion should have

established the fact that the various types of government regulation of financial institutions and practices have an important influence on both the structure and the functioning of money markets.

GOVERNMENT ASSISTANCE TO FINANCIAL INSTITUTIONS

Both directly and indirectly through agencies sponsored by it, the federal government has contributed large amounts of money to institutions operating in the money markets. Much of this aid has gone to institutions in which the government has, or at one time had, a large ownership interest, but no small amount of it has gone to institutions that are largely owned by private interests. Table 63 indicates, as of June 30, 1950, the extent of the Treasury's outstanding financial aid and its commitments to aid financial institutions which are either wholly owned by the government or in which it has a large ownership interest. As of that date, the Treasury owned $2.6 billion of stock in these institutions, had $7.3 billion of outstanding loans to them, and stood ready to lend to them or to guarantee obligations issued by them up to a total of $39.6 billion. But even these figures do not indicate the full extent and importance of federal aid to these financial institutions during recent decades. They do not, for example, show the amounts of capital stock in the Federal Land banks, the Federal Deposit Insurance Corporation, and the Federal Home Loan banks that were originally subscribed by the government and have since been retired. Moreover, the table does not indicate the amount of financial aid actually given to or kept available for institutions that are wholly or largely owned by private groups. Part E of Table 62 above shows the large number of federally sponsored agencies that provide aid for private financial institutions.

By subscribing to the capital stock of financial institutions the government can in several ways affect both the structure and the behavior of money markets. (1) It can promote the founding of institutions that would otherwise not be established, or that would appear only later or on a smaller scale. For example, it appears that in the absence of government stock subscriptions it would have been very difficult,

TABLE 63. Federal Financial Institutions in Which the Federal Government Has a Financial Interest, June 30, 1950[2]
(In millions of dollars)

Institution	Capital Paid in by the Treasury	Outstanding Debt to the Treasury	Total Treasury Financial Interest (Sum of Columns 1 & 2)	Amount Empowered to Borrow from the Treasury or to Issue Obligations Guaranteed by It
Banks for Coöperatives	$ 179	$ —	$ 179	$ —
Commodity Credit Corporation	100	3193	3293	6,750
Export-Import Bank	1000	965	1965	2,500
Federal Deposit Insurance Corporation	—	—	—	3,000
Federal Farm Mortgage Corporation	—	—	—	500
Federal Home Loan Banks	75	—	75	1,000
Federal Intermediate Credit Banks	60	—	60	—
Federal Savings and Loan Insurance Corporation	100	—	100	750
Home Owners Loan Corporation	74	—	74	1,262
Production Credit Corporations	42	—	42	—
Public Housing Administration[a]	225	349	574	1,500
Reconstruction Finance Corporation[b]	100	1456	1556	1,456[c]
Farmers Home Administration	395	65	460	76
Federal Housing Administration	87	—	87	18,500
Rural Electrification Administration	193	1281	1474	2,086
Maritime Administration	—	—	—	200
Total	$2630	$7309	$9939	$39,580

[a] Excludes war housing and other related activities.
[b] Excludes assets held for the Treasury.
[c] The RFC is authorized to borrow from the Treasury such sums as are necessary to carry out its functions.

if not impossible, to establish such large-scale institutions as the Federal Land banks, the nation-wide system of national farm loan associa-

[2] Source: *Annual Report of the Secretary of the Treasury*, 1950, pp. 601, 612, 614.

tions, the nation-wide production credit system, the Banks for Cooperatives, the Federal Home Loan banks, the Federal Savings and Loan Insurance Corporation, the Federal Deposit Insurance Corporation, the Federal Housing Administration, and some others. (2) The government's subscription to capital stock can reduce the risk of others who entrust money to such institutions. As a stockholder with only a residual claim against earnings and assets, the government increases the safety of those who are creditors of these institutions. (3) By purchasing stock the government can subsidize these institutions. In a number of cases institutions have invested the money received from the government and have retained the earnings from these assets.

Through their purchases of stock in financial institutions and their loans to and purchases of assets from these institutions, the federal government and its agencies can exert on money markets several influences in addition to those mentioned above. (1) They can increase the amount of money available to those institutions for lending and for meeting the demands of their creditors. The Federal Reserve of course can create the money that it lends. Other agencies obtain money by borrowing from the Treasury or by issuing their own securities, with or without Treasury guarantee; these securities are considered extremely safe. Many investors who would not lend directly to financial institutions will buy and hold the securities issued by the Treasury or these other federal agencies. Especially in depression periods this can increase the total amount of money available to these financial institutions, thereby increasing their lending power and the liquidity of the claims of their other creditors. And because of this greater liquidity, people may be willing to leave larger amounts of money with these institutions. (2) For the above reasons, the provision of money by the government and its agencies can relieve these institutions of pressure to reduce their outstanding loans and to restrict the supply of new loans. (3) The government and its agencies can increase the geographical mobility of credit as well as its mobility among the various segments of the money market. They can borrow wherever credit is most plentiful and make the money available in the areas and for the purposes for which it is in greatest demand. (4) The

government and its agencies can use their money-providing power as an instrument of regulation. For example, they may refuse to make money available if institutions charge more than a stipulated rate of interest or follow certain other practices.

LOANS AND INSURANCE OF PRIVATE LOANS TO BORROWERS OTHER THAN FINANCIAL INSTITUTIONS

The preceding section discussed federal aid to financial institutions. This section will deal with financial aid extended by the federal government and its agencies to borrowers other than financial institutions. Part F of Table 62 indicates the large number of federal agencies providing this aid. In general, they extend it in one or more of three principal ways: (1) By making direct loans to the borrowers. Several agencies employ this method. Some of them lend only if the borrower can show that he is unable to get adequate credit from normal sources on reasonable terms. Others do not require this. (2) By participating in loans with private lenders. The federally sponsored agency may actually provide part of the money lent to the borrower, or it may merely share the risk with the private lender who provides all the money. This plan is ordinarily used when the loan is too large for a private lender, or when the private lender is willing to assume some but not all of the risk. (3) By insuring loans made by private lenders. The Federal Housing Administration is an outstanding example of a loan insurance agency, but many other federal agencies also act in this capacity.

It is evident that the lending and loan insurance policies of these agencies can have great influence on the availability, cost, and other terms of credit. By standing ready to lend freely at low interest rates and to provide liberal amounts of insurance at low cost, they can increase the availability and lower the cost of credit. And by making their assistance available only on less attractive terms they can lessen the availability and raise the cost of loan funds. Three closely related aspects of these policies merit discussion: (1) their effect on the geographical mobility of credit and the geographical structure of interest

rates, (2) their effect on the availability and cost of credit for specific purposes, and (3) their effect on the availability and cost of credit under varying economic conditions.

In several ways these activities of the federal agencies have tended to equalize both the availability of credit and the rate of interest in the various regions of the country. When they make loans, these agencies borrow in the markets where credit is cheapest and most plentiful and lend in the various areas at interest rates that tend toward uniformity. This in itself tends to narrow geographical interest rate differentials and to force private lenders to charge rates in line with those charged by the federally sponsored agencies. The insurance of loans tends to have the same effect, for several reasons. In the first place, the premiums charged for loan insurance tend to be the same for all regions. In the second place, these agencies often fix the maximum interest rates that may be charged on insured loans, and these tend to be uniform for the entire country. And in the third place, the greater safety provided by the insurance of loans, with the guaranty of a federal agency added to that of the borrower, makes private lenders more willing to lend to distant borrowers.

These agencies also affect the relative supply and cost of credit for specified uses. For example, they have greatly increased the availability and decreased the cost of credit for agricultural and urban housing, both directly through their willingness to lend and insure loans for these uses and indirectly through competitive pressure on private institutions.

The policies of these agencies inevitably exert an important influence on the availability and cost of credit in general in the various phases of the business cycle. There is little doubt that private lenders tend to accentuate business fluctuations by their tendency to lend liberally in "good times" when they estimate risks as being low and to lessen its availability in "bad times" when risks seem greater. The federal agencies can either aggravate or offset these tendencies, depending on their policies. At times, especially during the inflationary period after World War II, they tended to accentuate fluctuations by standing ready to lend large amounts at low interest rates and to insure loans on very generous terms. Most economists agree that this

policy should be replaced by a flexible contra-cyclical policy, under which these agencies would tend to restrict the availability and raise the cost of credit in periods of actual or threatened inflation and to increase its availability and lower its cost in depressed periods. But while agreeing on this general principle, these economists differ widely as to the exact policies that should be followed. Some would achieve a sort of flexibility by allowing these agencies to operate only in depression periods. They would have the agencies lend and insure on liberal terms during depressed periods and withdraw completely during prosperity. Others would have the agencies operate, or stand ready to operate, at all times but with flexible contra-cyclical policies. The degree of flexibility as to the height of interest rates, amount of loans made or insured, charges for insurance, maturities of loans, and so on, could be quite limited or very wide. For example, these agencies might lend or insure loans only at an extremely high cost and adopt other very restrictive terms during periods of threatened inflation, then shift to very liberal policies during deflation. At such times they could go so far as insuring loans without charge or lending at zero or even negative rates of interest to combat unemployment.

Though it would be desirable to coördinate the policies of these lending and loan-guaranteeing agencies with those of the Federal Reserve and other agencies concerned with economic stabilization, attempts to achieve this have for several reasons been only partially successful. (1) The magnitude of the overall effects of these financial programs has not been fully appreciated. (2) Many of these agencies are directly involved in substantive programs, such as the promotion of agriculture, housing, and small business, which the government has wanted to encourage even in the midst of inflation. (3) The agencies have worked hard to perpetuate themselves and to expand rather than contract their size and the scope of their operations. (4) No administrative machinery has been set up to force appropriate coördination of the policies of all federal financial institutions.

Of the numerous other questions raised by federal loans and insurance of loans to private borrowers, only two will be mentioned here. One is the effect on private lenders. Federal competition has evoked widespread complaint from private lending institutions; they

charge that they have been damaged by loss of business, limitations on their interest rates, and competition resulting from the liberality of the government lending policy. Some even foresee the day when they will be driven out of business. The effects on private borrowers will depend on the nature of government policies. Private lenders may be injured little or not at all if the federal agencies lend only when credit is shown to be unavailable from private sources on reasonable terms and if the interest rates charged are high enough to cover all costs, including the cost to the government of borrowing money, all administrative costs, and all risks. On the other hand, private competitors may be seriously injured by a government policy of lending liberally at interest rates considerably below the total costs to it. It is somewhat more difficult to trace the effects on private financial institutions of various government policies relative to private loan insurance. Low charges for government insurance of loans tend to reduce the amounts that private lenders can charge for risk bearing. However, some lenders seem glad to reduce risk bearing and concentrate on their other functions.

The expansion of federal lending and loan-guaranteeing functions also increases opportunities for patronage, graft, and the use of financial power for political purposes. The agencies themselves may be used for patronage purposes, the party affiliations of loan applicants may influence loan decisions, and agency officials and employees may be corrupted by payments from those seeking loans.

INSURANCE OF SAVINGS IN PRIVATE FINANCIAL INSTITUTIONS

The federal government operates two agencies that insure the safety of money left with thousands of privately owned financial institutions. The Federal Deposit Insurance Corporation insures the first $10,000 of each deposit account at most commercial banks and some mutual savings banks, and the Federal Savings and Loan Insurance Corporation performs a similar function for thousands of savings and loan associations. These two agencies influence the behavior of the money market in several ways. (1) They enable the federal government to

extend its supervision and regulation to many institutions chartered by state governments. (2) By insuring the safety of claims against these institutions they increase the volume of money entrusted to them for use. This is important at all times, but especially so during depression periods when large amounts of money might otherwise be withdrawn because of the fear of loss. Here, however, the limited coverage of the insurance plans lessens their effectiveness. (3) By reducing the danger of large net withdrawals, these insurance agencies eliminate one of the major reasons for insured financial institutions to follow restrictive lending policies and strive for high liquidity during depressions. In these various ways the insurance of private savings left with financial institutions can affect the availability and cost of credit in such a way as to promote economic stability.

The existing plans for insuring savings may well be altered and the principle applied to other types of private financial institutions. For example, the existing plans might be extended to cover creditor claims against all banks and savings and loan associations, and similar plans might be devised for insurance and annuity companies.

SUMMARY

This chapter has outlined some of the principal activities of the federal government and its agencies that directly affect the structure and behavior of money markets. There are many of these agencies and they engage in many types of activities. These include general monetary and debt management; selective credit control; tax and expenditure policies; chartering of financial institutions; supervision, regulation, and examination of financial institutions; purchase of capital stock in financial institutions; lending to and purchasing of assets from financial institutions; lending to nonfinancial borrowers; insurance of loans by private lenders; and insurance of savings in private institutions. Each of these functions has various effects on the structure and behavior of money markets.

Perhaps no one of these activities considered by itself seems capable of exerting a strong influence on the operation of our economy. But all of them taken together constitute a powerful influence which

affects the money supply, the size of our national income, the rate of consumption, the rate of saving, the willingness to part with money and hold other claims, the supply of investable funds, the height of interest rates, geographical differentials in interest rates and availability of credit, and interest rate differentials on various types of loans. In the past these powers have not been carefully coördinated and they have often been used in such a way as to conflict with each other. There is urgent need for the government to make a thorough survey of its present and potential programs, to review its economic objectives, and to use all its appropriate powers in a consistent and coördinated way to achieve the objectives that it selects.

SELECTED READINGS

Cherington, H. V., *The Investor and the Securities Act*, American Council of Public Affairs, Washington, 1942.

Stein, E., *Government and the Investor*, Farrar & Rinehart, New York, 1941.

Walk, E. G., *Loans of Federal Agencies and Their Relationship to the Capital Market*, University of Pennsylvania Press, Philadelphia, 1937.

CHAPTER 22

An Introduction to Monetary Theory

In the preceding chapters we investigated the most important monetary and financial institutions and studied some of the major monetary processes and principles. We surveyed the functions of money in an economic system, the kinds of money used to perform these functions, the various kinds of monetary standards, commercial banking, central banking, monetary management by central banks and treasuries, the role of money in the processes of saving, dissaving, and investment, and the functions of many kinds of financial institutions. This chapter, as well as several that follow, will deal with "monetary theory." This subject has already been touched upon briefly in Chapter 2 and at several other points, but we shall now develop it more thoroughly.

THE SCOPE OF MONETARY THEORY

The present scope and content of monetary theory have evolved slowly over a long period. During most of the nineteenth century and the early part of the twentieth, monetary theory concerned itself almost exclusively with the determination of the value of money, or the general level of prices. This was the period during which classical economics reigned supreme in western nations. Most economists were interested primarily in the conditions of long-run equilibrium, they devoted only little attention to the behavior of economic systems during short-run periods, and the economics of unemployment and

underproduction was as yet in its infancy. Money and monetary policy were believed to have little effect on the amount of employment, the rate of real output, and the distribution of real income, these being determined, it was thought, by such "real" factors as the supply of natural resources, capital goods, and labor, and the state of technology.[1] Under these conditions it was to be expected that economists would accord to monetary theory only the function of explaining the value of money itself or, what is the same thing, the general level of prices. This view was stated as follows by John Stuart Mill: "The relations of commodities to one another remain unaltered by money; the only new relation introduced is their relation to money itself; how much or how little money they will exchange for; in other words how the Exchange Value of money itself is determined."[2]

The scope of monetary theory expanded as economics developed and as the classical analysis of long-run equilibrium came to be supplemented to an increasing extent by analyses of short-run periods of disequilibrium and by business cycle analysis. Even Mill, with his emphasis on long-run equilibrium, admitted that money "exerts a distinct and independent influence of its own when it gets out of order." As economists increased their understanding of economic processes and increasingly shifted their attention away from the conditions of long-run static equilibrium, they became convinced that money is in this sense "out of order" a large part of the time, though in different ways and in varying degrees, so that it exerts "a distinct and independent influence of its own" most of the time. Through their effects on the flow of spendings, money and monetary policy influence not only the general purchasing power of money but also the amount of employment, the rate of real output, the composition of output, the heights of various prices relative to each other, and the distribution of real wealth and income. As a result of this evolutionary process, the scope and content of monetary theory have now been broadened to include all the relations among money and prices, employment, production, and the distribution of wealth and income.

[1] See p. 14.
[2] See p. 15.

In fact, monetary theory is fast becoming an integral part of general economic theory, employment theory, and business cycle theory.

It should be noted that monetary theory does not limit itself solely to analyzing the economic effects of influences "originating on the side of" money and monetary policy. This is, of course, one of its functions; it must trace the various effects of changes in money and monetary policy on the economy as a whole. But its function is broader than this; it must also take into account influences emanating from other factors in the economy and show how they affect the behavior of money, and how the "monetary" and "nonmonetary" factors are interrelated. To do this is important for at least three related reasons. (1) Not all changes in price levels, employment, and production originate "on the side of money," though they may accompany changes in money demand and the actual rate of spending. (2) Even when changes originate in "nonmonetary factors" their effects on the economy will depend to some extent on the nature of monetary policy, and in at least some cases they may be offset by compensatory monetary policies. (3) What is an "appropriate" monetary policy depends on other conditions in the economy. For example, one type of monetary policy may be appropriate if the economy is capable of a large and rapid expansion of real output and trade; another may be best if the economy is static. One type of monetary policy may be most desirable if businessmen optimistically expect high profits; a very different policy may be desirable if they are deeply pessimistic. Since we are interested in the *relationships* between money and other phenomena in the economy we must look at both sides of the equation.

TYPES OF MONETARY THEORY

In the following chapters we shall study three principal types of monetary theory: (1) quantity theories of the transactions type, (2) the cash-balance type of quantity theory, and (3) income and expenditure theories. Quantity theories of the transactions type analyze the value of money or the general height of prices in terms of

the size of the money supply, the velocity or rapidity of circulation of money, and the physical volume of trade to be carried on with money. The cash-balance type of quantity theory employs the familiar demand and supply analysis to explain the value of money. The income and expenditure theories analyze the problem in terms of the creation of money income through spending for consumption and investment purposes and the disposal of money income in consumption and saving.

This variety in monetary theories may be confusing to the newcomer. He is likely to assume that because they differ in logical outline the various forms of theory must contradict one another, and that only one type can be valid wherefore the others should be discarded. This is not true. There are, of course, theories within each of these general categories that do not faithfully describe the relationships among money, price levels, production, and the distribution of wealth and income. We shall not present here the types of theories that we consider invalid. But it must be emphasized that the three types of theory outlined above are not necessarily contradictory. Instead, they are different logical frameworks in which the same causal factors can be embodied. In fact, it is possible to transform any one form of these theories into the others. We present all three because all are used in the literature and because each is useful in analyzing particular types of problems.

CHAPTER 23

The Transactions Type of Quantity Theory: General Principles

Of all the theories purporting to explain the value of money at any one time and its variations over periods of time, the so-called quantity theory in its various forms is the oldest and has been the most influential. Crude statements of it are found at least as far back as Roman writings; it became somewhat better developed during the price revolution of the sixteenth century; and by the end of the eighteenth century it had received clear formulations, notably from Bodin, Cantillon, and Hume, that resemble those of modern quantity theorists. Since Hume's time the quantity theory in one or another of its forms has been accepted by the majority of economists, despite the criticism to which it has been subjected. As this theory developed, it assumed two general forms, though both lead to the same conclusions. The first, which will be discussed in this and the following chapter, is usually referred to as "the transactions approach." The second, which will be described in Chapter 25, is called "the cash-balance approach."

It is necessary at the outset to note that the name "quantity theory" does not at the present time describe accurately the type of analysis to which it refers. It was a faithful description of the theory to which it was first applied; but though the name has remained unchanged, the theory has undergone such marked changes and developments that there is little more than a faint family resemblance between the

modern "quantity theory" and the "quantity theory" of the late Middle Ages. This can be shown by a brief sketch of the evolution of the theory.

The quantity theory is based upon the fundamental characteristic of money: that money as money is not useful in itself and is not demanded for itself. However large or small its total quantity, it is desired by people only to be passed along sooner or later for the purchase of other things. For this reason, said the quantity theory in its earliest and crudest form, the purchasing power of money depends upon the relative quantities of money and of the things to be purchased with it. If the quantity of money is large relative to the quantity of things to be purchased with it, the purchasing power of each unit of money must be low—prices in general must be high. If, however, the quantity of money is small relative to the quantity of things to be purchased with it, prices in general must be low. It should be noted that according to this theory it is the *quantity* of money of all kinds—not its "quality," "backing," or commodity content—that is of primary importance in determining its value; the quality of money affects prices only in so far as it affects the quantity of money available.[1]

But important as is the ratio between the quantity of money and of goods to be purchased with money, no competent economist since Hume's time has believed that there is any fixed and automatic relationship between the quantity and the value of money. All have recognized that changes in the money supply affect prices only by affecting the flow of money expenditures, and that these expenditures are by no means always proportional to the quantity of money. Another factor must therefore be considered—the velocity, or rapidity of circulation, of money. One unit of money spent ten times in a period exerts the same effect on prices as ten units spent only once; an increase in the rapidity of circulation tends to increase the money demand for things and to enhance prices, just as would an increase in the money supply. And conversely, a decrease in the

[1] It will be seen later that the more advanced forms of the quantity theory also recognize that the "backing" of money may at times affect its rapidity of circulation and thereby its purchasing power.

velocity of money tends to reduce aggregate expenditures and prices, just as would a decrease in the money supply.

Thus, the more refined versions of the quantity theory recognize three *immediate* factors as determining the general level of prices: (1) the quantity of money, (2) the velocity of circulation of money, and (3) the physical volume of trade to be effected with money. It is often said that "the general level of prices varies directly with the quantity of money and its velocity of circulation and inversely with the volume of goods and services to be purchased with money." And variations of the price level may be traceable to changes in any one or more of these factors. It is to be emphasized that the modern versions of the quantity theory do not state that the general level of prices depends solely upon the quantity of money, or that changes in prices must originate with changes in the quantity of money, or that a change in the quantity of money always and necessarily produces a proportional change in prices. Those who criticize the quantity theory on the ground that it makes these statements are fencing with ghosts.

THE EQUATION OF EXCHANGE

To carry their analysis beyond the preliminary stage indicated above, quantity theorists frequently employ an *equation of exchange*, which is stated as $MV = PT$, or sometimes as $\frac{MV}{T} = P$. In this equation M is the average quantity of money of all kinds in circulation in a given area during a specified period of time. V, or velocity, is the average number of times each unit of M is spent for goods, services, or securities during a specified period. The product MV is therefore the total of money expenditures for all goods, services, and securities during the period; it is the aggregate money demand for these things. T is the physical volume of things for which money is spent during the period—the physical volume of trade in goods, services, and securities effected with money during the period. P is the average price per unit of T. It is immediately obvious that the equation of exchange is a truism; the aggregate value of the money given in exchange for goods, services, and securities (MV) is equal

to the money value of the goods, services, and securities given in exchange for the money (PT). If, for example, 100 units of money (dollars) are spent an average of 30 times during a year to purchase 1500 units of goods, services, and securities at an average price of $2 per unit, the $3000 of money expenditure is obviously equal to the money value of the things purchased with the expenditure.

Even though it is a truism, the equation of exchange is nevertheless a powerful tool of analysis and investigation. In it are included the three direct or immediate determinants of the price level—M, V, and T—the price level varying directly with M and V and inversely with T. It must be remembered, however, that though M, V, and T are generously granted the status of direct or immediate determinants, they are in no sense the ultimate determinants of the price level. Instead, they are themselves determined by a host of underlying objective facts and human decisions.[2] The ultimate determinants of the value of money are to be found behind the equation of exchange, not in it. But anyone who attempted to deal with this multitude of underlying influences without classifying them into a few main categories would end by becoming hopelessly involved in his analysis and unintelligible in his exposition. The equation of exchange enables the monetary economist to avoid these difficulties by supplying him with a logical framework on which to arrange his analysis and exposition. Our task now is to explain why M, V, and T behave as they do.

It will be useful to make two comments before undertaking this task. (1) Though up to this point we have concentrated attention on determining the general level of prices (P), we can also use this analysis, with modifications, to analyze the behavior of employment, output, and the physical volume of trade (T). MV is the total flow of expenditures for all goods, services, and securities sold for money during a period. It therefore includes not only all expenditures for current output but many other expenditures as well. Nevertheless, by analyzing the composition of MV and studying the part of it that represents effective money demand for current output we can cast light on the behavior of production and employment. We should

[2] For Irving Fisher's insistence on this point, see *The Purchasing Power of Money*, Macmillan, New York, 1926, pp. viii, 74, 149, 150, 182.

also remember that in many cases it is difficult to explain the demand for the new output of a given type of article without considering the total money demand for the total supply of the article, both old and new. For example, it is difficult to explain the demand for new houses without considering the total demand for both new and old houses. Likewise, we can hardly explain the demand for new security issues without reference to the total demand for both old and new issues.

(2) The "immediate determinants" in the equation of exchange are related to each other in quite complex ways. In the first place, the behavior of two or more of them may be affected by the same "ultimate" determinants. For example, news of the outbreak of war may tend to increase M, V, T, and P. And in the second place, a change in one of the immediate determinants may cause changes in one or more of the others. For example, an increase in M produced by a change in monetary policy may evoke changes in V, T, and P. These facts do not, however, invalidate our analysis. Instead, they emphasize the interrelationships among the immediate determinants and indicate that all the factors in the equation are variables and that the final outcome depends on their relative rates of change and their responsiveness to changes in each other.

M, THE QUANTITY OF MONEY

M is the money supply, the quantity of money in circulation in a given area. It is made up, as we have seen, of two main parts: (1) coin and paper money outside the Treasury and the banks, and (2) the public's holdings of bank deposits subject to check.[3] We need not analyze in detail the determinants of the money supply, for these have been treated at length in earlier chapters. Table 64 summarizes some of the most important determinants.

A few other points concerning the money supply and its relation to the rate of expenditures should be made. The first is that almost never is it accurate to say that a change in M is the "ultimate" cause

[3] For an account of some of the difficulties of defining the money supply, see the latter part of chap. 2.

of a change in spending. To find the "ultimate" causes we need to go back of M to discover the factors that permitted and brought about the change. This usually requires an analysis of the policies of the monetary authorities, of the credit policies of commercial banks, and sometimes of the behavior of the demand for credit. Another point is that the money supply may in at least two different senses

TABLE 64. Determinants of the Money Supply

A. The size of the monetary base, i.e., the supply of funds available for use either as coin and currency in circulation or as reserves behind checking deposits.
   1. The size of the monetary gold stock.
      a. The amount of monetary gold accumulated in the past.
      b. Additions to monetary gold from current gold production.
         (1) Real cost of production of gold.
         (2) Consumption of gold for nonmonetary purposes.
      c. Imports and exports of gold.
   2. The amounts of other types of money issued by the government.
      a. Coins, except gold.
      b. Paper money, except gold certificates.
   3. Policies of the central bank authorities as to the availability and cost of central bank credit.
B. The community's choice regarding the relative amounts of cash and of checking deposits it wishes to hold.
C. The height of the ratio between checking deposits and reserves.
   1. Legal or customary reserve requirements.
   2. Policies of commercial banks relative to loans and security holdings, and their preferences for these assets rather than excess reserves.
D. The demand for bank credit.

play a "causal" role in determining the rate of spending. The clearest case, of course, is that in which a change originates in the monetary policy, is transmitted through a change in the money supply, and evokes changes in the rate of spending. For example, the initiation of an easier-money policy may lead banks to buy securities and increase the public's holdings of money, and this may induce an increase in spending. But the nature and extent of the response of the money supply to changes emanating from other sources also exert an important influence on actual spendings. Suppose that for reasons other

than a change in monetary policies businessmen become much more optimistic as to the profitability of new investment. If the supply of money is made passively expansible without a significant rise in interest rates, the rate of spending may rise markedly. But if the supply of money is not allowed to rise, the rate of spending may increase much less or perhaps not at all.

In short, the supply of money is an important determinant of spending not only because changes may originate in it and bring about changes in spending but also because the responsiveness of the money supply to changes originating in other phenomena can affect spendings, output, employment, and so on.

V, THE VELOCITY OF MONEY

We have seen that the size of the money supply influences prices only through its influence on the rate of expenditures, and that the rate of spending need not be correlated perfectly with the size of the money supply. In other words, the velocity or rapidity of circulation of money is one of the direct determinants of the rate of expenditures. An increase in V tends to increase the flow of expenditures and a decrease in V tends to shrink the flow.

In considering the determinants of the velocity of money, it will be useful to recall several points developed earlier in this book. The first is that two of the functions of money are to act as a medium of exchange and as a store of value. If each receiver of money spent all of it immediately for goods, services, or securities—if all of it were used immediately as a medium of exchange—the velocity of money would be very high indeed. But this does not happen often. Instead, those who receive money may hold some or all of it for hours, days, months, or even years before spending it. The longer this "average interval of rest" between receipt and expenditure, the lower will be its velocity of circulation.[4] Thus anything that affects people's decisions regarding the length of time that they hold money before spending it affects velocity. This brings us to the second point: In a capitalistic system each person is free to determine for himself the

[4] Cf. Knut Wicksell, *Interest and Prices*, Macmillan, London, 1936, p. 52.

length of time that he will hold money before spending it or, what is the same thing, to determine his money holdings relative to his rate of expenditure. It is therefore reasonable to assume that each one will adjust his money holdings relative to his expenditures in such a way as to give him the greatest net advantage, taking into consideration both the convenience and safety of holding money and the cost of doing so. This "most advantageous" amount of money holdings relative to expenditures depends on circumstances, and it may change as circumstances are altered.

To carry this analysis further it will be convenient to divide the motives for holding money into two broad classes: (1) the transactions motive and (2) the speculative motive. By the transactions motive we mean the holding of money to meet expenditures for goods and services or to pay debts incurred in the course of business. This includes expenditures for income and business transactions. Each person or business firm attempts to adjust his holdings of money relative to his expenditures for these purposes at the level that on balance seems most advantageous. On the one hand, holding money is expensive; it means that the holder must pay interest if he has borrowed the money or forego a return that he could get by lending it or purchasing other assets with it. On the other hand, holding money safeguards him against certain dangers and inconveniences; it protects him from embarrassment arising from unexpected expenditures or the failure of expected receipts to materialize, and it puts him in a position to take advantage of cash discounts, to preserve his record for prompt payment, and to purchase bargains that may be offered. How much money each person will find it most advantageous to hold relative to his expenditures for these income and business purposes will depend on many circumstances, some of which will be discussed later.

The speculative motive for holding money is closely related to the use of money as a store of value. As we saw earlier, money and all other things compete with each other as stores of value. Most other things have the advantage of yielding a return, and the disadvantages of illiquidity and risk. Money, on the other hand, yields no return but is perfectly liquid and does not depreciate in terms of itself.

Each person or business firm attempts to distribute his store of value between money and other things in the way that to him seems most advantageous. Under some circumstances, people and business firms may hold but little money as a store of value, preferring other things because of expected low risks, adequate returns, and lack of capital depreciation. In such a case, the velocity of money tends to be high because little of it is held immobile as a store of value. At other times, however, large amounts of money may be held for this purpose because current yields on other assets are not considered high enough to compensate for the cost and inconvenience of purchasing and holding them and for the risk of future price declines. Thus money is held as a store of value not only to escape the risk of holding other assets but also in the hope that these other assets may be purchased later at lower prices. In such situations the average velocity of money tends to be low because so much of it is held immobile as a store of value.

The preceding sections have emphasized the fact that the velocity of money and of its reciprocal, its average interval of rest, depends on many factors. Some of the most important of these determinants are summarized in Table 65.

TABLE 65. Determinants of the Velocity of Money[5]

A. The stage of development of the credit and financial system and the extent to which the community uses it.
   1. The ease of lending and investing and the expected safety and liquidity of savings entrusted to savings institutions.
   2. The ease of borrowing and the expected availability of credit.
B. The system of payments in the community.
   1. Frequency of money receipts and disbursements.
   2. Regularity of money receipts and disbursements.
   3. Correspondence between time and amount of receipts and disbursements.
C. The rapidity of transportation of money.
D. The state of the community's expectations or anticipations.
   1. As to future money incomes.
   2. As to future prices of commodities and services.
   3. As to future interest rates, risk, and security prices.

[5] For many of these points, see Irving Fisher, *The Purchasing Power of Money*, Macmillan, New York, 1926, pp. 79–89.

The stage of development of the credit and financial system and the community's willingness to use these facilities are a major determinant of the velocity of money, both because it affects the amount of money held as a store of value and because it influences the amount held relative to expenditures for income and business purposes. If a society lacks well-developed financial institutions or if the people are unwilling to use them extensively, as was the case in western Europe until near the end of the Middle Ages and is still true today in economically backward sections of the world, the velocity of money is likely to be low. In these circumstances savers are likely to hold a large proportion of their savings in the form of money hoards instead of passing them along in exchange for other claims. But with a highly developed financial system that offers interest or other returns and a high degree of safety and liquidity, people are likely to hold less money as a store of value and to hold other claims instead. To the extent that they provide a reliable source of loan funds these financial institutions also tend to decrease the amount of money held relative to expenditures for income and business purposes. The greater the availability of loans to meet expenditures, the less is the risk of holding only small amounts of money to meet both known expenditures and contingencies.

Velocity is also affected by the system of payments used in the community. By this is meant the frequency, the regularity, and the correspondence between the time and the amount of money receipts and disbursements. The greater the frequency of receipts and disbursements, the shorter is likely to be the average interval during which money is at rest, and the higher its average velocity. This can be shown by an example. Suppose that a laborer receives $7 in wages each week and that he spends $1 each day of the week. The average interval of rest for the money will be about half a week, or 3½ days. One dollar will lie unused for 7 days, one for 6 days, one for 5 days, and so on. The dollars that are unused for less than half a week will be balanced by those that lie idle longer. In this case, the average velocity of the money will be 2 for the week, or about 8 for the month. But the average velocity is lower if income is received less frequently and is spent at a uniform rate during the interval. Suppose that the

laborer is paid $30 once a month and that he spends $1 each day. One dollar will be held idle for 30 days, one for 29 days, one for 28 days, and so on. The average interval of rest for this money will be 15 days; the dollars that lie idle for less than 15 days will be balanced by those that are unused longer. In this case, the velocity of money is only 2 for the month, as compared with the 8 per month when income was received weekly. A shortening of the interval between income receipts tends, therefore, to increase velocity.

The velocity of money is also influenced by the degree of regularity of income receipts. If people receive relatively stable amounts of income at regular intervals, they are likely to feel free to spend most of it before the next income payment is due. But if income is highly unstable in amount and irregular as to date of payment, people are likely to feel a greater need to accumulate money holdings when their funds are plentiful to tide them over the lean periods. The consequent holding of idle money tends to lower the average velocity.

Another aspect of the system of payments that affects velocity is the extent to which the time and the amount of receipts and disbursements correspond, one with the other. If receipts and disbursements are so coördinated that money is paid out as soon as it is received, its velocity is greater than would be the case if some or all of it were held for a time before disbursement. The extent to which receipts and disbursements are coördinated in time is greatly influenced by the extent to which people buy on credit. If they are in the habit of charging a large part of their purchases and paying their debts on payday or a few days afterward, the velocity of money will tend to be higher than it would be if they paid cash for most of their purchases and therefore had to hold more money during the interval between paydays.

Velocity is also affected by the rapidity of transportation of money. Any development that shortens the period between the time money leaves the payer and the time it reaches the payee makes it available for reëxpenditure at an earlier date. Thus, more rapid transportation of cash and speedier movement of checks from maker to receiver tend to enhance velocity.

The classes of determinants just described—which collectively may

be said to indicate the stage of the community's economic and financial development and its commercial habits—determine the "norm" of velocity at any time, and changes in these factors determine the trend of velocity over long periods. But velocities undergo wide variations around the "norm" in short periods, especially during inflation and deflation and the various phases of the business cycle. These fluctuations are closely bound up with what has been variously called "business psychology," "the state of expectations," and the "state of anticipations" of the community.

If for any reason or group of reasons—such as an expected expansion in the money supply, a revival of business activity, the election of highly popular public officials, or even what appears to be a groundless surge of optimism—the members of the community come to feel that incomes will be received more regularly and will be higher and that prices of goods and securities will not fall and will probably rise, the velocity of money is likely to increase. In the face of such a bright outlook it is considered both unnecessary and unprofitable to hold large money balances. It seems more advantageous to spend money quickly before it loses its purchasing power and to hold goods and securities instead.

The situation is reversed, however, when large sections of the community become convinced that incomes and prices will not rise but are likely to fall. Such anticipations may be traceable to fear of one or more of many things, such as a decrease in the money supply, loss of foreign markets, a stock market crash, unfavorable legislation, labor disputes, or even what appears to be unjustified pessimism. But whatever the origin of these gloomy anticipations, they are usually accompanied by a decline in velocity. Consumers postpone purchases of consumption goods, in so far as that is feasible, in order to take advantage of the lower prices expected later and to protect themselves against want during threatened rainy days; enterprisers tend to postpone purchases of capital equipment and raw materials for the same reasons and because prospective profits from production are not sufficiently enticing; and many possessors of investable funds consider it advantageous to hold their store of value in money rather than in securities which threaten to depreciate. The importance of these rises

and falls in velocity that accompany the alternation of optimism and pessimism in the community will be emphasized later.

T, THE PHYSICAL VOLUME OF TRADE

We have seen that the total volume of money expenditures in any period varies with *M* and V. The price level varies, however, not with the absolute volume of money expenditures but with the relationship between these expenditures and the physical volume of things to be purchased with money. Thus, the *third immediate determinant* of the value of money is the physical volume of trade to be effected with money. The greater the quantity of things to be purchased with a given flow of money, the lower will prices be in general. And conversely, the smaller the quantity of things to be purchased with a given flow of money, the higher will prices be in general. *T* is the total physical volume of goods, services, and securities sold for money in a given area during a specified period of time. Every article sold for money is included, and each article is counted every time it is sold.[6]

It is impossible, at least in short compass, to explain fully the magnitude and behavior of the physical volume of trade. Such an ambitious undertaking would necessarily involve a complete explanation of the economic system. Nevertheless, it is worth while to consider a few of the most important determinants of *T*.

A large proportion of the trade during any period grows out of the production, transportation, and merchandising of currently produced goods, services, and securities. The volume of trade in currently produced goods and services depends to some extent on productive capacity, and the productive capacity of a country depends in turn largely on the quantity and quality of its factors of production—labor, natural resources, capital, and technical and managerial ability. The

[6] To add together the physical quantities of such diverse things as securities, capital and consumption goods, and services of all sorts, it is necessary to have a common unit of physical measurement. This common unit is "a dollar's worth in the base year," i.e., the amount of the article that would have sold for one dollar in the base year. When the quantities of all goods, services, and securities are stated in terms of this unit, they can be added together and the total volume of *T* thus ascertained.

larger the population (especially the working population), the better its health; and the greater its energy, the greater is likely to be the productive power of the country. But productive capacity also depends upon the amount and richness of the natural resources on which labor is employed, the supply of capital equipment available to assist labor, and the amount of available knowledge regarding techniques of production and management.

Unfortunately, however, the actual quantity of production is by no means always as great as the potential capacity. The actual volume most nearly approaches capacity in the stage of the business cycle known as prosperity. At such times business is profitable, and most of the factors of production are employed. But the situation is far different in depression periods when business is unprofitable. At such times much labor, capital equipment, and natural resources are either totally unemployed or are worked less intensively than in times of prosperity. These fluctuations in the degree of employment of available productive factors explain, in large measure, the cyclical fluctuations of T. It should be noted that these fluctuations of T are by no means wholly independent of M and V. To the extent that it reflects a rise in spending for output, an increase in MV is likely to elicit an increase in real output, employment, and T if it occurs at a time when productive factors are underemployed. And to the extent that it reflects a decline in spending for output, a decrease in MV is likely to reduce output, employment, and T. The responsiveness of output and T to changes in MV is a very important determinant of price level behavior.

The volume of trade in currently produced goods and services depends, however, not only on the current volume of production, but also on the number of times that each unit of these goods and services is sold for money before being consumed. Two of the principal factors determining the number of times each good or service is sold are the extent of specialization and the structure of business. Greater specialization tends in two ways to expand the volume of trade. In the first place, as already indicated, it increases the supply of goods by enhancing per capita productivity. And in the second place, it increases trade by raising the average number of times each good is sold. If each family were self-sufficient economically, i.e., if specialization oc-

curred only within each family, there would be no trade to be effected with money despite the fact that there was production. But if each family specialized in the production of an article which it did not consume, the total volume of production would enter into trade.

The number of times that each article is traded also varies with the degree of specialization of functions by business firms. If each of the

TABLE 66. Factors Determining the Physical Volume of Trade Effected with Money

A. Factors determining the potential volume of current production of goods and services.
   1. The size of the population, its health, energy, and philosophy.
   2. The extent of territory and the richness of the natural resources.
   3. The supply of capital equipment.
   4. The state of knowledge regarding techniques of production and administration.
B. The extent of employment of the factors of production.
C. The number of times that currently produced goods and services are exchanged for money.
   1. The extent of specialization.
   2. The business structure; the degree of business integration.
D. The volume of new security issues, and the number of times they are sold for money.
E. The volume of goods and securities carried over from earlier periods and the frequency with which they are sold.
F. The extent of barter.

functions of mining, manufacturing, jobbing, wholesaling, and retailing is carried on by a separate business firm, an article passing through these stages will be sold at least five times before it comes to rest in the hands of the consumer. But if all these functions are performed within one great integrated firm, each article may be sold only once—when it is sold to the consumer. It is for this reason that vertical combinations in industry may tend to reduce the volume of trade, though not necessarily the volume of production.

Also included in T is the amount of trade in newly issued securities. This element of trade varies with the volume of new security issues and with the number of times the securities are sold within the given period, whether for speculative or for other purposes.

In addition to trade in currently produced goods, services, and

securities, there is always trade in goods and securities produced and accumulated in earlier periods. The volume of trade in real estate, capital equipment, securities, and other assets carried over from earlier periods constitutes a sizable proportion of the total.

The last factor that will be mentioned as influencing the volume of trade to be effected by means of money is the extent of barter. Though often ignored, it is still of some importance in modern society. Articles are often "swapped," especially in rural regions where livestock bartering is frequent; land rents are often paid in shares of product; second-hand articles are given as partial payment for other second-hand or new articles; workers sometimes receive board and room as part of their wages; parcels of real estate are bartered for other parcels; corporation securities are exchanged for each other in cases of mergers and consolidations; and—perhaps most important of all—produce and securities are bartered through the clearing houses attached to organized produce and security exchanges.[7] The greater the proportion of trade that is effected by means of barter, the smaller is the proportion that must be transacted by means of money. For this reason, the rise or decline of barter tends, in itself, to raise or lower prices.

P, THE GENERAL PRICE LEVEL

P is the average price of each unit of *T* in a specified period. In somewhat more technical terms, *P* is the weighted arithmetic average of the individual prices of all goods, services, and securities sold during a stated period. It is "the general price level" in the broadest sense, for it includes the prices of everything sold for money.

SUMMARY

The purpose of this chapter has been to outline the logical framework of the type of quantity theory that utilizes the transactions type of equation of exchange. This theory states that there are three im-

[7] Cf. B. M. Anderson, *The Value of Money*, Macmillan, New York, 1917, pp. 196–202.

mediate determinants of the general level of prices, M, V, and T. Each of these in turn depends on many underlying factors. In the last analysis, therefore, the price level is determined by a multitude of factors working through M, V, and T. Moreover, these three immediate determinants are not wholly independent of each other. Some underlying factors affect two or all of them, and a change originating in one may elicit changes in the others. In short, all the members of the equation are variables, and the outcome depends on their relative variations and their responsiveness to changes in each other. Hence the quantity theory is not a monistic theory of price level determination. It insists that many underlying influences must be taken into consideration.

Much of our discussion has been concentrated on the determination of price levels. However, this form of theory may also be used to analyze the behavior of output and employment. The next chapter will deal with this and other applications of the quantity theory.

SELECTED READINGS

American Economic Association, *Readings in Monetary Theory*, Blakiston, Philadelphia, 1951.

Anderson, B. M., *The Value of Money*, Macmillan, New York, 1922.

Ellis, H. S., "Some Fundamentals in the Theory of Velocity," *Quarterly Journal of Economics*, May, 1938, pp. 431–472.

Fisher, Irving, *The Purchasing Power of Money*, Macmillan, New York, 1926.

Hansen, A. H., *Monetary Theory and Fiscal Policy*, McGraw-Hill, New York, 1949.

Hume, D., *Essays, Literary, Moral, and Political*, Essay XXV, "Of Money."

Marget, A. W., *The Theory of Prices*, Prentice-Hall, New York, 1938, vol. i.

CHAPTER 24

The Transactions Type of Quantity Theory: Applications

In describing the general nature of the quantity theory, the preceding chapter showed that the value of money is a resultant of the interactions of M, V, and T and of their underlying determinants. Variations in the value of money originate sometimes in M, sometimes in V, and sometimes in T, but most frequently they reflect concomitant changes in all three. There is no invariable sequence. Moreover, a change originating in or behind one factor in the equation of exchange often affects one or both of the others; for example, a change in M may lead to a change in V, and vice versa. The quantity theory is fundamentally a tool of analysis—a logical framework on which to arrange facts secured by other means—and not a statement of some necessary and constant order of events.

The purpose of this chapter is to use the quantity theory to analyze particular types of price problems. Four cases will be considered. The first two relate to the effects imputable to changes originating in the money supply. The second two relate to explanations of actual movements of the price level.

EFFECTS ATTRIBUTABLE TO CHANGES IN THE QUANTITY OF MONEY

General economic analysis is concerned in large part with tracing the effects attributable to particular "causes." It attempts to isolate

and to analyze the effects that result from varying one factor in a given complex situation. Monetary theory sometimes utilizes this analytical technique of general economic theory to determine the effects, direct and indirect, of changes in the quantity of money. This approach must be employed by monetary authorities if they are to arrive at rational policies of quantitative control, and it is highly useful in explaining the effects of changes in the quantity of money arising from increases or decreases in the amount of paper money, alterations of the gold content of the monetary unit, monetization and demonetization of silver, alteration of bank reserve requirements, and changes in the real costs of producing gold.

Long-Run Effects of Changes in *M*

In the period preceding World War I, general economic theory dealt largely with long-run, rather than "short-run" or "transitional," phenomena. This type of theory presents, in effect, a comparison of "before and after" pictures—a contrast of static equilibria before and after the occurrence of a disturbing change. At that time it assumed full employment of the factors of production and either ignored transition periods or assumed that all the necessary adjustments were consummated instantly. The pattern of monetary theory was much the same as that of general economic theory; it too was largely concerned with long-run causal effects, though it did not ignore the short run as much as did other branches of economics.

Most quantity theorists have held that the long-run effect of an increase or decrease in the money supply is to cause the price level to be proportionately higher or lower than it would have been if the volume of money had not been altered. They do not contend that a given increase or decrease in M will necessarily be followed by an actual proportional rise or fall of P; such a movement may be prevented by changes in V or T that are in no way attributable to the change in M. They claim merely that, in the long run, increases or decreases in M cause prices to be proportionally higher or lower than they would be if M were held constant.

This conclusion is based upon the contention that in the long run, after all adjustments have been consummated (though certainly not

in the transition period), the velocity of money and the physical volume of trade are determined by factors largely independent of the quantity of money. The velocity depends largely upon the more fundamental trends, such as the stage of development of the credit and financial system, the system of payments used in the community, and the rapidity of the transportation of money. Likewise, the physical volume of trade depends upon factors only little affected by the quantity of money—the size of the population, the supply of land and capital, knowledge of productive and administrative techniques, the organization of industry, and the extent of barter.

But though V and T are in the long run largely independent of M, they are not completely so. As will be seen in the next section, the effects of varying the money supply may be so serious and far-reaching as to influence permanently the productive capacity, the distribution of wealth and income, and the form and development of economic institutions. These changes are reflected to some extent in the long-run behavior of V and T, and therefore in P.

Short-Run or Transitional Effects of Changes in M

No competent quantity theorist contends, however, that variations in the money supply must necessarily have exactly or even roughly proportional effects on the price level in the short run. It has long been recognized that during the period of transition, changes in M exert important influences upon both V and T, so that prices are changed sometimes more and sometimes less than proportionally. The increase and decrease in M will be considered separately.

If all the money were issued by a central monetary authority, such as the Treasury or a central bank, it would be relatively simple to effect any desired increase in the money supply. Even under our system, in which the supply of money depends to such a great extent upon the lending and investing operations of commercial banks, it is not difficult to expand it in periods of optimism. At such times the monetary authority need only provide the commercial banks with additional reserves, and the banks will expand their loans, investments, and deposits. But it is quite different in periods of recession

and depression, with their accompanying pessimism. An increase in bank reserves in such periods may not lead to an expansion of loans, investments, and deposits for a considerable time, because banks are less willing to incur the risks of lending and investing, and businessmen have less incentive to borrow. But a more liberal policy on the part of the monetary authority at least militates against further contraction and, by lowering interest rates and arousing more sanguine expectations, tends to hasten the expansion of money.

In analyzing the effects of an increase in the money supply on the rate of spending it will be useful to separate two types of cases: (1) those in which the increase is part of a transaction which also creates income for the community, and (2) those in which the increase results from a transaction that does not directly create money income but rather involves the issue of money in exchange for securities or other capital assets already held in the community.

Many increases in the money supply are integral parts of transactions which also create money income for the members of the community. Suppose, for example, that additional money is issued to pay for gold shipped to us by foreigners to purchase net exports of our output. In this case the creation of additional money and the creation of additional money income are parts of the same transaction. The same is true of domestic gold production and its sale to the Treasury. In these cases an increase in M is likely to be accompanied by increases in consumption and perhaps also in investment spendings.

At the other extreme are the cases in which M is increased in transactions which do not directly involve the creation of money income, but in which additional money is issued in exchange for securities or other capital assets already held in the community. For example, the Federal Reserve or commercial banks may purchase existing government securities from other holders. This does not directly create money income, though it may tend to raise capital values, but it does make the community more liquid. How would such a policy tend to raise expenditures? To the extent that it raises capital values and creates more optimism relative to the future it may tend directly to increase consumption. Primarily, however, it

will operate through investment spending. Both by increasing the liquidity of savers and by improving their expectations it may increase the availability and lower the cost of money for investment purposes. And the potential spenders for investment may increase their actual rate of investment spending both because of the greater availability and lower cost of money and because of the improvement of their own expectations as to the profitability of new investment.

It must be recognized, however, that the increase in M may not succeed in raising the rate of expenditures. This may occur if the easier monetary policy does not improve expectations and if savers prefer to hold the extra money rather than make it available on terms attractive enough to induce investment spenders to borrow and spend it. In such cases increases in M may be at least partially offset by an induced decline in V.

On the other hand, an easier monetary policy that succeeds in raising expectations, increasing the availability and lowering the cost of money, and inducing an initial rise in investment and perhaps also in consumption spending may bring about an increase in V. To the extent that the rise in M dispels gloomy expectations and creates more optimistic anticipations as to the future behavior of money income, prices, risks, and the profitability of new investment it tends to decrease the amounts of money that people find it advantageous to hold relative to their expenditures. Other things come to be regarded as better stores of value.

Thus, once the expansion is under way, expenditures are likely to advance faster than the money supply. It does not follow, however, that prices will be increased in proportion to the rise in expenditures, for this rise is likely to bring about an expansion in the physical volume of trade. How great the increase in trade will be varies with many factors, the most important of which is the extent to which productive factors are unemployed at the time the increase in money begins. If the economy is operating far below its capacity, with large quantities of labor, equipment, and land completely idle and others working on only a part-time basis, the resulting growth of production and trade may be great. As demand goes up, prices also rise to some extent, but each price rise is almost certain to be accompanied by

greater output, unless—as rarely happens—cost schedules rise as rapidly as prices.[1] Supply is usually highly elastic when unemployment is widespread; a small price rise is sufficient to elicit a relatively large expansion of output, for the marginal costs of the increased output rise only slowly. But as production approaches capacity levels further increases in spendings for output result to a growing extent in higher prices and to a lessening extent in enhanced output, because marginal costs rise at an accelerating pace, rates of pay to the factors of production rise, recourse must be had to progressively inferior agents of production, workers must be paid at higher rates for overtime, the efficiency of workers and management may slacken, and in an increasing number of cases enhanced production necessitates the installation of new capital equipment.

If, however, industry is already operating at near-capacity levels at the time M is expanded, the resulting rise in the physical volume of trade in currently produced goods and services is likely to be relatively small. Production will be encouraged to some extent, of course; some of the unemployed will be absorbed, some laborers will work overtime, efficient equipment will be utilized more intensively, and some inferior productive agents not worth employing in periods of stable prices will be pressed into use. But under such conditions increased spendings are likely to be manifested largely in enhanced prices.

The foregoing discussion relates to trade in currently produced goods and services; there remains trade in securities and in goods carried over from earlier periods. This, too, is likely to be expanded by rising money expenditures. The growth of speculative trade in securities, commodities listed on the organized produce exchanges, and real estate is likely to be especially large.

[1] This explanation applies most properly to industries characterized by pure competition—or an approach to it—in which each producer neglects the effect of his own production policy upon the price that rules in the market. Under such conditions an increase in demand is almost certain to raise both prices and output. In a general way the analysis also applies to industries characterized by monopoly or monopolistic competition; a larger demand usually increases both prices and output. But price and production policies of those possessing a degree of monopoly power vary widely. In some cases they pursue a policy of keeping prices relatively fixed and allowing the increase in demand to exert its full effect on output. In others the increase in demand is manifested largely in a rise in price and to only a slight extent in an expansion of output.

The general conclusion must be, then, that in the transition period an induced increase in the money supply serves to enhance the velocity of money, the physical volume of trade, and prices. Whether the resulting price rise will be in proportion to the money increase, or more or less than this, depends upon the relative movements of V and T. If both rise at the same rate, P and M will move proportionally. If V rises faster than T, P will rise faster than M. If V rises more slowly than T, P will rise more slowly than M. Just what the relative rates of change in V and T will be cannot be predicted in advance without knowledge of the conditions existing at the time. Moreover, these relative rates of change are likely to vary at different times in the same transition period. Early in the transition period T may easily rise faster than V, especially if the expansion is initiated at a time of widespread unemployment. Then later, as production approaches capacity levels, V may rise faster, perhaps very much faster, than T. This shift in the relative rates of movement of V and T goes far toward explaining why, during protracted inflations, prices may move only slowly at first and then rise at an ever faster rate.

Even in those cases in which the rise in the general price level is initiated by an increase in the quantity of money, all individual prices are not affected uniformly. Some respond quickly and advance rapidly, whereas others respond only after a delay and advance slowly; and the more rapid the rise in the price level the greater, in general, is the dispersion of individual prices. Of the many reasons for this, a few of the most important will be noted.[2]

Though most prices are legally free to move, some are fixed for more or less extended periods by government regulation or by contracts. The principal government-regulated prices are court fees, postage, tolls, public utility rates, and transportation rates on common carriers; however, the list is being extended rapidly. Prices fixed by contract cover a wide area, but the most important are probably interest payments on securities, rentals of land, buildings, and durable equipment, and to a lesser extent salaries.

Even prices that are legally free to move show very different pat-

[2] For a discussion of some of these factors, see Irving Fisher, *The Purchasing Power of Money*, Macmillan, New York, 1926, pp. 184–197.

terns of behavior, owing to variations in both demand and supply. The increase in the money demand is not felt simultaneously and proportionally by all objects of expenditure. In the first place, the new money is injected at particular points in the system, and the effects are felt there first. In the second place, the expansion is likely to bring about a redistribution of wealth and income which will alter the spending patterns of the community as a whole. And in the third place, an individual who receives a larger money income is not likely to allocate the increment proportionally among all the things he has been buying; instead, he will probably increase more than proportionally the amounts spent on luxuries and made available for the purchase of capital goods.

The response of prices is also influenced by conditions of supply. A larger demand for goods whose supply cannot be increased will be manifested almost entirely in higher prices, whereas a larger demand for reproducible goods is usually manifested in a rise of both prices and the amount produced. But the relative rates of change in the prices and production of reproducible goods vary considerably from case to case. Some of the most important reasons for this nonuniformity of response are differences in the degree of competition and monopoly in the various industries, in the price and production policies followed by firms with monopoly power, in the rapidity of the rise of costs and especially of wage rates, in the amount of excess capacity in the various industries at the time the expansion is initiated, and in the ease or difficulty of enlarging capacity where that is necessary.

Just as an increase in the money supply can, during the transition period, raise velocity, expenditures, and the physical volume of trade and lead to "boom" conditions, a decrease can reduce velocity, expenditures, and the physical volume of trade and bring about business recession and depression.[3]

A lowering of M means that on the whole the members of the community have smaller money balances than before. If the persons or firms suffering the decrease in money holdings attempt to main-

[3] It is not contended, however, that increases or decreases in the money supply are the only factors that can bring about "boom" or depression conditions.

tain their expenditures at the old level, their balances will be lower than before in relation to their expenditures, and they will be likely to feel "short of money" and attempt to repair their cash position by curtailing expenditures. For a time expenditures may not decrease as rapidly as M, for they are to some extent habitual. Nevertheless, the pressure toward a decrease is present. But even if expenditures fail for a time to fall as fast as M—and such a period need not always intervene—they are likely at a later stage to fall faster than M; V is likely to be lowered. If the decrease in M is expected to be small, V may be lowered only little; but if it is expected to be rapid and prolonged, V may drop considerably, for the actual and expected decreases in the money supply arouse fears that employment, money incomes, and prices will decline. As people begin to fear that their money incomes will diminish and probably become more irregular, they attempt to accumulate larger money balances as a protection against future needs. To do this they reduce their expenditures or offer goods and securities for sale on more favorable terms, or both. This tendency to hold money to a greater extent as a store of value —often referred to as "a flight to money"—is reinforced by a belief that prices of goods, services, and securities will decline.

Thus, once the contraction is under way, expenditures usually decline faster than the money supply. Prices do not fall in proportion to expenditures, however, for the physical volume of trade is diminished. To enterprisers the falling-off of expenditures for reproducible goods appears as a smaller money demand for their products. As the demand is lowered, prices also drop to some extent, and each price decline is accompanied by a contraction of output, unless—as is highly unlikely—cost schedules fall as rapidly as prices.[4] The reduction of trade in currently produced goods and services is usually accom-

[4] Here again, the explanation applies most properly to industries in which conditions approaching pure competition obtain, though it also applies in a general way to industries in which individual firms have some degree of monopoly power. Even under the latter conditions decreases in the money demand are likely to lead to decreases in both prices and output. Price and production policies vary widely, however. In some cases firms with monopoly power maintain prices and permit the reduction in the demand for money to be manifested completely, or almost so, in decreased output. In others, the reduction in demand is manifested largely in lower prices and to only a small degree in reduced output.

panied by a reduction of trade in goods and securities accumulated in earlier periods. The decline of speculative trade in securities, in commodities listed on the organized exchanges, and in real estate is likely to be especially large.

Thus, in the short run a decrease in the money supply affects not only prices but also the velocity of money and the physical volume of trade. Whether prices are lowered in proportion to the decrease in the money supply, or more or less than proportionally, depends upon the relative magnitude of the change in velocity and in the physical volume of trade.

Here, as in the case of an increase in the money supply, individual prices behave in markedly different ways. Some fall quickly and rapidly; others drop only after a long delay, and then only slowly. The factors responsible for this lack of uniformity have already been outlined.[5]

ACTUAL MOVEMENTS OF THE PRICE LEVEL

It is to be emphasized that the discussion in the preceding section related solely to the effects attributable to changes in the money supply. It made no pretense of explaining all the actual movements of prices. The purpose of the present section is to indicate the type of analysis that must be used to explain the actual behavior of the price level in the long run and during the different phases of the business cycle, taking into consideration changes originating in or behind V and T as well as M.

The Long-Term Trend of Prices

The long-term trend of prices depends, of course, upon the relative movements of M, V, and T, which in turn are the resultants of the many long-term forces that operate on them.

In all except very mature and economically stagnant nations, T shows an upward long-term trend. The growth of population, the extension of territory in use, inventions and other improvements in technology, more rapid and cheaper transportation, intensification of

[5] Cf. pp. 32–34.

specialization—all make for increased productivity. And trade in currently produced goods and services tends to rise faster than production, owing to greater specialization among business firms which serves to increase the number of times each good or service is sold before it finally comes to rest in the hands of its final buyer. The volume of trade in accumulated real wealth and securities also shows an upward trend in an economically progressive society. In fact, in an expanding economy there are only two developments that have a tendency in the long run to decrease T. One is the trend toward vertical integration of business firms, which tends to reduce the number of times each good is sold on its way to the final purchaser. The other is the growth of clearing or barter systems, such as those used by organized security and commodity exchanges. The combined power of these developments is usually so weak, however, that at most it merely retards the rate of increase of T. This long-run rise of T must bring about a downward long-run trend in prices if it is not accompanied by an offsetting rise in money expenditures.

Because of the conflicting forces at work, it is difficult to generalize concerning the long-run trend of V. On the one hand, there are powerful long-run forces that tend to increase V in a progressive economy such as that of the United States. In the first place, credit and financial institutions become more highly developed and more widely used, so that securities and other investment assets take the place of money as a store of value to an increased extent. In the second place, the growth of population—and especially its increased industrialization and urbanization—is likely to alter the system of payments in such a way as to raise V. Receipts and disbursements tend to occur at shorter and probably more regular intervals, and the time of their occurrence tends to correspond more closely, owing to the increasing proportion of sales on credit. In the third place, the greater density of population and the speed of communication and transportation serve to shorten the time required for money to pass from payer to payee.

Countering these forces, however, are several that may tend to decrease V over long periods. One is the growth of total wealth relative to income and business transactions. If total wealth rises faster

than income and business transactions, an increasing part of the money supply may be held as a store of value rather than being used as a medium of payments, thereby tending to lower the average velocity of the total money supply. This could occur despite the development of financial institutions and the holding of a larger share of wealth in nonmonetary forms if total wealth rose rapidly enough. A second force is a downward trend of interest rates. A decline in the reward for parting with money and holding other things as a store of value may tend to lower the average velocity of the total money supply by inducing people to hold a larger part of it as a store of value. A third force is a trend toward greater fear of depression and deflation. If, as some maintain, a progressive economy tends to become increasingly unstable, and if people come to believe that the dangers of deflation are greater than those of inflation, they may tend to hold a larger part of the money supply immobile as a store of value. Concerning the long-term trends of V, we can only say that the outcome during any period will depend on the relative strengths of the factors tending toward increase and decrease. Those who have attempted to show a marked downward trend of V from 1800 to the present time seem to be relying too much on extremely unreliable statistics for the earlier period and on the assumption that the low velocities since 1929 will prove to have been close to "normal." Statistics for the 1890–1929 period do not support the thesis that the trend of V has been consistently downward.

The quantity of money may either rise or fall over long periods, depending on the behavior of the monetary base, the community's choice as to the relative proportions of its money that it will hold in the form of cash and of checking deposits, and the ratio between bank reserves and deposits. More often than not, however, the long-term movement of the money supply is upward, though the rate of rise varies greatly. The monetary base usually expands, because of the accumulation of monetary gold, the issuance of other types of government coins and paper money, and the increase in central bank credit outstanding. Over long periods the community usually displays a growing preference for holding checking deposits rather than cash. In some periods the ratio of reserves to deposits falls, owing either to

reductions in legal reserve requirements or to a belief among bankers that such large reserves relative to deposits are no longer necessary. All these developments, if they occur, are conducive to a larger money supply. But there have been fairly long periods in which the money supply actually declined. In most cases this has been traceable to a shrinkage of the monetary base induced by gold exports, a retirement of paper money and coins, or a contraction of central bank credit. A lessening of the money supply may also be induced or aggravated by an increase in the ratio between bank reserves and deposits. This usually occurred in the past when wildcat and unsound banks were displaced by banks operated on safer principles.

In summary, the behavior of P over long periods depends upon the relative rates of change in M, V, and T as determined by relevant long-term factors. If MV rises faster than T, P shows an upward secular trend. If MV rises less rapidly than T, P shows a downward secular trend. As to the actual rates of change in these factors in different periods, few a priori generalizations are possible. In an expanding economy T is almost certain to rise. The behavior of V is more difficult to predict. More often than not, M also shows an upward trend, but the rate of increase varies greatly and periods of actual decline are not unknown.

Cyclical Movements of Prices

In addition to their long-term trends, price levels undergo marked fluctuations during the phases of the business cycle. These fluctuations are also a resultant of the changes in M, V, and T, but they are dominated by short-term cyclical factors rather than by factors determining long-term trends. To explain why M, V, and T behave as they do in the course of the business cycle would necessitate a complete explanation of the business cycle itself. This cannot be attempted in this chapter; however, more discussion will be given to it later.[6] We must confine ourselves here to a description of the monetary aspects of the cumulative downswing and upswing and leave largely unexplored the reasons why business at one time ceases to rise and begins a cumulative fall and at another time ceases to fall

[6] Cf. chaps. 27 and 28.

and begins a cumulative rise. The downswing will be discussed first.

The outstanding characteristics of the cyclical downswing are cumulative declines in actual and expected profits, employment, production, real income, and prices. These phenomena are manifested in the equation of exchange as declines in M, V, T, and P.

The money supply, affected as it is by so many factors, behaves differently in different recessions and in different countries, but in such periods it is always subject to powerful downward pressures. Most of these bear upon the volume of checking deposits. As prospects of profits fall faster than interest rates or even vanish completely, businessmen decrease their demand for bank loans, and banks attempt to call loans extended to borrowers whose credit standing is becoming questionable. This decline in loans could be offset, of course, by an increase in bank investments, but banks often fail to follow this policy, for a number of reasons. They may believe that it is not proper for commercial banks to load their portfolios heavily with long-term securities, they may fear that securities will decrease in value, they may anticipate unfavorable clearing-house balances, or they may fear runs by depositors. In most countries, and especially in the United States where the bank failure record is high and banks have good reason to fear runs, these reasons have been sufficient to produce sizable declines in checking deposits and the money supply. Such decreases in the quantity of money may be prevented in the future if banks become accustomed to enlarging their holdings of long-term investments, if the public ceases to distrust the safety of banks, and if the monetary authorities follow a policy of supplying banks with sufficient excess reserves to put them in a highly liquid condition without the liquidation of loans and investments. If such declines in the money supply are prevented, the intensity of depressions will probably be somewhat lessened.

An invariable characteristic of the downswing is a lowering of the velocity of money. As fear of falling profits, employment, income, and prices spreads through the community, people postpone expenditures and hold money longer. Consumers delay spending and conserve their money, both to protect themselves against want in the dark days ahead and to enable themselves to profit by the expected

fall in prices. Enterprisers hold money and postpone purchases of durable equipment and raw materials because they expect to be able to buy them more cheaply later and because they are pessimistic about the future demand for their output. Financial institutions and owners of investable funds also tend to hold money, rather than securities and other investment assets on which the estimated risk of loss has increased.

The reduction of expenditures traceable to the declines in M and V is manifested partly in a decrease in P and partly in a decrease in T. Trade in goods and securities accumulated in earlier periods—particularly speculative trade—drops, as does also trade in goods and services currently produced. To the individual producer the reduction of expenditures appears as a lowered demand for his product. This lowered demand leads to a decrease in price and therefore to a decrease in output, for cost schedules do not fall so rapidly as prices.[7]

The behavior of the money demand for various kinds of goods and services varies widely, however. The community does not distribute the decrease in its demand proportionately among all the things it has been buying. The most striking contrast in behavior is that between the demand for durable producers' goods and that for nondurable consumers' goods, though the demand for individual articles within each class varies considerably.

In general, the demand for consumers' goods decreases less than that for producers' goods. Within the class of consumers' goods, the demand for goods and services that are temporary in nature and are regarded by their purchasers as necessities usually declines least. Here are included such things as staple goods, household fuel, light, shelter, and those things necessary for the maintenance of one's group status. The need for these things is felt to be most urgent and their purchase is least postponable. The decrease in demand for consumers' goods of a durable or frankly luxury type is likely to be greater. Under this head are included such things as pleasure automobiles, furniture, clothing that is highly durable or whose main purpose is conspicuous waste, liquor, travel, and expensive entertainment. Luxuries, except perhaps for very inexpensive types, are likely to be sacrificed to more

[7] For a warning as to using this analysis, see footnote 4 on p. 528.

urgent needs, and purchases of durable goods can be postponed to more prosperous times. Many a family during a depression has discovered that the simple way of life is after all not only more virtuous but also happier, that the old car is still quite serviceable and really more dignified than the gaudy new models, that a cleaning and pressing will make the old topcoat as good as new, and that the old furniture has a look of mellowness and comfort not possessed by that currently in vogue. Demand is also likely to shift from higher- to lower-quality goods.

The demand for durable producers' goods suffers the greatest decline of all. The sharpness of this drop is due to the nature of these goods; they do not enter directly into consumption, but instead are used directly or indirectly to produce consumption goods.[8] They are demanded, therefore, only when the prospective demand for their product—consumers' goods—is such as to make their use profitable. A given decline in the demand for a consumers' good is likely to bring about a magnified decline in the demand for the producers' goods used in its production. Under some conditions, even a lower rate of increase in the demand for consumers' goods is sufficient to effect an absolute diminution in the demand for the relevant producers' goods.

Producers' goods are demanded in any industry for one of three purposes: (1) to increase total productive capacity in order to satisfy an expected increase in the demand for its output; (2) to replace equipment being worn out; and (3) to replace obsolete or obsolescent equipment with more efficient types. In periods of downswing, the demand for all of these purposes falls. As the demand for the end product—consumption goods—not only ceases to increase as it did during the preceding period of prosperity but actually shrinks, existing productive capacity becomes not only sufficient but even redundant, so that the need for new equipment with which to expand total productive capacity is likely to disappear. Orders for capital replacements are also likely to fall off, owing both to the decreased wear and tear

[8] Some producers' goods are used directly to produce consumption goods, others are used to produce producers' goods which in turn are used to produce consumption goods, and so on. In general, the more remote the stage, the greater is the fluctuation of demand.

on machinery resulting from shrunken operations and to the fact that many firms can satisfy the reduced demand for their products without replacing depreciating equipment. Moreover, enterprisers hesitate in periods of downswing to replace old types of machinery with new, for such changes are often considered profitable only if the new equipment can be utilized steadily—the very condition that does not exist in such periods. Some enterprisers may, of course, ignore the low current level of demand and purchase additional producers' goods in anticipation of a future rise. Unfortunately, however, they are usually in the minority.[9]

The varying behavior of the money demand for various types of goods and services helps to explain the differences in the behavior of the prices and output of these things in depressed periods. But industries react differently to a given decrease in the money demand for their output. At one extreme the smaller demand leaves prices unaffected and manifests itself solely in shrunken output; at the other it leaves output virtually intact and shows itself in tumbling prices. Just what the reaction will be in any given case depends upon a number of factors, among which are the extent of monopoly and price competition in the industry and the price policies followed if monopolistic elements are present, the rapidity of adaptation of wages and other costs, and the distribution of costs between the categories of fixed and variable costs.

Events during the upswing are, in general, the reverse of those just described. This period includes the phases of recovery and prosperity and extends from the point at which revival begins to the point at which the crisis ushers in a new recession. In general, its outstanding characteristics are the opposite of those during the downswing—a rise in current and expected profits, in employment and real income, and an optimistic anticipation that the betterment will continue. These phenomena appear in the equation of exchange as increases in M, V, T, and P.

The money supply is subjected to a powerful upward pull during the upward phase of the cycle, owing to the pressure on banks to expand their credit. As the prospective profits to be gained through

[9] The behavior of investment will be discussed further in chap. 27.

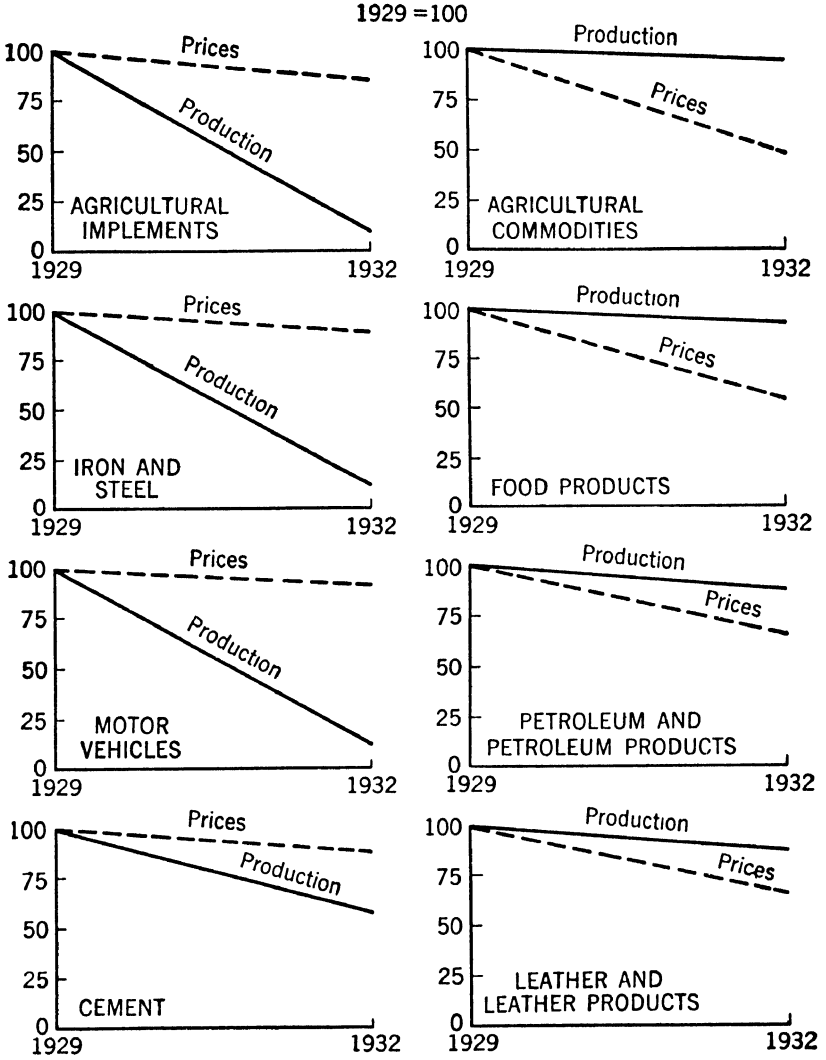


FIG. 15. Comparison of Price Changes and Production Changes of Selected Classes of Commodities During Depression, 1929–1932.

The charts were constructed by connecting the index numbers for 1929 with those for 1932, the intervening statistics being ignored. It would therefore be a mistake to infer that the actual declines could be faithfully represented by a straight-line curve. (Source: National Resources Board, *The Structure of American Industry*, 1939, Part I, p. 382.)

the use of funds in "legitimate" business and speculation rise faster than interest rates, enterprisers increase their demand for bank loans. And bankers, sharing the general optimism as to business activity, credit worthiness, and prices, usually satisfy these demands up to the limit of their ability. If not prevented by a stern and restrictive monetary policy, the banks are even likely to attempt to expand their lending power by borrowing from the central bank or by selling securities to it. In the past these influences have been strong enough in the upswing to elicit sizable increases in the money supply. Such increases may be prevented in the future, however, if monetary authorities adopt a sufficiently courageous policy of restriction. If this is done, booms will probably be kept from reaching such heights.

The upswing of business is almost invariably accompanied by a higher velocity of money. As members of the community adopt more and more optimistic views about the future of employment, incomes, profits, and prices, they enlarge their expenditures and decrease the extent to which they hold money as a store of value. Consumers, expecting ever steadier employment and rising incomes, feel safer in spending most of their current incomes and reducing their money holdings to a minimum. This tendency toward more rapid spending is greatly reinforced if prices are expected to rise. Enterprisers, anticipating a growing demand for their products and fearing higher prices of raw materials and capital equipment, are impelled to purchase quickly not only to meet their expanded current needs, but perhaps also to enlarge their inventories in anticipation of future requirements. Financial institutions and individual owners of investable funds, imbued with a belief that securities and other investment assets will not decrease but will probably rise in price, tend to reduce their money hoards and hold income-yielding assets instead.

The increase in expenditures traceable to the rise in both M and V exerts part of its effects on T and part on P. To some extent the rise in T represents increased trade, particularly speculative trade, in goods, services, and securities accumulated in earlier periods. To a greater extent, however, it represents an enhancement of trade in currently produced goods and services. The expenditure rise is felt by individual producers as a larger demand for their products. This

larger demand leads to higher prices and therefore to a rise in output.[10] In the early stages of recovery, when unemployment of labor and capital is still widespread, the increase in demand is likely to be evidenced to a large extent in greater output and to a smaller extent in higher prices. But as recovery proceeds and unemployment shrinks, the obstacles to any expansion of output become greater and the rise in demand is evidenced more and more in prices.[11]

Though the above description indicates the general pattern of events in the upward phase of the cycle, the behavior of output and prices varies widely in different industries, owing to differences in conditions of both demand and supply. As money demand rises in the upswing, it is not distributed proportionally among all types of output. In general, the demand for consumption goods increases by a smaller proportion than does that for producers' goods, though there are wide variations in the behavior of the demand for individual goods within each class. Within the class of consumers' goods, necessities of a nondurable type—whose demand was most nearly sustained during the downswing—are likely to enjoy the smallest increase in demand, although as people become more prosperous they tend to shift to higher-quality necessities. The demand for consumers' goods in the luxury and durable classes is augmented to a greater extent. People who, during the depression, were forced to forego the consumption of luxuries now feel able to gratify their long-felt hunger for them. They are also in a position to replace their worn and out-of-date durable goods, such as automobiles and furniture.

The demand for durable producers' goods enjoys the greatest expansion of all. As sales of consumption goods rise and are expected to continue to do so, the existing productive capacity is considered too small. Enterprisers therefore purchase repairs and replacements for equipment worn out and neglected during the downswing and buy additional equipment to meet the current and expected increases in the demand for their output. Imbued with high hopes of steady operation, they are also likely to replace obsolete and obsolescent equipment with newer types invented but not exploited during the

[10] Cf the warning as to this analysis in the footnote on p. 524.

[11] The analysis on p. 524 is also applicable to the boom period.

depression. The whole process is speeded up if enterprisers expect the price of capital goods to rise. The funds with which to purchase this increased volume of capital goods come from three sources: (1) from the greater volume of voluntary savings made available as the social income rises and a larger proportion of it is saved; (2) from money hoarded during the preceding depression; and (3) from new money created by the banking system through the increase in its loans and investments. The producers' goods industries, which were the paupers of the depression, become the princes of the boom.

But not all the dissimilarities in the behavior of the output and prices of various goods are attributable to differences in the rates at which demand increases. Different industries react differently to a given increase in demand. At one extreme the greater demand leaves prices unaffected and manifests itself solely in greater output; at the other, output is virtually unaffected, the rise being manifested almost completely in higher prices. In each case the relative rates of change in output depend on the many factors mentioned earlier—the extent of competition and monopoly in the industry and the price policies followed if monopolistic elements are present; the rate of increase of labor and other costs; and whether costs are largely fixed or variable in nature.

In summary, the upward phase of the cycle is characterized by increases in M, V, and T. MV usually goes up more than T, so P also rises. Until recently it was believed that a boom could occur only if P rose; but it is now recognized that it is possible for a business boom to occur in the face of stable or even slightly declining prices. This can happen, however, only if a rapid advance in productive efficiency lowers unit costs so much as to permit the emergence of an abnormally wide profit margin between the falling costs and the stable or more slowly declining selling prices. Wholesale prices of current output showed a very slow downward drift during the prosperity period that terminated in 1929; but the general price level, including the prices of everything purchased with money, rose.

Price Dispersion During the Inflationary Boom of World War II

Though the inflationary boom during and immediately following World War II differed in many respects from peacetime booms, it

is interesting to note the great dispersion of prices during the period. Prices of all kinds—wage rates, wholesale prices, retail prices, public utility rates, and others—showed great disparity in their behavior. Epstein, who made a study of the wholesale prices of 367 commodities from 1939 to August, 1946, found that the simple average increase in these prices was 53 percent, but that the individual prices moved by widely varying amounts; this is shown in Table 67. At one extreme, a few prices actually declined in the face of inflationary pressures; at the other extreme, some prices rose by more than 250 percent.

TABLE 67. Movements of 367 Wholesale Prices, 1939–August, 1946[12]

Percent of Price Change		Number of Items
Decline	0– 10	11
No change		18
Increase	0– 24.99	122
	25– 49.99	93
	50– 74.99	42
	75– 99.99	19
	100–124.99	20
	125–149.99	7
	150–174.99	17
	175–199.99	9
	200–224.99	4
	225–249.99	1
	Over 250	4
		367

A CRITICISM OF THE QUANTITY THEORY OF THE TRANSACTIONS TYPE

One of the principal criticisms that has been directed against the quantity theory of the transactions type is that the price level (P) to which it leads is so comprehensive as to be only a "hodgepodge" and to lack significance. There can be no question as to the inclusiveness of P. It includes the prices of everything included in T, which covers everything sold for money—old and new goods of every type, services of all kinds, including labor, and securities of every descrip-

[12] R. C. Epstein, "Price Dispersion and Aggregative Analysis," *American Economic Review*, June, 1947, pp. 402–407.

tion. It is difficult to conceive of any problem for whose solution a price index that averages wages and the prices of all goods and financial instruments would be the most useful. For analytical purposes the superiority of index numbers that are somewhat less inclusive and more homogeneous in content must be conceded.

Nevertheless, the shortcomings of P as an index number must not be allowed to reflect unfavorably upon the usefulness and validity of the transactions type of quantity theory as a means of explaining the purchasing power of money for any broad category of things. M, V, and T must be considered in any adequate explanation of the movements of any index number, even one that is far less inclusive than P. For example, if it is desired to explain the movements of only the prices of currently produced goods and services, consideration must be given to the other components of T, for an increase of the trade in securities or in previously produced durable goods may absorb expenditures and diminish them for current output. Or a decline in the trade in securities and previously produced goods may release expenditures for current output. In a very real sense every article entering into trade is a competitor for expenditures, and the price level of any large class of articles cannot be explained if any of the competing demands for expenditures is ignored.[13]

Fortunately, the quantity theory can be rescued from this criticism by breaking down the price level, P, into its component parts. The equation of exchange, which has been written as $MV = PT$, may also be expressed as $MV = p_1t_1 + p_2t_2 + p_3t_3 + \ldots p_nt_n$. In this equation, t_1 is the physical volume of trade in a selected class of goods, services, or securities, and p_1 is the price level of this class of things. t_2 is the physical volume of trade in a second class of things, and p_2 is the price level of these things. And so on, until T is divided into as many classes as desired, each with its own price level. By this process P is resolved into the less inclusive indexes of which it is an average. For example, subsidiary price indexes can be constructed for consumers' goods currently produced, producers' goods currently

[13] For an excellent evaluation of the contention that the transactions type of quantity theory should be discarded because it leads to a "hodgepodge" price level, see A. W. Marget, *The Theory of Prices*, Prentice-Hall, New York, 1938, vol. i, pp. 484–600.

produced, wage rates, rentals, common stocks, and so on. As to the usefulness of these indexes there can be no question.

THE QUANTITY THEORY APPROACH APPLIED TO THE VOLUME AND PRICE LEVEL OF CURRENT OUTPUT

It is convenient at this point to note briefly another type of the quantity theory that is similar in form but somewhat narrower in its coverage than the transactions type just discussed. This might be called the income type of quantity theory, for it is concerned primarily with the interrelationships of money and the volume and prices of finished goods currently produced. Those who utilize this approach claim superiority for it on the ground that it deals with the key spendings and prices in the economic system—the spendings for and prices of finished current output. If the effective money demand for current output is sufficiently high relative to cost schedules, prosperity will obtain. But if this effective money demand is too low relative to cost schedules, economic stagnation will occur.

This form of the quantity theory will be presented only briefly, partly because of its logical similarity to the type already discussed at length, and partly because the factors with which it deals will be studied in detail in a later chapter that presents the income and expenditure approach.

This type of quantity theory also employs a truism and an equation of exchange. The truism is that the market value of current output sold for money during any period is equal to the total value of the money paid for that output. On closer examination, however, we find (1) that the flow of money expenditures for current output is equal to the money supply multiplied by the average number of times each dollar is spent for current output during the period, and (2) that the market value of output is equal to the number of physical units of output multiplied by the average price per unit. This may be stated in the form of an equation of exchange:

$$MV_i = Op,$$

where M = the average amount of money in circulation during the period.

V_t = the income velocity of money, the average number of times each unit of M is spent for output during the period. (Because it includes only expenditures for output and excludes expenditures of M for other things, V_t must for any period be smaller than V.)

O = the physical output sold for money during the period. It is made up of (1) consumers' goods and (2) producers' goods.

p = average price per unit of O sold for money during the period.

Total spendings for output during any period are equal to MV_t. Since Op must equal MV_t, any change in MV_t must be reflected in changes in O or in p, or both. The result of a change in MV_t therefore depends on the relative responsiveness of O and p.

This form of the theory, like the one already discussed, is enlightening only if we analyze the factors behind the members of the equation of exchange. The determinants of M have already been analyzed. The determinants of V_t are in general the same as those of V; they include everything that influences the public's decisions as to the length of time it will hold money before passing it along as spendings for the current output of consumption and investment goods and services. Among these determinants of the decisions of individuals and business firms regarding the amount of money they consider it most advantageous to hold relative to their expenditures for output are the state of development of financial institutions, the system of payments used by the community, and expectations concerning the future course of money incomes, prices of goods and services, interest rates, security prices, and the profitability of new investment. All of these are, of course, subject to change and they can bring about changes in V_t.

Thus MV_t is the rate of spendings for output, or the effective money demand for output. We shall later call it "gross national product," or the market value of output. The effects on O and p when MV_t changes will depend on various conditions at the time of the change. Let us look first at increases in MV_t. If these expenditures rise at a time of widespread unemployment and underutilization of

productive facilities, the principal initial effect may be to increase O and to raise p only a little. Under these conditions producers may be able to expand output markedly with but little increase in marginal costs. But if MV_i continues to expand as the actual rate of production approaches capacity, an increasing part of the rise will be reflected in p and a decreasing part in an expansion of O. A further rise of MV_i after capacity levels of output have been achieved can result only in pure price inflation. On the other hand, a decline of MV_i, which will appear to producers as a decrease in the demand for their products, is likely to be accompanied by decreases of both O and p.

This brief discussion should bring out the logic of the income type of quantity theory. The phenomena with which it deals will be discussed at greater length in later chapters on the income and expenditure types of quantity theory. There we shall analyze expenditures for output, which we shall call gross national product, in terms of consumption and investment spendings. However, it will be useful to remember that we can also analyze these expenditures in terms of the size of the money supply (M) and the income velocity of this money (V_i).

SELECTED READINGS

American Economic Association, *Readings in Monetary Theory*, Blakiston, Philadelphia, 1951.

Bresciani-Turroni, C., *The Economics of Inflation*, Allen, London, 1937.

Fisher, I., *The Purchasing Power of Money*, Macmillan, New York, 1926.

Graham, F. D., *Exchange Prices and Production in Hyperinflation: Germany, 1920–1923*, Princeton University Press, Princeton, 1930.

Hansen, A. H., *Monetary Theory and Fiscal Policy*, McGraw-Hill, New York, 1949.

Kemmerer, E. W., *Money*, Macmillan, New York, 1935; especially chaps. 10–13.

Means, G. C., *Industrial Prices and Their Relative Inflexibility*, Government Printing Office, Washington, 1935.

Mills, F. C., *Prices in Recession and Recovery*, National Bureau of Economic Research, New York, 1936.

Tucker, R. S., "The Reasons for Price Rigidity," *American Economic Review*, March, 1938.

CHAPTER 25

The Cash-Balance Type of Quantity Theory

INTRODUCTION

The transactions type of quantity theory described in Chapters 23 and 24 has enjoyed its greatest popularity in the United States, though it originated abroad and still has many adherents there. In Europe, however, and particularly in England, many economists prefer to use what is often called "the cash-balance type of quantity theory." It must be emphasized that there is no fundamental conflict between these two types. Outstanding proponents of each have insisted that both the theories themselves and the equations by which they are expressed are interchangeable. Differences of opinion arise only as to the relative fruitfulness of the two types of analysis. Advocates of the cash-balance approach claim superiority for it on two counts: (1) It is stated in terms of supply and demand, thereby facilitating the integration of monetary theory with general value theory. (2) It more clearly relates the process of determining the value of money with the subjective valuations of individuals, which are the motivating force behind all economic activity.

ESSENTIALS OF THE CASH-BALANCE APPROACH

According to the cash-balance type of analysis, the value of money, or its reciprocal—the price level—depends upon the supply of money and the demand for it. Both "demand" and "supply" are here em-

ployed in the usual sense of demand and supply schedules—the amounts of money that will be supplied and the amounts that will be demanded for holding by the public at various price levels. The height of prices at any time is fixed at the level that just equates the amount of money that the public is willing to hold with the amount of the money supply. Variations of price levels through time arise from changes in the supply schedule of money, or in the demand schedule for money, or both. Price levels will rise—the value of money will fall—if the supply of money is increased without an offsetting rise in the demand schedule for money, or if the demand for money rises without an offsetting increase in the supply of it. This is merely a bare outline of the cash balance type of theory. To clothe it with meaning we must analyze the supply of money and the demand for it. For this purpose we shall use both a monetary equation and graphic exposition.

THE CASH-BALANCE EQUATION

Advocates of the cash-balance approach employ several equations, of which the following seems most useful:[1]

$$M = KTP,$$

where M = the supply of money.

T = the physical volume of trade to be effected with money during a year.

K = the length of the period (expressed as a fraction of a year) over whose transactions the public holds purchasing power in the form of money.

P = the price level of the things included in T.

We have already discussed both the composition and the determinants of the money supply, M. Here, however, we state M as a supply schedule of money, the amounts of M that will be available at various levels of P.

The right side of the equation, KTP, shows the amounts of money that will be demanded for holding at any particular time at various levels of prices. We shall assume that what the members of the com-

[1] Cf. D. H. Robertson, *Money*, Harcourt, Brace, New York, 1929, p. 125.

munity demand for holding is not primarily a number of monetary units but rather a quantity of real purchasing power in the form of money. They elect to hold in the form of money sufficient purchasing power to pay for the things they will buy during some period of time —a week, a month, two months, as the case may be. The total amount of real purchasing power that they demand in the form of money therefore varies with T and K. The larger the physical volume of trade, the larger is likely to be the demand for money. A community whose trade is large is likely to insist on holding a greater volume of real purchasing power in the form of money than one whose trade is smaller. But the demand for money does not depend solely on the physical volume of trade; it also depends on the length of the period over whose transactions the community elects to hold purchasing power in the form of money. With a given physical volume of trade the demand for money to hold will be greater if the community elects to hold enough money to cover its purchases for two months than if it chooses to hold only enough money to cover its purchases for one month. The length of this period can be expressed as a fraction of a year. If the period is one month, the fraction K is $\frac{1}{12}$; if two months, K is $\frac{1}{6}$, and so on.

K is obviously closely related to the velocity of circulation of money. For example, if the community chooses to hold an amount of money equal to $\frac{1}{6}$ of its expenditures for a year, the annual rate of expenditures will be equal to 6 times the money supply; V will be at the rate of 6 per year. If the community elects to hold an amount of money equal to $\frac{1}{2}$ of its annual expenditures, the annual rate of expenditures will be 2 times the money supply; V will then be 2. Thus K and V are reciprocals of each other; $K = \frac{1}{V}$. Because of this fact the cash balance equation, $M = KTP$, can be rewritten as $M = \frac{1}{V}(TP)$, or $MV = TP$. This is the equation we used in discussing the transactions type of quantity theory.

Since K and V are reciprocals and are really the same thing regarded from different points of view, they are determined by the same factors. These were discussed in some detail in Chapter 23 and

need only be outlined here.[2] The members of the community attempt to adjust their money holdings relative to their expenditures at the level they believe to be most advantageous, taking into consideration both the advantages of holding money and the costs and other disadvantages of doing so. But how high this most advantageous level of money holdings will be depends on many factors. K is likely to be smallest under the following conditions: (1) when the credit and financial system is highly developed and widely used, so that loans can be granted and acquired quickly and at small expense, claims against financial institutions are considered relatively safe and liquid, and savers can withdraw their money quickly and cheaply. Under these conditions people will tend to hold earning assets rather than money as a store of value. (2) When the system of payments is such that income receipts are frequent and regular and the time of receiving and disbursing money is closely coördinated. (3) When people anticipate that their incomes will continue to be regular and perhaps will increase, that prices of goods and securities are not likely to fall but may rise, that the risks of holding other assets are low, and that interest rates will be at least adequate to cover the risk and inconvenience of holding nonmonetary assets but are not likely to rise in the near future. On the other hand, K is likely to be larger if one or more of these conditions is reversed. For example, K is likely to be increased if interest rates and other rewards for holding nonmonetary assets fall to a very low level and if people come to fear that their incomes will decline, that prices of goods and securities will decrease, and that the risks involved in holding nonmonetary assets will increase.

Let us now summarize our findings relative to the demand for money to hold. We have found that what the community demands is not primarily a fixed number of monetary units but rather an amount of real purchasing power in the form of money. This may be expressed as KT, where T is the physical volume of the things that are to be purchased with money during a year and K is the fraction of the year over whose purchases the community holds purchasing power in the form of money. For example, if $K = \frac{1}{6}$, the demand

[2] Cf. especially pp. 509–515.

for money in real terms is equal to ⅙ of the real goods and services to be purchased with money during the year. It is evident, however, that the amount of money the community will have to hold to represent this real purchasing power will vary directly with the height of prices. This is shown by the demand schedule for money, which is labeled *DD* in Fig. 16.

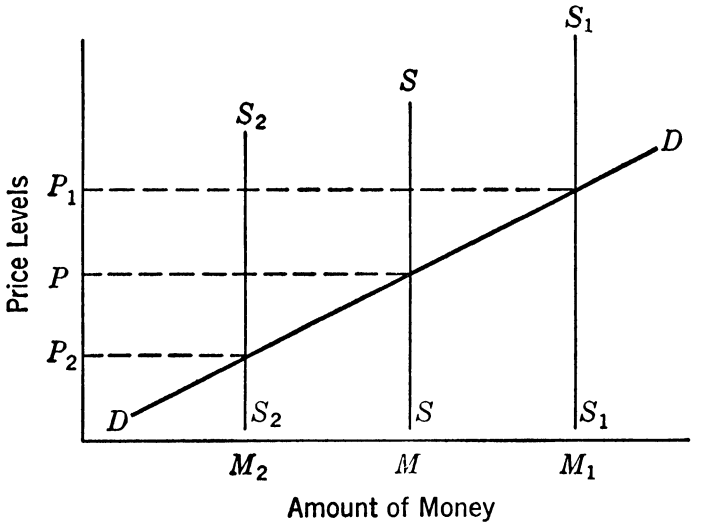


FIG. 16. Supply of and Demand for Money.

With any given pair of demand and supply schedules for money, the price level will be fixed at the level which just equates the amount of money demanded for holding with the supply of money available for holding. This supply schedule is labeled *SS* in Fig. 16. Any higher price level would be one of disequilibrium, for at these higher prices —or a lower purchasing power for each monetary unit—the available money supply would contain less total purchasing power than the community demands for holding. In the figure this is indicated by the fact that at any price level above *P* the community would demand to hold money in amounts greater than the available supply. Those whose money balances were below the amount they wish to hold would attempt to increase them by decreasing their rate of expend-

itures or by offering more goods and securities for money, or both. This would continue until prices had fallen enough to bring the total purchasing power of the available money supply up to the level demanded by the community.

On the other hand, any price level below P would be one of disequilibrium so long as these demand and supply curves remained constant. At these lower price levels, the supply of money would exceed the demand for it, because its total purchasing power would be greater than the community wishes to hold. Those whose holdings of money were "too great" would attempt to remedy the situation by increasing their expenditures or by decreasing their offerings of goods and services for money, or both. This would continue until prices had risen enough to lower the total purchasing power of the available money supply (SS) to the level demanded by the community.

It should be evident that if the demand schedule for money to hold (DD) remains constant, a change in the supply of money will bring about a proportional change in price levels. Suppose, for example, that the supply of money rises from SS to S_1S_1. The new equilibrium of prices will be P_1. At any lower price level the total purchasing power of the increased money supply would be greater than the amount the community wishes to hold; the supply of money would exceed the demand for it. The people would attempt to adjust their money balances to the desired level by increasing their expenditures or by decreasing their offerings of goods and services for money, or both. This would continue until prices had been bid up enough to lower the total purchasing power of the money supply to the level demanded by the community.

On the other hand, a decrease in the money supply while the demand schedule for money remains constant will lower the price level proportionally. Suppose, for example, that the money supply declines from SS to S_2S_2. The new equilibrium price level will be P_2. At any level of prices above P_2 the total purchasing power of the decreased money supply would be less than the community demands for holding; the demand for money would exceed the supply of it. The adjustment would be made by the decline in prices as the people attempt to raise their money balances by decreasing their expenditures

or by increasing their offerings of other things for money, or both.

The above sections have brought out the fact that changes in the money supply will produce proportional changes in price levels *if the demand schedule for money remains constant.* But it must be recognized that changes in the demand schedules for money can bring about changes in price levels even if the money supply remains constant. Fig. 17 shows shifts in the demand schedules. Suppose that

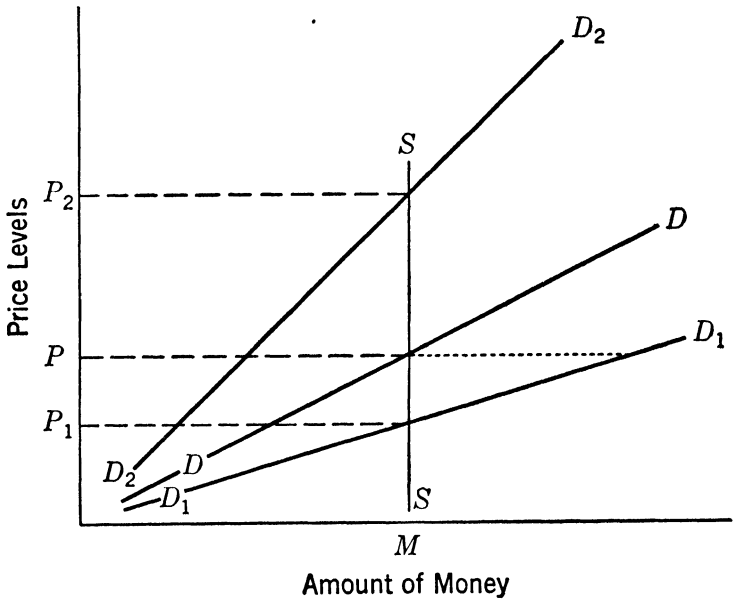


FIG. 17. Shifts in Demand for Money.

the initial situation is represented by supply curve SS and demand curve DD, so that the price level is P, the amount of money supplied and demanded is M, and the total real purchasing power of the money supply is indicated by $\frac{M}{P}$. A shift of the demand curve from DD to D_1D_1 is an increase in the demand for money; it indicates that people want to hold more purchasing power in the form of money. Or, what is the same thing, they demand to hold more money at each price level, so that $\frac{M}{P}$ is greater. This increase in the

demand for money to hold may be due to a number of factors. It may reflect an increase in the physical volume of trade (T). With greater real transactions, people may find it advantageous to hold a greater volume of real purchasing power in the form of money. Or the rise may reflect an increase in K—a desire to hold more money relative to real transactions. This, in turn, may reflect a change in expectations, such as a new belief that prices are less likely to rise and more likely to fall, that the risk of holding other assets is becoming greater, and that the returns on nonmonetary assets are not sufficient to cover the risks and inconveniences involved in holding them. But whatever its cause, an increase in the demand for money to D_1D_1 will lower prices from P to P_1 if the money supply remains constant. At any level of prices above P_1 the total purchasing power of the money supply will be less than the amount demanded; the demand for money will exceed its supply. The decline in prices occurs as people decrease their expenditures or increase their offerings of other things for money in an attempt to enlarge their money balances.

A shift in the demand schedule from DD to D_2D_2 is a decrease in the demand for money. It indicates that people demand to hold less money at each price level, so that the amount of real purchasing power demanded in the form of money, $\frac{M}{P}$, is smaller. Such a decrease in the demand for money balances could come from a decrease in the physical volume of trade (T), or a decrease in K, or a combination of the two. K might be decreased by such things as a new belief that incomes will rise, that prices are less likely to decline and more likely to increase, that the risks of holding other assets have decreased, and so on. But whatever the cause of the decrease in the demand for money, the shift to D_2D_2 will raise price levels to P_2 if the supply of money remains constant. At any level of prices below P_2 the total purchasing power of the money supply will exceed the amount demanded by the community; the supply of money will exceed the demand for it. The rise in price levels will occur as people try to get rid of their "excess balances" by increasing their expenditures or by decreasing their offerings of other things for money, or both.

Thus we find that the demand for money to hold is an important determinant of price levels, that a decrease in this demand tends to raise price levels, and that an increase in this demand tends to lower price levels. Even in ordinary business cycles the behavior of spendings and prices is greatly affected by changes in the demand for money to hold. In boom periods this demand often declines despite increases in T because of greater optimism as to the future course of money incomes, prices of goods and securities, and risks. And in depressions the demand for money balances often increases despite the fall in T because of greater doubts as to the wisdom of parting with money and holding other things as a store of value. In extreme inflations, when almost anything is considered a better store of value than money, the demand for money to hold may decline to a very low level; $\frac{M}{P}$ may be extremely small.

INTERACTIONS OF THE SUPPLY OF AND DEMAND FOR MONEY

The preceding sections have dealt with several cases: (1) the determination of price levels with constant demand and supply schedules for money, (2) the effects of changes in the supply schedule for money with the demand schedule remaining unchanged, and (3) the effects of changes in the demand schedules for money with the supply schedule remaining unchanged. These discussions were useful in emphasizing that both the supply of and the demand for money are variables and that changes in either can bring about changes in price levels. In many if not most periods both supply and demand schedules for money shift so that the actual behavior of prices is a resultant of the two.

Moreover, to make the matter more complex, a shift in one of these schedules often brings about a shift in the other. It is not safe to assume in this case that the supply and demand schedules are determined independently of each other. For example, monetary policies that shift the supply schedule for money may also, directly or indirectly, shift the demand schedule. Suppose that the monetary

authority initiates an easy-money policy which succeeds in increasing the money supply. This may affect the demand for money in several ways, and it is difficult to forecast what the net effects will be. (1) In the first instance, it is likely to lower interest rates. With this decreased reward for holding nonmonetary assets, K may tend to increase. People may elect to hold more money relative to their expend itures. However, the effect on K will depend to some extent on expectations regarding the future behavior of interest rates. If people expect these rates to continue at the new low level or to decline even further, K may rise little if at all. But if they believe that these rates are only temporary and will soon rise, K may increase markedly. (2) The easy-money policy may bring about important changes in the community's expectations. If it dispels gloom and ushers in expectations of higher money incomes, rising prices for goods and securities, and lower risks in holding nonmonetary assets, it may decrease K; people will consider it advantageous to hold less money relative to their expenditures. If, however, the easy-money policy fails to induce more favorable expectations this effect on K may be small. We find, therefore, that the net effect on K is difficult to forecast. (3) The policy may induce an increase in the physical volume of trade, T. This increase may be small if the economy is already operating at near-capacity levels. But if there is a large amount of unused capacity the decline in interest rates, the increased availability of money for investment spending, and the improvement of expectations may induce an increase in investment and perhaps consumption, an increase in real output, and an increase in T. This will tend to increase the demand schedule for money, though it may be offset or more than offset by a decrease in K.

In short, an expansionary monetary policy is likely to shift the demand for money, though the extent and even the direction of the shift are difficult to forecast. To the extent that it induces an increase in T it will tend to raise the demand for money. It may actually increase K if it lowers interest rates and does not succeed in raising expectations as to the future course of money incomes, price levels, and risk. But it may lower K if it improves expectations significantly. In some cases highly expansionary policies which assured large increases

in the money supply have reduced K to very low levels, thereby greatly decreasing the demand for money. In these cases the rise of price levels was much more than proportional to the increase in the money supply.

In a similar way, a decrease in the supply of money is likely to shift the demand schedule for money. The net effect on the demand for money will depend on the relative changes in T and K. And the behavior of K will depend on the many factors discussed earlier—such things as the effects on interest rates, expectations as to the future course of money incomes, price levels, risks, and so on.

SUMMARY

The cash-balance type of quantity theory attempts to explain the determination of price levels, or their reciprocal—the value of money—by means of supply and demand analysis. It points out that the price level at any time tends toward the point that equalizes the demand for and the supply of money. Changes in price levels are the results of changes in the supply schedule of money or the demand schedule, or both. In practice, however, the causation is often complex, for the demand for and supply of money are not completely independent of each other and a shift in one may induce shifts in the other. This is a fact of importance for monetary policy. For example, an increase in the money supply may induce a decrease in the demand for money to hold, which would magnify the expansionary effect. Or it may cause an increase in the demand which would at least partially offset the expansionary effect of the increased money supply.

SELECTED READINGS

American Economic Society, *Readings in Monetary Theory*, Blakiston, Philadelphia, 1951.

Hansen, A. H., *Monetary Theory and Fiscal Policy*, McGraw-Hill, New York, 1949.

Keynes, J. M., *Monetary Reform*, Harcourt, Brace, New York, 1924.

Keynes, J. M., *A Treatise on Money*, Macmillan, London, 1930, vol. i.

Marget, A. W., *The Theory of Prices*, Prentice-Hall, New York, 1938, vol. i.

Marshall, A., *Money, Credit, and Commerce*, Macmillan, London, 1923.

Pigou, A. C., "The Value of Money," *Quarterly Journal of Economics*, November, 1917, pp. 38–65.

Robertson, D. H., *Money*, Harcourt, Brace, New York, 1929.

CHAPTER 26

The Income and Expenditure Types of Monetary Theory

The outstanding event in the history of monetary theory since World War I, and especially since the onset of the great depression in 1929, is the rapid rise of the income and expenditure approach as a method of analyzing the interrelationships among money, national money income, price levels, real output, and employment. Previously, this type of monetary theory was largely eclipsed by other approaches, particularly by the various forms of the quantity theory. But the writings of such outstanding economists as Wicksell, Keynes, Robertson, Aftalion, Schumpeter, Hawtrey, and many others have developed it to such an extent that it now enjoys a dominant position in monetary analysis. Especially since 1936, when Keynes' *General Theory of Employment, Interest and Money* first appeared, it has crowded other types of analysis into the background, and its terminology—if not its rigorous analysis—has come to be widely used by government officials, journalists, and others.

The income and expenditure types of theory do not necessarily conflict with the quantity theories that we have already studied. The same basic factors can be fitted into either type. The great popularity of the income and expenditure types is traceable largely to two related facts. (1) They are stated in terms of such basic economic operations as producing goods, receiving and disposing of incomes, spending for consumption, spending for investment, and saving. They can

therefore be closely related to these human decisions and actions. (2) Their purpose is far broader than merely explaining the behavior of price levels; it is to explain the behavior of income, output, employment, and price levels and to show the relationships among all these phenomena. Because of their broad scope, these types of theories help to integrate monetary theory with business cycle theory and general economic theory.

ORIGIN OF THE INCOME AND EXPENDITURE APPROACH

Though the income and expenditure approach attained its dominant position in monetary theory only recently, its roots go back at least as far as the eighteenth century. It grew out of and was kept alive by one of the most heated and prolonged controversies in the entire field of economics: "Does a capitalistic economy operating under a monetary system generate sufficient money incomes to take off the market at remunerative prices all the goods that it is capable of producing? Or is there a deficiency of purchasing power that leads to underemployment of labor, capital, and natural resources, with the result that production is not allowed to reach and continue at capacity levels? And even if the economic system does generate sufficient money incomes to purchase its capacity output at remunerative prices, do those money incomes always reappear as effective demand in the market?" A brief examination of the issues and arguments involved in this long-continuing controversy will help to explain the origin and nature of the present income and expenditure approach to monetary theory.

Opinion as to the sufficiency or deficiency of purchasing power has been divided into two broad groups. One included the classical economists who until recently dominated western economic thinking and who tended to deny the possibility of a deficiency of purchasing power. The other group, the dissenters, have often disagreed on other matters but have had one contention in common: that under the capitalistic system money expenditures can be so deficient as to bring about unemployment and prevent the economic system from operating at its maximum capacity. They disagree, however, regarding

the frequency and seriousness of this alleged deficiency. Some of the milder dissenters point out that purchasing power can be deficient, as is shown by the occurrence of periods of recession and depression; but they admit that it can also be sufficient, as is indicated by the recurrence of prosperity. The more extreme members of the group insist that the deficiency tends to be chronic, that there is a persistent tendency toward "general overproduction," "a glut in the market," or "underconsumption." The depressing effect of this tendency is obvious to everyone in periods of cyclical depression; what is not so obvious, they contend, is that even in so-called prosperity periods the insufficiency of purchasing power prevents production from reaching the very high levels that specialization, the accumulation of capital, and the advance of technical knowledge have made possible.

The dissenters have advanced various explanations of this alleged tendency toward general overproduction or deficiency of aggregate demand. Some have suggested that it is traceable to the tendency in a progressive economy for total productive ability to advance more rapidly than money expenditures for output; this leads to falling prices and decreased profitability of production, and thence to unemployment. A large majority, however, have attributed the alleged deficiency of aggregate demand to the act of saving, though they differ again as to the way in which saving renders total demand deficient. Some have assumed simply that savings are hoarded, so this part of the community's income does not return to the market as effective demand. Others have advanced the more elaborate argument that the act of saving tends to bring about general overproduction because of its double-edged effect of diminishing the demand for consumption goods at the very time that it is increasing the ability of the economy to turn out these goods. But most of the dissenters have agreed that the deficiency of total demand due to saving was at least aggravated and was probably caused by the prevailing inequalities in the distribution of wealth and income.

In contrast to the dissenters, with their pessimistic view that there is a tendency toward a deficiency of purchasing power and that this constitutes a "fundamental flaw in the price system," some classical economists have declared optimistically that general overproduction

or a "general glut of the market" is impossible. The term "general overproduction" has been used in several senses, however. It was employed by some to denote excessive production relative to the desires of people for economic goods in general. The classical economists rightly denied that general overproduction in this sense has ever existed. They often quoted with approval Adam Smith's statement, "The desire for food is limited in every man by the narrow capacity of the human stomach, but the desire of the conveniences and ornaments of building, dress, equipage, and household furniture, seems to have no limit or certain boundary."[1]

That there has never yet existed an economic system capable of turning out more economic goods than people desire is unquestionably true. Yet the central question at issue here is not whether total production has ever been excessive relative to human desires for goods; it is, instead, whether total production has tended to be so large relative to the effective demand in the market that enterprisers find it unprofitable to employ fully all the available factors of production and to expand output to capacity levels. The classical economists have also denied that general overproduction in this sense could exist. They admitted readily that overproduction of a particular commodity or even a group of commodities could easily occur as conditions of supply and demand shifted, but they asserted that overproduction of some goods was balanced by underproduction of others, so that only misdirected or badly apportioned production, not general overproduction, resulted. Speaking in terms of barter, they pointed out that since labor is distasteful and will be performed only for a material reward, people produce goods only for the purpose of consuming them or of using them for the purchase of other goods; therefore, the supply of goods constitutes the demand for goods, and any increase in total supply is, when viewed from the reverse side, an equivalent increase in total demand. To assume that people would labor to produce goods that they wished neither to consume nor to trade for other goods was, in their view, patently absurd. But though their analysis was often couched in terms of barter, they held that the use of money as an intermediary in trade did not in any way weaken their argument,

[1] Quoted by David Ricardo in *Political Economy and Taxation*, chap. 31.

for trade is essentially barter, even in a money economy. Goods are sold for money, which in turn is used to purchase other goods. As J. B. Say put it,

> . . . a product is no sooner created, than it, from that instant, affords a market for other products to the full extent of its own value. When the producer has put the finishing hand to his product, he is most anxious to sell it immediately, lest its value should vanish in his hands. Nor is he less anxious to dispose of the money he may get for it; for the value of money is also perishable. But the only way of getting rid of money is in the purchase of some product or other. Thus, the mere circumstance of the creation of one product immediately opens a vent for other products.[2]

Similar statements are easy to find in the writings of other classical economists.[3]

To support their contention that demand cannot be deficient, the classical theorists had to show that none of the phenomena suggested by the dissenters could lead to a deficiency. Hoarding money received for goods was often ruled out by assumption; as we have seen, Say contended that the seller of a good is anxious to dispose of the money he may get for it; for the money is also perishable. How the seller would behave if he expected money not only to maintain its value but to appreciate was not explained. Others who recognized that hoarding does sometimes occur held that this would not reduce "purchasing power," for prices—and presumably costs—would fall enough to allow the entire capacity output to be purchased with the remaining money expenditures. Nor could saving lead to a deficiency of purchasing power; to save is not, they contended, to hoard money or to reduce total demand for output; to save is merely to allow part of one's income to be used in purchasing capital goods rather than consumption goods. This contention that an act of saving is always and necessarily coupled with a corresponding expenditure for new capital goods will be scrutinized later. They also denied any tendency

[2] *A Treatise on Political Economy*, 4th ed., translated from the French by C. R. Prinsep, Philadelphia, 1830, chap. 15, "Of the Vent or Demand for Products."

[3] For a description and criticism of the classical approach to this problem, see P. W. Martin, *The Problem of Maintaining Purchasing Power*, King, London, 1931, chap. 1.

for a deficiency of purchasing power to arise from a more rapid increase in production than in money demand. Differing lines of reasoning underlay this denial. Some maintained that whenever increased money expenditures were needed they would be forthcoming. In this vein Say wrote,

> There is always money enough to conduct the circulation and mutual interchange of other values, when those values really exist. Should the increase of traffic require more money to facilitate it, the want is easily supplied, and is a strong indication of prosperity—a proof that a great abundance of values has been created, which it is wished to exchange for other values. In such cases, merchants know well enough how to find substitutes for the product serving as the medium of exchange or money . . . by bills at sight or after date, bank-notes, running-credits, write-offs, etc., as at London and Amsterdam.[4]

Others, though not sharing this optimism as to the automatic adjustment of the means of payment to the volume of production, nevertheless held that an increase in total production would not lead to a glut, because prices would be reduced sufficiently to permit all the greater quantity of goods to be taken from the market. It must be noted that this contention is valid only if costs can be lowered quickly enough and far enough to prevent any decrease in the profitability of business that would lead to unemployment.

Who is right in this controversy, the classical economists or the dissenters? Since we shall later discuss this question at length, only a few general observations need be made at this stage. No decisive victory can be awarded to either side, for serious errors have been made by both. The classical economists were undoubtedly too optimistic in denying the possibility of a deficiency of effective purchasing power; they applied an essentially long-run analysis to short-term phenomena; they assumed that saving always leads to an equivalent investment in new capital goods; and they overestimated the ease and speed with which money costs adjust themselves to a falling price level. But if they were too optimistic, the extreme dissenters, who denied that expenditures could ever be sufficient, were too pessimistic. Though the volume of money expenditures is frequently "deficient,"

[4] *A Treatise on Political Economy.*

it is also on occasion not only "adequate" but even "excessive." The classical economists, despite their errors, performed a useful service in pointing out that over a longer period of time there is a sort of central tendency for demand to be sufficient for the purchase of all the goods that the economic system is capable of supplying. If this were not true, it would not have been possible to find a market for the tremendous increase in output that has occurred since the beginning of the Industrial Revolution.

It is easy to see how the income and expenditure approach arose out of the controversy just described. To discover whether or not purchasing power could be deficient required an analysis of the nature and origin of income, the various ways in which income can be utilized and the effects of each method of utilization, the nature of the demand for output, and the relation between the size of this demand and the size of the social income. These are the materials out of which the income and expenditure approach is constructed.

With this background we can now proceed to develop one form of the income and expenditure type of theory. As a first step, the remainder of this chapter will present an outline of "national income accounting," whose purpose is not to analyze causal relations but to describe the components of national income. The following chapter will explore "national income analysis," whose purpose is to analyze and explain the behavior of national income and its components.

Though there are several different measures of "national income" we shall concentrate on the one popularly known as gross national product, or GNP. This measure is best suited to our purpose of tracing and analyzing the flow of money expenditures for output.[5]

GROSS NATIONAL PRODUCT

Gross national product or expenditure is the market value of the output of goods and services produced by a nation's economy during

[5] For excellent descriptions of GNP and other income concepts as well as a wealth of statistical materials relating to the behavior of GNP and its components since 1929, see U S. Department of Commerce, *National Income*, 1951. This is a supplement to the *Survey of Current Business*.

a stated period of time before deduction of depreciation charges and other allowances for business and institutional consumption of durable capital goods. GNP is usually stated at an annual rate. Two aspects of this definition should be noted. First, output is valued at its market prices; that is, it is valued at the prices paid for it. The behavior of GNP therefore reflects the behavior of both the rate of physical output and the prices of output. Second, GNP includes the entire output during a period once and only once. To do this would be easy if our entire economy were composed of only one great business firm which performed all the functions of production and marketing. We could then compute GNP by adding together the total market values (sales receipts) for which the firm sold its products and then adding to this the net change in business inventories, valuing this change at its cost. GNP for any period would be equal to the sales receipts of the one great firm plus any net increase in its inventories or minus any net reduction of its inventories during the period. However, we know that there are many firms in our economy and that interfirm transactions in the producing and selling processes are of tremendous volume. For example, automobile dealers buy new cars from manufacturers, who buy parts and materials from other firms, who buy components from still other firms, and so on. But GNP must include automobiles only at their final sales value. This final value covers the value of all the goods and services that contribute to bringing the automobiles to the point of final sale. GNP therefore includes the market value of all goods and services produced during a period, but it avoids counting any good or service more than once.

It is important to note that GNP may be viewed and measured in at least two principal ways: (1) as the market value of output or expenditures for output during a stated period, and (2) as the sum of the shares of gross income accruing to the members of a community during the period. We shall emphasize that the total of the gross income shares accruing to the community during any period must be exactly equal to the market value of output or expenditures for output during that period.

GNP AS EXPENDITURES FOR OUTPUT

As was said above, GNP is the market value of output or expenditures for output during a stated period. We might also call it the effective money demand for output or the money reward for output. This flow of expenditures is a key factor in the operation of the economy, for it is this effective money demand that greatly influences producers' decisions relative to output, employment, and prices.

From this point of view, GNP is composed of four main categories of expenditures for output: (1) personal consumption expenditures, (2) gross private domestic investment, (3) net foreign investment, and (4) government purchases of goods and services. GNP for any given period is therefore equal to the sum of these four types of expenditures and it varies with their total. This is shown in Table 68 on page 569.

Personal Consumption

Personal consumption expenditures should require but little explanation. They include consumer spendings for the current output of durable consumers' goods, such as automobiles, refrigerators, and house furnishings; for nondurable consumers' goods, such as food, clothing, and gasoline; and for consumers' services, such as personal transportation, amusement, medical care, barber and beauty services, domestic service, and so on.

Gross Private Domestic Investment

Gross private domestic investment includes all expenditures of individuals and business firms in this country for the current output of goods and services to be used for maintaining and building up the supply of capital goods. It includes spending for replacement as well as for making net additions to the nation's supply of privately owned capital goods. Gross private domestic investment is made up of three classes of expenditures for output: (1) new construction, both residential and nonresidential; (2) producers' durable equipment, such as machinery, fixtures, railroad rolling stock, etc.; and (3) changes in the size of business inventories. It should be clear why the first two

elements are included in the GNP. They are both expenditures for current output and they represent the market values of current output used for these purposes. The third, the net change in business inventories during the period, may require some clarification. In a sense it is a balancing item; the GNP for any period is equal to final sales of goods and services plus any net increase in business inventories during the period. National output exceeds final sales of goods and services during a period by the amount of it that is used to effect a net increase in business inventories; it is less than final sales to the extent that sales represent a net depletion of business inventories. But it would be a serious mistake to consider changes in business inventories as merely a passive balancing item, for business decisions concerning inventories can have important effects on general economic conditions, especially during short periods. When business firms elect to make net additions to their inventories either by purchasing raw materials or semifinished or finished goods from other firms or by hiring labor and other productive factors with which to produce the goods in their own plants, they make a net contribution to the GNP and to the amount of employment offered. Net increases in business inventories may thus cushion a recession or accentuate an expansion. But a net decrease in business inventories may accentuate a recession or damp an expansion, for it means that business firms are buying from other firms or producing in their own plants less than they are selling to final buyers.

Net Foreign Investment

Net foreign investment may be defined in several ways. It is the change during the stated period in net claims of the United States against foreigners, and this net change can occur in the form of changes in our monetary gold stock, our claims against foreigners, or foreign claims against us. Net increases in our monetary gold stock and other claims against foreigners and net decreases in foreign claims against us tend to make our net foreign investment positive, that is, to increase our net claims against foreigners. On the other hand, net decreases in our monetary gold stock and other claims against foreigners and net increases in foreign claims against us tend

to make our net foreign investment negative, that is, to decrease our net claims against foreigners. However, since we are here interested primarily in the flow of expenditures for the output of our economy it will be useful to define net foreign investment in two other ways. (1) It is the net value of our output used during a period to increase our net claims against foreigners. And (2) it is the net excess of foreign purchases of goods and services from us over our purchases of goods and services from other countries after allowing for any international gifts and grants during the period.[6] This definition will be useful later when we point out that net foreign investment is an offset to or an outlet for saving here—one way of preventing our saving from shrinking the flow of expenditures for our output. Our saving can be offset or returned to market as spending for output as foreigners make net purchases here by shipping gold to us, by selling us claims against themselves, or by reselling to us claims which they previously held against us.

Government Purchases of Goods and Services

Government purchases of goods and services during any period can be broken down into two principal classes: (1) expenditures for the products of business firms, and (2) direct expenditures for the services of productive factors, primarily for labor. We know that modern governments are great purchasers of the products of private industry. In wartime they may buy half or more of the output of business firms, and even in peacetime they buy large amounts of cement, sand, steel, motor vehicles, furniture, paper, transportation services, fuel, and a host of other articles. Business firms provide employment and produce in response to government expenditures just as they would if the demand emanated from private sources. In addition to its spendings for the output of business firms, the government

[6] For a further discussion of this concept, see *National Income*, p. 53. Here it is stated that net foreign investment "measures the excess of (1) domestic output sold abroad over purchases of foreign output, (2) production abroad credited to United States–owned resources over production at home credited to foreign-owned resources, and (3) cash gifts and contributions received from abroad over cash gifts and contributions to foreigners. The net transfer of cash gifts and contributions offsets corresponding entries in personal consumption expenditures and government purchases of goods and services."

spends large amounts directly for the services of productive factors, primarily labor. In performing its functions it uses manual, professional, and clerical labor in large amounts, paying out income in the form of salaries and wages. The values of these services are included in the GNP at their cost to the government.

Summary of GNP as Expenditures for Output

We find, then, that GNP for any period is the sum of expenditures for output in the form of personal consumption, gross private domes-

TABLE 68. Gross National Product as Expenditures for Output[7]
(In billions of dollars)

Year	GNP	Personal Consumption	Gross Private Domestic Investment	Net Foreign Investment	Government Purchases of Goods and Services
1929	$103.8	$ 78.8	$15.8	$ 0.8	$ 8.5
1930	90.9	70.8	10.2	0.7	9.2
1931	75.9	61.2	5.4	0.2	9.2
1932	58.3	49.2	0.9	0.2	8.0
1933	55.8	46.3	1.3	0.2	8.0
1934	64.9	51.9	2.8	0.4	9.8
1935	72.2	56.2	6.1	—	9.9
1936	82.5	62.5	8.3	—	11.7
1937	90.2	67.1	11.4	—	11.6
1938	84.7	64.5	6.3	1.1	12.8
1939	91.3	67.5	9.9	0.9	13.1
1940	101.4	72.1	13.9	1.5	13.9
1941	126.4	82.3	18.3	1.1	24.7
1942	161.6	91.2	10.9	−0.2	59.7
1943	194.3	102.2	5.7	−2.2	88.6
1944	213.6	111.6	7.7	−2.1	96.5
1945	215.2	123.1	10.7	−1.4	82.8
1946	211.1	146.9	28.7	4.6	30.9
1947	233.3	165.6	30.2	8.9	28.6
1948	259.0	177.9	42.7	1.9	36.6
1949	258.2	180.6	33.5	0.5	43.6
1950	284.2	194.3	50.3	−2.3	41.9
1951	329.2	208.0	58.5	0.2	62.6

tic investment, net foreign investment, and government purchases of goods and services. It therefore fluctuates with the sum of these four types of expenditures. For convenience we shall denote these expenditures by the following symbols:

[7] Source: *National Income*, Table 2, p. 150, and *Federal Reserve Bulletins*.

C = personal consumption.

I = total investment; this is the sum of gross private domestic investment and net foreign investment.

G = government purchases of goods and services.

Thus for any period GNP = $C + I + G$.

Table 68 shows the size and composition of GNP for each year from 1929 to 1951. Close study of this table brings out several important facts. (1) As already noted, GNP for any year is equal to the sum of the four classes of expenditures described above and it fluctuates with the total of these expenditures. (2) GNP has undergone extremely wide fluctuations since 1929. It declined about 46 percent from 1929 to 1933, rose 64 percent from 1933 to 1939, and then rose 210 percent from 1939 to 1950. In 1950 the rate of spending for output was 407 percent above the depressed level of 1933 and 172 percent above that of 1929.

Since GNP values output at current market prices it reflects the behavior of both the rate of real output and its price levels. Table 69 shows the behavior of real output and price levels as expenditures for output fluctuated. The 46 percent decline of expenditures for output between 1929 and 1933 was accompanied by declines of 28 percent in real output, 25 percent in the price level of output, 31 percent in wholesale prices, and 24 percent in the cost of living. Supplementary statistics would show that by 1933 about 25 percent of the entire labor force was unemployed and many other facilities were lying idle or being operated far below capacity levels.

Starting from this situation of widespread underemployment and underproduction, the 64 percent rise in expenditures between 1933 and 1939 was reflected largely in a rise in real production and to a lesser extent in price increases, real output rising 48 percent, the price level of output 10 percent, the cost of living 8 percent, and wholesale prices 18 percent. Even in 1939, however, output was still far below capacity levels; there were still about 10 million unemployed and other productive factors were being underutilized. Both because of the reëmployment of previously unused factors and because of growth in the capacity of our economy, the further 260 percent rise in expenditures between 1939 and 1951 was accompanied by a further

expansion of production as well as price increases. Real output rose 83 percent, the price level of output 97 percent, the cost of living 87 percent, and wholesale prices 129 percent. We get these results, however, only if we measure from 1939 to 1950. If we measure from a

TABLE 69. Gross National Product and Price Levels, 1929–1950[8]

Year	GNP in Current Dollars (Billions)	GNP in Dollars of Constant (1939) Purchasing Power (Billions)	Indexes 1939 = 100				
			GNP in Current Dollars	GNP in Constant Dollars	Price Level of Output	Cost of Living	Wholesale Prices
1929	$103.8	$ 85.9	114	94	121	123	124
1930	90.9	78.1	100	86	116	120	112
1931	75.9	72.3	83	79	105	109	95
1932	58.3	61.9	64	68	94	99	84
1933	55.8	61.5	61	67	91	93	85
1934	64.9	67.9	71	74	96	97	71
1935	72.2	73.9	79	81	98	99	104
1936	82.5	83.9	90	92	98	100	105
1937	90.2	87.9	99	96	103	104	112
1938	84.7	84.0	93	92	101	102	102
1939	91.3	91.3	100	100	100	100	100
1940	101.4	100.0	111	110	102	101	102
1941	126.4	115.5	138	127	110	106	113
1942	161.6	129.7	177	142	125	118	128
1943	194.3	145.7	213	160	133	125	138
1944	213.6	156.9	234	172	136	127	135
1945	215.2	153.4	236	168	140	129	137
1946	211.1	138.4	231	152	153	140	157
1947	233.3	138.6	256	152	169	160	197
1948	259.0	143.5	284	157	181	173	214
1949	257.3	143.5	282	157	179	171	201
1950	282.6	154.3	310	169	183	173	209
1951	329.2	167.3	360	183	197	187	229

time when full employment had already been achieved, or at least closely approached, we find that the further increase in expenditures was reflected largely in price inflation. For example, the 53 percent increase in expenditures between 1945 and 1951 brought forth only a 9 percent increase in real output, but it raised the price level

[8] The statistics for gross national product at constant prices and for the price level of output are from *National Income*, p. 146. The indexes of the cost of living and wholesale prices are those of the Bureau of Labor Statistics converted to a 1939 base.

of output 41 percent, the cost of living 45 percent, and wholesale prices 67 percent.

These statistics indicate the importance of the rate of expenditures for output as a determinant of the behavior of real output, employment, and price levels.

GNP AS GROSS NATIONAL INCOME

Up to this point we have viewed GNP as the market value of output or expenditures for output during a stated period. We shall now develop a point mentioned earlier—that GNP can also be viewed as the sum of the distributive shares of gross national income accruing to the various members of the community. A little reflection will indicate why this is true. Every dollar spent for output is received by someone as an "income receipt"; and the amount received as money income by the community as a whole cannot exceed the amount spent for output during the period. In short, the sum of gross income shares during a period is exactly equal to the spending for output during the period, and it fluctuates with the rate of expenditure for output.

This is shown in Table 70. For any period the sum of the distributive shares of gross national income indicated by the column heads is determined by and equal to total expenditures for output. Part of these expenditures accrues to the government as income in the form of indirect business taxes, by which we mean all business taxes except those on corporate net income. They include taxes on production and sales by business, license fees of business, taxes on business property, and so on. The remainder of GNP accrues to private business and individuals as gross money income before any taxes except indirect business taxes. One part of the expenditures for output accrues to business in the form of depreciation and other capital consumption allowances. This is not net income but it is part of gross national income, created by spendings for output. Another part accrues as compensation of employees, in the form of wages, salaries, commissions, and so on. Another part accrues as rental incomes of persons, and another is in the form of interest. All the re-

TABLE 70. Gross National Product as the Sum of Gross Income Shares, 1929–1950[9]
(In billions of dollars)

Year	Total GNP Equals Gross National Income	Indirect Business Taxes	Capital Consumption Allowances of Business	Compensation of Employees	Rental Income of Persons	Net Interest Income	Earnings of Unincorporated Business[a]	Corporate Profits[a]
1929	$103.8	$ 7.0	$ 8.8	$ 50.8	$5.8	$6.5	$13.9	$10.3
1930	90.9	7.2	8.7	46.5	4.8	6.2	11.0	6.6
1931	75.9	6.9	8.3	39.5	3.6	5.9	8.2	1.6
1932	58.3	6.8	7.7	30.9	2.5	5.4	4.9	−2.0
1933	55.8	7.1	7.2	29.3	2.0	5.0	5.2	−2.0
1934	64.9	7.8	7.2	34.1	2.1	4.8	6.6	1.1
1935	72.2	8.2	7.4	37.1	2.3	4.5	9.9	3.0
1936	82.5	8.7	7.6	42.7	2.7	4.5	9.9	4.9
1937	90.2	9.2	8.0	47.7	3.1	4.4	12.2	6.2
1938	84.7	9.2	8.0	44.7	3.3	4.3	10.8	4.3
1939	91.3	9.4	8.1	47.8	3.5	4.2	11.3	5.8
1940	101.4	10.0	8.4	51.8	3.6	4.1	12.7	9.2
1941	126.4	11.3	9.3	64.3	4.3	4.1	16.5	14.6
1942	161.6	11.8	10.0	84.9	5.4	3.9	23.0	19.9
1943	194.3	12.7	10.7	109.2	6.1	3.4	26.7	24.3
1944	213.7	14.1	11.9	121.2	6.5	3.1	29.0	24.0
1945	215.2	15.5	12.4	123.0	6.3	3.0	31.2	19.2
1946	211.1	17.3	12.2	117.1	6.6	2.9	35.4	18.3
1947	233.3	18.7	14.8	128.0	7.1	3.5	35.4	24.7
1948	259.0	20.4	17.6	140.2	7.5	4.3	39.8	31.7
1949	257.3	21.7	19.1	139.9	7.5	4.9	33.9	30.5
1950	282.6	23.8	21.2	153.3	8.0	5.4	36.0	36.2
1951	329.2	25.3	24.6	178.9	8.9	6.5	41.8	41.6

[a] After inventory valuation adjustment.

mainder accrues as profits of business enterprises—as earnings of unincorporated enterprises and as corporate profits.

The facts brought out in this section will be useful in our later analysis. Spending for output, and only spending for output, creates money income for the community as a whole. Hence an increase in the rate of expenditures for output creates larger money incomes for

[9] Computed from data in Tables 1 and 4 on pp. 150 and 151 of *National Income and Survey of Current Business*, July, 1952. For some years the components do not give exactly to the totals shown. This is due partly to rounding, partly to statistical discrepancies in the original data, and partly to the elimination of minor items under the headings of "government subsidies minus current surplus of government enterprises" and "business transfer payments."

the community as a whole. And a shrinkage in these expenditures correspondingly reduces money incomes for the community as a whole.

THE CIRCULAR FLOW AND THE DISPOSAL OF INCOME

Having looked at the composition of GNP both as expenditures for output and as the sum of the distributive shares of gross national income, we now consider the disposal of income and its relation to the circular flow of money income. The process of income creation and income use involves a circular flow. Expenditures for output create money income for recipients, who spend some or all of it for output, which creates money income shares, and so on. To understand this process we need to know what kinds of expenditures create money income receipts and also how these income receipts are "disposed of." We have already analyzed expenditures; what remains is to analyze the disposal of incomes.

For this purpose the classification of income shares used in Table 70 is not very useful. In the first place, it shows income shares by functional type rather than by type of recipient. And in the second place, it shows income shares before any taxes except indirect business taxes, and also before transfer payments. For our analysis of income disposal we shall divide income recipients into three classes—government, business, and persons—and consider their "disposable incomes," by which is meant the amount of money income left at their disposal after all taxes and all transfer payments.

As indicated in Table 71, the total disposable gross national income for any period must be exactly equal to GNP for that period. It is also equal to the sum of disposable government income, disposable business income, and disposable personal income. Let us look at each of these.

Disposable Government Income

As indicated above, disposable government income during a period is the amount of money income remaining at the disposal of the government after all taxes and transfer payments. It is total gov-

ernment revenues—which for the sake of simplicity we shall call taxes—minus government transfer payments to business and persons. By transfer payments we mean all government expenditures for which the government does not receive any goods or services in return. Their

TABLE 71. Disposable Gross National Income, 1929–1950[10]
(In billions of dollars)

Calendar Year	(1) Total Disposable Gross Income (Equals GNP)	(2) Disposable Income of Government	(3) Disposable Business Income	(4) Disposable Personal Income	Total Disposable Private Income (Col. 3 + Col. 4)
1929	$103.8	$ 9.6	$11.6	$ 82.5	$ 94.1
1930	90.9	9.0	8.6	73.7	82.3
1931	75.9	6.4	5.3	63.0	68.3
1932	58.3	6.4	2.7	47.8	50.5
1933	55.8	6.7	2.6	45.2	47.8
1934	64.9	7.5	4.9	51.6	56.5
1935	72.2	8.1	6.5	58.0	64.5
1936	82.5	8.8	6.6	66.1	72.7
1937	90.2	12.3	7.9	71.1	79.0
1938	84.7	11.3	8.0	65.5	73.5
1939	91.3	11.2	8.5	70.2	78.7
1940	101.4	13.4	10.5	75.7	86.2
1941	126.4	21.2	11.4	92.0	103.4
1942	161.6	28.6	13.8	116.7	130.5
1943	194.3	44.7	15.9	132.4	148.3
1944	213.6	45.2	17.5	147.0	164.5
1945	215.2	43.5	15.4	151.1	166.5
1946	211.1	35.5	14.8	158.9	173.7
1947	233.3	42.4	20.5	169.5	190.0
1948	259.0	44.8	28.4	188.4	216.8
1949	257.3	40.8	30.5	186.4	216.9
1950	282.6	50.5	29.0	204.3	233.3
1951	329.2	69.9	34.2	225.0	259.2

principal components are social security benefits, relief payments, bonuses and other benefits to veterans and their dependents, interest on the government debt, and subsidies. Column 3 of Table 72 shows the amounts of disposable government income for the period 1929–1950.

[10] Computed from various tables in *National Income* and *Survey of Current Business*, July, 1952. The careful reader will note that for some years the components do not give exactly the totals shown. This is partly because of rounding, but largely because of statistical discrepancies in the original data. See *ibid.*, Table 4 on p. 151.

This table also indicates that the amounts spent for goods and services by the government during any period need not be exactly equal to disposable government income during the period. In some periods, as in 1946, 1947, and 1948, its disposable income is greater

TABLE 72. Government Disposable Income, 1929–1950[11]
(In billions of dollars)

Calendar Year	(1) Total Government Receipts	(2) Transfer Payments	(3) Disposable Government Income	(4) Government Purchases of Goods and Services	(5) Government Surplus or Deficit (−)
1929	$11.3	$ 1.7	$ 9.6	$ 8.5	$ 1.1
1930	10.8	1.8	9.0	9.2	−0.3
1931	9.5	3.1	6.4	9.2	−2.8
1932	8.9	2.5	6.4	8.1	−1.7
1933	9.3	2.6	6.7	8.0	−1.3
1934	10.5	3.0	7.5	9.8	−2.4
1935	11.4	3.3	8.1	9.9	−1.8
1936	12.9	4.1	8.8	11.7	−2.9
1937	15.4	3.1	12.3	11.6	0.7
1938	15.0	3.7	11.3	12.8	−1.5
1939	15.4	4.7	11.2	13.1	−1.9
1940	17.8	4.4	13.4	13.9	−0.5
1941	25.2	4.0	21.2	24.7	−3.5
1942	32.9	4.3	28.6	59.7	−31.2
1943	49.5	4.8	44.7	88.6	−43.9
1944	51.8	6.6	45.2	96.5	−51.4
1945	53.7	10.2	43.5	82.8	−39.2
1946	51.7	16.2	35.5	30.9	4.6
1947	57.8	15.4	42.4	28.6	13.7
1948	59.8	15.0	44.8	36.6	8.2
1949	57.0	16.2	40.8	43.6	−2.8
1950	69.8	19.3	50.5	42.5	8.0
1951	86.8	16.9	69.9	62.6	7.3

than its current expenditures for goods and services. This excess of disposable income over current expenditures for goods and services we shall call the government's *surplus*. This surplus represents the part of the government's disposable income that it does not return to the market as spending for output during the period. A surplus there-

[11] Computed from tables in *ibid.* on pp. 152, 154, and 155 and *Survey of Current Business*, July, 1952. Transfer payments include all government expenditures except purchases of goods and services. Their principal components are social security benefits, direct relief, military benefits, interest on the government debt, and net subsidies to business.

fore tends to contract the circular flow of spendings. In other periods, however, the government spends for goods and services more than its current disposable income. This we shall call the government's deficit. This deficit measures the excess of the government's contribution to the money demand for output over its current disposable income.

For convenience we shall later denote disposable government income by the symbol T_n. This may be called "net taxes"—the net amount of taxes remaining at the disposal of the government after transfer payments.

Another point that will be of interest later is that total private disposable income during any period is equal to GNP minus the government's disposable income (T_n).

Disposable Business Income

Disposable business income is the amount of gross money income left at the disposal of business after all taxes and transfer payments. As shown in Table 73, disposable business income is made up of two parts: (1) capital consumption allowances, and (2) undistributed corporate profits, or the part of corporate net profits after taxes that is retained by corporations and not paid out to stockholders. As indicated earlier, part of expenditures for output accrue to business firms as depreciation and other allowances for the decline in value of durable capital goods during a period. This is not net income, but it is a share of gross national income and it remains at the disposal of business firms. Moreover, corporations often retain some part of their net profits after taxes; hence these sums remain at their disposal and are not paid into personal incomes. Table 73 indicates that undistributed corporate profits fluctuate widely. In periods of high business activity and high profits, corporations often retain a large part of their net earnings after profits. But in periods of low profits or of losses, corporations often pay out more than their current net earnings; their undistributed profits are negative.

Two further points about disposable business income are worthy of emphasis. (1) It may also be called gross business saving, and as such it is a major component of total gross private saving. It is the

part of private disposable income that is not spent for consumption but is "saved." To emphasize this aspect of disposable business income, we shall later denote it by the symbol S_b, gross business saving. (2) A decision of a business firm to save need not be accompanied by a decision to spend an equal amount for investment during the pe-

TABLE 73. Disposable Business Income, 1929–1950
(In billions of dollars)

Year	Total Disposable Business Income	Capital Consumption Allowances	Undistributed Corporate Profits[a]
1929	$11.6	$ 8.8	$ 2.8
1930	8.6	8.7	−0.1
1931	5.3	8.3	−3.0
1932	2.7	7.7	−5.0
1933	2.6	7.2	−4.6
1934	4.9	7.2	−2.3
1935	6.5	7.4	−0.9
1936	6.6	7.7	−1.1
1937	7.9	8.0	−0.1
1938	8.0	8.0	—
1939	8.5	8.1	0.4
1940	10.5	8.4	2.1
1941	11.4	9.3	2.1
1942	13.8	10.0	3.8
1943	15.9	10.7	5.2
1944	17.5	11.9	5.6
1945	15.4	12.4	3.0
1946	14.8	12.2	2.6
1947	20.5	14.8	5.7
1948	28.4	17.6	10.8
1949	30.5	19.1	11.4
1950	29.0	21.2	7.8
1951	34.2	24.6	9.6

[a] After inventory valuation adjustment.

riod. This may occur, but such savings may be used in other ways that do not directly contribute to expenditures for output—to add to money balances, to retire debt or other claims, to buy securities, and so on.

Disposable Personal Income

Disposable personal income during a stated period is the money income remaining at the disposal of persons (or households) after

all taxes and transfer payments. We can arrive at personal disposable income in either of two ways. (1) As shown in Table 74, we can compute it by adding the components of personal income and subtracting personal taxes. Thus, disposable personal income for a period is equal to the sum of wages, salaries, and other income received for labor, net incomes of proprietors of unincorporated businesses, personal rental incomes, dividends received by individuals, personal interest income, and transfer payments received from business and government, minus personal taxes. (2) We can also compute it by subtracting the disposable incomes of government and business from

TABLE 74. Personal Income and Disposable Personal Income, 1950
(In billions of dollars)

Wage and salary receipts and other labor income	$146.4
Proprietors and rental income	44.0
Dividends	9.2
Personal interest income	10.1
Transfer payments	15.1
Equals: Personal income	$224.8
Less: Personal taxes	20.5
Equals: Disposable personal income	$204.3

total gross national income. We shall have many occasions to emphasize the fact that by no means all the gross national income accrues to persons or households as disposable personal income. The latter is equal to gross national income (or GNP) minus the disposable income of the government and also minus the disposable income of business. Or, to expand the equation, disposable personal incomes for a period are equal to GNP minus the sum of (1) the excess of government tax collections over government transfer payments, (2) capital consumption allowances, and (3) undistributed corporate profits. This emphasizes that the behavior of disposable personal income depends not only on GNP but also on the policies of government and business relative to the items listed above.

Disposable personal income may be disposed of in two ways. (1) As consumption expenditures, which we shall denote by the symbol C. This is the same C that we used in the equation showing GNP as the sum of expenditures for output. It should be clear that this

method of disposing of shares of personal income tends to maintain the circular flow of spendings for output; it is a method of returning to the market part of personal income as effective money demand. (2) As personal saving, which we shall denote by the symbol S_p.

TABLE 75. Private Disposable Income and Its Disposal, 1929–1951[12]
(In billions of dollars)

Year	(1) Private Disposable Income (Col. 2 + Col. 5)	(2) Personal Disposable Income	(3) Personal Consumption	(4) Personal Saving	(5) Business Gross Saving (Business Disposable Income)	Total Private Gross Saving (Col. 4 + Col. 5)
1929	$ 94.1	$ 82.5	$ 78.8	$ 3.7	$11.6	$15.3
1930	82.3	73.7	70.8	2.9	8.6	11.5
1931	68.3	63.0	61.2	1.8	5.3	7.1
1932	50.5	47.8	49.2	−1.4	2.7	1.3
1933	47.8	45.2	46.3	−1.2	2.6	1.4
1934	56.5	51.6	51.9	−0.2	4.9	4.7
1935	64.5	58.0	56.2	1.8	6.5	8.3
1936	72.7	66.1	62.5	3.6	6.6	10.2
1937	79.0	71.1	67.1	3.9	7.9	11.8
1938	73.5	65.5	64.5	1.0	8.0	9.0
1939	78.7	70.2	67.5	2.7	8.5	11.2
1940	86.2	75.7	72.1	3.7	10.5	14.2
1941	103.4	92.0	83.3	9.8	11.4	21.2
1942	130.5	116.7	91.2	25.6	13.8	39.4
1943	148.3	132.4	102.2	30.2	15.9	46.1
1944	164.5	147.0	111.6	35.4	17.5	52.9
1945	166.5	151.1	123.1	28.0	15.4	43.4
1946	173.7	158.9	146.9	12.0	14.8	26.8
1947	190.0	169.5	166.6	3.9	20.5	24.4
1948	216.8	188.4	177.9	10.5	28.4	38.9
1949	216.9	186.4	180.2	6.3	30.5	36.8
1950	233.3	204.3	193.6	10.7	29.0	39.7
1951	259.2	225.0	208.0	17.0	34.2	51.2

Personal saving for any period is equal to disposable personal income minus the amount spent for personal consumption; hence disposable personal income equals $C + S_p$. This emphasizes that the act of personal saving is simply a failure to spend part of disposable personal income for consumption.

[12] Computed from *ibid.*, Tables 3 and 4 and *Survey of Current Business*, July, 1952.

In analyzing the circular flow it will also be useful to consider total private disposable income. This may be looked at in three principal ways. (1) For any period, private disposable income is equal to GNP minus disposable government income. In terms of our symbols it is equal to GNP minus T_n. It is total spendings for output minus the excess of government tax collections from the private sectors over government transfer payments to these sectors. (2) As shown in Table 75, private disposable income is the sum of disposable personal income and disposable business income. (3) It is also the sum of $C + S_p + S_b$. This follows from the fact that disposable personal income for any period is $C + S_p$ and that disposable business income is S_b. Total private saving, which we shall denote by the symbol S, is the sum of $S_p + S_b$. Total private disposable income is therefore equal to $C + S$.

Let us now summarize our findings relative to disposable gross national income and its disposal. For any period this income is equal to disposable government income (T_n) plus disposable business income (S_b) plus disposable personal income ($C + S_p$). Thus,

$$\text{GNP} = C + S_p + S_b + T_n$$

And since total private saving is the sum of $S_p + S_b$,

$$\text{GNP} = C + S + T_n$$

We saw earlier, however, that GNP as the sum of expenditures for output is $C + I + G$,

where C = personal consumption expenditures.

I = investment expenditures, or the sum of gross private investment and net foreign investment.

G = government purchases of goods and services.

It follows, therefore, that for any period,

$$C + I + G = C + S + T_n$$

This fact is useful in analyzing the disposal of income shares and its relation to the circular flow of spending. As we saw earlier, the use of income for C helps maintain the circular flow. But how about the income shares represented by S and T_n? How can they be returned as spending for output? To show this, let us drop C from both sides of the equation:

$$I + G = S + T_n$$

This emphasizes the fact that the shares of income represented by S and T_n can be returned to the market as expenditures for output only in the form of I and G.

Let us now see how private saving, S can be returned to the market as effective demand for output. For this purpose, we subtract T_n from both sides of the equation:

$$I + (G - T_n) = S$$

This shows that private saving for any period is equal to private investment spendings plus any net excess of G over T_n or minus any net excess of T_n over G. To elaborate this point we shall consider three cases. (1) $G = T_n$. This represents an exactly balanced government budget. In this situation $S = I$; private saving can be offset or returned to the market as expenditures for output only by private investment, and the amount that the private sectors succeed in saving is exactly equal to the amount spent for private investment. (2) G is greater than T_n, the excess being the government deficit. In this case S is equal to I plus the government deficit. This indicates that private saving can be offset or returned to the market as private investment and as government deficit spending. Also, the amount the private sectors succeed in saving is equal to private spending for investment plus the government's deficit spending. (3) T_n is greater than G, the excess being the government surplus. This may be considered as a negative deficit. Private saving in any period is equal to private investment minus the government surplus. This may be explained in either of the following ways. (a) To the extent that government net tax collections (T_n) take from private money incomes more than government purchases of goods and services contribute to them, the saving ability of the private sectors is decreased. And (b) to the extent that it is financed or offset by a current government surplus, which is a kind of government saving, private investment does not provide an outlet for private saving. Suppose, for example, that during some period the government has a surplus of $5 billion which it uses to retire debt, and that the recipients used this money to finance $5 billion of private investment. This means that $5 billion of private investment will not provide an outlet for private saving.

Were it not for some unfortunate statistical discrepancies in the

TABLE 76. Sources and Uses of Gross Saving, 1929–1951[13]
(In billions of dollars)

	Sources					Uses		
Year	Personal Saving	Capital Consumption Allowances	Undistributed Corporate Profits[a]	Statistical Discrepancy	Total Saving Equals Investment Plus Government Deficit	Gross Private Domestic Investment	Net Foreign Investment	Government Deficit; Surplus (−)
1929	$ 3.7	$ 8.8	$ 2.8	$0.2	$15.5	$15.8	$0.8	$ 1.1
1930	2.9	8.7	−0.1	0.3	11.2	10.2	0.7	0.3
1931	1.8	8.3	−3.0	1.3	8.4	5.4	0.2	2.8
1932	−1.4	7.7	−5.0	1.5	2.8	0.9	0.2	1.7
1933	−1.2	7.2	−4.6	1.4	2.7	1.3	0.2	1.3
1934	−0.2	7.2	−2.3	0.9	5.6	2.8	0.4	2.4
1935	1.8	7.4	−0.9	−0.4	7.9	6.1	—	1.8
1936	3.6	7.7	−1.1	1.1	11.1	8.3	—	2.9
1937	3.9	8.0	−0.1	−1.0	10.8	11.4	—	−0.7
1938	1.0	8.0	—	−0.1	8.9	6.3	1.1	1.5
1939	2.7	8.1	0.4	1.5	12.7	9.9	0.9	1.9
1940	3.7	8.4	2.1	1.8	16.0	13.9	1.5	0.5
1941	9.8	9.3	2.1	1.8	23.0	18.3	1.1	3.5
1942	25.6	10.0	3.8	2.4	41.8	10.9	−0.2	31.2
1943	30.2	10.7	5.2	1.3	47.4	5.7	−2.2	43.9
1944	35.4	11.9	5.6	4.1	57.0	7.7	−2.1	51.4
1945	28.0	12.4	3.0	5.1	48.5	10.7	−1.4	39.2
1946	12.0	12.2	2.6	1.9	28.7	28.7	4.6	−4.6
1947	3.9	14.8	5.7	0.9	25.3	30.2	8.9	−13.7
1948	10.5	17.6	10.8	2.5	36.4	42.7	1.9	−8.2
1949	6.3	19.1	11.4	−0.4	36.4	33.0	0.5	2.8
1950	10.7	21.2	7.8	1.2	38.5	48.9	−2.3	−8.0
1951	17.0	24.6	9.6	0.2	51.4	58.5	0.2	−7.3

[a] After inventory valuation adjustment.

original data, Table 76 would confirm our finding that for each period $S = I + (G - T_n)$. That is, total gross private saving in the form of personal saving, capital consumption allowances, and undistributed corporate profits equals the sum of investment plus the government deficit or minus the government surplus.

Does it necessarily follow that because for each year $S =$

[13] Computed from data in Table 5 on p. 152 of *National Income*. The data under "Statistical discrepancy" differ slightly from those in the original table because of the omission of certain minor items.

$I + (G - T_n)$ the saving-investment relationship was satisfactory? The answer is decidedly "No." A satisfactory relationship requires that $S = I + (G - T_n)$ at a level of GNP which will produce approximately full employment without inflation. In fact, however, during some of the years since 1929 conditions were such that $S = I + (G - T_n)$ at levels of GNP so high as to produce widespread unemployment, low levels of output, and falling prices. In other years conditions were such that $S = I + (G - T_n)$ at levels of GNP so high as to produce inflation. All that this relationship implies in national income accounting is that GNP for any period will be at the level that just equates S with $I + (G - T_n)$. We shall find in the next chapter, which introduces national income analysis, that the level of GNP at any time is determined by the S, I, G, and T_n functions, and that shifts in the relationships among these functions change the level of GNP.

SUMMARY

Gross national product may be stated and measured in two principal ways. (1) As the market value of output or expenditures for output. From this point of view, GNP for any period is $C + I + G$, where C = personal consumption.

I = investment expenditures, which is the sum of gross private domestic investment and net foreign investment.

G = government purchases of goods and services.

(2) As the sum of the shares of gross national income for the period. Since expenditures for output, and only expenditures for output, create money income shares, the total of the money income shares for the community as a whole during any period is exactly equal to expenditures for output.

For the purpose of analyzing the disposal of income shares and its relation to the circular flow of money income, we used the concept of disposable gross national money income, which is the sum of the disposable incomes of government, business, and people. For any period, this is equal to GNP. Thus,

$$\text{GNP} = C + S_p + S_b + T_n$$

or

$$\text{GNP} = C + S + T_n$$

where C = personal consumption.
S_p = personal saving.
S_b = business saving (or disposable business income).
$S_p + S_b = S$, or total private saving.
T_n = disposable government income, or total government taxes minus government transfer payments.

Since for any period,

$$\text{GNP} = C + I + G$$

and

$$\text{GNP} = C + S + T_n$$

it follows that $C + I + G = C + S + T_n$

The left side of the equation shows the amount of GNP created by expenditures for output; the right side shows both the total of disposable income and the method of its disposal. The amount of income shares spent for consumption (C on both sides of the equation) serves to maintain the circular flow. Dropping C from both sides of the equation, we find that the amount of income shares represented by $S + T_n$ can return as spendings for output only in the forms of $I + G$. In fact, for any period, $I + G = S + T_n$. When we looked at the relationship between S and I, which we did by subtracting T_n from both sides of the equation, we found that $S = I + (G - T_n)$. This means that when $G = T_n$—when the government's budget is exactly balanced—$S = I$. When the government is running a deficit, when G is greater than T_n, $S = I +$ the government deficit. When the government is running a surplus, $S = I$ minus the government surplus.

We must be careful not to infer that the condition $S = I + (G - T_n$ necessarily implies the existence of a satisfactory relationship. In fact, GNP must adjust itself to the level at which $S = I + (G - T_n)$. This point will be developed in the following chapter.

SELECTED READINGS

Haberler, G., *Prosperity and Depression*, United Nations, Lake Success, 3rd ed., 1946.

Hansen, A. H., *Business Cycles and National Income*, Norton, New York, 1951.

Harris, S. E. (ed.), *The New Economics*, Knopf, New York, 1947.

Hawtrey, R. G., *Capital and Employment*, Longmans, Green, New York, 1937.

Keynes, J. M., *A General Theory of Employment, Interest, and Money*, Harcourt, Brace, New York, 1936.

Lerner, A. P., "Mr. Keynes' General Theory of Employment, Interest, and Money," *International Labor Review*, October, 1936, pp. 435–454.

Lutz, F. A., "The Outcome of the Saving-Investment Discussion," *Quarterly Journal of Economics*, August, 1938, pp. 488–614.

Martin, P. W., *The Problem of Maintaining Purchasing Power*, King, London, 1931.

Robertson, D. H., "Saving and Hoarding," *Economic Journal*, September, 1933, pp. 399–413.

Ruggles, R., *Introduction to National Income and Income Analysis*, McGraw-Hill, New York, 1949.

Say, J. B., *A Treatise on Political Economy*, Philadelphia, 4th American ed., 1830, Book I, chap. 15.

CHAPTER 27

National Income Analysis

The purpose of this chapter is to analyze the determination of the level of GNP at any time and its fluctuations over periods of time. For this purpose we shall need to keep in mind several of the findings in the preceding chapter relative to GNP for any period.

1. Viewed as the sum of spendings for output,
$$\text{GNP} = C + I + G$$
2. Viewed as the sum of disposable income shares,
$$\text{GNP} = C + S + T_n$$
3. It follows that,
$$C + I + G = C + S + T_n$$
4. Also,
$$I + G = S + T_n$$
5. And
$$S = I + (G - T_n)$$

GNP must adjust to the level that equates S with $I + (G - T_n)$. But since our task here is to explain the size and behavior of GNP itself we obviously must go beyond these truistic equations. In order to do this we shall state all the factors in the equations as *functions* of GNP. That is, we shall construct functions, schedules, or curves showing the magnitude of each of the factors at each possible level of GNP. This will be done for C, S, T_n, I, and G.

Though the problem here is different, our reasoning will be quite similar to that used in ordinary demand and supply analysis. You

will recall that in general value theory you employed demand and supply functions, schedules, or curves. Assuming other conditions to be given, you drew a demand curve showing the amounts that would be taken at various prices. You did the same for supply, indicating the amounts that would be offered at various prices. Then you found the equilibrium price by determining the point at which demand and

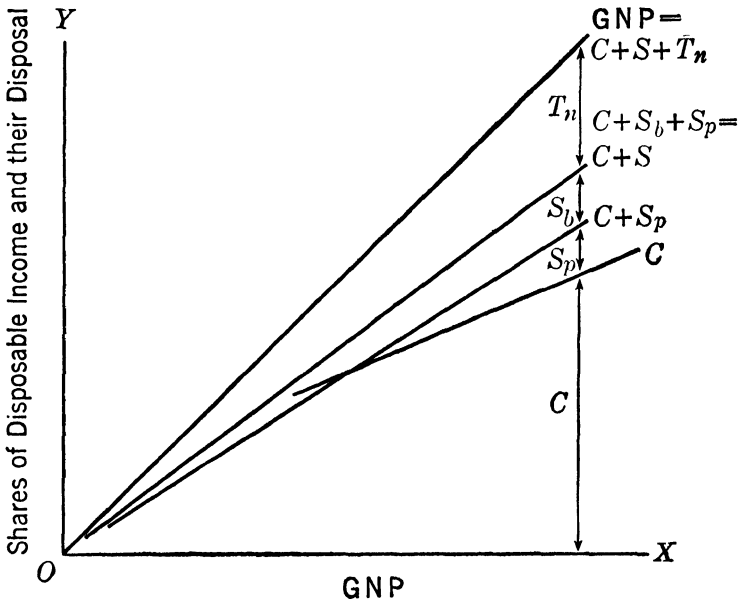


FIG. 18. GNP and the C, S, and T_n Functions.

supply would be equated. So long as these demand and supply functions or curves remained constant, a higher price could not be sustained because at that price supply would exceed demand, and a lower price could not be sustained because at that price demand would exceed supply. However, the old equilibrium could be upset by a shift of either the demand or the supply function or curve.

Employing this same type of reasoning we shall state C, S, T_n, I, and G as functions of GNP. This assumes other conditions as given and shows the magnitude of these factors at various levels of GNP. Fig. 18 is a graphic presentation of the C, S_p, S_b, and T_n functions

GNP is graphed on the X axis. On the Y axis, with the same scale, are shown disposable income shares and their disposal. The 45-degree line through the origin represents the fact that each level of GNP, measured horizontally, creates an equal amount of disposable income, $C + S + T_n$, measured vertically.

The T_n function is shown by the vertical distances downward from the 45-degree line to the $C + S$ line. It indicates that with a given structure of taxes and government transfers, T_n increases as GNP rises. This is to be expected, for a rise in GNP automatically increases such tax bases as personal incomes, corporate profits, and sales of taxable goods and services. The S_b function is indicated by the vertical difference between the $C + S$ and the $C + S_p$ lines. S_b also increases as GNP rises, reflecting our earlier observation that the sum of capital consumption allowances and undistributed corporate profits tends to vary with the level of GNP. The $C + S_p$ line, which is the 45-degree line minus T_n and S_b, is the disposable personal income function. The vertical difference between the $C + S_p$ and the C lines indicates the S_p function. It shows that personal saving also tends to vary with the level of GNP. At very low levels of GNP and disposable personal income, personal saving may even be negative, but it rises as GNP and disposable personal income rise. The C line indicates the C function. It shows that C tends to be higher at greater levels of GNP.

We find then that with other conditions being given, both T_n and S tend to be larger at higher levels of GNP than at lower levels of GNP. C also tends to vary directly with GNP but not by the same absolute amounts. Fig. 19 shows I and G at various levels of GNP. For the sake of simplicity we shall assume that they are determined by factors other than GNP and are of the same magnitude at all levels of GNP. The magnitude of I is shown by the vertical distance between the C and the $C + I$ lines, and that of G is shown by the vertical distance between the $C + I$ and the $C + I + G$ lines. Fig. 19 also shows the determination of the level of GNP with fixed C, S, T_n, I, and G functions. If these functions remain stable, the equilibrium level of GNP will be that at which $C + I + G$ is equal to $C + S + T_n$ and at which $I + G$ is equal to $S + T_n$. In other words, GNP must be at the level at which the shares of disposable income used for

T_n and S are exactly balanced by expenditures for output in the form of I and G. This level of GNP is indicated by the horizontal distance OA in the figure. So long as the functions remain constant, no level of GNP greater than A can be sustained, for at any higher level $S + T_n$ would exceed $I + G$, some part of disposable income represented by S and T_n would fail to return to the market as spending for

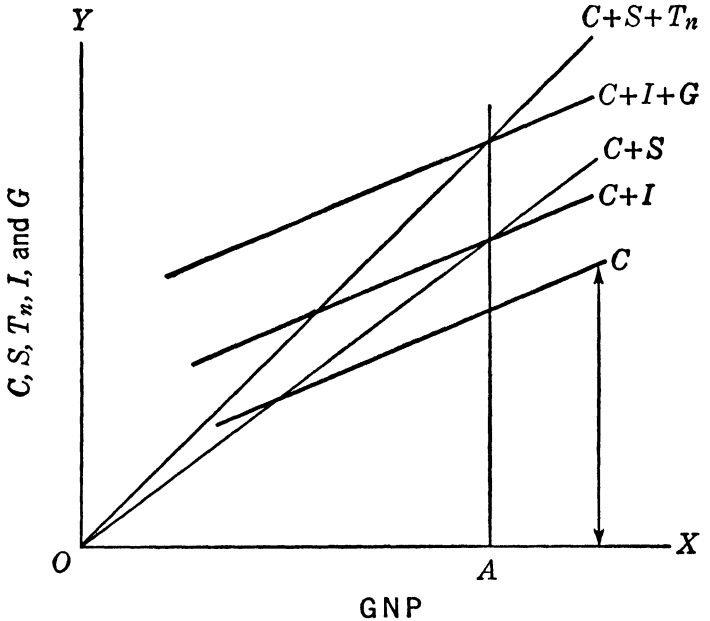


FIG. 19. Determination of GNP with Fixed C, S, T_n, I, and G Functions.

output, and GNP would shrink until it fell to A. On the other hand, any level of GNP below A would be one of disequilibrium, for at any lower level $I + G$ would be greater than $S + T_n$. GNP would therefore rise until it reached A.

In this graphic example, we have assumed that $G = T_n$ at the A level of GNP so that $I = S$. If G had been greater than T_n, I would have been smaller than S by the amount $G - T_n$. But if G had been less than T_n, I would have had to exceed S by the amount $T_n - G$. This is the familiar relationship $S = I + (G - T_n)$. In other words,

GNP will be at that level at which total saving will be exactly offset by investment spendings and deficit spending by the government.

We find therefore that the actual level of GNP is determined by the C, S, T_n, I, and G functions, and that GNP is at the level where $S = I + (G - T_n)$.

It should be evident that shifts of the C, S, T_n, I, and G functions can change the equilibrium level of GNP. The following shifts are capable of increasing GNP: (1) An upward shift of the G function—more government spending for goods and services at each level of GNP. (2) An upward shift of the I function—higher investment spendings at each level of GNP. (3) An upward shift of the C function—higher consumption spendings at each level of GNP. (Since $C = \text{GNP} - (S + T_n)$, a rise in the consumption function is the same thing as a decline in the $S + T_n$ function.) An increase in one or more of these functions can raise the $C + I + G$ function and cause it to intersect the 45-degree line at a higher level of GNP. On the other hand, the level of GNP can be lowered by a downward shift of one or more of the C, I, and G functions. Such downward shifts can lower the $C + I + G$ function and cause it to intersect the 45-degree line at a lower level of GNP.

This is the logical outline of national income analysis employing C, S, T_n, I, and G functions. Here again, however, we must go behind the functions and analyze their determinants if the analysis is to be useful. In the following sections we shall concentrate on private consumption, saving, and investment, considering government fiscal policy only when necessary. We shall assume that the rate of government spending is given and that it remains constant even if GNP fluctuates.

PRIVATE CONSUMPTION AND SAVING

The purpose of this section is to analyze the behavior of personal consumption and private gross saving, S_b and S_p, and their relation to GNP. We have already discussed them as functions of GNP and we shall want to emphasize this relationship. It should be evident that private consumption and saving are more closely related to total private disposable income than to GNP, for the ability of the private

sectors to consume and save depends not directly on total GNP but on that part of GNP which is not taken as government disposable income (T_n). Thus, private disposable income ($C + S$) is equal to GNP $- T_n$. The behavior of private consumption and saving as a function of GNP is therefore markedly influenced by the government's tax and transfer policies. (1) Shifts in the T_n function can shift $C + S$ as functions of GNP. Thus an increase in effective tax rates or a decrease in the government's transfer payments at each level of GNP can decrease the amount of disposable private income at each level of GNP, thereby decreasing the ability of the private sectors to consume and save at each level of GNP. On the other hand, a decrease in effective tax rates or an increase in government transfer payments at each level of GNP can raise disposable private income and private consumption and saving power at each level of GNP. (2) Even though the T_n function remains constant, its shape affects C and S as functions of GNP. For example, suppose that the absolute size of T_n were the same at all levels of GNP. In this case every change in GNP would be reflected by an equal change in private disposable income and in $C + S$. But if T_n is sensitive or elastic to GNP, part of any change in GNP will be reflected in a change in the size of T_n, so that the change in private disposable income will be smaller. In the following paragraph we shall assume that the T_n function is constant, but that T_n is sensitive to GNP. Part of each change in GNP, which we shall denote by ΔGNP, will be reflected in a change in T_n, which we shall denote by ΔT_n. Thus the change in disposable private income resulting from a change in GNP will not be equal to ΔGNP but only to $\Delta\text{GNP} - \Delta T_n$.

As already indicated, part of disposable private income remains at the disposal of business firms in the form of capital consumption allowances and undistributed corporate profits. The sum of these two is gross business saving, or S_b. Primarily because of corporate policy relative to the distribution and retention of net profits, S_b in the past has been highly sensitive to changes in GNP. At low levels of GNP corporate dividend payments have often been greater than current corporate net profits after taxes, so S_b tended to be small. But at high levels of GNP when corporate profits were high, corporations have usu-

ally retained large amounts of their net earnings after taxes, so S_b was large. (See Table 73 on page 578.) In other words, gross business saving is sensitive or elastic to GNP; part of each change in GNP is reflected in a change in S_b, which we shall denote by ΔS_b.

We come now to disposable personal income, which for any period is equal to GNP $-$ $(T_n + S_b)$. This income is disposed of in two ways; one part is used for personal consumption and the remainder is personal saving. In general, the consumption function seems to be such that the rate of consumption is closely related to the level of disposable personal income. A large part of each change in disposable personal income is normally used to change the rate of consumption, which we shall denote by ΔC, and a smaller part to change the rate of personal saving, which we shall denote by ΔS_p. In other words, with a stable consumption function, the higher the level of disposable personal income, the higher C will be but the higher also S_p will be.

In much of the following analysis we shall assume that C is a stable function of disposable personal income—that its absolute size varies with the level of disposable personal income but that the schedule of the amounts that would be spent for C at each level of disposable income remains constant. This means that S_p as a function of disposable personal income is also assumed to be constant, for S_p is merely disposable personal income minus C. We must recognize, however, that C and S_p as functions of disposable personal income may shift, thereby tending to change the level of GNP. The consumption function may be shifted upward and the personal saving function shifted downward by anything that makes people decide to consume more and save less out of each level of disposable personal income. Among developments capable of shifting the consumption function upward, thereby tending to raise the level of GNP, are the following:

1. A rise in the prices of consumers' goods, so that more money must be spent to get the same goods.
2. The appearance of expectations that prices of consumers' goods may increase in the future or that these goods may become less available.

3. The appearance of expectations of higher future incomes.
4. Increased valuation of present as compared with future satisfactions.
5. Initiation of a social security program that provides more fully against future contingencies.
6. An increase in the wealth of persons.

On the other hand, the consumption function may be shifted downward and the personal saving function shifted upward by anything that causes people to consume less and save more out of each level of disposable personal income. Among the developments capable of shifting the consumption function downward, thereby tending to lower GNP, are the following:

1. A decline in the prices of consumers' goods, so that less money is required to buy the same goods.
2. The appearance of expectations of cheaper and more plentiful consumers' goods in the future.
3. The appearance of expectations of lower future incomes.
4. Lowered valuation of present as compared with future satisfactions.
5. A decrease in the wealth of persons.

The possibility of such shifts in consumption as a function of disposable personal income should not be forgotten. For convenience, however, the following discussion will assume that consumption is a known and stable function of disposable personal income.

In summary, we have found that all the components of disposable income—C, S_b, S_p, and T_n—are sensitive or elastic to GNP; any increase in GNP tends to be accompanied by increases in all these components, and any decrease in GNP by decreases in all these components. This fact has at least two important implications. (1) Because S and T_n are larger at higher levels of GNP than at lower levels, the amount of spendings in the form of I and G must be larger to maintain a high level of GNP than to maintain a low level of GNP. (2) Because C is sensitive to changes in the level of GNP, in so far as these are reflected in changes in disposable personal income, an initial change in GNP brought about by changes in I or G or both can

induce further changes in GNP by inducing changes of C in the same direction.[1] This is known as "the multiplier effect."

THE MULTIPLIER EFFECT

To illustrate the principle of the multiplier effect, let us make the following assumptions. (1) Starting from a given situation, the sum of $I + G$ increases by \$10 billion and then remains stable at the new higher level. This could represent an increase of I or G, or both. We shall assume that the \$10-billion increase represents a rise in I not offset by a decline in G, though we could as well have assumed that it was a rise in G not offset by a decline in I. (2) The C, S_b,S_p, and T_n functions remain stable, but are such that the absolute amounts of each are larger at higher levels of GNP.

Let us now look at the probable results of this initial increase. The \$10-billion increase in I directly increases by \$10 billion both GNP and the incomes of those in the investment goods industries. With higher money incomes, the latter increase their consumption somewhat, thereby adding still further to GNP and to the incomes of those in the consumers' goods industries. With higher money incomes, the latter add still further to consumption spendings, which creates still higher incomes. And so on. When all these effects are added together, it is found that the total rise in GNP, composed of the increases in both I and C, is larger than the initial rise in I. The size of the multiplier effect may be stated as $\frac{\Delta \text{GNP}}{\Delta I}$.

It should be evident that the size of the multiplier varies with the sensitivity of consumption to changes in GNP. For example, if each change in expenditures for output and in total money income elicited no change in the rate of consumption, GNP would be equal to ΔI; the multiplier would be 1. But if each rise in spendings for output

[1] Though we shall not deal with this further, it is important to note that similar induced changes in consumption may follow a shift in the consumption function—a change in the schedule of the amounts spent for consumption at each level of GNP. For example, an upward shift of this function would increase GNP and disposable incomes and elicit further increases in consumption because of the rise in incomes.

and money income elicited an almost equal rise in C, the total increase of C would be large and the increase in GNP would be several times as large as the rise in I. To develop this point more precisely we shall employ the concept "marginal propensity to consume," by which we shall mean simply $\frac{\Delta C}{\Delta \text{GNP}}$.[2] This shows the fraction of each dollar change in GNP that is used to change the rate of consumption. Thus, if $\frac{\Delta C}{\Delta \text{GNP}}$ is 0.6, the rate of consumption changes 60 cents with each $1 change in GNP and total disposable income.

But what becomes of the part of ΔGNP that is not ΔC? It is used to change S_p, S_b, and T_n. This recalls our earlier statement that every change in GNP as expenditures for output creates an equal change in total disposable incomes in the form of C, S_p, S_b, and T_n. Thus

$$\Delta \text{GNP} = \Delta C + \Delta S_p + \Delta S_b + \Delta T_n$$

The change in consumption (ΔC) may therefore be stated as

$$\Delta C = \Delta \text{GNP} - (\Delta S_p + \Delta S_b + \Delta T_n)$$

In other words, the change in consumption in response to each given change in GNP is simply the part of the change in GNP that is not used to change the rate of personal saving, business saving, and government disposable income (T_n). The relation of the marginal propensity to consume $\left(\frac{\Delta C}{\Delta \text{GNP}}\right)$ to the marginal propensity to use a change in GNP to change the rate of S_p, S_b, and T_n may be found by dividing both sides of the above equation by GNP. The result is:

$$\frac{\Delta C}{\Delta \text{GNP}} = 1 - \frac{\Delta S_p + \Delta S_b + \Delta T_n}{\Delta \text{GNP}}$$

This indicates that the fraction of each dollar change in GNP that is used to change the rate of consumption is 1 minus the fraction of the change in GNP used to change S_p, S_b, and T_n.

The precise relation between the marginal propensity to consume and the size of the multiplier, which we shall call X, may be expressed as follows:

[2] The reader is warned that this concept is often used to indicate the relationship $\frac{\Delta C}{\Delta \text{ disposable personal income}}$. For our purpose, however, it is more useful to employ the relationship of ΔC to ΔGNP.

$$X = \frac{1}{1 - \frac{\Delta C}{\Delta GNP}}$$

Thus, if $\frac{\Delta C}{\Delta GNP} = 0.8$

$$X = \frac{1}{1 - .8} = \frac{1}{0.2} = 5$$

But if $\frac{\Delta GNP}{\Delta C} = 0.5$

$$X = \frac{1}{1 - 0.5} = \frac{1}{0.5} = 2$$

Table 77 shows the operation of the multiplier when $\frac{\Delta C}{\Delta GNP} = 0.5$. It assumes that owing to a rise in I, the sum of $I + G$ increases by \$10 billion and then remains constant at the new higher level. The \$10-billion rise in I directly increases both GNP and total disposable incomes by the same amount. Half of this increase in income is used to increase C and incomes in the consumption goods industries. Half of this \$5 billion is used to raise consumption to still higher levels. Thus the rise in consumption spending continues until GNP has been raised by \$20 billion, of which \$10 billion is the rise in I and \$10 billion the induced rise in C. In this case the multiplier is 2. If we had assumed a higher marginal propensity to consume, the multiplier would of course have been larger.

It will be noted that in the above example $\Delta GNP = \$20$ billion, and $\Delta C = \$10$ billion. What became of the other \$10 billion of disposable income created by the \$20 billion rise in GNP? It was absorbed by the induced increases in S and T_n. In fact, the expansion of GNP continued until $S + T_n$ were raised enough to balance the rise in $I + G$.

It is important to note that the multiplier effect also operates in response to a decrease in $I + G$, and that here, as in the case described above, the size of the multiplier depends on the size of the marginal propensity to consume. Here, too, the size of the multiplier is indicated by the formula, $X = \frac{1}{1 - \frac{\Delta C}{\Delta GNP}}$. Suppose, for example, that

TABLE 77. The Multiplier When the Marginal Propensity to Consume Is One-Half
(In billions of dollars)

Period	Increase in Investment Over Period 0 Levels	Increase in Consumption													Total Rise in Consumption Over Period 0 Levels	Total Rise in Investment and Consumption Over Period 0 Levels
1	$10															
2	10	$5													$5.00	$15.00
3	10	5	$2.5												7.50	17.50
4	10	5	2.5	$1.25											8.75	18.75
5	10	5	2.5	1.25	$.625										9.375	19.375
6	10	5	2.5	1.25	.625	$.312									9.687	19.687
7	10	5	2.5	1.25	.625	.312	$.156								9.843	19.843
8	10	5	2.5	1.25	.625	.312	.156	$.078							9.921	19.921
9	10	5	2.5	1.25	.625	.312	.156	.078	$.039						9.960	19.960
10	10	5	2.5	1.25	.625	.312	.156	.078	.039	$.02					9.980	19.980
11	10	5	2.5	1.25	.625	.312	.156	.078	.039	.02	$.01				9.990	19.990
12	10	5	2.5	1.25	.625	.312	.156	.078	.039	.02	.01	$.005			9.995	19.995
13	10	5	2.5	1.25	.625	.312	.156	.078	.039	.02	.01	.005	$.002		9.997	19.997
14	10	5	2.5	1.25	.625	.312	.156	.078	.039	.02	.01	.005	.002	$.001	9.998	19.998
15	10	5	2.5	1.25	.625	.312	.156	.078	.039	.02	.01	.005	.002	.001	$.0005	9.999	19.999

$I + G$ declines by $10 billion and then remains stable at the new lower level. This $10-billion decline directly decreases both GNP and total disposable incomes by the same amount. Those with lower incomes decrease their consumption, which further lowers GNP and disposable incomes. Others in turn lower their consumption, and so on until the full multiplier effect has been achieved.

The multiplier effect must be borne in mind as we turn our attention to private investment and government fiscal policy. We shall find that private investment has fluctuated widely. Even the direct effects of these fluctuations on GNP, employment, and price levels may be serious, but the induced effects on consumption may be even greater, especially if the rate of consumption is highly sensitive to changes in GNP. Similarly, government fiscal policies which initiate changes in GNP and disposable private incomes may lead to a multiple change in GNP by inducing changes in the rate of consumption. National income statistics may show that the major part of the actual change in GNP was represented by the change in C, yet national income analysis may show that the change was induced by changes in $I + G$.

We should also note that the multiplier effect does not purport to show all the "induced multiple effects" on GNP that may follow from an initial change in one of the factors. In explaining the multiplier principle we made two assumptions: (1) that after its initial change, $I + G$ remained constant at its new level, and (2) that the consumption function remained stable.[3] The multiplier effect therefore includes only the initial change in $I + G$ and the induced change in consumption. But it should be clear that other induced effects may also flow from the initial change in $I + G$ and that these may be complex. (1) Both the initial change in $I + G$ and the induced change in consumption may have further repercussion effects on I or G, or both. By increasing the demand for output, both the initial change in I and G and the induced rise of C may improve business expectations as to the profitability of new investment and

[3] If we had assumed that the initial change was in the form of a shift in the consumption function, we would have had to assume (1) that after shifting, the consumption function remained constant, and (2) that $I + G$ remained constant.

induce still further increases in the rate of investment. These, in turn, may have multiplier effects, which may affect still further the expected profitability of new investment. (2) The initial changes in *I* and *G*, the induced changes in *C*, and the further induced changes in *I* may cause a shift in the consumption function itself. For these and other reasons, the behavior of GNP following an initial change in *I* or *G*, or a shift in the consumption function, may be far more complex than suggested by the multiplier effect alone.

PRIVATE INVESTMENT

We found earlier that private investment has been one of the most widely fluctuating components of GNP and that both directly and indirectly through its induced effects it has accounted for a major part of our economic instability in peacetime. This section will investigate the factors determining the rate of private investment at any given time and its fluctuations through time. It will concentrate on gross private domestic investment, leaving net foreign investment for consideration in later sections dealing with international monetary relationships.

Gross private domestic investment during any period is, of course, the sum of expenditures by business firms and individuals for current output with which to maintain and expand their stocks of capital goods. And the great bulk of these expenditures are made by business firms and individuals intent upon maximizing their profits. Hence, in determining whether or not to make a capital expenditure they ask, "Will the acquisition of this capital good add at least as much to my revenues as it adds to my costs?" This applies to purchases for replacement as well as for net additions to capital. Decisions as to the amount of new investment during any period therefore depend upon a comparison of two functions or schedules: (1) The expected rate of return on new investment. This is given many names, including "marginal revenue product" and "marginal efficiency of capital." We shall use the latter term, and define it as the annual amount, stated as a percentage of cost, that the acquisition of the new capital good is expected to add to the enterpriser's net revenues after he meets

all additional costs of operation except the interest charges on the money used. (2) The cost of money for investment, that is, the interest rate that must be paid for the use of money for this purpose. Only by comparing the expected annual reward for investment with the annual cost of the money used for it can the potential spender for capital purposes arrive at rational investment decisions.

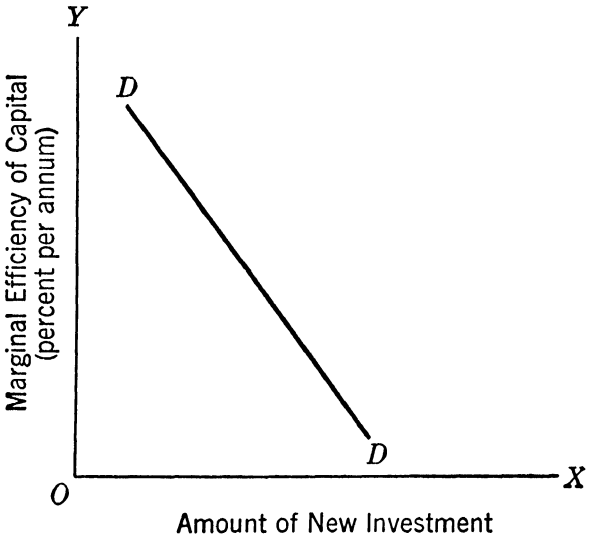


FIG. 20. The Marginal Efficiency of Capital.

The marginal efficiency of capital should be thought of as a function or schedule indicating the various amounts of new investment that are expected to yield various rates of return. This is shown graphically in Fig. 20. Line *DD* indicates the various amounts of investment, measured on the *X* axis, that are expected to yield at least the various percentage rates of return measured on the *Y* axis. This curve of the marginal efficiency of capital is the basis of the demand schedule for money to be spent for new investment, for each potential investor will presumably undertake all investment projects whose expected rate of return exceeds the interest rate that must be paid for the use of money. Thus the actual rate of investment at any time depends on two functions or schedules: (1) the marginal effi-

ciency of capital and (2) the supply of investable funds. The rate of investment can be changed by a shift in either of these functions that is not offset by a compensating shift in the other.

THE MARGINAL EFFICIENCY OF CAPITAL

In analyzing the determinants of the schedule of the marginal efficiency of capital at any time and of the shifts of this schedule through time, it will be useful to keep in mind two facts. (1) We are here dealing with expectations concerning the profitability of *changes* in the stock of capital goods, not with the profitability of the total stock of capital. Each potential spender for new investment asks questions of this sort: "How will my total profits be affected by my decision to replace my currently depreciating capital goods rather than to allow a net depreciation of them? How much will a net increase in my capital goods affect my total profits?" It is partly because it reflects marginal changes in the total stock of capital goods that new investment fluctuates so widely. (2) New investment yields returns over a period of time, and the spenders for investment are usually unable to predict with certainty the rate of return they will enjoy. This is true even of investment in inventories; it is often difficult to know how soon or at what price the inventory will be sold. It is even truer of durable goods, for their profitability depends on unpredictable developments over a decade or more. Since long periods of time are involved and forecasts are notably untrustworthy, the expectations of potential spenders for investment may be greatly influenced by existing conditions and recent trends.

Let us look now at some of the major determinants of the schedule of the marginal efficiency of capital. The list will be far from complete, but it will indicate some of the major factors. (1) The size and composition of the existing stock of capital goods, especially its adequacy relative to the current demand for output. If the existing stock of capital goods is largely obsolete and too small to produce most economically the rate of output currently demanded, large amounts of new investment may be expected to yield high rates of return. But if the existing stock of capital goods is very large relative to the current demand for output and if it includes the most efficient

types of capital that man knows how to invent and utilize, only small amounts of new investment will be profitable. If there is already excess capacity, business firms may refrain from replacing some of their equipment when it wears out. (2) The rate of innovation. If the rate of innovation is high, it may be profitable to undertake much new investment in order to produce the new types of products or to use new and more economical processes of production. If the rate of innovation is low, the profitability of new investment goods for this purpose may be smaller. (3) The expected future behavior of demands for output. If demands for output are expected to rise rapidly, much new investment may be expected to yield high profits. If demands for output are expected to remain at existing levels and the present stock of capital goods is adequate, the demand for new capital goods may be largely a replacement demand. And if demands for output are expected to decline, many potential spenders for investment may not replace their capital equipment when it wears out. (4) Expectations as to future wages, other costs, taxes, and government policies. Estimates of the profitability of new investment may be greatly affected by expectations regarding the future course of these factors. (5) The state of "business psychology." In view of the scarcity and vagueness of our knowledge about the future and the precariousness of any forecast based on that knowledge, it is not at all surprising that expectations concerning the future should be greatly affected by prevailing conditions and the trends of the immediate past. As the late J. M. Keynes put it,

> It would be foolish, in forming our expectations, to attach great weight to matters which are very uncertain. It is reasonable, therefore, to be guided to a considerable degree by the facts about which we feel somewhat confident, even though they may be less decisively relevant to the issue than other facts about which our knowledge is vague and scanty. For this reason the facts of the existing situation enter, in a sense disproportionately, into the formation of our long-term expectation; our usual practice being to take the existing situation and to project it into the future, modified only to the extent that we have more or less definite reasons for expecting a change.[4]

[4] *The General Theory of Employment, Interest, and Money*, Harcourt, Brace, New York, 1936, p. 148.

This convention of projecting into the future the present situation, and particularly the trend of the immediate past, is an aggravating factor in the business cycle. In the period of upswing, an original increase in the profitability of production is likely to give birth to expectations of still greater profits, whereas in the downswing an original decline is likely to breed expectations of continued contraction.

Another consequence of the paucity and uncertainty of our knowledge concerning future economic events is that expectations are inordinately influenced by waves of excessive optimism and pessimism. Realizing the untrustworthiness of his own opinions with respect to the future, each person relies heavily upon those of others, which are as undependable as his own. By a process that only a social psychologist can explain, the public temperament fluctuates from exultation to melancholia. At one time it exhibits the exuberance and optimism of a New Era. Then it lapses into dark discouragement and despair. In these alternating periods of overoptimism and overpessimism, enterprisers are prone to overestimate and underestimate the returns to be realized from new investment.

> . . . It is an essential characteristic of the boom that investments which will in fact yield, say, 2 per cent in conditions of full employment are made in the expectation of a yield of, say, 6 per cent, and are valued accordingly. When disillusion comes, this expectation is replaced by a contrary "error of pessimism," with the result that the investments, which would in fact yield 2 per cent in conditions of full employment, are expected to yield less than nothing; and the resulting collapse of new investment then leads to a state of unemployment in which the investments, which would have yielded 2 per cent in conditions of full employment, in fact yield less than nothing.[5]

Because of factors such as those described above, the schedule of the marginal efficiency of capital is capable of wide fluctuations. At one time it may be in the position shown by DD in Fig. 21. Then it may increase markedly, as indicated by D_1D_1. The rise in the marginal efficiency of capital—larger amounts of new investment being expected to yield at least the rates of return indicated at each point

[5] *Ibid.*, p. 322.

on the Y axis—will increase the rate of investment unless prevented from doing so by a decrease in the supply schedule of investable funds and a sufficient rise in interest rates. At another time, the schedule of the marginal efficiency of capital may shift markedly to the left, as shown by D_2D_2. This indicates a large decrease in the amounts of new investment expected to yield a rate of return at

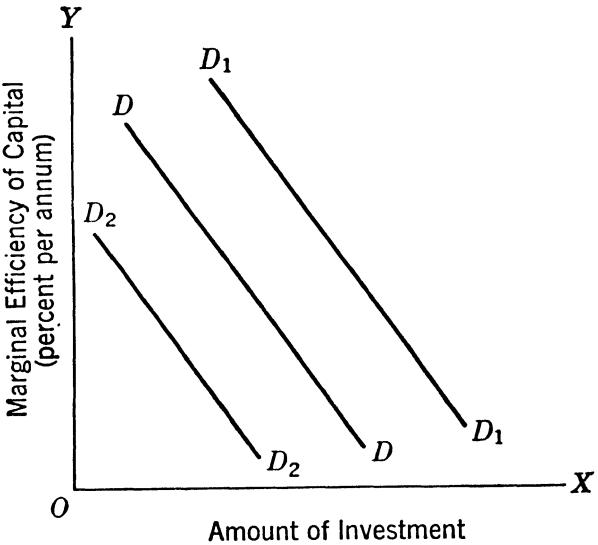


FIG. 21. Shifts of the Marginal Efficiency of Capital.

least equal to each point on the Y axis. Such decreases in the marginal efficiency of capital tend to reduce the rate of investment unless offset by an increase in the supply of investable funds and a sufficient decline in interest rates. And if the decline in the marginal efficiency schedule is great there may be no rate of interest above the zero level which will prevent a decline of investment.

Unfortunately we cannot rely on the supply of money for investment purposes to behave in such a way as to stabilize investment and to keep it at the level which, together with the propensity to consume and with government purchases, will produce full employment without inflation.

To complete the picture we shall now consider the supply of in-

vestable funds, the behavior of interest rates, and their relation to the behavior of investment. We shall not undertake the difficult task of presenting a complete theory of interest, but we shall look at some key determinants of the supply of investable funds.

The Supply of Investable Funds

In arguing that saving and investment must be continuously equalized at a level of national income corresponding to full employment, the classical economists had to assume that the supply curve of investable funds is identical with the supply curve of saving out of a full-employment level of income, and that interest rates always adjust in such a way as to assure that actual investment spending for output is equal to these savings. They had to assume that the entire part of the full-employment level of income that was not spent for consumption was effectively channeled into investment regardless of the level of the demand for investment funds and regardless of the level of interest rates required to induce just this level of investment.

This assumption of an identity between the schedule of the supply of investable funds and the schedule of saving at any given level of national income is not necessarily valid. Part of the savings may not be offered for use regardless of interest rates but may be used to increase idle money balances or to reduce the money supply. In this case the supply of investable funds would be less than the amount saved out of a given level of income by an amount equal to the net decrease in the money supply and the net additions to idle money balances during the period. On the other hand, the amount of investable funds could be greater than the amount saved out of a given level of income by an amount equal to net "dishoardings" from previously idle balances and the net increase in the money supply during the period. In short, the supply of investable funds cannot be understood without reference to the behavior of the money supply and the demand for money to hold. To show this we shall represent both the money supply and the demand for money to hold as functions of the rate of interest.

Line *LL* in Fig. 22 represents the demand for money to hold, stated as a function of the rate of interest. In Keynesian terminology

this is the "liquidity preference schedule" showing the amount of money that the community elects to hold at various levels of interest rates. Line *MM* indicates the supply of money at a given time. The demand for money is made up of two parts. M_1 represents the demand for transactions purposes. This depends on the level of GNP and on the system of payments used by the community. Assuming the latter to remain constant, the size of the demand (M_1) therefore depends

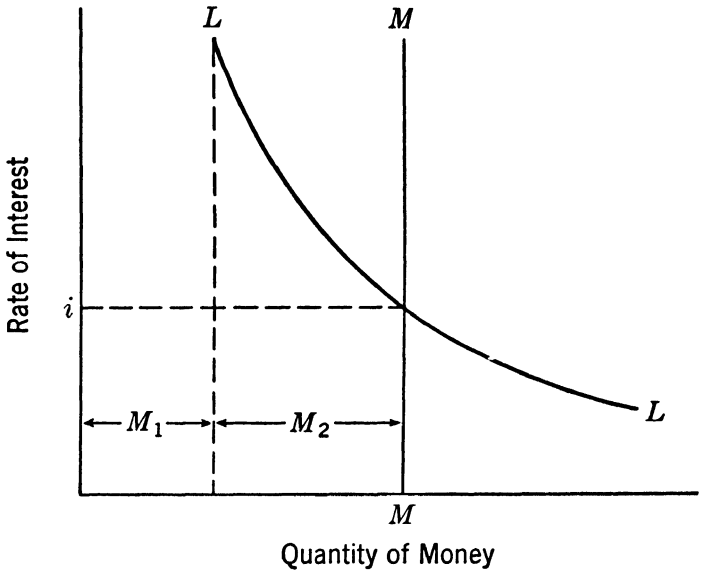


FIG. 22. Liquidity Preference and the Supply of Money.

on the size of GNP, so that an increase in GNP would shift the *LL* curve to the right and a decrease in GNP would shift this curve to the left. Let us assume that the *LL* curve in the figure is the one accompanying a level of GNP sufficient to produce full employment without inflation. The other component of the demand for money to hold, M_2, is what we have called the demand for money as a store of value, or what others have called the speculative demand for money—the demand to hold money rather than earning assets as a store of value.

The figure indicates that the M_2 demand for money, other things

being equal, is elastic to interest rates; more will be demanded as a store of value at low interest rates than at high interest rates. For this there are at least three related reasons. (1) Interest as a reward for sacrificing the conveniences of liquidity represented by holding money. People may be willing to sacrifice greater liquidity for the higher rewards represented by higher interest rates. (2) Interest as a reward for incurring the costs and inconveniences of buying and supervising earning assets. When interest rates are low, many people may feel that it is not worth while to incur the costs and inconveniences. (3) Interest as a reward for risk bearing. These risks are of two types: (a) the risk that principal and interest will not be paid as promised; (b) the risk that interest rates will rise in the future and decrease asset values. At lower levels of interest rates people may prefer to hold larger amounts of money and less of other assets in order to escape these risks.

Fig. 22 shows that with the given schedules of the liquidity demand for money and the supply of money, the interest rate (i) will be at the level which just equates the demand for money to hold with the supply of money available for holding. Higher interest rates could not be sustained, because the supply of money would exceed its demand; those with the "excess" supply of money would attempt to get rid of it by purchasing securities, thereby raising security prices and lowering interest rates. On the other hand, interest rates below i could not be maintained, because the demand for money for holding would exceed the available supply. People would refrain from buying securities or actually sell them in an effort to replenish their money holdings, thereby lowering security prices and raising interest rates.

Let us now use these findings to analyze the relation between the saving schedule at a full-employment level of income and the supply schedule of investable funds. We have found that with given liquidity preference and money supply schedules, the amount of money that people will offer in the market to purchase securities varies with the height of interest rates. At higher rates the community will want to hold less money as a store of value and will offer the "excess" to purchase securities. At lower rates of interest the community will want to hold more money and, in order to get it, will refrain from

buying securities or will sell them until security prices fall and interest rates rise to the equilibrium level.

In Fig. 23 the SS curve indicates the amounts that the community would elect to save at various levels of interest rates out of a full-employment level of GNP. It shows that saving is somewhat interest-

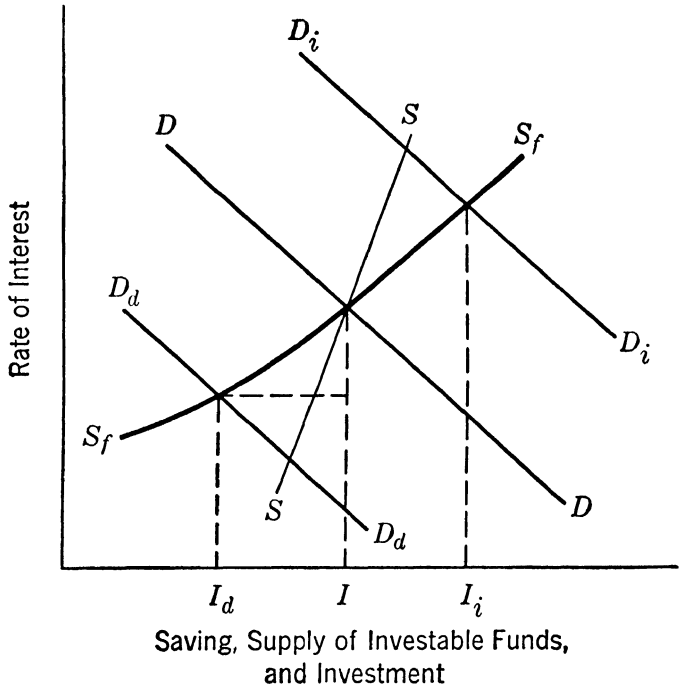


FIG. 23. Saving, the Supply of Investable Funds, the Marginal Efficiency of Capital, and the Rate of Investment.

elastic, that the community will consume less and save more at higher than at lower rates of interest. The S_fS_f curve shows the supply of investable funds. It indicates that at higher rates of interest the supply of investable funds may exceed saving out of a given level of income because the community wants to hold less money as a store of value and offers the "excess money" for use. But at lower interest rates the supply of investable funds may be less than saving out of a given income level because the public wants to hold more money as

a store of value and therefore makes available for investment less than the amount that would be saved.

We now see how this is related to the actual rate of investment. Let us take first the case most favorable to the classical position—the case where the marginal efficiency of capital is such that the demand curve for investable funds, DD, intersects the SS and S_fS_f curves where they are equal. In this case actual investment is equal to saving at the full-employment level of GNP. But suppose that the marginal efficiency of capital is such that the demand for investable funds is D_iD_i. The actual rate of investment in this case will be I_i, which is determined by the point of intersection of the D_iD_i and the S_fS_f curves. In this case investment is greater than the amount that would be saved out of the full-employment level of income, the excess investment being financed by the "dishoardings" induced by the higher rate of interest. The result must be that GNP will rise to the point at which saving out of the higher level of income is equal to investment.

Suppose, however, that the marginal efficiency of capital is such that the demand for investable funds is represented by the curve D_dD_d. In this case the actual rate of investment is I_d, the point of intersection of the D_dD_d and S_fS_f curves. Actual investment will be less than the community elects to save out of the full-employment level of GNP. As a result, GNP will fall until it reaches a level at which the community elects to save no more than is being spent for investment.

The above sections have brought out some important points. At any given level of national income the supply schedule of investable funds need not be identical with the schedule of savings at various rates of interest. To understand the supply of investable funds, which together with the demand for these funds determines the rate of investment, we must also consider the supply of money and the community's liquidity preference schedule.

So far we have assumed that the money supply and liquidity preference schedules remained stable. However, both can shift, thereby shifting the supply schedule of investable funds. The supply schedule of investable funds can be increased—shifted to the right—by an

increase in the money supply that is not offset by an increase in liquidity preference, or by a decrease in liquidity preference that is not offset by a decrease in the money supply. On the other hand, this supply schedule can be decreased—shifted to the left—by a decrease in the money supply that is not offset by a decrease in liquidity

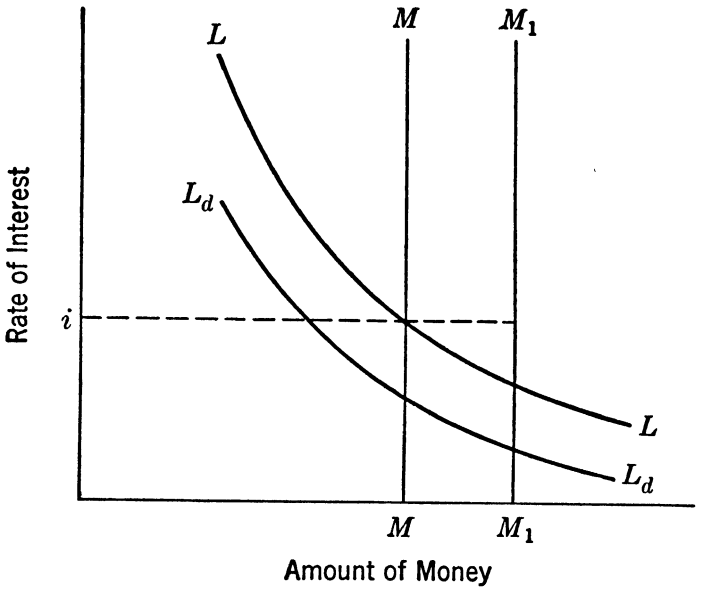


FIG. 24. Increased Money Supply and Decreased Liquidity Preference.

preference, or by an increase in liquidity preference that is not offset by an increase in the money supply.

Let us consider first the shifts that can increase the supply of investable funds. We shall start with the situation indicated by the LL and L_dL_d curves in Fig. 24. The demand for money is equal to the supply of money at interest rate i. Suppose now that the money supply increases from MM to M_1M_1 and the LL curve remains constant. The supply of money will exceed its demand at interest rate i. The community will therefore offer the "excess" money for use, thereby increasing the supply schedule of investable funds and tending to lower interest rates. If the LL curve remains constant, interest

rates will fall to the point of intersection of the LL and M_1M_1 curves. However, to the extent that the increase in the supply of investable funds and the fall of interest rates stimulate investment they will tend to raise GNP and shift the LL curve to the right by increasing the demand for money for transactions purposes (M_1).

A decrease in liquidity preference can have similar results. Suppose that because of such factors as greater optimism concerning the safety of earning assets or less fear of rising interest rates in the future, the LL curve decreases, indicating a decreased demand for money to hold at each level of interest rates, and the money supply remains constant at MM. This decrease in liquidity preference is indicated by L_dL_d. At interest rate i the supply of money will exceed the reduced demand for it, people will try to rid themselves of the excess by purchasing securities and other assets, and this will increase the supply of investable funds and tend to lower interest rates, thereby stimulating investment.

Having indicated the logic of the analysis, we need not discuss in detail the process by which a decrease in the money supply or an increase in liquidity preference can decrease the supply of investable funds and tend to raise interest rates and discourage investment. It is enough to point out that if, starting from an equilibrium situation, the money demanded for holding at each level of interest rates increases, people will find that the supply of money is less than the amount they want to hold at the old level of interest rates. In an effort to raise their money holdings to the desired level they will offer less money for use, thereby decreasing the supply of investable funds and tending to raise interest rates.

Summary of Private Investment

We have now seen why private investment can fluctuate so widely. Expectations as to the marginal efficiency of capital are capable of fluctuating widely. Increases in the schedule of marginal efficiency of capital will raise the rate of investment unless prevented from doing so by a sufficient rise in interest rates and other limitations on the availability of investable funds, and this may not occur. Even with a constant money supply and a constant liquidity preference

curve, relatively small increases in interest rates may lead to large dishoardings out of previously idle balances to finance a higher rate of investment spendings. And to make matters worse, the rise in the marginal efficiency of capital may be accompanied by an increase in the money supply and a downward shift of the liquidity preference schedule, both of which tend to increase the supply of investable funds.

On the other hand, a decrease in the marginal efficiency of capital will decrease the rate of investment unless offset by a sufficient increase in the supply of investable funds and a sufficient decrease in interest rates. But the latter may not occur. Even with given money supply and liquidity preference schedules, the decline in interest rates may be limited by the community's preference for holding more money as interest rates fall. And a decrease in the supply of money or an upward shift of the liquidity preference schedule can have even worse effects.

So far we have discussed fluctuations of investment emanating from changes in the marginal efficiency of capital. But it should be evident that even if the marginal efficiency remains constant the rate of investment could still fluctuate because of shifts in the supply of money and in liquidity preference.

Some parts of the next chapter will deal further with this subject, especially the parts that discuss the role of money and monetary policy in the income and expenditure types of theory.

SELECTED READINGS

See references at the end of Chapter 26.

CHAPTER 28

Fiscal and Monetary Policies in National Income Analysis

In developing the income and expenditure approach, the preceding chapter concentrated largely on the behavior of the private sectors of the economy—on the consumption, saving, and investment functions and on shifts in these functions. The fiscal operations of the government were discussed only when this was necessary to show the functional relationship of C and S to GNP. This chapter will have two principal purposes: (1) to outline the relationship of government fiscal policies to GNP, private incomes and their disposal, real output, employment, and price levels; and (2) to comment on the role of money and monetary policy in the income and expenditure types of monetary theory.

Because of space limitations, our discussion of fiscal policy is confined to general principles; it neglects many important factors that would be included in a more comprehensive and thorough treatment. Among the topics omitted or given less adequate treatment than they deserve are the effects of fiscal policy on income distribution, on incentives, on the allocation of resources, and on the efficiency of the economy at each level of GNP.

FISCAL POLICY

The broad effects of government expenditure and revenue policies may be divided into three principal classes. (1) Income effects, which

include the effects on GNP and on disposable private incomes. (2) Asset effects, which include the effects of government surpluses and deficits on the total assets of the community. We shall find that government deficit spending tends to increase, and that surplus financing tends to decrease, the total assets of the community. (3) Monetary effects—the effects on the money supply and the cost and availability of credit. The early sections of this chapter will concentrate on the income effects of fiscal policy.

It will be useful at this point to recall the general theoretical framework of our national income analysis. We began by stating all the relevant components—C, S, T_n, I, and G—as functions of GNP. We found that the level of GNP will be established at the point where the following conditions, all amounting to the same thing, are satisfied:

1. $C + I + G = C + S + T_n$
2. $I + G = S + T_n$
3. $S = I + (G - T_n)$.

Two of these components, G and T_n, are elements of government fiscal policy, and through them the government can influence C and S, and perhaps also I as functions of GNP. But since T_n is equal to government tax collections minus government transfer payments, there are three basic instruments of fiscal policy: (1) government purchases of goods and services, which are both a component of expenditures for output and a contributor to disposable income, (2) government transfer payments, which are not directly a part of expenditures for output but are a contributor to disposable private incomes, and (3) tax collections, which are a subtraction from private incomes. Thus, during any period the government's direct contribution to GNP is equal to G, and its *net direct* contribution to disposable private incomes is equal to its purchases of goods and services plus its transfer payments minus its tax collections.

To analyze the effects of fiscal policy on the behavior of GNP, we may start by asking this question: What type of fiscal policy would be required to establish GNP at a level that will produce full employment without inflation and will correct any departure from this level? How could fiscal policy prevent GNP from rising so high as to

produce inflation? How could it prevent GNP from falling so low as to cause unemployment and deflation? The answer is that T_n and G should be at such levels that $C + I + G = C + S + T_n$ at an income level just sufficient to produce full employment without inflation. This of course requires that $S + T_n = I + G$, and $S = I + (G - T_n)$ at the full-employment level of GNP. To put the emphasis on the relationship $G - T_n$, we may restate this to say that $G - T_n$ should equal $S - I$ at the full-employment level of GNP.

Two important points are suggested by this formulation. (1) The appropriate size of $G - T_n$ at the full-employment level of GNP cannot be arrived at without reference to the relationships between S and I at that level of GNP. Suppose, for example, that the consumption, saving, and private investment functions are such that private investment spendings are exactly equal to the amounts the private sectors will save out of a full-employment level of GNP. In this case, the budget should be balanced at the full-employment level of GNP; G should be equal to T_n. But suppose that I tends to be less than S at the full-employment level of GNP. In this case G should exceed T_n by the amount $S - I$ at this level. On the other hand, if I is larger than S at the full-employment level of GNP, T_n should exceed G by the amount $I - S$; there should be a surplus of net tax collections. (2) The government can achieve any desired effect on GNP by changing G without altering T_n, by changing T_n without altering G, or by changing both in an appropriate manner and to the required extent. The total effect on GNP will be composed of the direct effects of the changes in G and the changes in C and I that are induced by the changes in G and T_n.

Suppose that at some time private investment and consumption functions are so high that, together with the prevailing G and T_n functions, they tend to create a level of GNP so high as to cause inflation. To remedy the situation, the government could (1) lower G, (2) raise T_n by increasing effective tax rates or decreasing transfer payments, or (3) employ a combination of measures to raise T_n relative to G. Any decrease in G would directly tend to lower GNP, and all these measures would tend to lower disposable private incomes. With lower incomes after taxes, the private sectors would

tend to spend less for consumption, and both the decline in G and the initial decline in C due to the rise in T_n would tend to have downward multiplier effects by inducing further decreases in consumption. These anti-expansionary developments might also tend to lower private investment. The total anti-expansionary effects of the decrease in G and the increase in T_n would therefore depend not only on the size of the decrease in G and the increase in T_n but also on the responsiveness of C and I.

The same logic indicates the reverse fiscal policy when GNP is or threatens to become so low as to produce deflation and unemployment. To raise GNP, the government could (1) increase G, (2) lower T_n by decreasing effective tax rates or increasing transfer payments, or (3) employ a combination of measures to raise G relative to T_n. An increase in G would directly tend to raise GNP, and all these measures would tend to raise disposable private incomes. With higher disposable incomes after taxes, the private sectors would tend to increase consumption, and both the rise in G and the initial rise in C due to the decline in T_n would tend to have upward multiplier effects. These expansionary developments might also serve to raise I. Thus the total expansionary effects of such a fiscal policy would depend not only on the size of the decrease in T_n and the rise in G but also on the responsiveness of C and I.

This is the broad logic of a stabilizing fiscal policy whose major purpose is to achieve a level of GNP that will produce full employment without inflation and help to correct or at least limit deviations from that level. This type of policy aims at raising T_n relative to G at inflationary levels of GNP and at raising G relative to T_n at deflationary levels of GNP. Beyond this general principle, the specific proposals vary widely. Some of them expect to achieve this by establishing T_n and G functions that will automatically make the magnitude of T_n and G highly sensitive to changes in GNP emanating from changes in the $C + I$ function. Such a proposal is illustrated in Fig. 25. The high responsiveness of T_n to GNP can be achieved in two ways. (1) The tax yield can be made very sensitive to changes in GNP by relying heavily on taxes on personal incomes, corporate profits, pay rolls, and the production or sales of goods whose output is

very responsive to changes in GNP. Without any change in tax laws or tax rates, the tax yield will vary greatly with changes in GNP. (2) Transfer payments can be made highly elastic to GNP. With each decline in GNP, such payments in the form of unemployment benefits, farm subsidies, consumer subsidies, and so on could be increased, and with each rise in GNP they could be decreased. With a T_n func-

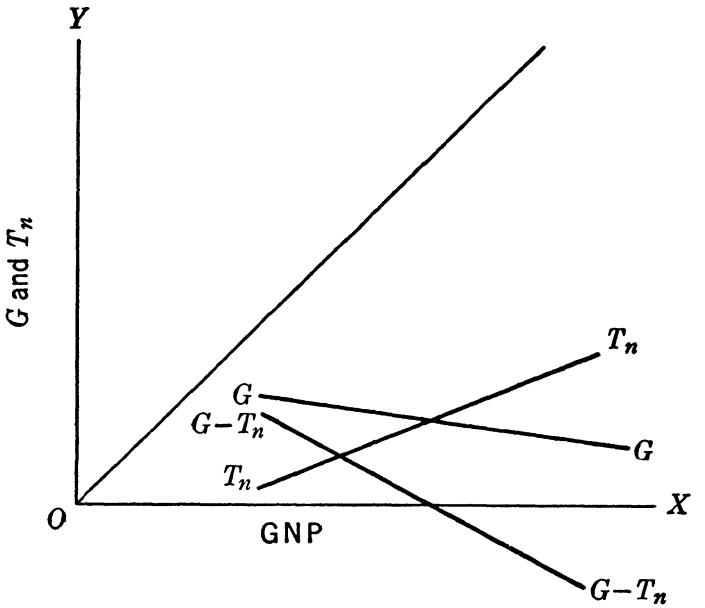


FIG. 25. Elastic G and T_n Functions and Economic Stabilization.

tion highly elastic to GNP, a large part of each change in GNP would be reflected in changes in T_n rather than in disposable private income. At the same time, the government program for purchasing goods and services might be formulated in such a way as to make G vary automatically with GNP but in the opposite direction. For example, projects calling for expenditure might be planned in advance and be initiated when GNP declined and postponed when GNP rose.

The combined results of such GNP-elastic T_n and G functions are shown by the $G - T_n$ line in Fig. 25. Each decline in GNP would

automatically raise G relative to T_n, and each rise in GNP would automatically raise T_n relative to G. Such elastic T_n and G functions certainly tend to narrow the range of fluctuation of GNP, and if these functions are elastic enough they may even tend to push GNP back toward the full employment level if it deviates from it.

Others who favor a stabilizing fiscal policy believe that it is not feasible to rely on such "automatic" responses of G, of tax collections from a given tax system, and of transfer payments under a given program. They would also shift the functions. Thus in a period of deflation and unemployment they would shift the G function upward and the T_n function downward by lowering effective tax rates and raising the curve of transfer payments. In a period of actual or threatened inflation they would shift the G function downward and the T_n function upward by raising effective tax rates and lowering the curve of transfer payments.

An Increase in Government Expenditures for Output

Having looked briefly at the general types of fiscal policy that tend to stabilize GNP, we now consider one of the many types of fiscal operations capable of bringing about destabilizing changes in GNP. For this purpose we shall consider a rise in government purchases of goods and services to promote a defense or war effort. Let us suppose that the original situation is represented by the C, S, I, T_n, and G functions in Fig. 26, and that GNP is at A. Starting from this point, the level of government purchases rises from the amount represented by the $C + I + G$ line minus the $C + I$ line to the amount represented by the $C + I + G_1$ line minus the $C + I$ line. The immediate direct effect of this rise in G is to add an equal amount to GNP and to total disposable incomes. What kind of T_n policy would be required to prevent any rise of GNP above A? The answer is that effective tax rates would have to be raised sufficiently to reduce disposable private incomes *at that level of GNP* to such an extent that $C + I$ would decline as much as G increased. This would probably require that T_n be increased by more than the rise in G, for the private sectors would probably not reduce $C + I$ by the full amount of the decrease in their disposable incomes brought about by the

upward shift of T_n. Thus to prevent an increase in G from increasing GNP it is usually necessary to increase T_n at that level of GNP by a greater amount.

Let us suppose, however, that the T_n function is not increased and that the C, S, and I functions remain constant, as shown in Fig. 26.

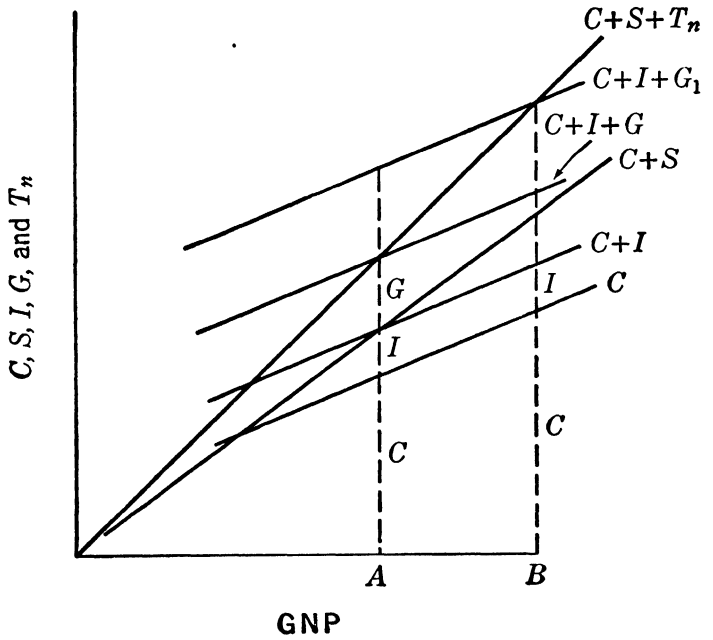


FIG. 26. An Increase in Government Expenditures for Output.

The rise in G will directly raise the level of GNP and total disposable incomes. This in turn will have a multiplier effect by inducing further increases in consumption. GNP will rise from A to B, the increase being composed of the increase in G and the induced rise in C. This is a relatively simple case, for we assumed that G remained constant at its new higher level, and that the C, S, and I functions remained constant. Actually, however, the situation may be much more complex, for these functions may not remain constant. For example, the same developments that led to the rise in G for defense or war pur-

poses may raise the consumption function and lower the saving function. Fearful of scarcities and price increases, people may hasten to consume more and save less at each income level. Likewise, the prospect of greater demands and higher prices may induce an upward shift in private investment. Moreover, with every rise in prices the government and the private sectors as well may spend more money in an effort to maintain or increase their real purchases. Such developments may induce a continuous and explosive rise in prices. This example indicates that it is extremely dangerous to assume that C, S, and I as functions of GNP will remain constant in the face of fiscal changes capable of bringing about marked changes in expectations.

To prevent or lessen the increases in C and I in response to a rise in G, or even to decrease C and I, the government may employ various devices. (1) It may increase the T_n function to decrease disposable private incomes at each level of GNP. (2) It may institute a campaign to promote private saving, so as to increase S and decrease C at each level of disposable private income. (3) It may use general monetary and credit restriction to hold down I and C. (4) It may employ various direct controls over prices and materials to hold down or reduce C and I. Thus it can restrict or depress consumption spending by putting price ceilings on consumers' goods and by limiting the amount of such goods that may be purchased, and it can limit private investment spending by putting price ceilings on capital goods and by limiting the amount of labor and materials that may be used for capital formation purposes. These are all methods of making C and I less responsive functions of GNP, or of lowering the C and I functions.

Asset Effects of Fiscal Policies

Up to this point we have considered only the income effects of fiscal policies, the direct and induced effects of changes in G and T_n on GNP and disposable private incomes. But these policies also have direct effects on the total assets owned by the private sectors. Government deficit spending tends to increase the assets of these sectors and government surpluses tend to decrease their total assets. This may be easily understood by recalling our earlier finding that for any period

private saving equals $I + (G - T_n)$. That is, the saving of the private sectors is equal to private investment plus the government deficit or minus the government surplus. When the government spends more than its tax receipts it must borrow to cover the deficit and for this purpose it issues valuable assets to the public. When its tax collections exceed its spending, the government forces the public to surrender valuable assets to cover the surplus of their tax payments over their income receipts from the government.

In this way, large government deficits can greatly increase the total assets of the private sectors. For example, heavy and prolonged deficit spending during war periods forces the government to issue additional money or securities to the public, and as these accumulate they tend to raise the amounts that the private sectors wish to spend for consumption and investment. The large accumulation of inflationary pressure at the end of World War II was due in considerable part, though not entirely, to the huge wartime accumulation of assets created principally by wartime government deficits. At other times, however, this issuance of private assets may be useful in promoting business recovery. On the other hand, government surpluses tend to lower the total assets of the private sectors. When the government collects in taxes more than it pays out, the private sectors must surrender assets, usually in the form of money or securities, to cover the difference. At times, especially at the end of a war when large private accumulations of assets exerted an inflationary pressure, governments have deliberately employed this principle to mop up part of the public's excess assets.

As indicated above, it is the size and duration of the government's deficit or surplus that determines the direct effect of the fiscal policy on the size of the public's total assets. But the government can also affect the composition of these assets by its borrowing policies and its use of the money obtained because of a tax surplus. And, as indicated earlier, these policies influence the behavior of C and I. Let us first consider three methods of financing a deficit. (1) *The Treasury's issuing of new money or borrowing from the central bank* increases both the public's money supply and the reserves of the commercial banking system. Thus, the use of this method increases the liquidity

of both the banks and the public, tends to increase the supply of investable funds, and constitutes another encouragement to private investment. (2) *Borrowing from commercial banks* tends directly to increase the public's money supply. Two cases should be considered, however. (a) The banking system's reserve position is such that its loans to the government need not be offset by a corresponding decrease in loans to private borrowers. In this case private investment is not necessarily discouraged by the government's borrowing. (b) The banks must decrease their private loans by an amount equal to their loans to the government. In this case private borrowers may face both decreased availability and a higher cost of credit. (3) *Borrowing from nonbank investors* has no direct effect on the money supply. Its effects on the availability of credit for private purposes are difficult to predict. Under some circumstances the government may borrow money that would not be lent to private borrowers and hence would otherwise be held idle. Under other circumstances increased loans to the government decrease the availability of credit for private use. We find, therefore, that the total effects of government deficit spending depend in part on the source of the money used to finance the deficit.

The total effects of a tax surplus depend in part on the way the money representing the surplus is used. Here we can distinguish four uses. (1) The surplus is used to build up Treasury cash in vault or Treasury deposits at the Federal Reserve or to repay debt held by the Federal Reserve. This use decreases both the public's money supply and the volume of bank reserves. It therefore tends to reduce the availability of credit and to increase its cost for private use, though this may be at least partially offset by an easy-money policy. (2) The surplus is used to increase Treasury deposits in commercial banks; the banks must hold against Treasury deposits the same reserve required against private deposits. Here the effect is to decrease the public's money supply without increasing the lending power of the banks. Hence the tendency is to restrict the supply of credit but not to the same degree as in (1), because the banks do not lose reserves. (3) The surplus is used to retire debt held by commercial banks. The direct effect is to decrease the public's money supply but to increase the banks' excess reserves by enough to permit them to

lend an amount equal to the volume of the securities retired. The effect on the supply of credit is therefore indeterminate (4) The surplus is used to retire debt held by nonbank investors. Here there is no effect on the total money supply or on the lending power of banks.

This brief discussion indicates that the total effects of a tax surplus depend in part on the use to which the money representing the surplus is put. Some uses, especially those that decrease both the public's money supply and the volume of bank reserves, tend to decrease private spending by decreasing the availability and increasing the cost of credit. At the other extreme, the use of a surplus to retire securities held by commercial banks or by nonbank investors may actually increase the supply of credit for private use.

In summary, the effects of fiscal policy are of three types: (1) income effects, (2) effects on total assets, and (3) effects on the composition of private assets, including the money supply. No analysis which limits itself to the income effects of fiscal policy can be considered complete.

MONEY AND MONETARY POLICY IN THE INCOME AND EXPENDITURE TYPE OF MONETARY THEORY

Since the central interest of this book is money and its relationship to the real output, employment, and price levels, it will be useful to look briefly at the role accorded to money and monetary policy in the income and expenditure types of monetary theory. In the types of quantity theory that we studied earlier the quantity of money was given a prominent position in the basic equations. In the Fisher type of equation, $MV = PT$, the quantity of money appears as one of the two major determinants of the rate of spending. In the cash-balance type of equation, $M = KPT$, the supply of money is given an equally prominent position. But the quantity of money does not appear at all in the basic equation, $\text{GNP} = C + I + G = C + S + T_n$, used by those who uphold the income and expenditure type of theory. What, then, is the role of money and monetary policy in this type of theory? The answer is that money and monetary policy are one of the determinants of the rate of interest. The reasoning is as follows: (1) The

quantity of money together with the liquidity preference function determines the rate of interest. (2) The rate of interest together with the marginal efficiency of capital function determines the rate of private investment. (3) The rate of private investment together with the consumption function and the G function determines the level of GNP. Thus the supply of money affects GNP only to the extent that it affects the rate of interest and the latter in turn affects the rate of investment spending.

Regarding the importance of money and monetary policy as a determinant of the rate of investment and GNP there have been wide differences of opinion among those using the income and expenditure type of theory. Some, like D. H. Robertson, consider money very important. Others, among them many of the Keynesians, consider money and monetary policy relatively unimportant as compared with the other determinants in the system. Because of the popularity of the latter position it will be useful to look at the reasoning behind it.

Those who minimize the role of money and monetary policy usually reason as follows: (1) The money supply affects the rate of spending only by its effects on interest rates. The money market is considered to be perfectly competitive so that credit is rationed only by interest rates. (2) Changes in the quantity of money affect interest rates but little. This is true because the liquidity preference function, which is considered to be independent of the supply of money, is highly interest-elastic. This is illustrated in Fig. 27.

Suppose that the liquidity preference function is LL, the money supply M_1, and the rate of interest i_1, this interest rate being considered "normal" by the community. If the money supply is increased from M_1 to M_2, so the argument runs, the rate of interest will fall only little, for the community will prefer to hold more money as a store of value rather than lend it at the lower interest, which is below "normal." On the other hand, a monetary policy which decreased the money from M_2 to M_1 would raise interest rates only little, for each rise in interest rates would lead the community to hold much less money as a store of value and to make it available for use.

(3) The demand for money to be used for private investment purposes is highly interest-inelastic. The demand for investable funds

is capable of wide shifts, reflecting changes in the marginal efficiency of capital, but the amount of money demanded for private investment is not sensitive to changes in interest rates. This is illustrated in Fig. 28. The *DD* curve indicates that for a given state of expectations about the marginal efficiency of capital, changes in the level of interest rates have only little effect on the actual rate of investment.

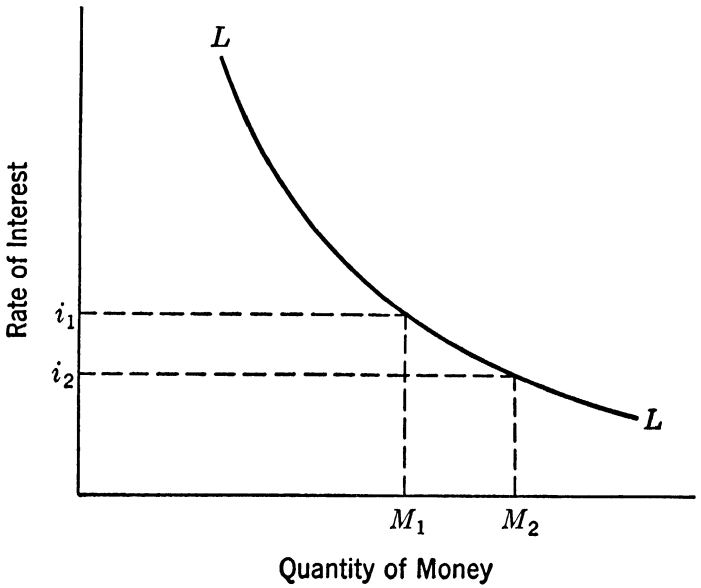


FIG. 27. Liquidity Preference, Supply of Money, and Interest Rates.

(4) The consumption and saving functions are highly interest-inelastic. The rates of saving and consumption are very sensitive to changes in the level of disposable private incomes, and the saving and consumption functions may shift for reasons unrelated to monetary policy and interest rates, but they are highly inelastic to interest rates. Thus a change in interest rates will have little effect on the amounts that will be saved or spent for consumption out of a given level of disposable private income. This is shown by the *SS* curve in Fig. 28.

(5) Government spendings for goods and services are very interest-

inelastic. The height of interest rates is of no more than minor importance as a determinant of government expenditure programs.

In summary, those who minimize the importance of money and monetary policy as a determinant of GNP often argue as follows: Money and monetary policy affect spendings only through their effects on interest rates. Changes in the money supply are likely to affect interest rates only little because the liquidity preference func-

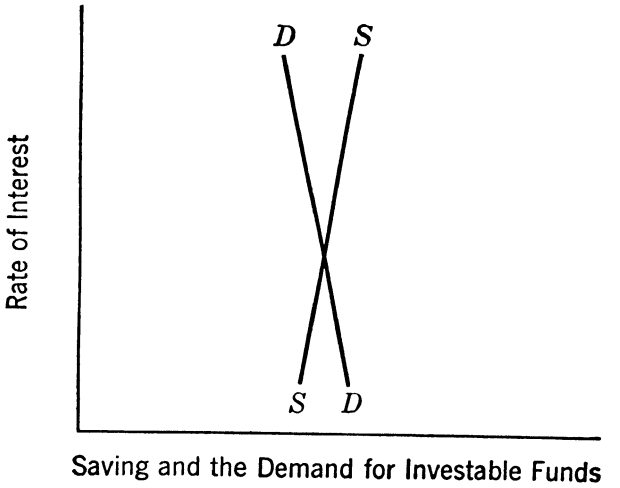


FIG. 28. Saving and the Demand for Investable Funds as Functions of the Interest Rate.

tion is little affected by monetary policy and is highly interest-elastic. Moreover, the *I*, *S*, *C*, and *G* functions are little affected by monetary policy and all are very interest-inelastic. If all these contentions were valid, money and monetary policy would indeed be minor determinants of the behavior of GNP. But, as we saw in earlier chapters, every one of these contentions is questionable.

1. The liquidity preference function may be less interest-elastic than many contend, and it may be shifted by monetary policy. Not every change in interest rates leads to extensive changes in the amount of money held as a store of value. Thus, a change in the money supply may be largely reflected in changes in the amount of money offered for use rather than in changes in the amount held as a store of value.

Moreover, the liquidity preference function is not wholly independent of monetary policy. For example, the initiation of a restrictive monetary policy may shift the liquidity preference curve upward by creating expectations of higher interest rates in the future and by making potential lenders less optimistic concerning the future course of business and the credit worthiness of borrowers. In this new situation borrowers may markedly curtail the supply of investable funds and force a reduction in private investment partly by raising interest rates but largely by using various other types of credit rationing. On the other hand, the initiation of a vigorous and determined easy-money policy may shift the liquidity preference curve downward by creating an expectation of lower interest rates in the future and by improving expectations as to the future course of business and the credit worthiness of borrowers. Even though the resulting decline of interest rates is small, lenders may relax their rationing of credit and greatly increase its availability.

2. The private demand for investable funds may be more interest-elastic than many contend; even without a change in interest rates a change in the monetary policy may alter the rate of private investment by altering the rationing policies of lenders; and the demand function for investable funds may also be shifted by a change in monetary policy. Only the last part of this statement requires elaboration. The initiation of a restrictive monetary policy may lower the marginal efficiency of capital by lowering business estimates as to the future demands for its output. On the other hand, the initiation of an easy-money policy may raise the marginal efficiency of capital somewhat by improving expectations regarding the future course of business.

3. The private consumption and saving functions may be more interest-elastic than many believe, and they may be shifted by monetary policy. Little is known about the interest-elasticity of personal consumption and personal saving. However, there are reasons to believe that monetary policy may be a significant determinant of the amount that will be saved and spent for consumption at each level of disposable private income. For example, the initiation of a restrictive monetary policy may in several ways tend to lower the propensity to

consume and raise the propensity to save. (a) Facing higher interest rates and decreased availability of credit, corporations may save a larger part and pay out as dividends only a smaller part of their net earnings. (b) The decreased availability and increased cost of credit may reduce borrowing for consumption purposes, thereby tending to lower the consumption function and to raise the personal saving function. (c) To the extent that it creates expectations of lower or less rapidly rising prices in the future, and of lower or less rapidly rising incomes in the future, a restrictive monetary policy may lower the rate of consumption and raise the rate of personal saving. An easy-money policy may have the reverse effect on private consumption and saving.

4. The availability and cost of credit may have some influence on the rate of government spending. Though expenditures for defense and war are probably influenced only little by the total supply and cost of credit, it seems likely that many other government expenditures, such as those for schools, public business enterprises, and other capital outlays, are somewhat elastic to changes in interest rates and the availability of credit.

It is difficult to assess the importance of the various influences of money and monetary policy discussed in the preceding paragraphs. One thing is clear, however; they should not be neglected in any analysis of the role of money and monetary policy as determinants of GNP. And when all these influences are considered, money and monetary policy emerge as more important factors than it was fashionable to believe them in the early years of the "Keynesian Revolution."

SELECTED READINGS

See references at the end of Chapter 26.

CHAPTER 29

The Mechanism of International Payments

Most of the discussion up to this point has been concentrated largely on the domestic aspects of money and monetary policy; international monetary relationships and the international repercussions of national monetary policies have received only little attention. This somewhat isolationist procedure was necessary for expositional purposes. Now, however, we shall broaden our perspective and consider monetary transactions among the governments, individuals, and business firms of different nations. We shall explore such topics as these:

1. The function of money in international transactions.
2. The mechanisms of international payments.
3. The types of international payments and their relationships to each other.
4. Exchange rates of national moneys.
5. Equilibrium in balances of international payments.
6. Exchange control and exchange restrictions.
7. International monetary coöperation.

In the early part of this discussion we shall assume a system of free multilateral payments—that all individuals and business firms are permitted to make international payments as they see fit and to exchange at will any national money for any other. Later we shall take into account various types of government restrictions on international payments.

THE FUNCTION OF MONEY IN INTERNATIONAL TRANSACTIONS

The basic function of money in international trade is the same as in domestic trade—to facilitate exchange and specialization. Like domestic trade, international trade is essentially barter; in the final analysis goods and services are exchanged for goods and services. But barter as a method of trade is at least as clumsy and inefficient in international transactions as in domestic trade—probably more so because of the greater distances that are usually involved. The use of money is essential to the full development of international trading and lending.

Moreover, international payments, like domestic payments, are facilitated by using types of money that can be transported quickly, cheaply, and safely. It would, of course, be possible to make all international payments by the actual shipment of precious metals in the form of coin or bullion or by the shipment of paper money. This would be costly and inconvenient; payments could be made no faster than the available means of transportation permitted, freight costs would be high, and the risk of loss would be ever present. To avoid these costs and inconveniences, international payments, like domestic payments, are generally made by transferring debt (or credit) claims from payers to payees, and the transfers are typically made through the use of bills of exchange or telegraphic orders. Banks serve the same function in international payments that they do in domestic payments. Since the bills of exchange or telegraphic orders are usually drawn on banks, bank debts are the principal money used in international transactions. We customarily pay foreigners by giving them claims against American or foreign banks, and foreigners pay us by giving us claims against American or foreign banks.

The principal difference between international and domestic payments arises from the fact that international payments usually involve two moneys rather than one. An American may pay an Englishman with claims against either pounds sterling or dollars. If the American is to pay with pounds sterling, he usually has to go into the market and use his dollars to buy claims against pounds; he must "exchange"

dollars for pounds. If payment is made in dollars, the Englishman, who keeps his books in terms of pounds and uses this unit in his domestic business, usually sells these dollar claims for pounds. To facilitate the exchange of national moneys for each other there are "exchange markets" in every important country. In these markets United States dollars, English pounds, French francs, Canadian dollars, Argentine pesos, Austrian schillings, Brazilian milreis, Danish kroner, German marks, and many other moneys are exchanged for each other. What are actually bought and sold are bills of exchange and telegraphic orders stated in terms of the various moneys. These claims are often called "exchange." Thus, "dollar exchange" means claims against dollars, "sterling exchange" means claims against pounds sterling, and so on. The term "foreign exchange" is often used in referring to claims against foreign money in general.

The exchange of one national money for another necessarily involves an exchange ratio between the two, that is, a price of each in terms of the other. These are called "exchange rates." Thus, if we say that the exchange rate between pounds and dollars is £1 = $3.00 we mean that a pound will exchange for $3 in the exchange market, or $1 will buy a third of £1. A change in the exchange rate to £1 = $3.50 indicates a rise in the value of the pound in terms of dollars or, what is the same thing, a fall of the dollar in terms of pounds. Conversely, a change to £1 = $2.50 indicates a fall of the pound in terms of dollars, or, what is the same thing, a rise of the dollar in terms of pounds. We shall consider exchange rates at length in the next chapter. It is sufficient at this point to note that such rates exist, that at any time all the national moneys are linked together by a web of exchange rates, and that in a free market the price of these moneys in terms of each other is determined by the supply of each and the demand for each.

THE BANKS AND INTERNATIONAL PAYMENTS

The mechanism of international payments cannot be understood without an appreciation of the close relationships among the banks of the various countries. Each nation has its own banking network,

and these national networks are connected with each other in various ways, usually through the larger banks. For example, some of our large banks—especially those in such cities as New York, Boston, Philadelphia, Chicago, San Francisco, Los Angeles, and New Orleans —have direct access to banking facilities in practically all the principal countries of the world except Russia, and indirect access to still others. These international connections are maintained in two principal ways: (1) through foreign branches, and (2) through correspondent relationships among the banks. A number of the larger banks in this country, such as the Chase National Bank, the Guaranty Trust Company, and the National City Bank, operate foreign branches. Several of the English banks maintain branches in various parts of the world, as do banks of such countries as France, Holland, and Canada. These foreign branches engage in many types of activities. In some cases they carry on a general banking business if this is permitted by the laws of the country in which they are located. They facilitate international payments in various ways. They perform many routine functions, such as credit analysis and collection, for the main office; they draw and sell drafts on that office; they pay drafts drawn by that office on them; they issue letters of credit; they accept time drafts drawn on them; and so on. Though foreign branches are very useful in facilitating international payments, they are probably less important in connecting the various national banking systems than are the correspondent relationships among the large banks of the different countries.

The nature of these correspondent relationships can be illustrated by a hypothetical example in which the Chase National Bank of New York and the Midland Bank, Ltd., of London become correspondents of each other. Under such an arrangement each performs many functions for the other, compensation being fixed by the agreement or by later negotiation. (1) Each performs for the other such routine functions as collecting claims against others, securing the acceptance of time drafts drawn on others, and so on. (2) At least one of the banks maintains deposit accounts with the other, and usually both maintain deposit accounts with each other. For example, Midland may hold deposits with Chase, and Chase may hold deposits with Midland.

(3) Each may agree to lend to the other up to a stipulated maximum amount, with certain safeguards. Suppose, for example, that you wish to buy a £100,000 draft at a time when the exchange rate is £1 = $4.00. Chase may sell you such a draft on the Midland Bank even though its deposit account with Midland is depleted at the time, and Midland will pay the draft. Chase may continue to owe Midland £100,000 for a time, or it may immediately purchase sterling bills and send them to Midland to replenish its account, or it may pay Midland by crediting $400,000 to its account in New York.

It is easy to see how this vast network of correspondent relationships facilitates international payments. Americans can make payments abroad with telegraphic orders or drafts drawn by their banks on foreign correspondent banks. And foreigners can pay us with telegraphic orders or drafts drawn by their banks on American correspondents. It is interesting to note that an American bank, such as the Chase National, can even sell drafts on foreign banks with which it has no direct correspondent relationship. Suppose that you wish to make a £10,000 payment in Sydney, Australia, but neither Chase nor any other American bank has a correspondent there. Chase might nevertheless sell you a £10,000 draft on a Sydney bank, informing the bank that on payment of the draft its account with Midland in London will be credited by an equivalent amount. In effect, you pay Chase, Chase pays Midland, Midland pays the Sydney bank, and the Sydney bank pays the Australian payee. All these payments can be made by crediting and debiting deposit accounts.

We have seen how the international connections among big banks, especially those in the major centers of international finance, facilitate international payments. But how can the residents of smaller cities and other customers of banks that have no direct foreign connections make payments abroad or collect from abroad? This is an easy problem in countries with nation-wide branch banking systems. In England, for example, almost everyone has access to a branch of some big bank which has foreign connections. In countries like the United States where there are many banks that do not have direct foreign connections, the problem is solved almost as easily by our widespread system of domestic correspondent relationships. For example, sup-

pose that you live in Wichita, Kansas, and wish to pay £500 in Liverpool, but your bank has no foreign account. It is likely, however, to be a correspondent of a Chicago or New York bank that does have a foreign account. In this case your bank may draw a draft on an English bank, instructing it to charge the draft against the account of the Chicago or New York bank. Even if your bank has no correspondent bank with foreign connections, it can buy a sterling draft for you from some other American bank, and all the internal payments, as well as the payments between the American and English banks, can be made by crediting and debiting deposit accounts.

A few national currencies, especially the United States dollar and the British pound sterling, have become so generally acceptable and so commonly used in international payments that they are known as "key currencies." Thus, the United States dollar is often used in transactions in which the United States is not a principal. For example, payments among South American countries may be made not in the currencies of those countries but in United States dollars. In effect, the payer buys from his bank an order on a United States bank to pay dollars, and the recipient of the claim on dollars sells it to his bank, which then sells the dollar claim to others who want to make international payments. It is partly to facilitate payments of this type that foreign banks have deposits with big United States banks and also have arrangements for borrowing from our banks. In a similar way, many other countries make payments to each other by transferring sterling claims against British banks. Most members of the British Empire, and various other countries as well, employ the British pound as a medium of international payment, and for this and other purposes hold claims against British banks and have arrangements for borrowing from British banks.

Up to this point we have considered only commercial banks in the mechanism of international payments. To complete the picture we must bring in central banks and treasuries. They also buy, sell, and hold claims against foreign currencies and in many ways participate in and influence international payments. (1) Central banks and treasuries often hold large amounts of claims against foreign currencies in the form of deposits with foreign central banks, deposits

with foreign commercial banks, or short-term earning assets—such as government securities, bills of exchange, or promissory notes—stated in foreign currencies. These claims against foreign currencies, as well as gold, are often counted as central bank "reserves." We have already noted this practice under gold exchange standards, in which a nation keeps its money redeemable not in gold but in foreign currencies that are redeemable at a fixed value in gold. But the central banks and treasuries of countries that are not on any kind of gold standard often hold large claims on foreign currencies so as to be able to meet excess foreign payments or to stabilize their exchange rates in terms of foreign moneys. (2) Central banks and treasuries often supply foreign currencies to other buyers or buy foreign currencies from other sellers. Thus the Bank of France may appear in the market as a net seller of foreign exchange, thereby decreasing its own holdings of foreign moneys, or it may enter the market as a net buyer of foreign exchange, thereby increasing its net claims against foreign moneys. Sometimes these operations by central banks and treasuries involve the sale or the purchase of gold abroad. In other cases, however, central banks and treasuries exchange their own currencies directly for foreign currencies without using gold as an intermediary. We shall see later that through such transactions central banks and government can regulate and even control the behavior of international payments, exchange rates, and gold flows. (3) Central banks and treasuries often borrow and lend in international markets. Sometimes they borrow from or lend to other central banks and treasuries; in other cases they borrow from or lend to private banks and others.

MULTILATERAL TRADE AND MULTILATERAL PAYMENTS

We saw in the first chapter that one of the great advantages of using money in trade is that it enables the possessor of a good or service to sell to the persons who will give him the highest price, and then use the money to buy the things he wants most from the seller who offers the best bargain. The seller is not forced to buy from the person to whom he sells. This fact is very important in international trade. We may find that Great Britain is an excellent market for our

cotton but that it would be less advantageous for us to buy British products than to spend the receipts from our exports for Brazilian coffee or Argentine tanning extracts. France may find it most advantageous to borrow here because of our low interest rates, but it may want Swedish paper or Danish dairy products more than American exports. To make its maximum contribution to international trade and world productivity, an international monetary mechanism must permit buyers to purchase and sellers to sell in the most favorable markets; it must not force Nation A to buy from Nation B just because Nation B purchased from Nation A. Attempts to force a bilateral balancing of payments between each pair of countries would be about as wise as requiring a farmer to spend all his money at the mill that buys his wheat.

Let us now see how unrestricted exchange markets facilitate multilateral trade and multilateral payments. Suppose that Americans export £1,000,000 worth of wheat to England and receive payment in sterling. Our exporters will sell their sterling claims to our banks for dollars, and the banks will be in a position to sell sterling to those who wish to make payments abroad. Americans may not want to buy in England but may wish to buy Brazilian coffee. They may therefore buy sterling drafts and remit them to Brazilian coffee exporters. These exporters will sell the sterling claims to their banks for milreis, and the Brazilian banks will have sterling for sale. Brazilian importers may buy the sterling and remit it to France to pay for women's clothing purchased there. French exporters will sell the sterling to their banks for francs, and the French banks will have sterling for sale. French importers may then buy the sterling to pay for imports of industrial products from England. This example, admittedly simpler in its mechanics than many actual cases, illustrates the principles of multilateral trade and multilateral payments. No two of the countries balanced their trade with each other; England bought from us, we bought from Brazil, Brazil bought from France, and France bought from England. By the unhindered exchange of money, each nation was enabled to sell in the most favorable market and to buy the things it wanted most where they were available on the most favorable terms.

It is also worth noting that free exchange markets permit borrowers to use the proceeds of international loans in the ways they consider to be most advantageous. Suppose, for example, that a French public utility company borrows $10 million in New York. It may wish to purchase only domestic labor and materials and will therefore sell the dollar proceeds of the loan for francs. Other Frenchmen may remit the dollars to Argentina for needed foodstuffs and raw materials, and an Argentine railroad may remit the dollars to us for locomotives. In the final analysis, the loan has enabled France to increase its imports, but it imported what it wanted most from the most favorable world market. And our loan to France increased our exports, but to Argentina rather than to France.

To understand the efficiency of exchange markets unhindered by government restrictions on the trading in money, we must remember that the principal exchange markets of the world are connected by cable, telephone, and radiotelephone and that the various national moneys can be exchanged for each other in the various markets quickly and cheaply. This is especially true of telegraphic orders to pay. Thus, dollars can be used to buy a telegraphic order on a French bank, the francs can be used in Paris to buy claims on a Brussels bank, the Belgian francs can be used to buy claims on a London bank, and the pounds can be used to buy other money. Because of the speed and efficiency of these interconnected exchange markets, the owner of one money can trade it for any other money quickly and cheaply, either directly or through a chain of transactions of the type discussed above. And all the moneys are linked together by a network of exchange rates that are consistent with each other. This may not be true, of course, when government restrictions prevent free trading in money.

THE STRUCTURE OF EXCHANGE RATES IN A GIVEN MARKET AT A GIVEN TIME

In most of this discussion we shall find it convenient to speak of "the" exchange rate between two different national moneys in a given market at a given time. However, it is not strictly true, even in a

free market, that there is only one exchange rate between two moneys at a given time and in a given market, such as New York. Rather, there is a cluster of exchange rates between the two, though all of them fall within a narrow range. These differentials are of three main types.

1. Differences between dealers' buying and selling prices. Dealers in foreign exchange buy foreign moneys at prices slightly lower than those at which they sell. For example, a dealer may pay you only $2800 for a £1000 demand draft on a London bank at the same time that it is charging $2802 for such drafts. It is out of this margin between selling and buying prices that exchange dealers pay their expenses and make profits.

2. Differences in the maturities of the claims. At a given time the array of sterling rates in the New York market might be as follows:

Cable rate	$2.80⅛
Sight rate (banker's demand drafts)	2.80
Rate for 60-day banker's bills	2.79⅞₁₆

Thus at any time the cable rate is the highest, followed by the rate on sight or demand drafts and then by the rate on time bills. This is because of differences in the time that sterling is paid out abroad. If a cable order is used, the selling bank loses that amount of its sterling balance almost immediately. If, however, the bank sells a sterling demand draft it does not lose its sterling balance until several days later when the draft has traveled to England and been presented for payment. In effect, the bank has the use of its funds for the intervening period, so the sight draft rate is below the cable rate by the amount of interest for the time required for the draft to be sent to England and actually paid by the drawee bank. Lowest of all is the exchange rate on time bills, for they are not payable until a future date. The rate on a sterling time bill is equal to the prevailing rate on sterling demand drafts less interest to the maturity of the time bill.

3. Differences in the degree of safety and liquidity of the claims. A claim on a well-known and highly regarded foreign bank will bring a higher price than a claim on a less highly regarded bank or on a nonbank debtor in whom confidence is not so high.

Unless otherwise indicated, we shall mean the rate applicable to sight or demand drafts on highly regarded banks when we refer to "the" exchange rate between two moneys. It will be assumed that the prices of other claims cluster around this rate in their appropriate competitive positions.

ARBITRAGE IN EXCHANGE

It is easy to see how competition will tend to establish one rate of exchange between two moneys in a given market at a given time. For example, the price of sterling cables tends to be the same in all New York banks at any moment. But may not exchange rates between two moneys be quite different in two widely separated markets, such as New York and London? This is impossible in unrestricted markets, largely because of the possibility of arbitrage in the moneys. By arbitrage we mean the simultaneous purchase of something in a cheap market and its sale in a dear market for the purpose of making a profit out of the price differences between the markets. Arbitrage must not be confused with speculation. The purpose of speculation is to make a profit out of price differences between different points of time. The purpose of arbitrage is to profit from price differences between different markets at the same point of time. Most of us are familiar with arbitrage in commodities; we know, for example, that arbitrage will not allow the price of wheat in Chicago at any time to differ from the Kansas City price by more than the cost of transportation plus a very small amount of profit for the arbitrageur.

In a similar way arbitrage in unrestricted exchange markets prevents rates in the various exchange markets, such as New York and London, from differing by more than very narrow margins. Exchange arbitrage is carried out through cable orders. We shall look first at what is usually called "two-point arbitrage," and suppose that the cable rate in New York is £1 = $2.81 at the same time that it is £1 = $2.80 in London. Pounds are higher in New York in terms of dollars than they are in London; to put it another way, dollars are cheaper in New York in terms of pounds than they are in London. An arbitrageur—he might be the foreign-exchange department of a big New York bank—could make abnormally high profits out of this discrepancy.

He could sell a £100,000 cable in New York for $281,000 and at the same time order his London correspondent to draw a $280,000 cable order on New York and sell it for £100,000. The arbitrageur thus makes a gross profit of $1000; he collected $281,000 on his sale of sterling in New York and paid only $280,000 for the same amount of sterling purchased in London. The effect of these transactions is to equalize exchange rates in New York and London. The sale of sterling in New York tends to lower its dollar price there, and the purchase of sterling in London tends to raise its price in terms of dollars in that market. Exchange rates in the two markets must be practically the same after arbitrageurs have completed their operations. In fact, discrepancies as great as the one assumed in our example could hardly occur in a market free from restrictions, because exchange arbitrageurs are always on the alert and can make good profits from very small margins. For this reason we can with little inaccuracy speak of one exchange rate between two moneys at a given time without specifying the market to which we are referring.

The above example referred to two-point arbitrage in which arbitrageurs dealt in only two markets at once. But they can also deal in three or more markets simultaneously, thereby helping to establish a consistent network of exchange rates at any time. For example, an American may purchase pounds directly with dollars, or he may first purchase some other money with dollars and then use the other money to buy pounds. In unrestricted markets arbitrageurs act in such a way as to make the cost of each foreign money approximately the same whether it is purchased directly or through a series of exchange transactions involving several moneys. To illustrate the principle of three-point arbitrage, let us assume that the following exchange rates exist at a given point of time:

£1 = $2.81
1 Belgian franc = 1.9 cents
£1 = 139 Belgian francs

An arbitrageur could make abnormal profits from this situation by selling pounds for dollars, buying Belgian francs with dollars, and selling Belgian francs for pounds. Let us look at the transactions he would carry out simultaneously.

1. He would sell £100,000 in New York for $281,000.
2. He would pay $264,100 for 13,900,000 Belgian francs at 1.9 cents each.
3. He would sell the 13,900,000 Belgian francs at the rate of 139 Belgian francs to the pound, thereby regaining the £100,000 that he sold for dollars.

In this way the arbitrageur would make a gross profit of $16,900, for he sold sterling for $281,000 and repurchased it for only $264,100 by the circuitous process of buying Belgian francs with dollars and using the francs to buy pounds. But his operations also tended to erase the profitability of further operations of this type. His sale of sterling for dollars in New York tended to lower the price of sterling in terms of dollars; his purchase of francs tended to raise the price of francs in terms of dollars; and his purchase of pounds with francs tended to raise the price of pounds in terms of francs. Arbitrage transactions of this type would not cease until pounds cost almost exactly the same amount in dollars whether purchased directly or through transactions in other foreign moneys. In fact, arbitrageurs are so alert that only very small discrepancies could occur in a free market. The following exchange rates are consistent with each other:

£1 = $2.80
1 Belgian franc = 2 cents
£1 = 140 Belgian francs

At these rates £100,000 would cost $280,000 whether purchased directly with dollars or purchased indirectly by using dollars to purchase Belgian francs and using the francs to buy pounds.

In a system of unrestricted exchange markets, arbitrage operations of these types establish and maintain a web of mutually consistent exchange rates among all moneys in all markets at any given time.

SPECULATION IN EXCHANGE

Speculators buy and sell claims against money just as they buy and sell securities and commodities. And the motives for speculation are

the same in all these cases—a desire to profit, or at least to avoid losses, from price changes through time. Suppose, for example, that at some time when the exchange rate between dollars and pounds is £1 = $2.80 a speculator believes that the pound is likely to fall in terms of dollars—or, to put it the other way, that the dollar will rise in terms of pounds. He may exchange his pounds for dollars at the existing exchange rate, hoping to gain through the expected rise of the dollar relative to sterling. On the other hand, he may sell dollars for sterling if he expects the dollar to decline in terms of pounds.

It should be noted that speculative shifts of assets from one national money to another in anticipation of expected changes in exchange rates may be made by the nationals of any country and by those who do not consider themselves speculators as well as by those for whom speculation is a profession. Suppose, for example, that there arises an expectation that pounds will depreciate in terms of dollars. The resulting sales of sterling and purchases of dollars might be carried out by professional speculators who expect to profit later by selling the dollars for a higher price in terms of sterling. Or they might be carried out by nonprofessionals who know they will have to buy dollars later and want to avoid paying a higher price for them, or by those who are holding sterling and want to avoid a loss on it. Moreover, these operations can be carried out by the nationals of any country. Thus an American could sell any sterling holdings he may own or even borrow sterling to sell in order to get dollars, an Englishman could sell some of his own pounds or even borrow pounds to purchase dollars, and a national of any third country could sell any sterling that he owned and even borrow sterling and use it to purchase dollars. In short, exchange speculation is based on the same principle as any other type of speculation: Buy the assets you expect to rise and sell those you expect to fall in value.

The effects of speculation in exchange markets are as complex as they are in security and commodity markets. Some kinds of speculation tend to stabilize exchange rates. If speculators expect the price of a money to be stable over a longer period, they may help to narrow its short-term fluctuations by purchasing it when its price falls below the trend and selling it when its price rises above the expected trend.

But other kinds of speculation, like some types of speculation in commodity and security markets, initiate and aggravate fluctuations in exchange rates. These are especially serious when each change in an exchange rate creates expectations of further changes in the same direction. In such cases an initial decline in the foreign-exchange value of a currency may touch off a series of selling surges and price declines of the currency and create a disorderly and panicky flight from it. On the other hand, an initial rise in the price of a currency may create expectations of still further increases and usher in a series of buying surges and higher prices for it in exchange markets. It was partly to control such flights from one national money to another that many countries adopted controls over exchange speculation and the international movement of money on capital account.

A NATION'S BALANCE OF INTERNATIONAL PAYMENTS

For analyzing international monetary relationships a clear understanding of a nation's balance of international payments is indispensable. This concept has been well defined by the United States Department of Commerce: "The balance of payments of a country consists of the payments made, within a stated period of time, between the residents of that country and the residents of foreign countries. It may be defined in a statistical sense as an itemized account of transactions involving receipts from foreigners on the one hand and payments to foreigners on the other. Since the former relate to the international income of a country, they are called 'credits,' and since the latter relate to international outgo, they are called 'debits.' "[1]

Several basic points in this definition are worth emphasis. (1) The balance of payments of a given country relates to the *flow* of payments between the residents of that country, including its government, and the residents of all other countries *during a stated period of time.* This *flow* of payments *during a stated period of time* must not be

[1] U.S. Department of Commerce, *The Balance of Payments of the United States*, 1937, p. 1.

confused with a nation's international balance sheet showing its claims against foreigners and foreign claims against it *at a point in time*. (2) All the transactions in a nation's balance of international payments are divided into two broad categories: receipts or "credits" on the one hand, and payments or "debits" on the other. (a) Receipts or "credits" of a country include all the transactions during the stated period that involve receipts from the residents of foreign countries. Foreigners may pay us either by giving us claims on foreign money or by using their money to buy dollar claims which they remit to us. In either case, receipts in our balance of payments cause foreign money to be offered to purchase dollars, either in our own exchange markets or in exchange markets abroad. We can therefore look upon receipts in our balance of payments either as a source of our supply of foreign moneys or as the source of demand for our dollars. (b) Payments or "debits" of a nation include all the transactions during the stated period that involve payments from the residents of that country to residents of foreign countries. Thus, our payments include all transactions during the period that involve payments by us to foreigners, and these payments may be made either in dollars or in foreign currencies. In either case, these outpayments by us require the offer of dollars to purchase foreign currencies, either in our own exchange markets or in exchange markets abroad. We can therefore look upon payments or debits in our balance of payments as the source of supply of dollars to foreigners or as the source of our demand for foreign currencies.

(3) For any period a nation's balance of international payments must "balance" in the sense that total receipts equal total payments. We may say that a nation's receipts for the stated period represent all payments to it from abroad and that its payments show the various ways that these receipts are utilized, for all the receipts must be utilized in some way. Alternatively, we may say that total debits or payments show the total outpayments of the nation to foreigners during the period and that its receipts show the sources of the funds with which the outpayments were made. (4) The receipts and payments in one nation's balance are payments and receipts of other

nations. Thus the receipts of the United States during any period are the payments of other countries, and payments by the United States are the receipts of other nations.

Table 78 shows the balance of international payments of the United States with the rest of the world for 1951. We shall now analyze in some detail the various types of receipts and payments.

TABLE 78. Balance of International Payments of the United States, 1951[2]
(In millions of dollars)

Item	Receipts (Credits)	Payments (Debits)	Net Receipts (+) or Net Payments (−)
Goods and services—total	$20,140	$15,111	+5029
Merchandise	15,424	11,663	+3761
Transportation, travel, and other services	2,811	3,048	−237
Income on investments	1,905	400	+1505
Capital movements—total			−548
Long term			−1435
Short term			+887
Unilateral Transfers—total			−4939
Government			−4534
Private			−405
Gold Purchases (−) or Sales (+)			−53
Errors and omissions			+511
Total			0

Though we shall concentrate on the statement for this country, the same principles apply to the balance of payments for any country.

Receipts (Credits)

As already indicated, a nation's receipts or "credits" include all transactions during the stated period that involve receipt of payments by residents of that nation from residents of other countries. These may be divided into the following classes:

A. Exports of goods and services.
   1. Exports of goods (merchandise).
   2. Exports of services.

[2] Source: *Survey of Current Business*, March, 1952, p. 16.

a. Sales to foreigners of such services as transportation, financial services, services to foreign travelers in this country, and so on.
b. Income from investments in foreign countries—interest, dividends, rents, royalties, etc.

B. Exports of capital claims (capital imports).
1. Exports of long-term claims—foreign purchases of long-term claims against the United States and foreign purchases of claims against foreign countries held by residents of this country.
2. Exports of short-term claims—foreign purchases of short-term claims against the United States, including increased deposit claims against the United States banks, and foreign purchases of short-term claims against foreigners held by residents of this country.

C. Unilateral transfers received.
1. Gifts and grants received from foreign governments, businesses, and other residents.

D. Exports of gold.

A nation's exports of goods and services include sales to foreigners of various types of merchandise and many kinds of services—shipping, financial services, services rendered to foreign travelers, services of experts to foreigners, and the services rendered by that nation's investments in foreign countries. The last item includes foreign payments to the nation in the form of interest, dividends, rents, royalties, and so on.

A nation's exports of claims—which are usually called "capital imports"—include all transactions which increase foreign claims against that country or decrease its claims against foreigners. These can be divided into two general classes—long term and short term. The exports of long-term claims include all foreign purchases of claims against the nation and its residents—foreign purchases of its government bonds, of ownership interest in its business, and of other longer-term debt claims against it. Also included are foreign purchases of the nation's long-term claims against foreigners. For

example, this includes foreign purchases of American investments abroad, repayment of long-term foreign debt to private investors here, and retirement of foreign long-term debt to our government. These foreign purchases of long-term claims against the United States and retirement of our long-term claims against foreigners during a period obviously require foreign payments to this country. Similarly, our exports of short-term claims include both foreign purchases of short-term claims against this country and foreign purchases of our short-term claims against foreigners. Included, therefore, are foreign purchases of short-term claims representing claims on either our residents or residents of foreign countries, foreign purchases of increased deposit claims against our banks, and foreign purchases of part of our deposit claims against foreign banks. For all these purchases foreigners must make payments to residents of this country. Another common characteristic of all these transactions is that they involve the "import of capital funds" by this country—either a decrease of our claims against foreigners or an increase of foreign claims against us.

As indicated in the outline, unilateral transfers received include all gifts and grants received by us from foreigners. Gold exports by us are receipts, for foreigners have to pay us for the gold, either by offering us dollars or by supplying foreign currencies to us. This item would have been included under "exports of goods and services" except for its special significance in monetary policy.

Payments (Debits)

The transactions during the stated period that involve payments from a nation to residents of foreign countries may be grouped in the following categories:

A. Imports of goods and services.
   1. Imports of goods (merchandise).
   2. Imports of services.
      a. Purchases from foreigners of such services as transportation, financial services, services to the nation's residents traveling abroad, and so on.

b. Payments of income to foreigners on their investments in the country—interest, dividends, rents, royalties, etc.

B. Imports of capital claims (capital exports).
   1. Imports of long-term capital claims—purchases of the nation's securities previously held abroad and purchases of long-term claims against foreigners.
   2. Imports of short-term claims—purchases of short-term claims against foreigners, and purchases from foreigners of claims against the country previously held by foreigners.

C. Unilateral payments to foreigners.
   1. Gifts and grants from the nation's government and other residents to foreigners.

D. Imports of gold.

A nation's imports of goods and services require no further description. Its imports of capital claims—usually called "capital exports"—include all transactions which increase its claims against foreigners or decrease foreign claims against it. Its imports of long-term claims—its export of long-term capital—therefore include its purchases of long-term claims against foreigners and also its purchase of claims against itself formerly held by foreigners. Similarly, its imports of short-term claims include its purchase of all sorts of short-term claims from foreigners. Included, therefore, are its purchases of larger deposit claims against foreign banks and a reduction of the deposit liabilities of its banks to foreigners. For all these purchases a nation must make payments to foreigners. Another common characteristic of all these transactions is that they involve an "export of capital funds" by the country—either an increase of its claims against foreigners or a decrease of foreign claims against it.

Unilateral payments to foreigners include all gifts and grants from the nation's government and other residents to the residents of foreign countries. The gold imports, of course, are payments or debits in the country's balance of payments, for it must pay foreigners for the gold with either its own money or the money of other countries.

In summary, a nation's total receipts and its total payments can be divided into four broad categories, as follows:

Total Receipts		Total Payments
1. Exports of goods and services		1. Imports of goods and services
2. Exports of capital claims (capital imports)	equals	2. Imports of capital claims (capital exports)
3. Unilateral transfers received (gifts and grants received)		3. Unilateral payments to foreigners (gifts and grants to foreigners)
4. Exports of gold		4. Imports of gold

For any period, a nation's total receipts and total payments must be equal. This does not mean, however, that any one category of its receipts must be equal to the same category of its payments. For example, a country may export more goods and services than it imports. But if its receipts exceed its payments in one category there must be an equal excess of payments over receipts in one or more of the other categories.

For some purposes it is convenient to deal not with total receipts and total payments in each category but with the net excess of receipts, which we shall designate by (+), or net payments, which we shall designate by (−), in each category. Thus we would list net exports (+) or net imports (−) of goods and services, net exports (+) or net imports (−) of capital claims, net unilateral receipts (+) or net unilateral payments (−), and net gold exports (+) or net gold imports (−). For any period the algebraic sums of the plus and minus quantities must be zero. This is only another way of saying that net receipts in one category must be balanced by net payments in one or more of the other categories.

BALANCES OF PAYMENTS AS ANALYTICAL TOOLS

Balances of payments are highly useful for many analytical purposes. Two of these will be considered at this point. In the first place, these balances can be used to show the various types of relationships among the various national economies. National economies are linked together by exports and imports of goods and services, by international movements of both long-term and short-term capital, by international gifts and grants, and by international gold movements.

Changes in the volume and direction of all these flows can greatly influence the behavior of the various economies. These effects are of two principal types. The first is income effects. International purchases and sales of goods and services are components of the income accounts of the nations involved. Fluctuations of their exports and imports, especially fluctuations of net exports and net imports, are reflected in the GNP of the countries involved, and each initial change may induce further changes in national money income, with attendant effects on real output, employment, and price levels. The second is monetary effects. The balance of payments can be a major determinant of the money supply and credit condition of a country. In some periods its residents may greatly increase their holdings of gold, of other forms of their own currency, and of foreign currencies as these are transferred to their ownership by foreigners. In addition to increasing the money supply directly, these inflows may also swell the supply of bank reserves. In other periods a nation's money supply and bank reserves may be reduced by net transfers to foreigners of gold, of other forms of its money, and of foreign currencies.

Balances of payments are also useful for analyzing the determination of exchange rates. As we saw earlier, receipts in our balance of payments are the source of the demand for dollars in foreign-exchange markets. We can therefore analyze the demand for dollars by analyzing the various categories of receipts which account for this demand and the supply of foreign exchange for dollars. We also saw that payments in our balance of international payments are the source of the supply of dollars or of the demand for foreign currencies. We can therefore analyze the supply of dollars and the demand for foreign currencies by studying the various categories of payments which account for the supply of dollars in foreign-exchange markets.

EQUILIBRIUM IN BALANCES OF PAYMENTS

It is important to distinguish between a "mere balance" of international payments and an "equilibrium" in balances of international payments. As already noted, each nation's total receipts are equal to its total payments during any stated period, regardless of economic

conditions. This is true in times of rapid inflation and in the midst of widespread deflation and unemployment as well as in periods characterized by practically full employment and relative stability of national price levels. It is true when exchange rates are fluctuating wildly as well as when they are relatively stable. It is true when the nations are balancing their payments only by large increases or decreases in their gold and international creditor-debtor positions as well as when they are balancing these payments without any net change in their gold and creditor-debtor position. Hence a "mere balance" of international payments does not necessarily imply the existence of an "international equilibrium" in any meaningful sense.

By international equilibrium we mean that balances of international payments are kept in balance with (1) approximately full employment in all trading countries, (2) approximately stable international price levels, and (3) relatively small variations in exchange rates. This does not, of course, mean that each nation's exports of goods and services must exactly equal its imports of these items. It clearly leaves room for an orderly flow of international investment which is balanced by other receipt and payment items and which is consistent with the maintenance of approximately full employment and relatively stable price levels and exchange rates.

Deviations from the above conditions we shall call "international disequilibrium." This subject will be discussed in the next chapter. We shall study some of the sources of international disequilibrium, and the mechanism for correcting any that occurs. A thorough treatment of these international economic interconnections requires a thorough understanding of the economic systems of every one of the trading nations. For example, the international receipts and payments of the United States depend not only on the behavior of our economy but also on the economic behavior of all the other countries that buy from us, sell to us, borrow from us, lend to us, give us gifts, accept gifts from us, and ship gold to us or buy gold from us. An international disequilibrium can be created by developments in any country. We shall not be able to consider the behavior of all the national economies, but we shall indicate how changes in one

economy can spread to others and how the various economies react to changes originating abroad that affect them.

SELECTED READINGS

Cross, I. B., *Domestic and Foreign Exchange*, Macmillan, New York, 1923.

Department of Commerce, *The Balance of International Payments of the United States* (annual), Washington.

Ellsworth, P. T., *The International Economy*, Macmillan, New York, 1951.

Enke, S., and Salera, V., *International Economics*, Prentice-Hall, New York, 2nd ed., 1951.

Escher, F., *Modern Foreign Exchange*, Macmillan, New York, 1932.

Furniss, E. S., *Foreign Exchange*, Houghton Mifflin, Boston, 1922.

Marsh, D. B., *World Trade and Investment*, Harcourt, Brace, New York, 1951.

Young, J. P., *International Economy*, Ronald, New York, 2nd ed., 1951.

CHAPTER 30

Exchange Rates and International Equilibrium

In the preceding chapter we found that international payments, like payments within a country, are usually made with drafts or cable orders drawn on banks. But since each nation has its own money, an international payment ordinarily requires the exchange of one national money for another, and in each case this involves an exchange rate—a price for each money in terms of the other. The purpose of this chapter is to analyze the determination of exchange rates and their relationship not only to balances of international payments but also to the behavior of money income, production, employment, output, and prices in the various countries. We shall assume that governments allow free trading in money in their exchange markets; the effects of government restrictions on dealings in exchange will be considered in the following chapter. Moreover, when we speak of exchanges of national moneys we shall mean exchanges of sight drafts drawn on banks and stated in terms of national moneys.

Though our purpose is to elucidate general principles we shall in each case assume that the exchange is between United States dollars and foreign currencies in general as represented by the English pound. Exchange rates will be stated as the price of pounds in terms of dollars—for example, £1 = $2.80. Of course, this also indicates the price of dollars in terms of pounds; for if £1 = $2.80, then $1 = £$\frac{1}{2.80}$. A rise in the dollar price of pounds is the same as a decline in the

pound price of dollars, and a fall in the dollar price of pounds is the same as a rise in the pound price of dollars.

THE DEMAND FOR AND SUPPLY OF NATIONAL MONEYS IN EXCHANGE MARKETS

Since exchange rates are prices, they can be explained by a supply and demand analysis. For this purpose, we must state the supply of foreign exchange as a function or schedule indicating the amounts of a foreign money that would be supplied in exchange for dollars at each price for the foreign money, and we must also state the demand for foreign money as a function or schedule indicating the amounts of foreign exchange that would be purchased with dollars at each price for the foreign money. The exchange rate at any time will be fixed at the level that just equalizes the supply of and demand for foreign exchange. But to make such a supply and demand analysis meaningful we must analyze the factors that determine supply and demand—the factors that determine the location and elasticity of the curves at a point of time and that shift them through time.

It must be remembered that these supply and demand functions are total receipt and total payment functions. The supply of foreign exchange to the United States indicates the total payments that foreigners are willing to make to this country at the various levels of exchange rates. It therefore reflects the physical volume of foreign purchases from us multiplied by the prices in foreign currency of the physical things bought from us. Similarly, the demand for foreign exchange indicates our total payments to foreigners at the various levels of exchange rates. It reflects our physical purchases from foreigners multiplied by the prices of those things in foreign currencies.

Let us now look at the components of the supply of foreign exchange for dollars. As we saw earlier, these are our receipts from foreigners. The components of this supply of foreign exchange to us are (1) our exports of goods and services, (2) our exports of claims, (3) our gifts and grants received from foreigners, and (4) our gold exports. The supply of foreign exchange for dollars at each level of

exchange rates is therefore the total amount that foreigners are willing to pay us for these items at each exchange rate.

We shall now explore briefly some of the principal determinants of the amounts that foreigners will spend for our goods and services and for the purchase of claims from us. These principal determinants may be divided into three classes: (1) The level of their national incomes. If their national incomes are high, they are likely to demand more of our output than if their national incomes are low. Thus shifts in the level of foreign national incomes are likely to shift the supply curves of foreign currencies paid to us. (2) Their taste for American as against foreign goods. This is clearly an important determinant of foreign purchases here, but we shall assume foreign taste to be constant. And (3) the relative costs, in their own currencies, of our products as against foreign products. In general, foreign purchases here are likely to be larger if the costs of our products to foreigners are relatively low than if they are relatively high.[1] But the relative costs of our goods and of foreign goods to foreigners depends on three factors: the price of our goods in dollars, the price of foreign goods in foreign currencies, and the cost of dollars in foreign currencies. Thus higher exchange rates for dollars tend to decrease purchases here if our price levels and foreign prices are given, and lower exchange rates for dollars tend to increase purchases here if our price levels and foreign prices are given. On the other hand, a rise in our price levels relative to foreign prices tends to decrease purchases here at each level of exchange rates, and a decline in our prices relative to those abroad tends to increase purchases here at each level of exchange rates.

The supply of foreign currencies to purchase claims from the residents of this country has two broad purposes: to earn higher yields here than abroad and to procure greater safety, liquidity, or a chance of speculative profit. Thus our supply of foreign currencies for these purposes may be low indeed if yields here are below those abroad or

[1] We shall assume here that the price-elasticity of the foreign demand for our output is greater than unity, so that a fall in the price of our goods will increase the total value of our exports. It is of course possible for the price-elasticity of this demand to be less than unity, so that the total value of our exports would be decreased by a fall in their prices.

if the exchange rate on the dollar is expected to remain stable or to decline. But our supply of foreign currencies for these purposes may be very large if yields here are higher than those abroad, if the dollar is considered superior in terms of safety and liquidity, or if it is expected to appreciate in terms of foreign money. Changes in these conditions can greatly shift the supply schedules of foreign currencies for dollars.

As indicated earlier, the components of the demand for foreign currencies or the supply of dollars are the various "payment" categories in our balance of international payments: (1) imports of goods and services, (2) imports of claims, (3) gifts and grants to foreigners, and (4) imports of gold. The demand for foreign exchange at each level of exchange rates is therefore the total amount of our payments to foreigners for these purposes at each exchange rate.

The principal determinants of our purchases of goods and services from foreigners may be grouped in three broad categories. (1) The level of our GNP. If our GNP is high, we are likely to import more than if our national income is at depression levels. Thus shifts in our GNP usually shift our demand schedule for foreign currencies. (2) Our taste for foreign as against domestic products. Though this is an important determinant of our demand for foreign currencies we shall assume that our taste remains constant. (3) The relative prices of domestic and foreign goods and services. This depends on three broad factors: the prices of our domestic products in dollars, the prices of foreign products in foreign currencies, and the height of foreign-exchange rates. If price levels here and abroad remain constant, higher exchange rates for foreign currencies make foreign products relatively more expensive, and lower exchange rates for foreign currencies make foreign products relatively less expensive. However, a rise in our price levels relative to those abroad will tend to increase our demand for foreign currencies at each level of exchange rates, and a decline in our price levels relative to those abroad will tend to decrease our demand for foreign currencies at each level of exchange rates.

The demand for foreign currency with which to purchase claims

from foreigners has two broad purposes: to earn higher yields abroad and to purchase greater safety, liquidity, or a chance for speculative profit. Thus the demand for foreign currencies for these purposes may be very low if yields in our money markets are at least as high as those abroad and if foreign-exchange rates are expected to remain stable or to decline. But the demand may be high if yields abroad are higher than those here and if foreign-exchange rates are expected to remain stable or to rise.

Having looked at the components of the supply of and demand for foreign exchange we can now explore the behavior of exchange rates under a few types of monetary standards. Because of its relative simplicity, we shall begin with exchange rates under an international gold standard.

EXCHANGE RATES BETWEEN GOLD STANDARD MONEYS

To illustrate the principles involved, we shall use the United States dollar and the British pound sterling in the 1925–31 period when both countries were on gold standards with free imports and free exports of gold. We shall assume the following conditions:

1. The dollar has a gold value of 23.22 grains, and our monetary system freely buys and sells gold at this price.
2. The pound has a gold value of 113 grains, and the British monetary system freely buys and sells gold at this price.
3. Both countries allow the free import and free export of gold. If private dealers are restricted, the same result can be obtained if the monetary authorities themselves export and import gold in unlimited quantities at the same prices at which private dealers would buy and sell. In our example we shall assume that the gold shipments are made by banks or other private foreign-exchange dealers.

As long as two countries meet these conditions, the exchange rate between their moneys must remain relatively stable. It must remain close to the level determined by the *mint parity* or *par of exchange* of the two monetary units, and it cannot vary beyond the *gold-export* and *gold-import* points. By mint parity or par of exchange between

two monetary units we mean the ratio of their pure gold content. Thus, in 1926 when the dollar had a pure gold content of 23.22 grains and the pound had a pure gold content of 113 grains, the mint parity between the two was $\frac{113}{23.22}$, or £1 = $4.8665. In effect, the gold that could be purchased in England with £1 (113 grains) could be sold to our mints for $4.8665, and the amount of gold that could be purchased with $4.8665 at our mints (113 grains) could be exchanged in England for £1. Under these conditions the price of sterling sight drafts could not rise above $4.8665 by more than the cost of shipping 113 grains of gold from this country to England; it could not rise above the gold-export point. At a rate of exchange for sterling corresponding to the gold-export point there would be an unlimited supply of pounds—a supply from exchange dealers who bought gold in the United States, shipped it to London and sold it for pounds, and then offered the pounds for sale. And the price of sterling sight drafts could not fall below $4.8665 by more than the cost of shipping 113 grains of gold from England to the United States; it could not fall below the gold-import point. At a rate of exchange for sterling corresponding to the gold-import point there would be an unlimited demand for sterling—a demand by exchange dealers who would purchase sterling, use it to buy gold in London, and then ship the gold to the United States and sell it for dollars.

The price of sterling could not rise above the gold-export point because at that point banks or other exchange dealers could profitably buy gold here, ship it to England, sell it there for sterling, and sell sterling drafts against the credits built up in this way. Suppose, for example, that the Chase National Bank wished to build up a £100,000 credit in England by the export of gold. At the English purchase price for gold, £1 = 113 grains, it would have to export 11,300,000 grains of gold for this purpose. At our mint price of $1 = 23.22 grains this gold would cost $486,650 here. Let us suppose that the total cost of shipping the gold to London, including cooperage, cartage, freight, assaying, interest, and the necessary profit to Chase, was $2000. The total cost to the bank, including its necessary profit, of securing the £100,000 credit in London would be $488,650, or $4.8865

per pound. Thus, Chase and other competing exchange dealers would prevent the price of sterling from rising above the gold-export point, for at this price they could profitably export gold to England and sell the resulting sterling credits. It should be noted, however, that this limitation on the rise of sterling operates only so long as (1) gold is freely sold here at the fixed price of $1 = 23.22 grains, (2) the United States allows free exports of gold, (3) England allows the free import of gold, and (4) England purchases all the metal offered at a price of £1 = 113 grains. A violation of any one or more of these conditions can allow the dollar cost of acquiring sterling with gold to rise and also allow the dollar price of sterling drafts to rise.

Under the conditions assumed above, the price of sterling could not fall below the gold-import point because at that point banks or other exchange dealers could profitably buy sterling drafts, use the drafts to buy gold in England, ship the gold to this country, and sell the gold for dollars. For example, Chase could buy £100,000 of sterling demand drafts, use them to buy 11,300,000 grains of gold in England, ship the gold to this country, and sell it to the mints for $486,650. From this amount, however, Chase would have to subtract its shipping costs and its necessary profit, which we may assume to be about $2000. Thus its net realization on the £100,000 of sight drifts that it bought would be $484,650, or $4.8465 per pound. At this price for sterling drafts, the gold-import point, Chase and other competing exchange dealers would find it profitable to buy all these drafts offered for sale and use them for the purpose of importing gold. We must remember, however, that this limitation on the fall of sterling operates only if all the following conditions are fulfilled: (1) Gold is freely sold in England at the fixed price of £1 = 113 grains, (2) England permits free exports of gold, (3) the United States permits the free import of gold, and (4) the United States will purchase all the metal offered at the fixed price of $1 = 23.22 grains. If any one or more of these conditions is violated, sterling may fall below the former gold-import point. For example, if England restricts gold exports or allows the price of gold to rise there in terms of sterling, our banks may not find it profitable to pay as much as $4.8465 for sterling sight drafts.

Thus, as long as two moneys have fixed values in terms of gold and both countries permit the free import and export of gold, exchange rates between sight drafts stated in terms of the moneys cannot vary from mint parity by more than the cost of shipping gold between the countries. This principle applies not only to dollars and pounds but also to all other moneys that meet these conditions. As a result, all gold standard moneys at any time are linked together by a network of virtually stable exchange rates.

In our example we assumed that the gold shipments were made by private dealers. It is important to note that monetary authorities may themselves achieve the same results. For example, they could keep sterling from rising above the gold-export point by supplying unlimited amounts of it at that price, and they could keep it from falling below the gold-import point by purchasing unlimited amounts at that price. This could be done through the purchase and sale of gold, or through the direct exchange of dollars and pounds for each other at these prices.

It is often contended, as we saw earlier, that this virtual stability of exchange rates is one of the great advantages of an international gold standard, for it is supposed to promote international trade and investment by minimizing the risk of fluctuating exchange rates. A person can sell abroad, accept in return a promise of future payment in a foreign gold standard money, and know approximately how many dollars he will get for it. Or he can buy abroad, promising to make future payment in a foreign money, and know within a narrow range how many dollars the foreign money will cost him. Special emphasis is usually placed on the advantages of stable exchange rates for international lending. If an American lends abroad and the foreigner promises to pay principal and interest in terms of foreign money, the American knows the approximate dollar value of these future receipts. If the foreigner promises to pay dollars in the future, he knows the approximate cost of these dollars in terms of his own money. This situation is often contrasted with the uncertainty resulting from widely fluctuating exchange rates.

In the decade immediately preceding World War I only praise was to be heard for the stability of exchange rates under international

gold standards. But under the reconstructed gold standards of the late 1920's, and especially during the great depression following 1929, the prestige of gold standards declined. Some people began to ask, "Are we paying too high a price for the stability or inflexibility of exchange rates? In fact, may not the very stability of these rates be injurious to a country?"

To understand this controversy we must look at some of the other implications of inflexibly pegged exchange rates, including stable exchange rates under an international gold standard. It is clear that under such a system international balances of payments can get out of equilibrium and that the relations of other receipts and payments may be such as to necessitate sizable international movements of gold. For example, the rest of the world might have to sell large amounts of gold to the United States to balance international payments. This raises an interesting question: What is to keep gold from flowing persistently toward one country until that country holds all or most of the world's monetary gold stock? The theory of an international automatic gold standard maintains that such imbalances tend to be self-correcting—that an initial imbalance will touch off a readjustment process which will restore "equilibrium."

To illustrate this process, let us assume that, starting from an equilibrium situation, gold begins to flow to the United States because of a rise in our exports of goods and services relative to our imports. Both here and in the rest of the world, this will have two types of effects: income effects and monetary effects. In the United States, the rise in exports relative to imports, which we earlier called net foreign investment, will directly add to incomes, and this initial contribution to GNP may induce further increases in income here by raising our consumption and investment expenditures. With this income rise, we are likely to increase our demands for imported goods. The income effects in the rest of the world are just the reverse. With a decline in their exports relative to their imports, their GNP tends to fall, and the initial declines in their money incomes may induce further declines in their consumption and investment. With lower incomes, their demands for our exports are likely to decline. Thus, both the expansionary income effects in the United States,

which tend to increase our demand for the output of the rest of the world, and the contractionary income effects in the rest of the world, which tend to decrease their demand for our output, tend to bring international payments back into balance without further movements of gold. These income effects may tend to restore balance without significant changes in price levels, but they may also tend to raise prices in the United States and to lower prices abroad.

In addition, there will be monetary effects both here and in the rest of the world. These are of three types. (1) Direct effects on the money supply. The money supply of the United States will tend to be increased directly and that of the rest of the world decreased directly by the movement of gold to this country. (2) Direct effects on commercial bank reserves. Bank reserves in the United States will tend to be increased and foreign commercial bank reserves decreased. (3) Effects on central bank reserves and on central bank monetary policies. The gold flow will increase central bank reserves here and lower them abroad. This may induce our monetary authority to adopt an easier credit policy and foreign monetary authorities to tighten their credit policies. The expansionary monetary effects here will tend to raise GNP, and perhaps price levels, and to induce a further increase in our demand for imports. On the other hand, the contractionary monetary effects in the rest of the world will tend to lower GNP and perhaps price levels there and decrease their demand for our output. Thus, both the expansionary monetary effects here and the contractionary monetary effects abroad will tend to remedy the imbalance of payments by raising money incomes here relative to those abroad and perhaps also by raising price levels here relative to those abroad.

In summary, the adjustment process under an international gold standard with virtually fixed exchange rates must function through adjustments of the relative levels of money incomes and prices in the various countries. The conventional gold standard theory assumed that these adjustments would occur both in countries with a "favorable" balance, in the sense of gaining gold, and in those with an "unfavorable" balance. In the countries with a "favorable" balance, both the expansionary income effects and the expansionary monetary

effects would tend to raise the level of national money incomes, and perhaps also the price levels, thereby tending to increase their demand for imports and for foreign exchange. In the countries with an "unfavorable" balance, both the contractionary income effects and the contractionary monetary effects would tend to lower the level of national money incomes, and perhaps also the price levels, thereby reducing their demand for the products of the countries with the "favorable" balance. This process of adjustment would continue until money incomes and price levels in the various countries were in such relationships to each other that payments would be balanced without any further flow of gold.

It should be evident that this process is capable of transmitting economic disturbances from one nation to others. For example, a decline in GNP in the United States, representing a fall of $C + I + G$, can decrease our demand for imports, tend to decrease our imports relative to our exports, and lead to gold flows to this country. This may subject other countries to deflationary pressures, through the contractionary income effects and the contractionary monetary effects in those nations. On the other hand, a rise in GNP here, with its attendant expansionary effect on our demand for imports, may subject the rest of the world to expansionary income and monetary effects.

This adjustment of balances of payments through adjustments of national money incomes and price levels, though once viewed with approval or at least with tolerance, has come to be disapproved by many nations. Some of them have disapproved of the introduction of inflationary forces from foreign economies. More often, however, they have objected to a downward readjustment of their national money incomes and price levels. They point out that this might be tolerable if their cost structures were highly flexible and could be readjusted downward quickly enough to permit the maintenance of full employment and full production despite the drop in national money incomes and price levels, but that it is intolerable in view of the downward inflexibility of cost levels. Moreover, they complain that the gold-losing countries are often forced to bear the brunt of the adjustment because the gold-gaining countries do not raise their money income and price levels. The failure of a gold-gaining country

to expand its money income and price level may be due to any one or more of several reasons. Its monetary authority may "sterilize" the gold imports to prevent them from having an expansionary monetary effect. Its commercial banks may fail to ease credit even though their reserves are increased. The marginal efficiency of capital may be so low that investment spendings do not increase even when credit is eased. The fiscal policy may be such as to prevent, or at least inhibit, a rise in GNP, or the nation with the "favorable" balance may use tariffs or other restrictions to prevent an upward adjustment of its imports. In such cases the deflationary pressures on countries with an "unfavorable" balance may be very serious.

Rather than subject themselves to the full contractionary adjustments of their money incomes and price levels, many countries have resorted to numerous devices. (1) They have used expansionary fiscal and monetary policies to offset the contractionary income and monetary effects of their "unfavorable" balance. But this has sometimes allowed the unfavorable balance to continue and has led to continued losses of gold and foreign exchange. (2) They have used tariffs, other import restrictions, and restrictions on exchange dealings to limit purchases abroad. This has sometimes been supplemented by subsidies on exports to support their export industries. (3) They have decreased the gold value of their currencies in order to lower the value of their moneys in exchange markets, thereby promoting their exports and discouraging imports. And (4) they have abandoned a fixed gold value for their moneys and have allowed their inconvertible paper currencies to depreciate in exchange markets.

This unwillingness of countries to allow their internal money income and price levels to vary in response to disturbances originating in other areas has been one of the major reasons for the decreased popularity of inflexible exchange rates.

EXCHANGE RATES BETWEEN INCONVERTIBLE PAPER MONEYS

One of the most absurd notions about money that ever gained popularity is the belief that a money which is not convertible into gold must be worthless in exchange markets—that no one will buy a

nation's money if he cannot get gold for it. This betrays a serious misunderstanding of the reasons why a nation's money is demanded in exchange markets. Why do the English, French, Australians, Brazilians, and others demand dollars, offering their money in exchange? Primarily because dollars can be used to purchase goods, services, and securities in this country. Even if we refused absolutely to redeem our dollars in gold, foreigners would still demand them to buy from us wheat, automobiles, computing machines, electrical equipment, machinery, and so on. The same is true, of course, of other moneys. Americans will be willing to pay dollars for foreign nongold moneys, such as sterling, francs, or schillings, as long as these moneys can be used to buy things in the countries in which they circulate. Thus each nation's money is demanded in exchange markets primarily because of its domestic purchasing power.

This brings us to an interesting and difficult question: At what price or rate will two inconvertible paper currencies exchange for each other? What will the "normal" exchange rate tend to be—the rate which will balance the demand for and supply of the currencies in exchange markets? To analyze these questions, let us assume the following conditions:

1. There are no legal restraints on dealings in exchange markets.
2. The monetary authorities neither buy nor sell foreign exchange, so that all dealings in exchange markets are carried on by others.
3. There are no "abnormal" and "disorderly" movements of capital, and the great bulk of international payments is for trade in goods and services.
4. The inconvertible currencies are the United States dollar and the British pound.

The exchange rate will, of course, be at the level that equates the offers of dollars for pounds and of pounds for dollars. This, however, leaves unanswered the critical question: At what level will this exchange rate be at any time and what determines the level? One answer—which we shall find to be highly approximate—is offered by the "purchasing-power parity theory." This theory states that the "normal" exchange rate between two moneys is the rate that reflects

the relative purchasing power of the two moneys over goods and services in their respective countries. Under the international gold standard, moneys exchange at a rate closely related to their mint parities—their relative purchasing power over gold in their respective countries. But when moneys have no fixed purchasing power over gold they tend to exchange at rates measuring their relative purchasing power over other goods and services in their respective countries. By analogy this is called their purchasing-power parity. For example, if domestic price levels in Great Britain and the United States are such that £1 will buy in Britain just as much as $4 will buy in the United States, the purchasing-power parity will be £1 = $4, and the actual exchange rate that will equalize the offers of pounds and dollars for each other will tend to be close to this level.

So long as price levels in the two countries stand in this relationship to each other, any rate of exchange very far from the purchasing-power parity level of £1 = $4 will not equalize the demand for and supply of pounds and dollars. Suppose that the actual rate of exchange for sterling rose considerably above purchasing-power parity, say to £1 = $4.50. At this high price for pounds, or low price for dollars, Britain would be a relatively expensive place in which to buy and its exports would fall so much that the volume of pounds demanded for purchases there would decline.[2] At the same time the low cost of dollars would make the United States a cheap market in which to buy, thereby increasing the volume of pounds offered to purchase goods and services here. Thus a rise in pounds very far above purchasing-power parity—a fall of dollars very far below purchasing-power parity—would create an excess supply of pounds over the demand for pounds, and this would tend to lower the dollar price of pounds.

On the other hand, a decline in the actual exchange rate of a currency very far below its purchasing-power parity will cause the demand for the currency to exceed its supply. Suppose that while

[2] In this discussion we shall assume that the price elasticities for imports and exports are greater than unity, so that a rise in the cost of a nation's exports decreases the quantity of exports so much that the total value declines, and that a fall in the price of its exports increases the quantity so much that the total value rises. Highly unstable exchange rates may result if the price elasticities are low.

purchasing-power parity remained at £1 = $4, the actual exchange rate for the pound declined to £1 = $3.50. At this low price for pounds Britain would become a relatively cheap market in which to buy, and there would be a greater demand for pounds for the purchase of British exports. At the same time, the higher price for dollars would make the United States a relatively expensive market in which to buy, thereby decreasing the volume of pounds offered to purchase our exports. Thus, any actual exchange rate for pounds that was very far below purchasing-power parity could not be sustained, for at such low levels the demand for pounds would exceed the supply of pounds.

In summary, the purchasing-power parity theory asserts that the exchange rate between two moneys will reflect and be determined by the relative purchasing power of the moneys in their respective countries. It should be evident that purchasing-power parity need not remain constant; it changes with each change in the relative price levels of the countries involved. Suppose, for example, that price levels in Britain double—the purchasing power of the pound falls by half—while prices in the United States remain stable. In this case, purchasing-power parity would change from £1 = $4 to £1 = $2. At any exchange rate for sterling very far above £1 =$2 Britain would be an expensive place in which to buy and a favorable market in which to sell; hence the supply of sterling would exceed the demand for it.

What should be our conclusion as to the validity and usefulness of the purchasing-power parity theory as an explanation of the "normal" rate of exchange between currencies and as a guide to the fixing of exchange rates? Let us look first at its merits. It drives home the fact that the domestic purchasing power of a currency is the major reason for its demand in exchange markets and that drastic changes in the relative heights of national price levels require a reconsideration of exchange rates. It brings home to monetary authorities and the public the fact that an inflation of domestic price levels can cause a depreciation of a nation's currency in the exchange markets. It is useful as a rough guide in fixing new exchange rates after wartime

inflation or other serious disturbances have made the old rates obsolete. And it is a very approximate method for determining how far capital flights have driven exchange rates from levels that will be tenable for a longer period. The purchasing-power parity theory has often served a useful purpose and will probably continue to do so.

Nevertheless, the purchasing-power parity theory is not so simple, precise, or useful as it appears at first sight. (1) To compare the "purchasing power" of currencies in their respective countries presents many difficulties. What prices should be compared? If we compare only the prices of commodities that are actually traded internationally we get only a truism, for these prices will adjust to any level of exchange rates in such a way as to be at the same level in all markets after allowing for costs of transportation, etc. At the other extreme, it is largely meaningless to include the prices of things that cannot move in international trade. Thus the very notion of a "purchasing power" for a currency is somewhat vague. (2) Changes in exchange rates can themselves exert a strong influence on a nation's price level, especially if its economy relies heavily on international trade. For example, depreciation of the British pound would directly tend to raise the sterling prices of both imports and exports, and thereby spread inflationary pressures through the economy, especially if "escalator" clauses were widespread and monetary and fiscal policies were so flexible as to permit an upward response of national money income. It is dangerous indeed to assume that internal price levels are determined completely independently of exchange rates. (3) Shifts in the patterns of international production, in the relative productivity of national economies, and in buyers' tastes can shift the equilibrium rate of exchange. For example, a decrease in preferences for British-type goods or a growth of competing industries abroad could lower the demand for British exports and make necessary a lower exchange rate for sterling to balance international payments and prevent unemployment in Britain. (4) Increased or decreased obstructions to international trade can alter the level of exchange rates which will balance international payments. (5) Large international capital movements—especially those inspired by fear of

further changes in exchange rates and hope for speculative gain—can cause wide and prolonged deviations of exchange rates from purchasing power.

When all these criticisms are considered, a simple version of the purchasing-power parity theory is seen to be less useful than we would hope. But what is the alternative? It is the much less neat and more complicated "balance of payments" approach, which states that actual exchange rates will be fixed at the level that equates the demand for and supply of a currency in exchange markets. And, from an international view, the "most favorable" level of exchange rates would be one which would equate international payments without exerting pressure for either inflation or deflation and would not tend to produce unemployment in the world's economies. Such an exchange rate could not ignore existing price levels in the various countries but it would have to consider various other factors that affect international receipts and payments. We shall call this an "equilibrium" level of exchange rates, though our definition of it must remain somewhat less precise than might be desired.

Let us now look at the process of adjusting international balances of payments under a system of inconvertible currencies with flexible exchange rates. In an earlier section we found that under an international gold standard with practically inflexible exchange rates this process of adjustment was one of adjusting the general income and price levels in the countries involved. Since exchange rates could not vary significantly in this case, the levels of domestic money incomes and prices would have to bear the brunt of the adjustment. But the process is somewhat different if exchange rates are free to vary. Suppose that, starting from an equilibrium situation, our demand for British exports declined, thereby tending to lessen our demand for pounds. This would tend to decrease the price of pounds and to raise the price of dollars in exchange markets. This decrease in the exchange rate on pounds would tend to make British exports cheaper in terms of dollars, even without a fall in the pound prices of British goods. The cheapening of British goods in terms of dollars would tend to promote British exports, especially if our demand for them was highly price-elastic. At the same time, the rise of the dollar

in exchange markets would make our exports relatively expensive for foreign purchasers and would tend to decrease the British demand for them, thereby tending to decrease the supply of sterling for dollars. This would be especially effective if the demand for our exports were highly price-elastic.

In short, the decline of the exchange rate on pounds and the rise of the dollar in exchange markets would tend to restore equilibrium in the balance of payments, both by promoting British exports and by decreasing exports by the United States. And the greater the price elasticity of the demand for international goods the smoother will be the adjustment. Under favorable conditions the adjustment may occur with only little effect on the general level of prices and money incomes in the countries involved. In the United States, the induced fall of sterling exchange rates will tend to lower the dollar prices of both our exports and our imports, thereby encouraging us to increase our imports and to decrease our exports. And in Britain the rise of the dollar exchange rate will tend to raise the sterling prices of both exports and imports, thereby encouraging British exports and discouraging imports. Thus under favorable conditions the original decline of the United States demand for British goods need not lead to a general reduction of money incomes and prices in Britain but may be offset by the decline of the sterling exchange rate and by adjustments in the prices of internationally traded goods. It is largely for this reason that many countries now favor flexible exchange rates. They argue that the adjustment of international balances of payments through appropriate changes in exchange rates is much less painful than adjustments through changes in money incomes and general price levels in the various countries.

It should be emphasized, however, that exchange rate adjustments may not succeed in preventing disturbances originating in one country from being transmitted to money income and price levels in other countries. Suppose, for example, that GNP in the United States declines and that the income elasticity of our demand for imports is high so that our import demand schedule declines markedly. Suppose further that the price elasticity of our demand for imports is low. In this case the cheapening of sterling in exchange markets and the

decline in the dollar prices of British goods may not succeed in preventing a decline in our purchases of British exports. Production and employment in the British export industries will be decreased and this may have repercussions throughout the economy. Moreover, low price elasticity of the demand for internationally traded goods may lead to wide fluctuations of exchange rates. If the price elasticity of our demand for imports is less than unity, the fall in the price of sterling may actually decrease the number of dollars that we offer to purchase sterling. And if the elasticity of the British demand for imports is less than unity, the rise in the price of dollars may cause the British to offer a greater volume of pounds for dollars. In such a case the initial fall in the price of sterling in exchange markets would not equilibrate balances of international payments but would disequilibrate them and lead to still further declines of sterling rates. Thus the price elasticity of the demand for internationally traded goods is of prime importance in the adjustment process. If the price elasticity is high, the adjustment may proceed smoothly and require only narrow changes in exchange rates. But if the elasticity is low, changes in exchange rates may only worsen matters. A more thorough analysis of this point would require extensive treatment of the supply, home demand, and foreign demand functions of the various commodities in international trade.

Government Purchases and Sales in Exchange Markets

In our discussion of exchange rates under inconvertible paper currencies we have up to this point dealt only with private purchases and sales in exchange markets and have ignored the operations of governments and central banks. We shall now remedy this deficiency. Central banks or other government agencies are in most cases important buyers and sellers of foreign exchange and they often exert an important, sometimes a dominating, influence on the behavior of exchange rates. By purchasing foreign moneys and offering their own money in exchange, they can tend to raise the price of foreign moneys, or at least retard a decline in the price of these moneys. That is, they can cheapen their own money in foreign exchange markets or at least lessen its rise in these markets. And by selling

foreign moneys and taking their own in payment, they can cheapen the foreign moneys in exchange markets or at least lessen the rise of foreign exchange. That is, they can raise the value of their own money in exchange markets or at least retard its decline.

Nations have used many different agencies for buying and selling in exchange markets. Central banks have long bought and sold foreign exchange as a regular part of their operations. In many cases, however, governments have established specialized agencies for this purpose; among them are "exchange stabilization" or "exchange equalization" funds. The purpose of these agencies is to promote what they consider an "appropriate" behavior of exchange rates.

To perform its functions successfully, an exchange stabilization fund or any other agency undertaking this task must be able to command (1) a sufficient supply of foreign money and (2) a sufficient supply of its own country's money. It requires a supply of foreign money which it can sell in order to prevent an unwanted rise in the price of that money—an unwanted decline in the value of its own money in exchange markets. Its supply of foreign money may be in one or more of several forms: deposits in foreign banks, including foreign central banks, foreign commercial banks, and international financial institutions; foreign securities that can be sold quickly in foreign markets; an ability to borrow in foreign markets; or gold holdings which can be sold for foreign money. We must emphasize that the ability of a stabilizing agency to halt the rise of foreign exchange rates (to halt the decline of its own money in exchange markets) depends on the amount of foreign money it can offer for sale.

A stabilizing agency also requires an adequate supply of its own country's money with which to buy foreign money in order to prevent an unwanted fall of foreign exchange rates—an unwanted rise in its own money in exchange markets. This supply of money may be in any one or more of several forms: an ability to create money, as in the case of a central bank; deposits with the central bank or with commercial banks in the country; an ability to borrow in its own country; or gold holdings which it can sell for its country's own money. An agency's ability to prevent a fall or induce a rise in foreign

exchange rates depends on the amount of its own country's money it can offer in exchange markets.

What are the objectives of these "stabilizing" agencies? What kind of exchange rates do they strive for? No simple answer can be given to these questions because the objectives and policies of these agencies have differed widely. In some cases they have attempted only to iron out temporary fluctuations, the longer-term trend of exchange rates being determined by the demand for and supply of exchange by private individuals and business firms. Under this principle, exchange rates are allowed "to find their own level" over a period of time, the stabilizing agencies buying and selling only to prevent capital movements, speculation, and other temporary factors from producing erratic and wide deviations from this trend. Under such a policy, these agencies may alternately buy and sell foreign exchange, but their net holdings of foreign exchange may change only little over longer periods.

On other occasions the stabilizing agencies have sought over long periods of time to support exchange rates for their own money at "artificially high" levels—at levels considerably above those which would equalize the supply of and demand for their money by other sellers and buyers in exchange markets. For such a policy there have been various motives: to hold down the costs of imports in terms of their own currency, to increase the prices of their exports in terms of foreign currencies, to "protect the prestige" of their own currency, and so on. Attempts to maintain "artificially high" exchange rates for a nation's currency—"artificially low" exchange rates for foreign moneys—have often had undesirable consequences for the nation. (1) They have often created an "adverse" balance of payments for the country. The high cost of the nation's money discouraged foreign purchase of its exports, thereby tending to decrease production and employment in its export industries. At the same time, the low price of foreign moneys made imports relatively cheap and encouraged purchases abroad. Thus the high exchange rate for the nation's money exerted a deflationary effect on its economy by lowering its exports relative to its imports. It also tended to cause its outpayments to exceed its receipts. (2) To balance the nation's international payments the stabilizing agency had to sell large amounts of its gold

and foreign-exchange holdings, and this tended to have contractionary monetary effects if the agency held idle or destroyed the large amounts of domestic money it received in payment for the foreign moneys it sold. Because of these contractionary income and monetary effects on their own economies, and sometimes also because they exhausted their holdings of gold and foreign currencies, nations have often had to abandon attempts to hold exchange rates on their own money at artificially high levels.

More often, especially during depression periods, the "stabilizing" agencies have sought to lower exchange rates on their own currency —to raise foreign-exchange rates—by offering large amounts of their money in exchange markets. By reducing the cost of its money in the exchange markets a nation may (1) increase its exports and even induce a rise in their prices in terms of its own money, (2) increase the cost of imports in terms of its own money, thereby protecting competing home industries, and (3) secure an excess of exports over imports and use the excess receipts in its balance of payments to accumulate foreign money or gold which it can use to expand its internal money supply or to meet future drains. In short, the country might reduce unemployment at home by taking over a larger part of the world's export market and reserving a larger part of the home market for its own producers. Such policies are often called nationalistic schemes to encourage domestic economic recovery by exporting unemployment—"beggar-my-neighbor" recovery policies. They may increase employment in one country by reducing it in others.

This fact emphasizes the importance of coöperation among national exchange stabilization agencies. An exchange rate is, of course, a relation between two national moneys; and both countries, as well as the rest of the world, have an interest in the level of exchange rates established. Only confusion and ill feeling result if two national stabilization agencies try to establish different exchange rates between two moneys. Suppose, for example, that our stabilization agency decided to encourage recovery here by giving the dollar a relatively low value in terms of sterling, such as £1 = $3.00. At the same time the British Exchange Equalization Account might try to establish a much lower exchange rate for sterling, such as £1 = $2.00, in order to encourage British exports. In the absence of coöperation between

the two agencies, ours might buy sterling feverishly in order to push the price of the pound up to $3.00, and the British agency might with equal fervor sell sterling in an attempt to lower its price to $2.00. It is obvious that both efforts cannot be successful. This example brings out three important facts. (1) Countries may disagree as to the appropriate levels of exchange rates among their moneys. (2) If two national agencies try to establish different levels of exchange rates between their moneys, one or both must fail to achieve its purpose. (3) If governments are to regulate exchange rates through stabilization funds they must coöperate fully in determining the appropriate levels of the rates and in carrying out their operations to achieve stability at the chosen levels.

Stabilization agencies coöperated to some extent from the beginning, though their coöperation was informal, sporadic, and without a basic agreement on general principles. The Tripartite Agreement in 1936 among the United States, Great Britain, and France represented an improvement in international coöperation relative to exchange rates, but it still left much to be desired. A satisfactory degree of cooperation in this field seems impossible without the presence of some international organization like the International Monetary Fund, which will be discussed later.

SELECTED READINGS

Cassel, G., *Money and Foreign Exchange After 1914*, Macmillan, New York, 1938.

Haberler, G., "The Choice of Exchange Rates After the War," *American Economic Review*, June, 1945, pp. 308–318.

Harris, S. E., *Exchange Depreciation*, Harvard University Press, Cambridge, 1936.

Marsh, D. B., *World Trade and Investment*, Harcourt, Brace, New York, 1951.

Shaw, E. S., *Money, Income, and Monetary Policy*, Irwin, Chicago, 1950.

Viner, J., *Studies in the Theory of International Trade*, Harper, New York, 1937.

Whittlesey, C. R., *International Monetary Issues*, McGraw-Hill, New York, 1937.

Young, J. P., *International Economy*, Ronald, New York, 2nd ed., 1951.

CHAPTER 31

Exchange Restrictions

Up to this point all our discussion of international monetary relationships has assumed the existence of free exchange markets—that private individuals and business firms, including banks and other exchange dealers, are permitted to buy and sell moneys as they wish, at whatever prices they wish, and for any purpose. This is a system of free multilateral payments. But we must recognize that during much of the period since 1914 government restriction and control of operations in foreign-exchange markets have severely limited the scope of free multilateral international payments. Instead of permitting free trading in moneys, governments have restricted international payments in many ways. (1) They have decreed the prices at which moneys might be bought and sold and have prohibited operations at other prices. (2) They have limited the purposes for which exchange might be purchased and placed limits on the amounts to be used for each purpose. (3) They have used their power over foreign-exchange dealings to regulate the sources of imports and the destinations of exports. And (4) they have used restrictions on international payments for diplomatic, political, and military purposes as well as for many economic purposes.

Such exchange restrictions have not been used by all countries nor have they been in effect during all the time since 1914. During World War I all the belligerents and some other countries employed comprehensive systems of exchange control. These were gradually relaxed after the war and a system of free multilateral payments was

restored in the 1920's. With the onset of depression after 1929, much of the world again instituted restrictions on foreign-exchange operations in an attempt to deal with the problems of deflation and unemployment. Many of these were still in effect at the outbreak of World War II, when virtually the entire world again imposed tight exchange controls. Many of these controls are still in operation. We shall see later that one of the major functions of the International Monetary Fund and the International Trade Organization is to secure the relaxation of exchange restrictions and to restore free international payments for goods and services.

In the following sections we shall deal separately with wartime and peacetime exchange restrictions. It should be noted, however, that the two are closely related. The techniques, administrative organizations, and policies developed in wartime have exerted a strong influence on peacetime exchange restrictions. And the effectiveness of exchange restrictions during World War II owed much to the experience gained during the preceding depression.

WARTIME EXCHANGE RESTRICTIONS

Wartime exchange restrictions have varied considerably in detail from one country to another; in general they were much more rigid during World War II than in World War I. We shall therefore describe a "typical" set of exchange restrictions during the recent war. The essential parts of such a wartime program are the following: (1) The government fixes the value of its money in terms of all other money and prohibits transactions at any other exchange rate. The British, for example, pegged the dollar value of the pound at $4.03 and decreed that purchases and sales should be made only at that rate. (2) Anyone in the country receiving payments in foreign money must surrender it to the government or to one of its approved agencies at the official exchange rate. In many cases nationals are required to sell to the government all their holdings of foreign money and all their foreign securities that can be sold abroad for foreign money. By these measures a government can mobilize claims against foreign countries so that they can be used in the national

interest. (3) No one may make payments abroad, either by buying foreign exchange or by paying out claims against his country's own money, except as permitted by the exchange control authorities. Transfers of capital abroad are usually prohibited, travel expenditures abroad are strictly limited, interest payments and debt service to foreigners are closely regulated, and no one is permitted to purchase abroad any good or service that does not contribute either directly or indirectly to the prosecution of the war.

These wartime exchange controls have several purposes. (1) They make it more difficult for the enemy to secure a supply of the nation's money or of foreign money with which to purchase supplies, finance espionage, or carry on other activities inimical to the nation. (2) They mobilize and conserve the nation's claims against other countries, thereby enabling it to utilize its limited purchasing power abroad to buy the things that will contribute most to the winning of the war. Its residents are not allowed to squander foreign exchange in buying nonessentials. (3) By preventing foreign-exchange rates from rising, they hold down the cost of imports in terms of the nation's money, thereby decreasing the financial cost of the war and facilitating the maintenance of price ceilings. If Britain had not imposed exchange control, the prices of many foreign moneys would have risen markedly in terms of sterling. This would have increased the government's fiscal problem by raising the sterling cost of imported war materials. The rise in import prices in terms of sterling would also have greatly intensified the problem of holding down the prices of civilian goods. (4) They help to maintain "confidence" in the nation's money by preventing its decline in exchange markets. If the money were allowed to fall in the exchange markets people might believe that this indicated a future decline in its purchasing power at home and might hasten to spend their money more rapidly, thereby intensifying inflationary pressures. And (5) they help to maintain morale in the nation by assuring that wealthy persons and business firms cannot transfer their funds abroad to escape taxes or war losses.

At the end of World War II all the belligerents and many nonbelligerents had tight exchange restrictions in effect. In the next

chapter we shall study the problems involved in relaxing these restrictions in order to revive world trade.

PEACETIME EXCHANGE RESTRICTIONS

Wartime exchange restrictions are relatively easy to outline briefly. The exchange problems faced by all belligerent nations are somewhat similar, all have comparable objectives, and all can count on public support of a thoroughgoing exchange control program. Peacetime exchange restriction programs are much more difficult to summarize. Some have been imposed while the country was in the throes of inflation; others have been undertaken in the midst of deflation. Some have been used to maintain at least a semblance of the gold standard; others have been used with inconvertible paper standards. Some have been relatively mild, restricting only a few types of international payments, such as those used to transfer capital abroad; others have been thoroughgoing, fixing exchange rates and closely regulating all types of international payments.

Most peacetime exchange restriction programs have one common characteristic: They attempt to maintain the value of the nation's money in exchange markets at a higher level than would result if private dealings in exchange were unrestricted, and to prevent or at least minimize the nation's loss of gold and foreign-exchange holdings. The principal means of achieving these results is to restrict the demand for foreign exchange—to limit payments to foreigners. These limitations are applied to one or more of the following types of outpayments: (1) capital exports—withdrawals of deposits or short-term loans from the country by foreigners, purchases of deposits abroad by people in the country, purchases of securities from foreigners, and so on; (2) interest and dividend payments to foreigners; and (3) payments for goods and services purchased abroad.

Many exchange restrictions were imposed initially to prevent a flight of capital induced by fear that the nation's money would depreciate in the exchange markets. For example, when the great Creditanstalt Bank failed in Austria in 1931 there was a large volume of foreign deposits in that nation's banks and a sizable volume of

foreign short-term loans in its money markets. Fearing that the schilling would become inconvertible in gold and would depreciate, foreign depositors and lenders to Austria quickly began an almost panicky withdrawal of their funds. Even Austrians, expecting a rise in foreign-exchange rates, hastened to buy foreign money, thereby increasing the country's gold losses and hastening its abandonment of the gold standard. This great loss of gold could have been prevented or at least postponed by a prompt restriction of capital exports from Austria. Such action was not taken, however, until the country had abandoned gold and the continued flight of capital threatened to depress greatly the value of the schilling in exchange markets. The Austrian government at that point imposed severe restrictions on the purchase of foreign exchange for the purpose of transferring capital funds abroad, thereby decreasing the demand for it and lowering its price in terms of schillings. Many other countries restricted capital exports during the great depression, some of them to maintain a semblance of the gold standard, others to prevent depreciation of their inconvertible paper money in the exchange markets.

In restricting capital exports nations have often tried to distinguish between (1) abnormal capital movements induced by fear or by hope for speculative profits from exchange rate fluctuations and (2) normal short-term and long-term movements for the purpose of financing international trade and investment. They have professed a desire to encourage normal movements while preventing abnormal ones from disturbing exchange rates and gold flows. The distinction is useful; many admit that exchange rates and gold flows should not be ruled by the vagaries of exchange speculators and the fears of international short-term lenders. Nevertheless, two consequences follow a nation's imposition of restrictions on capital exports. In the first place, the restrictions cannot be fully enforced without a large organization and strict supervision of all exchange dealings, for funds can be withdrawn from a country in many ways. And in the second place, it is difficult to induce a new flow of capital into the country as long as foreign funds are frozen there. Foreign lenders fear that any new loans will likewise be frozen.

Exchange restrictions have also been imposed on outpayments for imported goods and services when a nation's purchases abroad tended to be so high relative to its sales abroad that it would lose gold or its money would depreciate in exchange markets. For example, Argentina in 1931 restricted payments for imports when the great depression in other countries markedly decreased the value of its own exports. Instead of attempting to increase exports by allowing the value of its money to decline in exchange markets or by lowering its internal price level, Argentina elected to restrict the volume of its imports by rationing the amount of foreign exchange available for that purpose. Within a short period it had a complete and strict exchange control system. (1) The government fixed the exchange rates applicable to all transactions, these rates valuing its own money considerably above the level that would have been fixed in an unrestricted market. (2) Exchange dealings were centralized in the government and its authorized agencies. (3) All recipients of payments from abroad were required to sell them to the exchange authorities at the fixed official rates. (4) No payments could be made abroad for any purpose without the express permission of the exchange authorities.

What did nations hope to gain by restricting payments to other countries? The objective was fairly clear when a nation was trying to maintain at least the fiction that its money was still convertible into gold. A large excess of outpayments drained gold from the country, depleted central bank reserves, drained both deposits and reserves from commercial banks, and exerted a drastic deflationary effect on the nation's domestic economy comparable to that resulting from a widespread domestic run on the banking system. A country would take almost any action that would free it from these deflationary pressures. But why did countries not abandon gold standards as soon as it became evident that gold outflows would reach unbearable proportions, and then allow foreign-exchange rates to rise as much as was required to restore an equilibrium of supply and demand in exchange markets? And why did the countries that had already abandoned gold not allow the value of their money in the exchange market to fall to the level that would equate supply and demand

without any restrictions? Some countries opposed such a depreciation of their money in exchange markets for various reasons. (1) In some of them, notably Germany and Austria, exchange depreciation was popularly associated with inflation of internal price levels. The people of those countries would have viewed a fall of their money in exchange markets as a forerunner of disastrous price rises at home and would have penalized any government that permitted it to happen. In 1931 some of these people were still less frightened by deflation than by the possibility of inflation. They did not yet realize fully the disastrous effects of a prolonged deflation, and the British had not yet demonstrated that an inconvertible paper money can be managed successfully. (2) In countries with large external debts stated in terms of foreign money a rise in foreign-exchange rates would have increased the costs, in terms of the nation's own money, of meeting interest and principal payments to foreigners. (3) A rise in foreign-exchange rates would have tended to increase the cost of imports, including raw materials for industry and many items entering into the cost of living. (4) The countries could not know in 1931 that world price levels would continue to fall and that a decline of a nation's money in the exchange market would help to insulate it from deflation in other countries.

Whatever may have been the advantage to a nation of maintaining the value of its money in exchange markets at artificially high levels through exchange restrictions, three facts became quickly apparent. (1) The job of holding foreign-exchange rates below the levels to which they would be raised by unrestricted demand and supply was extremely difficult, just as is the enforcement of any other type of price ceiling. Black markets became common, and exchange control authorities were rarely able to match the ingenuity of black market dealers. (2) The maintenance of a nation's money at an artificially high value in the exchange markets tended to increase the cost of its exports in terms of foreign money, to discourage its exports, and to depress its export industries. At the same time the relative cheapness of buying abroad induced a large demand for foreign exchange. Thus the overvaluation of the nation's money in exchange markets accentuated the shortage of foreign exchange. Faced with a demand

for foreign exchange far in excess of its supply, exchange control authorities had to institute an exchange rationing system. (3) In rationing highly scarce foreign exchange, each government faced difficult problems of policy. For what purposes should it be allocated —debt payment, foreign travel, or import of goods and services? What imported goods and services should be given preference? Should importers be allowed to buy where they wished, or should the government influence the direction of trade by its policies in allocating foreign exchange? To what importers should exchange be made available? We shall consider these questions in more detail in a later paragraph.

MULTIPLE EXCHANGE RATES

When dealings in exchange markets are unrestricted and a money can be freely used for any purpose it can have but one value in the exchange markets at any given time. For example, when there are no restrictions on the use of dollars and no restrictions on their purchase and sale, a dollar can have only one value in exchange markets at any moment. But as soon as restrictions are imposed on exchange dealings there may be two or more prices for a money at any time; multiple exchange rates become possible. In some cases these multiple rates originated with the rise of black markets; in addition to the official rates fixed by the exchange control authorities there was a black market rate. The black market prices of foreign money were always higher than the official prices. For example, in 1938 the official peso-dollar rate established by the Chilean government was about 19.3 pesos = $1, but the black market rate might have been about 25 pesos = $1, a 30 percent higher price for dollars. At first the authorities were opposed to all black market operations in exchange and sought to suppress them. Later, however, they began to see advantages in these dealings, especially when the foreign exchange sold in these markets resulted from the export of goods that could not be sold abroad profitably at the official exchange rates. A Chilean exporter might not be able to export profitably if he had to sell the

resulting dollars at the official price of 19.3 pesos, but he might compete very favorably in world markets if he could sell them at the black market price of 25 pesos. In some cases, therefore, exchange authorities winked at certain exchange transactions in the black markets, for they enabled the country to supplement its exports by an "informal depreciation" of its money.

At a later stage many countries deliberately established two or more values for their money in exchange markets. One was the "official" rate, which placed a relatively high value on the nation's money; the other rates were lower and were known by various names such as "free rates," "export rates," or "special export rates." For example, from 1937 to the outbreak of World War II Chile maintained an official rate of about 19.3 pesos to the dollar, whereas the "export rate" was 25 pesos to the dollar. By shifting transactions between these two markets the Chilean government could exercise a high degree of control over the types, amounts, and peso prices of both exports and imports. If a given commodity could be exported profitably even though receipts of foreign money were sold at the relatively low official price, its exporters were forced to sell their foreign money to the exchange control authority at the official price. If, however, the control authority wished to promote the export of some commodity, exporters of it were permitted to sell some or all of their receipts of foreign money at the higher "export rate." Thus, exchange restriction and multiple exchange rates became an integral part of the nation's general export policy. They were also used to regulate the types, amounts, and costs of imports. To hold down the domestic price of an imported good the exchange control authority would sell its importers a liberal amount of foreign exchange at the relatively low official rate. If, however, the control authority wished to discourage the import of some commodity and did not object to a rise in its price, its importers had to purchase the foreign exchange with which to pay for it at the higher "export rate." In a similar way the authorities regulated the source of the country's imports. Importers buying in approved countries were permitted to buy foreign exchange at the relatively low official rate, but those buying

elsewhere were forced to pay the higher "export rates." In this way countries with exchange restrictions used multiple exchange rates to discriminate against some exporting countries and to favor others.

Multiple exchange rates reached their most complex development in Germany. The official value of the reichsmark remained unchanged at 40 cents from 1934 to the end of World War II, but most of Germany's international transactions were effected with many kinds of marks, perhaps as many as sixty, whose values in the exchange markets ranged down to a few cents. By maintaining a multiplicity of exchange rates and shifting transactions from one category to another, Germany discriminated against the exports of some countries, encouraged imports from others, extracted a high price for some of its own exports, promoted its exports of other goods, encouraged some types of imports and discouraged other types, and regulated domestic prices of both imports and exports. Multiple exchange rates may be a useful device for nationalistic economic planning, but they are hardly conducive to a maximum amount of world trade.

EXCHANGE ALLOCATION POLICIES AND BILATERAL BALANCING

As soon as a country fixes foreign-exchange rates at such a low level that the demand for foreign exchange far exceeds its supply, the exchange control authorities must face the difficult problem of formulating an exchange rationing or allocation policy. It has to answer such questions as these: (1) For what kinds of foreign payments is the limited supply of foreign exchange to be allocated—interest payments, debt retirement, lending abroad, imports of goods and services, or foreign travel? What kinds of imports and exports should be given preference? (2) In allocating exchange for foreign payments, should all foreign countries be treated alike or should some be treated more favorably than others? (3) How is the limited supply of foreign money to be allocated among the various applicants?

Exchange control authorities could have followed an exchange rationing policy based on some historical pattern of outpayments, allowing a pro rata share of the available exchange for each purpose.

In fact, however, they classified the various types of payments to foreigners and treated some more liberally than others. As a general rule, they tended to limit outpayments for interest and debt retirement in order to conserve their ability to buy goods and services abroad. They also classified the various types of goods and services and gave some types of imports preferential treatment. It is easy to understand why they tended to allocate exchange rather freely for the import of essential raw materials, consumer "necessities," and military supplies and refused to allocate it for "nonessentials." But in most cases the exchange allocation policy became a method of "protecting home industry." Imports that would compete with the output of politically powerful domestic industries were discriminated against, whereas permits to import and pay for things that were noncompetitive could be secured more easily.

Exchange allocation was also used to discriminate against some foreign countries and to favor others, thereby becoming an instrument of national political and economic policy. Exchange was allocated rather freely for the payment of interest and debt to some countries, but it was completely denied or allocated in only niggardly amounts for the same kinds of payments to others. Importers buying a given commodity from "approved" countries were allotted foreign exchange, but those wishing to buy elsewhere were denied it. For example, an Argentine railroad might receive an allocation of exchange to pay for British steel rails but not for American rails. This discriminatory treatment of foreign countries had many objectives. Some countries, notably Germany, used it for political and military purposes. Payments to countries evidencing "the proper attitude" were permitted on a liberal scale, but other countries failed to receive interest and debt payments and suffered a loss of exports to Germany. Discrimination was also used to force a bilateral balancing of trade. In permitting payments for imports a country tended to favor the countries that purchased large amounts of its exports. Thus Argentina favored Britain over the United States because the British were good customers for its exports. Exchange allocation policies became a weapon in bilateral trade bargaining. The exchange control authority of country A would allocate exchange for purchases in country B

only if B would grant favorable treatment to exports from A. This of course meant discrimination against the exports of other countries. The advantages of multilateral trade were sacrificed and exchange restrictions were used to supplement other nationalistic economic policies.

Exchange control authorities also faced the difficult problem of determining which individuals and firms should receive allocations of the scarce supply of foreign exchange. This was a valuable privilege. Favored importers were in a position to reap high profits, for they could buy goods abroad at the prices prevailing there and then sell them in the home market at much higher prices because of the limitations on imports. In some cases these excessive importers' profits were scaled down by domestic price control or special taxes, but in other cases they were not. It was only to be expected, therefore, that the valuable privilege of importing should command a price and that some exchange control authorities should become corrupt.

As the depression deepened and exchange restrictions became more widespread and more severe, countries sought methods of expanding international trade. Various interesting techniques were used; among them were outright barter transactions and clearing agreements. We cannot discuss them here. We can only point out that they were used primarily for bilateral trade balancing and that they did not by any means offer the advantages to be derived from a system of relatively free multilateral payments and multilateral trade. They were merely a desperate attempt to loosen slightly the stranglehold of disordered exchange markets and exchange restrictions.

EXCHANGE RESTRICTIONS SINCE WORLD WAR II

The preceding discussion has dealt largely with the use of peacetime exchange restrictions to cope with the problems of deflation, unemployment, and accompanying monetary disorders. We now turn our attention to the use of exchange restrictions since World War II, which for the world as a whole has been a period of inflation. The economic and financial conditions existing at the end of World War II have already been outlined. During the war almost every im-

portant nation adopted a comprehensive and strict system of exchange controls. Exchange rates were frozen, in most cases at the level at the outbreak of the war. Even when the war began, many of these rates were far from their "equilibrium" levels, and a host of economic changes during the war period made the old rates even more obsolete. (1) National money incomes rose in widely differing degrees. The money incomes of almost all countries increased, but some rose far more than others. (2) The extent of open and suppressed inflation varied greatly from country to country. In addition to the wide dispersion of national price levels, there were great differences in the amount of inflationary pressure that was being suppressed by price and wage ceilings, consumer rationing, and other direct controls over the production, distribution, and use of goods and services. (3) National productive capacities were affected by the war in widely different ways. At one extreme was the United States, which emerged from the war with an expanded productive capacity. At the other extreme were the countries whose ability to produce had been seriously reduced by military action, by the lack of adequate maintenance during the war, and by social and political disturbances. These changes alone greatly altered the pattern of world trade. (4) International creditor-debtor relationships were greatly altered. For example, some nations, like Switzerland, markedly increased their gold stocks and their claims against other countries. But some, of which Britain was a striking example, had depleted their claims against other countries and had become huge international debtors in order to finance their war efforts.

Because of such revolutionary changes in the world economy it was clear that many nations could not promptly relax all exchange restrictions and restore free multilateral payments and at the same time maintain existing exchange rates and existing levels of money incomes and prices. If they had attempted to do this, some countries, like the United States, would have had a great excess of receipts over outpayments, and others, including most of Europe, would have had a great excess of outpayments over receipts. Confronted by this situation, the countries facing large excesses of outpayments at existing exchange rates had two broad alternatives: (1) They could continue

their tight systems of exchange controls to balance their international payments, thereby avoiding or at least postponing an adjustment of their exchange rates, money incomes, and price levels; or (2) they could relax and remove their exchange restrictions, thereby moving toward a system of free international payments. But to do this they would have to permit appropriate adjustments of the value of their money in exchange markets, their national money incomes, and their price levels. For many countries this would have required large decreases in one or more of the following: the value of their money in exchange markets, their national money incomes, and their price levels.

Faced with these alternatives, many countries elected to maintain their tight systems of exchange control. For several reasons they were unable or unwilling to depress their national money income and price levels. (1) In many of these countries the accumulated inflationary pressures were very heavy. Their people and business firms had accumulated large amounts of money and other liquid assets during the war and the governments had no effective methods of dealing with these pressures in a short period of time. (2) A policy of contracting money incomes and lowering price levels might have brought on depression and unemployment and would have interfered seriously with national reconstruction and development programs. (3) In many countries a deflationary policy would have been politically unacceptable even if it had been economically desirable.

At the same time most of the countries were unwilling to allow their currencies to depreciate in exchange markets to the extent that would have been necessary to balance their international payments without exchange restrictions. For this there were several reasons. (1) A significant rise in foreign exchange rates would have been inflationary in these countries. Most of them were already encountering difficulty in dealing with the inflation problem, and a rise in the domestic prices of both imports and exports would have accentuated inflationary pressures. (2) For many countries a decline of their currency in the exchange markets would not have increased the physical volume of their exports. Even at existing exchange rates they were able to export all they could produce in excess of what

they considered their domestic requirements. In these cases a decrease in the prices of their exports in terms of foreign currencies might actually have decreased their total earnings of foreign exchange. (3) They believed that exchange control was superior to an increase in the price of foreign exchange as a means of limiting and rationing imports. By using exchange control they could favor "essential" imports and hold down their prices while excluding "nonessential" imports. And (4) they wanted to employ exchange control to limit international capital movements.

It was for reasons like these that many countries elected to continue thoroughgoing systems of exchange control rather than establish free exchange markets and make the adjustments in exchange rates, money incomes, and price levels that would have been required to equilibrate international payments under a system of free international payments. In the following chapter we shall see that some progress toward free exchange markets has been made since 1945, but that the world is still far from achieving a system of free multilateral payments and free multilateral trade.

SELECTED READINGS

Buchanan, N. S., and Lutz, F. A., *Rebuilding the World Economy; America's Role in Foreign Trade and Investment*, Twentieth Century Fund, New York, 1947.

Condliffe, J. B., *The Reconstruction of World Trade*, Norton, New York, 1940.

Ellis, H., *Exchange Control in Central Europe*, Harvard University Press, Cambridge, 1940.

Gordon, M., *Barriers to World Trade*, Macmillan, New York, 1941.

Hall, N. F., *The Exchange Equalization Account*, Macmillan, London, 1935.

Harris, S. E., *Exchange Depreciation*, Harvard University Press, Cambridge, 1936.

Hodson, H. V., *Slump and Recovery, 1929–1937*, Oxford, London, 1938.

Marsh, D. B., *World Trade and Investment*, Harcourt, Brace, New York, 1951.

Whittlesey, C. R., *International Monetary Issues*, McGraw-Hill, New York, 1937.

Young, J. P., *International Economy*, Ronald, New York, 2nd ed., 1951.

CHAPTER 32

The Bretton Woods Institutions

At Bretton Woods, New Hampshire, in July, 1944, experts from 44 nations agreed on plans for two important new international financial institutions—the International Monetary Fund and the International Bank for Reconstruction and Development. The latter is popularly known as the World Bank. The International Monetary Fund has several general purposes: to provide a mechanism for continuous international coöperation on monetary matters, to provide an orderly method of setting exchange rates and of changing them when alteration becomes appropriate, to aid member countries in stabilizing the value of their money at appropriate levels in exchange markets, and to expedite the relaxation of exchange restrictions. The functions of the International Bank for Reconstruction and Development are supplementary to those of the Fund. They are to facilitate the international flow of long-term investment funds for the purpose of reconstructing war-torn economies, of developing industrially backward nations, and of helping member countries meet longer-term balance of payments problems while reconstructing and developing their economies. With unexpected willingness and dispatch, most of the countries approved the experts' plans, and both of the new institutions were organized and began operations before the end of 1946. By the end of 1951 about 49 countries, including virtually all the major nations except Russia and some of the former enemy countries, had joined the two institutions, and other members will probably be added in the future. For the first time in history there is a truly world-

wide organization for the promotion of international monetary cooperation.

REASONS FOR ESTABLISHING THE BRETTON WOODS INSTITUTIONS

It seems almost certain that the countries would not have agreed so readily to the formation of the International Monetary Fund and the World Bank if they had not learned about the shortcomings of the interwar system by painful experience. The shortcomings which the new institutions are meant to remedy are as follows:

1. The lack of a formal organization to promote continuous international coöperation on monetary matters. International monetary coöperation was not entirely lacking during the 1918–39 period. Central bank officials often conferred with each other, sometimes informally and sometimes through the Bank for International Settlements. In determining its credit policies a central bank frequently took into account the effect on other countries. Central banks and governments sometimes lent to other countries to assist in monetary stabilization. It was not unusual for the officials of national exchange stabilization funds to confer with each other and to coöperate, especially after the Tripartite Agreement in 1936. Yet these beginnings of international monetary coöperation were far from adequate. They were sporadic, they were not based soundly on international agreement as to objectives, and the principle of national sovereignty in the field of monetary policy was stubbornly defended. It is clear that much can be accomplished through a formal international organization which will bring about continuous consultation, a continuous exchange of information, and a higher degree of understanding among the member nations.

2. Inappropriate behavior of exchange rates. We have seen that economic stability and prosperity suffered greatly in the interwar period because of inappropriate exchange rates. Both after World War I and during the great depression many nations tried to establish and maintain exchange rates that either undervalued or overvalued their money, and wide fluctuations accompanied international

flights of capital. Developments during World War II indicated a probable repetition of these disturbances. Nations experienced widely differing degrees of inflation during the war, there was good reason to believe that inflation would continue in some countries after the war ended, and the war greatly changed the relative abilities of countries to import and export. In the absence of international coöperation in fixing and adjusting exchange rates there was every reason to expect large and protracted fluctuations in this field.

3. Exchange restrictions. We have already noted that immediately after World War I and even more during the depression, exchange restrictions were widespread. By restricting international payments by individuals and business firms, nations impeded international trade and investment, attempted to maintain inappropriate exchange rates, introduced multiple exchange rates, discriminated against some exporting countries and favored others, limited total imports and protected home industries, and embraced the dangerous principle of bilateral trade balancing. It was evident that exchange restrictions might continue to throttle trade after the return of peace. Most countries ended the war with thoroughgoing exchange control, many needed large imports and were unable to export in large amounts, and some had accumulated heavy short-term debts to foreigners. Some method of hastening the relaxation of exchange restrictions in order to promote world trade was essential.

4. The inadequacy and instability of the rate of international long-term investment. Even before World War II international investment had several shortcomings. In the first place, it was generally inadequate. Industrially backward countries could have used advantageously much more foreign capital to develop their economies, and the richer nations could have lent more with advantage to themselves. In the second place, it was highly unstable. Credit flowed freely and in large amounts in some periods and fell precipitously in others. Such wide fluctuations were disturbing not only in the exchange markets but also to the domestic economies of both lender and borrower nations. And in the third place, loans were often used by the lending nation to force political and economic concessions. The need for international loans after the end of World War II was

tremendous. Countries whose economies had been devastated by war and whose ability to produce had been seriously lowered needed large loans to speed the rebuilding of their factories, to buy necessary raw materials, to ward off famine, and to fund the large volume of their accumulated short-term debts to foreigners. Countries whose economies had suffered little damage during the war, such as the United States and Canada, could lend without much hardship, but it appeared improbable that private individuals and firms in those countries would be willing to assume the risk of making large foreign loans. It was clear that the necessary volume of international lending could be achieved only if the risk were socialized, and an international institution like the World Bank appeared to be the most appropriate instrument for distributing the risk equitably among the various nations.

With these facts in mind we can now look at the structure and functions of the International Monetary Fund and the International Bank for Reconstruction and Development.

THE INTERNATIONAL MONETARY FUND

Structure and Organization

The principal office of the International Monetary Fund is located in Washington, D.C. At the end of 1950 its membership included 49 nations; others may join later. The Fund's assets are derived primarily from "quotas" subscribed by member nations, though the Fund may add to them through an excess of its earnings over its expenses. The size of the national quotas varies widely, as is shown in Table 79. Of the total quota of $8036 millions, the United States subscribed 34 percent and the United Kingdom 16 percent.

Each nation must pay part of its quota in gold. Its minimum gold subscription is the smaller of the following: (1) 25 percent of its quota, or (2) 10 percent of its net official holdings of gold and United States dollars as of the date the Fund notifies its members that it will shortly be in a position to begin exchange transactions. Each nation must pay the remainder of its quota in either gold or its

own currency, which will usually mean creating a deposit account for the Fund with the nation's central bank. If, however, the Fund does not need part of the member's currency for its operations, it may accept obligations that are nonnegotiable, noninterest-bearing, and payable at their par value on demand at the Fund's depository in the country. If any nation devalues it currency in terms of gold, it

TABLE 79. National Quotas Subscribed to the International Monetary Fund, and National Voting Power, as of April 30, 1951[1]

	Size of Quota (In millions of dollars)	Percent of Total Quotas	National Voting Power	Percent of Total Voting Power
United States	$2750	34.22	27,750	29.90
United Kingdom	1300	16.18	13,250	14.31
China	550	6.84	5,750	6.21
France	525	6.53	5,500	5.94
India	400	4.98	4,250	4.50
Canada	300	3.73	3,250	3.51
Netherlands	275	3.42	3,000	3.24
Belgium	225	2.80	2,500	2.70
Australia	200	2.49	2,250	2.43
Italy	180	2.24	2,050	2.21
Brazil	150	1.87	1,750	1.89
Other nations	1181	14.70	21,315	23.10
Total	$8036	100.00	92,615	100.00

must pay into the Fund an additional quantity of its money sufficient to protect the Fund against loss in terms of gold. Moreover, each member nation has agreed to place no restrictions on the use of its money held by the Fund. We shall see later that the Fund's assets are to be used to assist members in stabilizing their exchange rates.

Control and management of the Fund are vested in a Board of Governors, the Executive Directors, and a Managing Director. The Board of Governors, in which are vested all powers of the Fund, is composed of one appointee from each member nation. As indicated in Table 79, the voting powers of the governors are roughly proportioned to the size of the quotas of the countries they represent; each governor has 250 votes plus one additional vote for each $100,000 of

[1] Source: *Annual Report of the International Monetary Fund*, 1951, pp. 100–103.

his nation's quota.[2] Thus, the governor from the United States is entitled to cast 27,750 votes, the governor from the United Kingdom 13,250 votes, and the governor from Nicaragua 270 votes. Though the Board of Governors has ultimate control of the Fund and its policies, it can delegate all except a few of its most important functions to the Executive Directors.

The Fund has at least twelve Executive Directors. Each of the five nations with the largest quotas appoints one Executive Director, the other seven being elected by groups of countries. Each Executive Director is entitled to cast a number of votes equal to the number of votes possessed by the country or countries to whom he owes his selection.

Functions

The broad purposes of the Fund, as stated in Article I of the Bretton Woods agreements, are:

1. To promote international monetary coöperation through a permanent institution which provides the machinery for consultation and collaboration on international monetary problems.
2. To facilitate the expansion and balanced growth of international trade, and to contribute thereby to the promotion and maintenance of high levels of employment and real income and to the development of the productive resources of all members as primary objectives of economic policy.
3. To promote exchange stability, to maintain orderly exchange arrangements among members, and to avoid competitive exchange depreciation.
4. To assist in the establishment of a multilateral system of payments in respect of current transactions between members and in the elimination of foreign-exchange restrictions which hamper the growth of world trade.
5. To give confidence to members by making the Fund's resources available to them under adequate safeguards, thus providing them with opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of national or international prosperity.

[2] The voting power of each governor is altered by adding one vote for each $100,000 of his nation's currency sold by the Fund and by subtracting one vote for each $100,000 of foreign money purchased by his nation from the Fund.

6. In accordance with the above, to shorten the duration and lessen the degree of disequilibrium in the international balances of payments of members.

To achieve these broad purposes, the Fund will perform several specific functions: (1) Provide for continuous exchange of information and points of view among the member nations. Though this function is highly important we need not discuss it further. (2) Secure from each country a statement of the "initial" value of its currency in terms of gold or in terms of dollars of their present gold weight and fineness. (3) Provide an orderly procedure for later adjustments of exchange rates. (4) Provide financial assistance to countries needing aid in maintaining the selected exchange rate for their money. (5) Promote the relaxation of exchange restrictions, the elimination of multiple exchange rates, and the ending of discriminatory practices.

Initial Exchange Rates

There were wide differences of opinion as to when and under what conditions initial par values for the moneys of the member countries should be established. Many people, including some outstanding economists, contended that initial rates should not be fixed until economic conditions had been restored to "normal," trade restrictions relaxed, price levels stabilized, and information gathered concerning the structure of exchange rates that would maintain international equilibrium. This was not, however, the course followed by the Fund. On December 18, 1946, it announced initial par values for virtually all member moneys. The initial par values of the principal moneys, and the par values in effect in July, 1951, are shown in Table 80.

Officials of the Fund were fully aware of the fact that many of the initial exchange rates would prove inappropriate as the nations relaxed exchange restrictions. Yet for the reasons indicated in their press release at the time the initial par values were announced, they believed it desirable for the Fund to begin operations early in 1947.

This is the first time that a large number of nations have submitted their exchange rates to consideration by an international organization and thus a new phase of international monetary coöperation has begun. The

major significance of the present step is not in the particular rates of exchange which are announced, but in the fact that the participating nations have now fully established a regime wherein they are pledged to promote exchange stability, to make no changes in the par values of their currencies except in accordance with the Fund Agreement, and to assist each other in attaining the general objectives of the Fund.

The initial par values are, in all cases, those which have been proposed by members, and they are based on existing rates of exchange. The ac-

TABLE 80. Initial Par Values and Par Values in Effect on July 1, 1951, for Some of the World's Principal Currency Units
(In U.S. cents per currency unit)

Country	Currency Unit	Initial Par Value	Par Value as of July 1, 1951	Percentage Depreciation, December, 1946–July 1, 1951
United States	Dollar	100.0000	100.00	0.0
United Kingdom	Pound	403.0000	280.00	30.5
France	Franc	0.8396	[a]	—
Canada	Dollar	100.0000	[a]	—
Netherlands	Guilder	37.6953	26.3158	30.2
Belgium	Franc	2.2817	2.0000	12.4
Denmark	Krone	20.8376	14.4778	30.5
Chile	Peso	3.2258	3.2258	0.0
India	Rupee	30.2250	21.0000	30.5
Norway	Krone	20.1500	14.0000	30.5
Union of South Africa	Pound	403.0000	280.0000	30.5
Philippines	Peso	50.0000	50.0000	0.0
Mexico	Peso	20.5973	11.5607	43.9
Colombia	Peso	57.1433	51.2825	10.3
Peru	Sol	15.3846	[a]	—

[a] Exchange value not fixed on this date.

ceptance of these rates is not, however, to be interpreted as a guarantee by the Fund that all the rates will remain unchanged. As the Executive Directors of the Fund stated in their First Annual Report, issued in September: "We recognize that in some cases the initial par values that are established may later be found incompatible with the maintenance of a balanced international payments position at a high level of domestic economic activity. . . . When this occurs, the Fund will be faced with new problems of adjustment and will have to recognize the unusual circumstances under which the initial par values were determined. It is just at such times that the Fund can be most useful in seeing that necessary exchange adjustments are made in an orderly manner and competitive exchange depreciation is avoided."

The Fund realizes that at the present exchange rates there are substantial disparities in price and wage levels among a number of countries. In present circumstances, however, such disparities do not have the same significance as in normal times. For practically all countries, exports are being limited mainly by difficulties of production or transport, and the wide gaps which exist in some countries between the cost of needed imports and the proceeds of exports would not be appreciably narrowed by changes in their currency parities. In addition, many countries have just begun to recover from the disruption of war, and efforts to restore the productivity of their economies may be expected gradually to bring their cost structures into line with those of other countries. Furthermore, for many countries now concerned with combating inflation there is a danger that a change in the exchange rate would aggravate the internal tendencies toward inflation.

In view of all these considerations, the Fund has reached the conclusion that the proper course of action is to accept as initial par values the existing rates of exchange.

Adjustments of Exchange Rates

The temporary and experimental nature of the initial exchange rates accepted by the Fund emphasizes the importance of subsequent adjustments of these rates. But what principles should be applied in adjusting them? On this question there were wide differences of opinion. At one extreme were those who wanted complete fixity of exchange rates over long periods of time, as under the old gold standards. At the other extreme were those who would vary these rates to remedy practically every disequilibrium in a nation's balance of international payments. The principles accepted by the Fund represent a compromise between these views. Exchange rates are to be "stable" but not "rigid."

The principle to be applied in adjusting exchange rates is as follows: The exchange value of a currency shall be altered only "to correct a fundamental disequilibrium." Though these broad terms have not yet been given a specific meaning, a few conclusions seem warranted. (1) A nation is not supposed to alter its exchange rate to correct a merely temporary disequilibrium in its balance of payments. Temporary difficulties are to be met by borrowing from the Fund or by other means. Only persistent disequilibrium is to be remedied

by exchange rate adjustments. (2) A nation is not to adjust its exchange rate to offset a disequilibrium in its balance of payments resulting from a capital flight. Such a disturbance is to be met by direct control of capital movements or by other means. (3) A nation may alter its exchange rate if pressure on its balance of payments is such as to bring about unemployment of a chronic or persistent character. This was made clear in an interpretation given to the United Kingdom in September, 1946.

> The Executive Directors interpret the Articles of Agreement to mean that steps which are necessary to protect a member from unemployment of a chronic or persistent character, arising from pressure on its balance of payments, are among the measures necessary to correct a fundamental disequilibrium; and that in each instance in which a member proposes a change in the par value of its currency to correct a fundamental disequilibrium the Fund will be required to determine, in the light of all relevant circumstances, whether in its opinion the proposed change is necessary to correct the fundamental disequilibrium.[3]

(4) Each member nation agrees to avoid competitive exchange alterations. By following such principles the Fund hopes to facilitate exchange rate adjustments that will remedy fundamental disequilibria and at the same time avoid frequent, temporary, and harmful fluctuations.

The Fund also provides an orderly procedure for the adjustment of exchange rates. A change in the par value of a member's currency may be made only on the proposal of the member and only after consultation with the Fund. The Fund may not force a member to make such an alteration, and the member may not act without first consulting the Fund. If the change proposed by a member nation, together with all previous changes, does not exceed 10 percent of the initial par value, the Fund may not object to it. If, however, the proposed change plus previous changes is greater than 10 percent of this value, the Fund may either concur or object. A member that changes the par value of its money despite the objections of the Fund is subject to penalties. Unless specifically permitted to do so, it may

[3] *Report of the First Annual Meeting of the Board of Governors of the International Monetary Fund*, Washington, 1946, pp. 105–106.

not use the resources of the Fund, and it may be forced to withdraw from it.

After the par value of a nation's money has been established, the nation undertakes to maintain actual exchange rates within a narrow range. Countries on inconvertible paper standards are to prevent exchange rates from rising above or falling below the selected par by more than 1 percent. Those that buy and sell gold freely at fixed prices accomplish approximately the same result by fixing gold-import and gold-export points. It is important to note that most foreign-exchange transactions will not be carried on through the Fund. Private individuals, business firms, and banks are expected to operate in the foreign-exchange market in the ways described in Chapter 29. The Fund does not deal directly with private individuals and firms; it deals only with the Treasury, central bank, stabilization fund, or other fiscal agency designated by a member nation. Moreover, national central banks and stabilization funds will still have a function to perform in buying and selling exchange in order to maintain exchange rates within the limits mentioned above. For example, the British pound now has a par value of $2.80. Under the Fund agreement Britain is obligated to prevent the exchange rate on the pound from rising above or falling below par by more than 1 percent. If the pound should tend to rise more than 1 percent above this level, the British Exchange Equalization Account or some other designated agency is to offer pounds in the market in sufficient volume to arrest the rise. It is to be assumed that the British can always supply enough pounds to terminate a rise in sterling. If, on the other hand, the pound should tend to fall more than 1 percent below par, the British are to buy sterling, offering gold or foreign money in payment, in sufficient volume to halt the decline. If their holdings of gold and foreign exchange are adequate, they will not have to use the Fund's resources. But if they have an inadequate supply of gold and foreign exchange they may borrow foreign money from the Fund and sell it to halt the rise of foreign-exchange rates.

At this point it will be useful to look briefly at the adjustments of par values that have occurred since 1947. Until the autumn of 1949 almost every country maintained the same par value that it had de-

clared in December, 1946. In this early period nations were reluctant to lower the value of their currencies in exchange markets even if their outpayments tended to exceed their receipts. The world demand for goods and services was so high that nations could sell all the goods and services they wished to export even if their exchange rates were high, and they preferred to limit their imports by direct import restrictions or exchange control rather than intensify their domestic inflation problems by permitting a rise in foreign exchange rates, which would tend directly to raise the prices of their imports and exports. But by the middle of 1949 the economic situation had changed markedly. Inflationary pressures had largely subsided, giving way in some countries to a mild recession. Faced with this decline in the world demand for goods, many countries became willing to devalue their currencies in order to expand their exports and discourage their imports. As indicated in Table 80 above, the United Kingdom, various other members of the British Empire, and some other countries lowered the par values of their currencies by about 30 percent. Still other nations depreciated their money to a greater or lesser extent. Practically every country consulted the Fund before lowering the par value of its currency, but apparently in many cases the consultation was largely perfunctory.

In the cases mentioned above, nations lowered the par values of their currencies and then kept them stable around the new value. But some countries abandoned fixed par values for at least part of the period, allowing their currencies to fluctuate. And some established—or at least permitted—multiple exchange rates for their currencies. This was clearly a departure from the principles of the original Fund agreement.

Financial Aid by the Fund in Stabilizing Exchange Rates

As noted earlier, the Fund has assets of more than $8 billion resulting from the quotas subscribed by member nations. Most of these assets are in the form of the money (largely deposit credits) of the member nations; the remainder is in the form of gold which can be used to buy the members' money. The Fund is to use these assets to help countries that need aid in preventing their money from de-

preciating in the exchange markets. If, for example, Britain, Belgium, or any other member country has an adverse balance of payments and its money tends to fall in the exchange market, it may secure foreign money from the Fund and sell it to halt the rise in foreign-exchange rates. A nation secures foreign money from the Fund by paying for it with its own money. The Fund is essentially a great dealer in exchange, in that it sells the money of some countries and accepts in payment the money of the buying country. Thus, Britain could buy dollars from the Fund and pay for them with pounds. For these dollars, or for any other money purchased from the Fund, Britain would have to pay the parity price plus a service charge of ¾ of 1 percent.

It was feared that the Fund would allow its assets to be wasted or used for inappropriate purposes in some countries. Some American bankers and Congressmen claimed that our $2750-million quota would probably be lent by the Fund and never recovered and that it might be used to finance rearmament or relief programs. There are, however, several safeguards. (1) A member nation may buy the money of other nations from the Fund only with the permission of the latter's officials. (2) A member may use the Fund's resources only for making payments that are consistent with the provisions of the agreement. As the Executive Directors stated in September, 1946, ". . . Authority to use the resources of the Fund is limited to use in accordance with its purposes to give temporary assistance in financing balance of payments deficits on current account for monetary stabilization operations." Two aspects of this interpretation are important. In the first place, the Fund's resources are to be used only for temporary assistance; prolonged and chronic deficits in a nation's balance of payments are to be met through devaluation of its money or by other methods. And in the second place, the resources may be used to meet only balance of payments deficits on "current account"—that is, deficits on account of current international transactions in goods and services. They may not be used to meet large or sustained capital outflows from a nation. "A member may not make net use of the Fund's resources to meet a large or sustained outflow of capital, and the Fund may request a member to exercise controls to prevent

such use of the resources of the Fund. If, after receiving such a request, a member fails to exercise appropriate controls, the Fund may declare the member ineligible to use the resources of the Fund."[4] (3) Limits are placed on each nation's net purchase of foreign money from the Fund. The Fund may not increase its holdings of a nation's money during any twelve-month period by an amount exceeding 25 percent of that nation's quota, and its total holdings of a nation's money may not at any time exceed 200 percent of that nation's quota. This safeguard may well prove to be too restrictive on the Fund's activities. (4) A country which remains a net purchaser of foreign money from the Fund over a long period of time must pay graduated service charges. (5) Each member promises to repay the foreign money borrowed from the Fund as it is able to do so. If the Fund officials administer these provisions in the spirit of the Bretton Woods agreement, the Fund's assets should be relatively safe.

Table 81 shows the amount of financial assistance granted to various nations by the Fund from the beginning of its operations to the end of April, 1951. As shown by the item "currency sold," the Fund supplied to the various nations $811.4 million of national currencies, of which 94.4 percent were United States dollars, 4.2 percent British pounds, and 1.4 percent Belgian francs. The entries under "currency bought" indicate the recipients of financial aid from the Fund and the types of currency taken in payment for the currencies sold by the Fund. The largest recipients of aid were the United Kingdom, France, India, and the Netherlands.

Elimination of Exchange Restrictions

As noted earlier, one of the main purposes of the Fund is to promote the elimination of exchange restrictions, multiple exchange rates, and discriminatory monetary practices. All member nations pledge themselves to remove exchange restrictions on current transactions as soon as conditions permit and to employ them thereafter only in accordance with the Fund agreement. It is important to note that the use of exchange restrictions is not completely outlawed. (1) It was recognized that the elimination process would take some time.

[4] Article VI, Section 1 (a).

TABLE 81. International Monetary Fund Sales and Purchases of National Currencies, from the Beginning of Its Operations to April 30, 1951[5]
(In millions of U.S. dollar equivalents)

Currency sold—total	$811.4
United States dollars	766.0
British pounds	34.0
Belgian francs	11.4
Currency bought—total	$811.4
Australian pounds	20.0
Belgian francs	33.0
Brazilian cruzeiros	65.5
Chilean pesos	8.8
Costa Rican colones	1.2
Czechoslovakian koruny	6.0
Danish kroner	10.2
Egyptian pounds	3.0
Ethiopian dollars	0.6
French francs	125.0
Indian rupees	100.0
Mexican pesos	22.5
Netherlands guilders	75.4
Nicaraguan cordobas	0.5
Norwegian kroner	9.5
Turkish liras	5.0
Union of South Africa pounds	10.0
United Kingdom pounds	300.0
Yugoslav dinars	9.0
Gold	6.2

No later than three years after it started operations, the Fund had to begin making annual reports on the restrictions that remained in force. And at the end of five years after the Fund began operations each member who still had restrictions on payments for current transactions had to consult with the Fund on the subject. If the Fund finds that the member persists in maintaining restrictions that are inconsistent with the purposes of the Fund it may force that nation to withdraw from membership. (2) The purpose of the Fund is not to eliminate all exchange restrictions, but only those relative to "transfers for current international transactions"—payments for goods and services, interest and other net income on international investments, moderate amortization of loans, and moderate remittances for family living expenses. Exchange restrictions aimed at con-

[5] Source: *International Monetary Fund Annual Report*, 1951, pp. 98–99.

trolling abnormal capital movements are not disapproved; in fact, the Fund may request members to impose them to control capital flights. (3) Members may restrict transactions in a national money that the Fund has declared to be "scarce." It is not to declare a money "scarce" unless the supply of it is so small relative to the demand for it that the Fund's ability to meet the demand is seriously threatened. For example, dollars might become scarce as a result of large foreign demands for them when we purchased and lent abroad in inadequate amounts. Even in this case, however, a member that restricts purchases of dollars is pledged to make the restrictions no more stringent than is necessary to equalize demand and supply, and to relax them as rapidly as conditions permit.

To those who hope for the reëstablishment of a world-wide system of free multilateral payments, the results of the Fund's efforts to eliminate exchange restrictions have been disappointing. In 1952—seven years after the end of World War II—the use of exchange controls was still widespread, many nations were practicing monetary discrimination, and several were employing multiple exchange rates. The restoration of free multilateral payments is still far from being achieved.

THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

As noted earlier, the primary function of the World Bank is supplementary to that of the Fund; it is to facilitate the international flow of loans to promote the reconstruction of damaged areas, the development of backward areas, and the solution of problems relating to balances of payments over a longer period. It must be emphasized that the purpose of the World Bank is not to displace private international lending or to solve all the problems of reconstruction. In the first place, other loans, such as the American and Canadian loans to Britain, the American loans to Greece and Turkey, Marshall Plan Aid, and several other forms of financial assistance for reconstruction and development have been granted, and more are likely in the future. And in the second place, banks, business concerns, and indi-

viduals may still make international loans without using the World Bank in any way. The Bank is to supplement, not replace, other flows of international loans.

Structure and Organization

Like the Fund, the World Bank has its principal office in Washington, D.C. And, like the Fund, it had 49 members early in 1952. No nation may join the Bank without being a member of the Fund. The Bank is controlled in almost exactly the same manner as the Fund—by officials bearing the same titles, selected in the same way, and exercising voting power determined in the same way. Thus the nations with large capital subscriptions have a dominant voting power in the Bank.

The capital of the Bank is derived from subscriptions of its member nations. That the amounts of these subscriptions vary widely is indicated in Table 82. Only a small part of the Bank's subscribed capital was paid in at the outset, the remainder being subject to call

TABLE 82. National Subscriptions to the International Bank for Reconstruction and Development as of June 30, 1951[6] (In millions of dollars)

Nation	Subscriptions (In millions of dollars)	Percent of Total Subscriptions
United States	$3175.0	38.1
United Kingdom	1300.0	15.6
China	600.0	7.2
France	525.0	6.3
India	400.0	4.8
Canada	325.0	3.9
Netherlands	275.0	3.3
Belgium	225.0	2.7
Australia	200.0	2.4
Italy	180.0	2.2
Czechoslovakia	125.0	1.5
Brazil	105.0	1.3
Pakistan	100.0	1.2
Union of South Africa	100.0	1.2
35 other countries	750.5	8.3
Total	$8385.5	100.0

[6] Source: *Annual Report of the International Bank for Reconstruction and Development*, 1951, p. 60.

later. For example, in mid-1951 actual subscriptions were only $734.7 million, or 8.8 percent of the total. To understand the functions of its capital we must look at the methods that the Bank may use to facilitate international loans.

Methods Used by the Bank in Making or Facilitating Loans

The Bank is empowered to augment the flow of international loans in three ways:

1. By making direct loans to borrowers out of its own capital and surplus. In making these loans the Bank may act alone or it may participate with others.
2. By making direct loans, either alone or with others, out of funds borrowed by the Bank itself in the loan markets of member countries. For this purpose the Bank is empowered to issue and sell its own bonds and other debt obligations.
3. By guaranteeing in whole or in part loans made by private investors through the usual investment channels.

The total of the Bank's outstanding loans and guarantees of loans may not at any time exceed its subscribed capital plus any accumulated surplus. And its direct loans out of its capital and surplus are limited to 20 percent of its subscribed capital plus any accumulated surplus. The purpose of the remaining 80 percent of its subscribed capital is to "guarantee" the bonds it issues as well as the loans of others that are insured by it.

The provisions governing payment of capital subscribed by member countries are consistent with the lending and loan-guaranteeing functions of the Bank. Each original member had to pay 2 percent of its subscription within 60 days after the Bank began operations, another 8 percent was subject to call within a year after that time, and a further 10 percent is subject to call whenever the Bank needs the funds for its operations. The remaining 80 percent of the subscription is callable only when needed by the Bank to meet its own debts to those from whom it has borrowed or to compensate private investors whose loans it has guaranteed. This balance will therefore be called

only to the extent that borrowers fail to meet their obligations to the Bank or to lenders whose loans are guaranteed by it.

In general the Bank is given full power to fix the interest rates, maturities, and amortization provisions relative to its own direct loans and to determine the conditions under which it will guarantee loans made by others. During the first ten years of its operation, its commissions for guaranteeing loans made by others and its commissions on its own loans extended from borrowed funds may not be less than 1 percent or more than 1.5 percent per year. Commissions may be adjusted after this ten-year period if experience warrants.

Conditions Under Which the Bank May Make or Guarantee Loans

To understand some of the limitations placed on the Bank's operations, it is necessary to mention some of the fears aroused by the proposal for its establishment. The principal ones were: (1) That the Bank would replace the normal channels of international lending, thereby injuring the institutions previously operating in this field. (2) That the loans made or guaranteed by the Bank would be used for outright relief purposes, for uneconomic projects, for rearmament, or for other purposes that would not contribute to international reconstruction, peace, and security. (3) That the Bank would assume excessive risks and endanger its capital. (4) That the Bank's operations in lending or borrowing countries would disturb their domestic economies. (5) That the Bank's financial power would be used for "political" purposes.

To avoid these results, the articles of agreement placed several restrictions on the Bank's loans and guarantees. (1) The Bank may lend or guarantee loans only if it is satisfied that the borrower will otherwise be unable to obtain the loan under reasonable conditions. This provision plus the Bank's commission charges will encourage borrowers to seek funds through normal channels. (2) Except in special circumstances, loans made or guaranteed by the Bank shall be for specific projects for reconstruction or development. A competent committee is to study and make a written report on each loan application, and in extending or guaranteeing a loan the Bank must pay

due regard to the ability of the borrower or his guarantor to meet the obligations created by the loan. (3) When the member nation in whose territory the project is located is not itself the borrower, the Bank may not make or guarantee the loan unless the member's government, its central bank, or some other comparable agency that is acceptable to the Bank fully guarantees payment of the principal and interest and all other charges on the loan. Thus, the securities issued or insured by the Bank should be relatively safe, for they will carry the guarantee not only of itself but also of the country in which the project is located and, in some cases, of the borrowing business concern or political subdivision. (4) Each member country is to deal with the Bank only through its treasury, central bank, stabilization fund, or other similar fiscal agency, and the Bank is to deal with members only through the same agencies. Moreover, it may lend the money subscribed for capital by a member country, borrow in a member country, or guarantee loans floated in a member country, only with that country's consent.[7] These provisions prevent the Bank from influencing a nation's money markets and international payment position without its knowledge and consent. They may also, of course, permit a country to impede the Bank's operations. For example, its usefulness could be seriously impaired by our refusal to allow it to lend our dollar subscriptions, to borrow in this country, or to guarantee dollar loans. (5) The Bank may not require that the proceeds of a loan be spent in the territory of any particular member or members.

These restrictions were placed on the Bank's operations to increase its safety and to avoid the other dangers mentioned earlier. It is to be hoped that they will not prove so restrictive as greatly to impair its usefulness. The Bank could require such high standards of safety that it would serve no useful purpose, for any borrower who could meet such standards would probably be able to secure loans without its aid. This is not, however, a suggestion that the Bank should operate as a charitable institution.

[7] There is one exception to this general rule. After its subscribed capital has been entirely called, the Bank cannot be prevented from using a country's money to meet the Bank's contractual liabilities arising out of its own borrowings or loan guarantees.

Table 83 summarizes the Bank's lending activities from the beginning of its operations until mid-1951. During this period of approximately five years the Bank aided the international flow of loans solely by lending; it did not guarantee loans made by others. To some observers the amount of loans made, $1.1 billion, was disappointingly small, especially in view of the great need for reconstruction and development loans. The Bank's management has been criticized as

TABLE 83. Loans by the International Bank for Reconstruction and Development from the Beginning of Its Operations to June 30, 1951[8]

Type of Loan	Amount of Loans (In millions of dollars)
Loans to France, Netherlands, Denmark, and Luxembourg for postwar reconstruction	$ 497
Other loans for:	
Electric power	271
Transportation	119
Communications	30
Agriculture and forestry	92
Industry	67
Development banks	21
Total	$1097

being overly conservative in its lending policies. This may be a valid criticism, but it should be remembered that the huge grant and loans program of the United States government has met many of the international needs for funds with which to finance reconstruction and development. Under these circumstances it was perhaps wise for the Bank to conserve its lending power for use after the American aid program is terminated.

THE ACHIEVEMENTS OF THE FUND AND THE BANK

In 1953 neither the Bank nor the Fund had yet achieved the importance and success that the delegations at Bretton Woods had hoped for. The operations of the Bank were small, and the Fund had

[8] Source: *Annual Report of the International Bank for Reconstruction and Development*, 1951, p. 14.

not reached its objectives. On several occasions members had failed to coöperate with the Fund, exchange restrictions were still widespread, many nations were discriminating in their allocation of available foreign exchange, and multiple exchange rates were far from absent. For this failure to achieve their objectives the Bretton Woods institutions were not wholly to blame. Postwar economic problems have proved to be far more difficult than the optimists at Bretton Woods expected. The process of economic reconstruction has been slow and expensive, the hoped-for period of real peace has not materialized, the postwar period has been characterized by widespread international tension and economic and social unrest in many countries, and a considerable number of countries have shown little desire to reëstablish a system of free multilateral payments and trade.

Some critics go so far as to say that the Fund has done more harm than good and that it ought to be terminated, or at most survive only as a center for international consultation. With this the present writer disagrees; he believes that the Fund has been a useful instrument for international coöperation and that its power to grant financial aid is indispensable in securing such coöperation. Nevertheless, at least one of the Fund's principles requires careful reconsideration. This is its principle for fixing and adjusting exchange rates.

As indicated earlier, the principle of exchange rates embodied in the Fund agreement is that these rates should be "stable" but not "rigid." Nations should adjust their exchange rates to correct a "fundamental disequilibrium" but should otherwise stabilize them around their declared gold values. This provision is subject to various interpretations. To some it means that exchange rates should be adjusted as often as a nation's balance of international payments gets out of equilibrium. To others it means that exchange rates should be kept stable over long periods and changed only when all other methods of adjustment have failed. This latter interpretation would produce results similar to those produced by a gold standard with fixed gold values for currencies over a long period. Under such a system the process of equilibrating international payments would require appropriate adjustments in the relative levels of national money incomes and prices. But under the Fund agreement, every nation remains free

to determine its own monetary and fiscal policies, so that each may determine for itself whether to adjust its money income and price levels to equilibrate its international payments and receipts. Thus there is a real danger that nations will try to maintain stable exchange rates while following monetary and fiscal policies which will disequilibrate their balances of payments. To the extent that this happens, nations are tempted to employ exchange controls to force a balance of their receipts and payments.

To discourage such use of exchange controls, the Fund might do two things. (1) If it is to promote stability of exchange rates over long periods, it should encourage a nation to follow monetary and fiscal policies which will adjust the relative levels of national money incomes and prices in such a way as to equilibrate balances of payments without exchange control. (2) To the extent that a nation is not willing to make these income and price level adjustments, the Fund should encourage appropriate adjustments in exchange rates to bring balances of payments back into equilibrium. This would require more flexibility of exchange rates than the Fund has advocated up to this time.

In short, there are three principal ways of adjusting international balances of payments: adjustments of the relative levels of national money incomes and prices, adjustments of exchange rates, and exchange controls. To the extent that the first two are not employed, the use of the third is encouraged. The Fund still faces the problem of helping to determine the relative roles to be given these three methods of adjustment.

SELECTED READINGS

Board of Governors of the Federal Reserve System, *Federal Reserve Bulletin*, various numbers in 1944, 1945, and 1946.

Buchanan, N. S., *International Investment and Domestic Welfare*, Henry Holt, New York, 1945.

Hawtrey, R. G., *Bretton Woods, for Better or Worse*, Longmans, Green, Toronto, 1947.

International Bank for Reconstruction and Development:

Annual Reports.

Miscellaneous publications and releases.

International Finance Section, Princeton University, *Survey of United States International Finance, 1949–1950–1951*, Princeton University Press, Princeton, 1950, 1951, and 1952.

International Monetary Fund:

Annual Reports.

Miscellaneous publications and releases.

Report on Exchange Restrictions, April, 1951, Washington, 1951.

United States Treasury, Miscellaneous publications on the Bretton Woods Plans.

Williams, J. H., *Postwar Monetary Plans and Other Essays*, Knopf, New York, 1945.

CHAPTER 33

The Objectives of Monetary Policy

Throughout this book we have insisted that it is the functioning, and not the form, of a monetary system by which its success is to be judged. The broad fundamental purpose of money is to facilitate exchange so that we can utilize steadily and fully the high degree of specialization that has contributed so much to the productivity of modern economic systems. To make its greatest contribution to a high and steady level of exchange and specialization in the short run and to a satisfactory rise in production and trade over the years, a monetary system must provide an appropriate flow of expenditures for output and an appropriate behavior of price levels. Those who employ the transactions type of quantity theory for their analysis would say that the flow of expenditures (MV) must behave in such a way relative to the physical volume of trade (T) as to secure relatively stable prices and an adequate demand for output. Those employing the cash balance approach would say that the supply of money must be so regulated relative to the demand for it that the flow of spending will be adequate for full employment and prices will be relatively stable. Those using the income and expenditure approach would say that money must be managed in such a way as to equalize investment and savings at a level of national money income that will provide stable full employment and relatively stable prices. But though their approaches and their terminology differ, all these students of money emphasize the crucial importance of its functioning.

In emphasizing the functioning of money we do not say that the

forms of money are unimportant. They are highly important; but their importance derives from their effects on the functioning of money, and they should be judged on this basis. What type of monetary standard should we employ? Some type of gold standard? If so, what type? Some form of paper standard? If so, what form? How should we define the monetary unit? What types of money should be provided for circulation? How many and what types of money-creating banks should we have, and what limitations should be put on their operations? What powers should the central bank have, and who should wield them? What should be the Treasury's fiscal policy? These questions, and many others, can be answered intelligently only by reference to the effects on the functioning of the monetary system.

Another theme of this book is that human management of monetary systems is inevitable and that the government inevitably has great powers in this field. This is true even of so-called "automatic" systems. In fixing the "rules of the game" the government, by either action or inaction, inevitably affects the functioning of the system. This is true of the choice of the monetary standard, of the definition of the monetary unit, of the fixing of mint charges, of the terms of legal-tender laws, of the chartering of private money-creating banks, of the fixing of bank reserve requirements, of other regulations governing bank activities, and of the fixing of the powers of the central bank. But we might as well accept the fact that governments no longer merely "fix the rules of the game" and then stand neutrally aside, allowing the monetary system to operate "automatically" without further government influence. Central banks are integral parts of the monetary system and influence it, either by deliberate action or by passive inaction. For example, the Federal Reserve System is not "neutral" if it passively allows member banks to borrow from or pay large amounts to it. The Treasury cannot escape having central banking powers. Exchange stabilization funds cannot avoid exerting an influence on both domestic and international conditions. Government borrowing, spending, and taxing policies inevitably affect the size of the national income and the processes of consumption, investment, and saving. The credit policies of government financial institutions have inevitable effects on monetary flows. The same is

true of international commercial policy and many other economic policies that come under government purview. The real question is not, therefore, whether the government shall have great powers over the monetary system—it has them whether it wants them or not. The real question is whether it will recognize its inevitable possession of many powers, and whether it will use them wisely and in a coordinated way to achieve socially desirable objectives.

GUIDES TO MONETARY POLICY

We have seen that the broad and basic objective of monetary policy should be to secure an appropriate flow of money expenditures so as to maintain a continuously high level of employment and a relative stability of price levels. This objective should be kept constantly in mind by the monetary authorities, but it is admittedly not an adequate operating guide. Are there more immediate objectives or guides that will direct these authorities to the proper policies? We shall analyze several of those that have been proposed.

Stabilization of the Monetary Unit in Terms of One Commodity

The immediate objective of monetary policy that has probably enjoyed the widest acceptance and use in modern times, though its popularity is waning, has been the stabilization of the monetary unit in terms of some one commodity, or in some cases of two commodities. These commodities have usually been gold or silver, or both. Under a gold standard the value of each unit of every kind of money in use is kept equal to the value of a stipulated amount of gold. Under the silver standard the monetary unit is stabilized in terms of silver. And under bimetallism money is stabilized in terms of both metals.

It is evident that stability of a money in terms of gold (or silver) is of no special importance in and of itself; a case can be made for this immediate objective only if it can be shown that it induces money to behave in such a way as to facilitate production and trade. Many advocates of the gold standard insist that it does just this; it facilitates trade, both international and domestic. It is supposed to facilitate international economic transactions by stabilizing exchange

rates between moneys. When monetary units are kept constant in terms of gold, the exchange rate between them is relatively fixed and can vary only by an amount measuring the costs of transporting gold from one country to the other. And this stability of exchange rates encourages the international flow of commodities and capital funds by eliminating the risks and uncertainties that would attend fluctuations in these rates. We must remember, however, that stability of exchange rates is assured only as long as the value of all the money involved is fixed in terms of gold; a money that is kept constant in these terms is still free to fluctuate in terms of paper and silver standard money. This argument for stabilizing a nation's monetary unit in terms of gold can be valid, therefore, only if other commercially important nations also operate under a gold standard; it cannot be used to support the maintenance of a gold standard by one country alone. And, as we have seen, it is by no means certain that fixed exchange rates over long periods are desirable.

Advocates of a gold standard frequently argue that stabilization of money in terms of gold also tends to facilitate domestic trade, and that it does this by militating against "excessively" inflationary and deflationary monetary policies. To prevent their money from depreciating in terms of gold, countries must refrain from "excessive" expansions of the money supply. And to prevent it from appreciating in terms of gold they must refrain from "excessive" restrictions of the money supply. Even if it is admitted that keeping money constant in terms of gold prevents errant monetary authorities and commercial bankers from indulging in the grossest excesses of inflation and deflation, no one can reasonably contend that such a policy points the way to anything like an ideal behavior of money. Experience has demonstrated many times that money that is stable in terms of gold can still undergo wide fluctuations in purchasing power and can fail to behave in the manner most conducive to the attainment and maintenance of full employment.

At its best, therefore, the immediate objective of stabilizing the monetary unit in terms of gold is inadequate; though it may prevent money from behaving in some undesirable ways, it does not indicate precisely the way it should behave. To supply more specific guidance

some other immediate objective is necessary. Recognizing this fact, more and more of the countries that have maintained a gold standard have also attempted to manage their money in such a way as to secure greater stability of prices or of business activity, or some other objective that is more conducive to full and stable employment than is the mere stabilization of money in terms of gold. This raises a series of important questions. Is it possible to maintain money constant in terms of gold and at the same time to manage it in the way most likely to achieve and maintain economic equilibrium, or does the one preclude the other or at least make its achievement more difficult? And if the stabilization of money in terms of gold (or some other one commodity) does militate against the attainment of other monetary objectives, should not the attempt to stabilize money in terms of gold be abandoned?

Stabilization of the Price Level

A criterion of monetary policy that has enjoyed considerable support is the stabilization of the price level. This policy has been urged by a sizable group of economists; bills which sought to impose upon the Federal Reserve System a legal obligation to employ all its powers to this end have been introduced and advocated repeatedly, though unsuccessfully, in Congress.

Actual experience appears, at least at first sight, to lend support to the contention that price stabilization is an appropriate guide to monetary policy. Periods of falling prices, particularly of rapidly falling prices, have virtually always been periods of economic stagnation as well as of arbitrary shifts in wealth and income. Periods of rising prices, though not cursed by a contemporary decline in production, have also witnessed sizable shifts in the distribution of wealth and income and have usually been followed by business breakdowns. Only periods of relatively stable prices have been able to combine an active and stable prosperity with a largely neutral effect on distribution. The easy deduction from experience, therefore, is that a policy aimed at stabilizing prices is likely to be most effective in achieving the ultimate objectives of money. Unfortunately, this criterion may be inadequate and in some cases actually misleading. Before criticizing it

further, however, we must recognize its merits. These are two: (1) It directs attention to the evils of gratuitous fluctuations in prices. (2) In a large proportion of cases it would indicate the proper general type of monetary policy to be followed. The monetary authority would rarely go wrong in adopting a liberal money policy in the face of falling prices or a restrictive policy in the face of rising prices. Criteria used in the past have apparently not provided even this amount of guidance. But despite its merits, price stabilization cannot be accepted as an unerring guide.

There are three principal criticisms of this criterion. The first finds fault with the vagueness of the advocates of price level stabilization rather than with the criterion itself if properly defined. What price level should be stabilized? Retail prices? Wholesale prices? The cost of living? Wages? Security prices? A composite index including the prices of everything sold for money, such as the *P* of the transactions type of quantity theory? When the science of index numbers was in its infancy and less was known about the behavior of prices, it was usually assumed that all types of index numbers that were at all comprehensive would behave in about the same way regardless of their inclusiveness and weighting. Now it is known that various types behave quite differently; hence the monetary policy counseled might vary considerably according to whether one or another type of index was chosen as a guide. This point was noted by a member of the Federal Reserve Board in 1928 in opposing a bill ordering the System to stabilize the price level. "For example, in the period from 1925 to 1927 the Bureau of Labor wholesale indexes show a price decline of about 12 percent; but if you take the curve of the cost of living, the decline was barely 2 percent. If you take a composite index like Mr. Snyder's there was hardly any decline at all."[1] It is even possible to find periods in which some price indexes rose while others declined. As indicated at the beginning of this paragraph, however, this criticism is more properly leveled against the vagueness of the proponents of price stabilization than against the criterion itself and does not apply when the price index to be stabilized is carefully defined. Several recent writers have met this objection by urging that the

[1] Statement of Mr. Hamlin in hearings on H.R. 11806 (1928), p. 393.

average prices of the current output of finished goods be stabilized; for it is with reference to these prices relative to costs of production that enterprisers decide upon the volume and types of output to be undertaken, and it is these things for which money incomes are largely, though not in their entirety, spent.

But even after the criterion has been defined clearly it is still subject to criticisms. The second one grows out of the fact that price level fluctuations are in their first appearance a symptom rather than a cause of economic instability and as a symptom may appear clearly enough to be recognized and to indicate the need for action only after the disease of which it is a manifestation has already made considerable headway. The "cause" or "causes" behind the initial rise or fall in the price level of output is, of course, an expansion or contraction of money demand relative to the physical quantity of finished output offered for sale. Most of the economists advocating price stabilization have recognized this fact but have dismissed it as of little importance; this they do because of their belief that the symptom, price changes, will appear almost simultaneously with its underlying causes and will thereby sound the signal for action before serious damage is done. Such a belief rests upon the assumption that perfect or near-perfect competition rules in most industries and that prices are highly sensitive to underlying changes. Under these assumed conditions it would undoubtedly be true that shifts in the money demand for output would be almost immediately manifested in price changes and that the volume of production would be affected only later and as a consequence of price changes.[2] As indicated earlier, however, the economic systems of the western world are to a considerable extent systems of insensitive prices and sensitive production. The growth in size of the individual firm, the rise of the trade association, cartelization, the use of policies of price leadership, legalization of price maintenance, government price fixing—all these and other influences as well have contributed to the inflexibility of prices and have probably increased the extent to which fluctuations in money demand are manifested in production and employment rather than in prices.

[2] Under conditions of perfect competition each enterpriser would assume that he could sell an unlimited amount of his product at the market price, and a shift in the demand for his product would necessarily take the form of a change in the market price.

It was partly because of a belief that the price level gives its counsel too late to permit the use of preventive measures and at the most can only point the way to remedial action that the Federal Reserve rejected price stabilization as the criterion of credit policy. As the Federal Reserve Board stated in 1923, "Credit administration must be cognizant of what is under way or in process in the movement of business before it is registered in the price index. The price index records an accomplished fact."[3]

The third criticism of price stabilization as a criterion of monetary policy is that it does not differentiate between disequilibrating and equilibrating changes in the price level of output. Those advancing this criticism do not defend all price fluctuations; they readily admit that some—even most—of these fluctuations that have occurred in the past have been disturbing influences and ought to have been prevented. In this category they include all variations in the prices of output that are traceable to expansions and contractions of the money supply, to hoarding and dishoarding of money, and to fluctuations in the physical volume of trade caused by changes in the aggregate supply of available factors of production—the increase in the working population, the opening of new land, and the accumulation of capital. They emphasize, however, that price changes attributable to changes in the real efficiency of production are in a different category. Price changes paralleling changes in real costs of production are not incompatible with the maintenance of normal profit margins and of full and stable employment. We shall deal here only with increases in the efficiency of production, for it is this case that is significant in a progressive economy.

Increases in the real efficiency of production may be effected in many ways; among these are new inventions, a wider use of inventions already in existence, better techniques of business organization and management, greater vigor and intelligence of workers and managers, and an improvement in labor relations that reduces ca' canny and sabotage. But whatever its cause, any expansion of the average output per productive factor must, in the absence of a proportional rise in the average money reward to productive factors, lower the money cost per unit of output. This can be shown by a hypothetical example.

[3] *Annual Report of the Federal Reserve Board*, 1923, p. 32.

Suppose that in the original situation 100 units of productive factors produce 100 units of output per period and receive in return $90; the average cost of production per unit of output is 90¢. This output is sold at an average price of $1; hence the enterprisers' profit margin is 10¢ per unit. This situation is then altered by a 10 percent rise in the real efficiency of production, so that the same aggregate of productive factors can produce 110 units per period. If the aggregate money reward to the productive factors remains unchanged, the money cost per unit will fall to 82¢ (90/110 = 82); the selling price per unit could fall to 92¢ without shrinking the enterprisers' 10¢ margin. In fact, if the price of output is maintained at $1 and the average rate of pay to the productive factors does not rise, enterprisers' profits will be inflated to 18¢ per unit. Thus, enterprisers' profit margins can be abnormally widened just as surely by maintaining selling prices constant in the face of declining costs as by raising selling prices while costs lag behind. And in both cases the resulting business boom must collapse when, as will happen sooner or later, profit margins are again narrowed by the rise of cost levels relative to selling prices.[4] It is evident that this criticism of price stabilization would not apply if productive factors received money rates of pay that always varied directly with their productivity. But such behavior of cost levels cannot be depended upon in our economy.

Several economists who believe that the behavior of prices furnishes the most useful criterion of monetary policy but who admit the validity of the first and third—particularly the third—of the above criticisms of price stabilization have recently advocated that money be so managed as to cause the price level of output to vary only in response to changes in the efficiency of production. If this were done successfully, price levels of output would vary directly with real costs.

[4] The same conclusion is arrived at by another line of reasoning. Some analysts point out that selling prices can be buoyed up in the face of increased efficiency only by an excess of investment over savings, which involves an abnormal stimulation of the investment goods industries. When the injection of new money to maintain prices is stopped or even slackened significantly, investment is discouraged, which may well bring about a recession not only in the investment goods industries but elsewhere as well. For a good brief discussion of this problem, see E. F. M. Durbin's treatment in G. D. H. Cole, *What Everybody Wants to Know About Money*, Knopf, New York, 1934, pp. 261–268.

This criterion may be superior, theoretically if not administratively, to that of price stabilization. Yet it, too, is subject to the second criticism advanced above against price stabilization—that price changes are a symptom rather than a fundamental cause, and that as a symptom they are likely to appear too late to prescribe preventive action and perhaps too late to call forth effective remedial action. Since prices are only symptoms and since it is the magnitude of the money demand for output that is of fundamental importance, it would seem desirable to use not prices but the behavior of the money demand for output as the criterion of monetary policy. The immediate criterion should be the establishment and maintenance of the volume of money demand for output that will come nearest to securing full and steady employment. However, before discussing this criterion further it is necessary to examine other intermediate guides which have been suggested and which, though they are neither adequate nor trustworthy, do call attention to disturbances to be avoided.

Stabilization of the Quantity of Money

A criterion that has sometimes been suggested, though it has never enjoyed more than a small sponsorship among economists, is that of stabilizing the quantity of money. According to this proposal, the immediate goal of monetary policy should be to hold constant the aggregate quantity of money, including both cash and circulating bank deposits. It requires no detailed analysis to discover that this criterion is not the proper one to adopt. A constant supply of money would not by any means insure a properly behaving money demand for output. This money demand would still fluctuate because of hoarding and dishoarding, and it would be highly unlikely to expand enough to take off the market at remunerative prices the increased output made possible by the growing supply of labor and other productive factors.[5] The appropriate monetary policy demands not a

[5] The same conclusion is arrived at regardless of the type of monetary theory used for purposes of analysis. In terms of the transactions type of quantity theory, a constant M in the face of fluctuations in either V or T, or both, would permit P to fluctuate. According to the cash balance approach, a constant money supply in the face of a fluctuating demand for money would allow the value of money to fluctuate. The commodity theory arrives at the same conclusion through an analysis of the supply of and demand for gold.

constant quantity of money, but a quantity of money that varies in the way most conducive to attaining the desired behavior of the money demand for output.

Though it is unacceptable as a guide to monetary policy, this criterion does focus attention upon the evil effects of inappropriate fluctuations in the money supply. In fact, it appears to have originated as a protest against the arbitrary and capricious expansions and shrinkages of money which too often have been responsible for initiating disturbances and for aggravating and prolonging disturbances that originated elsewhere in the economy. Its positive contribution is to condemn all variations in the money supply that cannot be shown to be conducive to the attainment of continuous full employment.

Stabilization of Total Money Expenditures (*MV*)

A fourth criterion of monetary policy that has been suggested is stabilization of the rate of money expenditures for all goods, services, and securities—the *MV* of the equation of exchange. This criterion is also stated as "stabilization of the effective supply of money." As an objective it is superior to that of stabilizing the quantity of money alone, for it recognizes that the volume of money expenditures is influenced by fluctuations in the velocity as well as in the quantity of money. Nevertheless, it is too inexact to be acceptable. To stabilize money expenditures for everything entering into *T*—services and all types of goods and securities, both new and second-hand—does not by any means insure proper behavior of the money demand for new output. In fact, the stabilization of *MV* would almost certainly be accompanied by fluctuations in the money demand for new goods and services. If this criterion were adopted in an economy that is expanding in population and capital supply, the long-term increase in trade between the different stages of the productive process and in second-hand securities, real estate, and other goods would absorb progressively larger amounts of expenditures and would leave progressively smaller amounts to be spent for current output. Over longer periods, then, a constant *MV*—even if it could be maintained—would probably be accompanied by a declining demand for new output. And during shorter periods, increases and decreases in expenditures

for these other elements of trade would leave alternately smaller and larger amounts to be spent for current output.

Stabilization of the Money Demand for the Current Output of Finished Goods and Services

One who accepts the view expressed above, that the money demand for finished output occupies a key position in the economic process, is likely to conclude that the monetary policy most conducive to the attainment of continuous full employment is one aimed at stabilizing the money demand for the current output of finished goods and services. This would probably be the most satisfactory policy for a static economy with a stable productive capacity. A constant money demand for a constant quantity of real finished output would, if cost levels remained properly adjusted, permit the maintenance of enterprisers' profits and give them no incentive to reduce their scope of operations. Incidentally, it would also maintain a stable price level for finished output.

A policy of stabilizing the total money demand for finished output might also be the most satisfactory one for an economy in which productive capacity was expanding, if this expansion of output were imputable solely to an enhancement of the real efficiency of production, that is, to an increase in the average output per unit of productive factors. This again assumes that there is no advance in the average money cost per unit of productive factors. In this case, as in the static economy, the maintenance of a stable aggregate money demand for finished output while aggregate money costs remained constant would permit the maintenance of enterprisers' profits. It would, of course, necessitate a decline in the price level of finished output, but this decline in selling prices would be offset by that of money costs per unit, so no deflation of enterprisers' net returns would be effected.

Increase in the Money Demand for Output in Proportion to the Supply of Productive Factors: Stabilization of the Average Money Income per Unit of Productive Factors

Although stabilization of the total money demand for finished output is probably the most satisfactory monetary policy when pro-

ductive capacity remains constant or even when it is increasing as a consequence of advances in the real efficiency of production, it is too ascetic for use when capacity for output is expanding as a result of accretions to the supply of productive factors. The maintenance of a constant money demand for finished output in the face of a rising supply of productive agents in the form of labor, land, and capital is liable to be deflationary and to retard the absorption of these additional productive facilities into the economic process. With a fixed level of money receipts for finished output, which would be the case if the money demand for output remained constant, enterprisers could not raise the aggregate of their cost payments without suffering a shrinkage of their profits. And the employment of additional agents of production would entail an increase in aggregate money costs if the average money reward to the productive factors failed to decline in inverse proportion to the increase in their supply. In a perfectly competitive, frictionless economy it might be feasible to rely upon such a decline of money costs to maintain enterprisers' profits and to make remunerative the employment of additional productive agents. But in an economy characterized by sluggish costs, this policy is not feasible.

In an economic system in which rates of pay to productive factors can be reduced only slowly, the money demand for finished output should be expanded at a rate equal to the rate of increase in the supply of productive factors so that entrepreneurs could absorb all the available factors of production, pay them a constant average rate of money reward per unit, and still maintain their profits. In other words, the money demand for finished output should be raised at such a rate as to insure the maintenance of a stable average money income per unit of productive factors. If this criterion of stabilizing the average money income per unit of productive factors were adopted, the price level of output would be permitted to decline in response to advances in the real efficiency of production but not for any other reason. And the benefits of increased productivity would be distributed among the members of the community in the form of decreases in the prices of output rather than in the form of increased average money incomes to productive factors.

Increase in the Money Demand for Output in Proportion to the Increase in Total Productive Capacity: Stabilization of the Price Level of Output

Many other economists favor the objective of causing the money demand for output to vary proportionally with the productive capacity of the economy, whether the change in productive capacity is traceable to a change in the supply of productive factors or to a change in the average productivity per productive factor. In an expanding progressive economy this would require a rising level of expenditures for output which would stabilize the average prices of output and permit the money rewards of productive factors to rise in proportion to their productivity. Those favoring this objective claim superiority for it on two counts. (1) It would promote economic peace, for workers and the owners of other productive factors would prefer to get their increased rewards in the form of higher money incomes rather than in lower prices of the things they buy. And (2) the fruits of higher productivity would go exclusively to those who are "actively" engaged in production instead of being shared with *rentiers* and others who would share if its fruits were distributed in the form of lower prices for output.

As between this objective and the preceding one—the increase in the money demand for output in proportion to the increase in the supply of productive factors—the present writer expresses no choice, though he suspects that a policy aimed at increasing expenditures for output at such a rate as to elicit capacity levels of production, stable average prices for output, and rising money rewards to productive factors proportional to the average increase in productivity, would prove to be the more acceptable one. But this seems to be the most expansionary monetary policy that should be followed in peacetime.

It does, however, face one great danger. Many observers fear that labor unions, farmers, and business are likely to use their great economic power both in the market place and in government to raise their money rates of remuneration faster than they increase their productivity, and that they will refuse to produce if these demands

are not met. Such autonomous increases in the prices of productive factors in excess of an increase in their productivity pose difficult problems. If the monetary authorities refuse to allow expenditures for output to rise sufficiently to offset these increases in factor prices, some unemployment is likely to result if the productive factors refuse to recede from their demands. But if the monetary authorities allow expenditures for output to expand to cover the increased cost levels, they will validate the resulting price increase and encourage repetitions of the process. This writer believes that monetary policy in peacetime should be such as to force productive factors to bargain within the framework of a stable price level for output, but some other economists believe this to be too restrictive and politically infeasible.

METHODS OF ASSURING THE PROPER BEHAVIOR OF THE MONEY DEMAND FOR OUTPUT

The preceding sections have dealt with the proper objectives of monetary policy. How are these objectives to be attained? Can they be achieved by monetary policy alone? Since this book has the specialized purpose of dealing with money and monetary policy it has naturally stressed the possibility of employing monetary policy as a stabilizing device. The writer believes that monetary policy is a powerful force, and that it can yield either desirable or undesirable results. It is highly important that monetary policy be such as to avoid creating and magnifying economic disturbances and that it make its maximum contribution to the steady growth of the economy and to a relatively stable purchasing power for the dollar.

But this is not to argue that monetary policy is all-powerful or that it should be relied upon exclusively for the attainment of our economic goals. In the first place, it is not designed to deal with all types of economic problems. At best, it can only assure the appropriate behavior of the aggregate demand for output. It cannot deal with such important problems as monopoly, the proper location of industry, many problems of income and wealth distribution, and so on. These must be dealt with in other ways. And in the second

place, appropriate monetary policy may be a necessary but not a sufficient condition for the maintenance of an appropriate rate of spending for output. Not only may monetary policy be defeated by inappropriate policies of other types, such as antagonistic fiscal policies, but it may at times require the active assistance of other policies if it is to attain its objectives.

In short, it is difficult to say which would be the more dangerous error: to assume that monetary policy is unimportant, or to assume that it can be a panacea for all economic ills.

SELECTED READINGS

Beveridge, W. H., *Full Employment in a Free Society*, Norton, New York, 1945.

Durbin, E. F. M., *The Problem of Credit Policy*, Wiley, New York, 1935.

Gayer, A. D., *Monetary Policy and Economic Stabilization*, Macmillan, New York, 2nd ed., 1937.

Hart, A. G., *Money, Debt, and Economic Activity*, Prentice-Hall, New York, 1948.

Royal Institute of International Affairs, *The Future of Monetary Policy*, Oxford, London, 1935.

Subcommittee on General Credit Control and Debt Management, Joint Committee on the Economic Report, *Monetary Policy and the Management of the Public Debt: Their Role in Achieving Price Level Stability and High Employment*, Government Printing Office, Washington, 1952.

INDEX

Acceptance buying rates, 333
Acceptances, 189–190, 310, 314, 326–327, 346
Accommodation of business, Federal Reserve System, 359
Agricultural credit, 460–469
Agriculture loans, importance of, 467–469
Agriculture, accommodation of, 359
American bank, first, 251
American banking, history of, 1781–1914, 250–271
  See also Federal Reserve System
Anti-Federalists, 252
Anti-inflation, 384, 393
Anti-inflation program, 343
Arbitrage, 640
Arbitrageurs, 104
Articles of Confederation, 108–109
Assets, 70–75
  bank, 196, 202–205
  basic equation, 199
  commercial banks, 229–237
  diversification of, 240
  Federal Reserve System, 308–312
  fiscal policy and, 621–624
  public, 336
  sale of, to Federal Reserve banks, 245

Baird, Frieda, 445
Balance sheet, 198–200
  combined, 229–231
  consolidated, 70, 213
Balances of payments, 650–653
Bank, early meaning of term, 251
  first American, 251
    See also Banks
Bank assets, 196, 202–205
Bank balance sheet, 201–205
Bank bill, 186
Bank capital, 241–242
Bank credit, 222–223, 317–319
Bank deposits, 219
Bank draft, 186
Bank failure, 239
Bank failures, U.S., 145, 407–412
Bank for International Settlements, 143, 693
Bank funds, 243
Bank holiday, 145
Bank liabilities, 197
Bank liquidity, 243–248
Bank loans, 200–205, 264
Bank of Belgium, 273
Bank of England, 129, 273
Bank of France, 138, 273
Bank of Massachussets, 251
Bank of New York, 251
Bank of North America, 251
Bank of Sweden, 273
Bank solvency, 238–242
Banking, American, see American banking
  commercial, 195–227
Banking abuses, by states, 259–262
Banking Act of 1933, 412
Banking system, collapse of, 143–145
  individual banks and, 223–227
  liquidity of, 245–248
  national, 262–270
Banking supervision, by Federal Reserve, 293
Bankrupt sale conditions, 239
Banks, chartering of, 417–419
  checking deposit, 196
  commercial, 75
    See also Commercial banks
  examination of, 417–419
  individual, 223–227
  industrial, 443
  number of, in U.S , 398
  supervision of, 417–419
Barter, 61–62
Barter exchange, 4–6
Bearer, defined, 182
Belgium, inflation peak in, 130

Benton, Thomas Hart, 254
Better Business Bureaus, 426
Biddle, Nicholas, 255
Bilateral balancing, 686–691
Bill brokers, 438
Bill buying rate, 346, 351
Bill of exchange, 185–187
Bill of lading, 189
Bills, types of, 186
  See also Draft
Bimetallic standard, 87, 103–106, 109–115,
  advantages of, 105
Bimetallism, end of, 120–122
Black market gold, 94
Bland-Allison Act, 123
Borrow savings, 422
Branch banking, *vs.* independent unit banking, 400–406
  federal legislation and, 403
Branch banks, 399
Bretton Woods, N.H., 692
Bretton Woods institutions, 692–714
Brill, Daniel H., 71
Bryan, William Jennings, 123
Building and loan associations, 458
Bullion, 73, 93
Burgess, W. R. 322, 367
Business activity, stabilization of, 366–368
Business income, disposable, 577
Business savings, 421

Call loans, 179, 234
Capital, marginal efficiency of, 602
Capital accounts, 76–78
  basic equation, 199
Capital exports, 680–681
Capital requirements, of banks, 241–242
Cash-balance approach, defined, 546
Cash-balance equation, 547
Cash-balance type, quantity theory, 545–556
Cash deposits, 246
Cash letter of credit, 233
Central Bank for Coöperatives, 465
Central banking system, U.S. *vs.* European, 273–275
Central banks, European, 273
Chain banking, 407
Chandler, L. V., 375
Charge accounts, 180
Chase, Salmon P., 263
Checking deposit banks, 196
Checking deposits, 60, 65–66, 251
Checks, clearance and collection of, 293–295
Circular flow of income and expenditures, 581
Civil War, monetary changes in, 115–117
  price levels in, 117
Clayton Antitrust Act, 282
Coin and currency, bank assets and, 211
  in bank vaults, 244–246
  in circulation, 312
Coin money, 152
Coinage, 63
Coinage Act of 1792, 109
  of 1834, 114
Coins, 56–58
  of 1792, 111
Collateral, 236
Commerce, accommodation of, 359
Commercial bank, defined, 195
Commercial banking, 195–227
  consolidated balance sheet, 213
  problems of, 237–239, 398–419
  structure, 198–407
Commercial banking system, operation of, 198–215
Commercial banks, assets and liabilities of, 229–237
  combined balance sheet, 229–231
  deposit liabilities, 214–215
  failures of, 408
  Federal Reserve System and, 205–212
  general functions, 196–198
  membership in Federal Reserve System, 280–282
  reserves, 217
  volume of deposits, 215–222
Commercial loan theory, 196, 321, 364
Commercial paper houses, 437
Commission brokers, 435
Commodity Credit Corporation, 466
Constitutional Convention, 108
Consumer credit, 441–446
  interest rates, 446

Consumer loans, 441
Consumer price index, 40
Consumption credit, 193
Contracts, oral, 180
Copeland, Morris A., 70
Cost-of-living increase, World War II, 381
Cost-of-living index, 36
Cotton money, 152
Coulbourn, W. A. L., 120
Council of Economic Advisors, 382
Counterfeiting, 261
Crash of 1929, 363
Credit, 173–194
  bank, see Bank credit
  basis of, 175–177
  cash letter of, 233
  consumer sources of, 441–446
  Federal Reserve, 308–312
  letter of, 190
  nature of, 173–180
  quality and quantity of, 359–361
  types of, 177–180
Credit analysis, 426
Credit-Anstalt, 143, 680
Credit controls, defined, 329
  Federal Reserve, 300–301
  Regulations T, U, W and X, 343, 347–348
  selective, 237, 341–345
Credit economy, 192
Credit instruments, 173–194
  defined, 180
  negotiable and nonnegotiable, 180–182
Credit money, 56
Credit policies, 357–379
Credit stability, 363
Credit unions, 445
Currency, 211–213
Current surpluses and deficits, 336

Davenport, D. H., 36
Debt, monetized, 202
  nature of, 173–180
  role of, in economic system, 192–194
  savings and, 193
  types of, 177–180
  unsecured, 179
Debt money, 69
Debts, Federal Reserve System and, 319–328
  price levels and, 45–47
Deflation, 384
  in 1931, 143
  post World War I, 137
Demand and supply, 546–547
Demand draft, 186
Demand schedule, 552–554
Deposit accounts, Federal Reserve, 205–212
Deposit balances, 244
Deposit insurance, 412–417
Deposits, advantages of, 198
  basic equation, 199
  contraction of, 221
  creation of, 202
  destruction of, 203
  expansion of, 219–221, 226
  meaning of, 197
  transfer of, 225–227
  types of, 214–215
  volume of, 212, 215–222
Depression, income and, 43
  money supply and, 537–539
  of 1931, 141
Dewey, Davis R., 256
Discount companies, 446
Discount rates, 345, 351
  Federal Reserve System, 324, 333
  postwar, 387
Discounting, 320
Discounts, 200–205
Dissaving, 422
Diversification, 427
Dollar, as unit of value, 109
  Spanish, 110
"Do Something for Silver" movement, 122–125, 160–163
Double liability, 242
Draft, 185–187

Easy money, 254, 350, 382, 397
Eccles, Marriner S., 368
Economic stabilization, 608
Employment, output and, 41
Endorsement, 183
Epstein, R. C., 541
European banks, 273
Exchange, bills of, 185–187
Exchange allocation policies, 686–691
Exchange equation, 505–507

Exchange markets, 672–676
Exchange medium, 7
Exchange rates, 638–640
  gold, 99
  gold standard moneys, 658–665
  inconvertible paper moneys, 665–676
  international equilibrium and, 654–676
  International Monetary Fund and, 703–705
  multiple, 684–686
Exchange restrictions, 677–691
  International Monetary Fund and, 705–707
  peacetime, 680
  postwar, 688–691
Expenditures, and money supply, 524, 528
Export-Import Bank, 476

Failures, bank, 407–412
Farm Credit Administration, 460
Farm Credit Board, 468
Farm mortgages, 462
Farm Relief Act, 152
Farmers' Home Administration, 466
Federal Advisory Council, 287
Federal Agricultural Credit Institutions, 460–468
Federal borrowings, 376
Federal debt, 335
Federal debt management, 482
Federal Deposit Insurance Corporation, 413, 428, 485, 490, 496
Federal expenditures, 335
Federal Farm Credit Administration, 467
Federal Farm Loan Act, 460
Federal Farm Mortgage Corporation, 461
Federal financial institutions, 459–460
Federal government, loans to other than financial institutions, 493–496
  money markets and, 479–498
Federal Home Loan Bank Administration, 459
Federal Home Loan Banks, 470
Federal Housing Administration, 428, 472
Federal intermediate credit banks, 462
Federal intervention, types of, 480
Federal Land Banks, 460
Federal National Mortgage Association, 474
Federal Old Age and Survivors Insurance Trust Fund, 337
Federal Open-Market Committee, 286, 375, 386
Federal Reserve Act, 268, 320, 323
Federal Reserve Agent, 288
Federal Reserve assets, 308–312
Federal Reserve bank credit, 317–319
Federal Reserve bank notes, 306
Federal Reserve Banks, 66, 70
  deposit accounts in, 205–212
  directors, 288
  individual control, 287–288
  location and branches, 276–277
  monetary policy (1933) and, 152–153
  ownership of, 282–283
  reserves at, 247
  sale of assets to, 245
  security holdings of, 75
  stock of, 282
    See also Federal Reserve System
Federal Reserve Bulletin, 64
Federal Reserve credit, 308–312
Federal Reserve directors, 288
Federal Reserve Districts, 278–279
Federal Reserve Float, 310
Federal Reserve notes, 66, 314
Federal Reserve purchases, 309
Federal Reserve System, backgrounds of, 270–271
  banking supervision, 293
  board of governors, 284
  "chores," 292–297
  clearing and collection of checks, 293–295
  conflict with Treasury Department, 391–393
  control of, 283–288
  controversies over control, 291
  creation of, 248
  credit controls, 332–335
  credit management functions, 299
  debts purchased and sold by, 319–328
  fiscal agency functions, 296
  future development, 290

Federal Reserve System—(*Continued*)
general credit controls, 300
general functions, 274
independence of, 291
individual banks and, 224
installation of, 139
liberalized credit policies, 371
liquidity and, 247
member banks, 277
member bank reserves, 301–317, 329–332
monetary management and, 299–328, 345–355
monetary policies, 357–379
moral suasion by, 324–326, 333, 346, 351, 388
open-market operations, 334, 358
peacetime objectives, 357–372
quality and quantity of credit, 359–361
structure of, 275–283, 289–292
wartime credit policies, 372–379
Federal Savings and Loan Insurance Corporation, 428, 472, 485
Federal tax and expenditure policies, 482–484
Federalists, 252
Finance companies, 444
Financial institutions, chartering of, 434
federal, 459
functions of, 420–447
government assistance to, 490–493
supervision and examination of, 485–490
trust functions of, 438–440
First Bank of the United States, 251
Fiscal policy, asset effects of, 621
national income analysis and, 614–624
Fisher, Irving, 526
Fixed money income, 42
Fort Knox, Tenn., 74, 304–305
Foreign currency, demand for, 657
Foreign exchange, see Exchange; International exchange
Foreign-exchange rates, 1929–1933, 150
Foreign moneys, dollar prices of, 1933–1934, 156
Franc, devaluation of, 165
France, inflation peak in, 130
Free banking, 257
Free-silver demands, 122
Full-bodied money, 51
Full-gold-bullion standards, 94
Funds, wire transfer of, 296

German empire, gold standard in, 121
German silver, 121
Germany, sale of securities by, 132
suspends gold payments, 144
Gold, concentration of, in banks and treasuries, 1919, 133
economizing of, 137–138
efficiency of, 171
import and export of, 91
increase of, 1930–1940, 167–170
nationalization of, 1934, 157
weakened position of, 171
Gold and silver as money, 166–170
Gold avalanche, 166–170
Gold-bullion standards, 93
Gold certificates, 55
Gold clauses, abrogation of, 158–160
Gold-coin standards, 89–93
Gold content, changes in, 114
Gold crises, 93
Gold exchange rates, 99
Gold-exchange standards, 95–97
Gold hoarding, 94
Gold money, interconvertibility of, 91
Gold prices, 1933, 153
Gold production, 1940–1950, 168
preceding World War II, 166–170
Gold pyramiding, 96
Gold Reserve Act of 1934, 156, 304
Gold-silver ratio, 1792, 112
Gold-silver standard, 103
Gold standard, abandonment of, 146
adoption of, 120
countries on, 1921–1938, 135
distinguishing characteristics of, 88
establishment of, by Congress, 118
foreign, after 1933, 164–166
Great Britain, 120
international, see International gold standard
new, 147–152
New Deal and, 149
1900–1914, 124–125
reëstablishment of, in 1934, 156–160
restoration of, 369–372

Gold standard—(*Continued*)
United States, 1941–1950, 160–164
World War II, 160–164
Gold standard exchange rates, 658–665
Gold standards, 88–102
automatic and managed, 97
breakdown of, 1929–1933, 141
characteristics of, 1914–1933, 137–140
disappearance of, 102
national and international, 99–102
reestablishment of, 1919–1929, 134–140
Gold stock, U.S., 1929–1950, 169
Gold value, defined, 90
of dollar, 153–158
Goldenweiser, E. A., 358
Goldstein, A., 372
Goods and services, in monetary theory, 516
import and export of, 647–648, 658
government purchase of, 568, 575–578
value of, 4
Government deficits, 422
Government Employees Retirement Fund, 337
Government income, disposable, 574–577
Government obligations, 234, 327, 334
Government "saving," 421
Graham, F. D., 62
Great Britain, gold standard, 120–121, 136
sale of securities by, 132
Greenbacks, 306
in 1933, 152–155
Gregory, T. E., 137
Gross national product, 20
defined, 564–566
as expenditures for output, 566–572
as gross national income, 572–574
national income analysis and, 587
Gross private domestic investment, 566
Group banking, 406

Hamilton, Alexander, 252
Hamilton, Walton, 12
Hard money, 252
Hersey, Arthur, 357
Hodson, H. V., 144
Holder in due course, 182
Holding company, 399
Home Loan Bank Board, 470
Housing and Home Finance Agency, 469
Hulvey, C. N., 181

Income, circular flow and disposal of, 574–584
distribution of, 42
fixed, 42–44
Income-expenditure approach, 558–585
origin of, 559
Inconvertible paper standards, 106–107, 115–119
Independent unit bank, 399
Index numbers, 34–35
Industrial advances, 310
Industrial banks, 443
Industrial loan companies, 444
Inflation, 348–350, 384, 391, 393, 395
post World War I, 130
post World War II, 165
Insolvency, of banks, 239
Installment loans, 442
Interbank deposits, 230, 246
Interbank transfers, 224
Interconvertibility, of gold money, 91
Interest rates, 341, 354
International Bank, 371
International Bank for Reconstruction and Development, 707–712
International equilibrium, 654–676
International exchange, speculation in, 642
International gold standard, 131
International Monetary Fund, 166, 371, 695–707
adjustment of exchange rates, 700–703
elimination of exchange restrictions, 705–707
functions of, 697
initial exchange rates, 698–700
stabilization of exchange rates, 703–705
structure and organization, 695–697
International panic of 1931, 143

International payments, balance in, 644–650
mechanism of, 630–653
International trade, 631
Investable funds, supply of, 606
Investigation and credit analysis, 426
Investment, rate of, 28
Investment Advisers Act of 1940, 488
Investment banks, 431
Investment counselors, 426
Investment trusts, 456–458

Jackson, Andrew, 254–256
Jevons, W. S., 105
Johnson, G. Griffith, Jr., 152, 161

Keynes, J. M., 558, 603
Korean War, and monetary policy, 390–394

Lamke, Edwin, 438
Letter of credit, 190
Liabilities, basic equation for, 199
of commercial banks, 229–237
monetary and nonmonetary, 77–78
Life insurance companies, 454–456
Limited gold-bullion standards, 94
Liquidity, of banks, 238, 243–248
defined, 243
Federal Reserve System, 322
increase of, 429
Liquidity preference, 607
Loan sharks, 445
Loans, 179
calling of, 246
commercial banks, 233–237
consumer, 441
declared purpose, 235, 237
money supply and, 81
risky, 241
short-term, 234
unsecured, 234
London Economic Conference, 149
London Silver Agreement, 161

Marget, A. W., 542
Margin requirements, 342
Maritime Administration, 476
Martin, P. W., 562
Metals, as money, 50–53, 62
Metropolitan Life Insurance Company, 456
Mill, John Stuart, 14–15
Monetary controls, defined, 329
Monetary equation, 70–78
Monetary gold stock, 84–85, 92, 304
U.S., 1929–1950, 169
Monetary history, U.S., 108–125
Monetary liabilities, 77
Monetary management, Federal Reserve and, 299–328
instruments of, 329–355
U.S. Treasury, 335–342
Monetary policy, U.S., following World War I, 133
following World War II, 380–397; defects in, 394–397; major issues of, 382–385; 1945–1948, 385–389; 1948–1950, 389–390
guides to, 718–730
income-expenditure theory, 624–629
Korean War and, 390–394
1914–1945, 357–379
1933, 152–156
objectives of, 716–731
Monetary standards, general principles, 87–107
1792–1914, 108–125
1914–1933, 127–146
1933 to present, 147–172
Monetary theory, 499–502
income and expenditure type, 22–32, 528–585
purpose of, 22
quantity type, 22–24
Monetary unit, 718–720
Monetized debt, 75
Money, acceptability of, 60–64
causative factor in economy, 14–17
classification by types, 50–60
demand for, 552
economizing of, 192
expansion of, 129
fundamental purpose, 2–3
general functions of, 1–17
importance of, 11–14
income-expenditure theory, 624–629
international transactions, 631–636
kinds of, 49–68
medium of exchange, 7
quantity of, see Quantity of money
quantity theory, 507
specific functions of, 6–11
store of value, 9–11

Money—(*Continued*)
supply of, 31
unit of value, 6
value of, 32–34
velocity of, 509–515
See also Money supply
Money demand, stabilization of, 727
Money expenditures, stabilization of, 726
Money in circulation, 312–315
Money market, 424
federal government and, 479–498
Money spending, see Spending
Money substitutes, 49
Money supply, 64–66
behavior of, 79–83
determinants of, 69–86, 508
expansion of, 202
expenditures and, 524
indirect determinants of, 83–85
money demand and, 554–556
price movements and, 533
quantitative control of, 248
stabilization of, 725
See also Quantity of money
Monometallic standard, 87
adoption of, 120
Moral suasion, 333, 346, 351, 388
Morgan, J. P. and Company, 136
Mortgages, urban, 469
Multilateral trade, 636
Multiple-office banking, 400
Multiplier effect, 595–600
Murad, Anatol, 120
Mutual savings banks, 450

National bank notes, 306
National Banking Act, 262
National Banking System, 331
1863–1914, 262–270
shortcomings of, 266–270
National debt, interest rates on, 395
National Farm Loan Association, 460
National income analysis, 587–613
fiscal and monetary policies in, 614–629
National moneys, in exchange markets, 655–658
National Service Life Insurance Fund, 337
Near-money, 66–68
Negotiable Instruments Law, 186
Net foreign investment, 567
Netherlands Bank, 273
New Deal, gold-buying program of, 154
monetary legislation, 307
New Deal program, 149–151
New York banks, and Federal Reserve System, 275
New York Curb Exchange, 434
New York Stock Exchange, 434
Nonmonetary liabilities, 76–78
Noteholders, protection to, 264

Obligations, purchase of, 236
Open-market operations, 346, 351
Open-market policy, 377, 395
Order bill of lading, 189
Output, 20–47
employment and, 41
Over-the-counter securities markets, 437
Overproduction, 561

Panics, 248, 270
Paper money, 55, 63, 314
Paper standards, inconvertible, 106–107
Par clearance, 281
Parcelation of reserves, 270
Parole credit, 180
Payments, balances of, see Balances of payments
Peacetime exchange restrictions, 680
Pensions, 42
Personal finance companies, 444
Personal income, disposable, 578
Personal savings, 421
World War II, 381
Postal savings banks, 451
Postwar I period, monetary standards, 128
Price dispersion, World War II, 540
Price indexes, 34–37
Price levels, 20–47
changes in, 40–47
Civil War, 117
distribution of wealth and, 45
income and, 42
international gold standard, 99
monetary theory and, 518
movements in, 529–541
post World War I, 129

Price levels—(*Continued*)
restoration of, by F. D. Roosevelt, 148
stabilization of, 720–725
Price stabilization, 368, 384, 720–725
Prices, average, 33
cyclical movements of, 532–540
long-term trend, 529–532
Prinsep, C. R., 562
Private consumption and saving, 591–595
Private investment, 600–602
Producers' goods, 535
Production credit associations and corporations, 463
Productive debt, 177
Promissory notes, 58–60, 184–185
"prosperity checks," 152
Public Housing Administration, 475
Purchasing power, 559
Purchasing power parity, 667–669
Pyramiding, 138

Quantity of money, effects due to changes in, 520–529
stabilization of, 725
See also Money supply
Quantity theory, cash-balance type, 546–556
current output and, 543–545
defined, 503–505
transaction type, 503–519, 521–545; criticism, 541–543

Railroad Retirement Account, 327
Reconstruction Finance Corporation, 154, 475
Reconversion, postwar, 383
Rediscounting, 320
Regulations T, U, W and X, 342–344, 347–348, 353
Reserve requirements, 264, 329–332
Reserve system, pre-1914, 269
Reserves, bank, 217
defined, 218
legal, 244
reduction of, 221
secondary, 245
stable ratio, 362
Restrictive endorsement, 183
Ricardo, David, 561
Risk, 240
insurance against, 427
Robertson, D. H., 54
Roosevelt, F. D., abandons gold standard, 146
fourth Fireside Chat, 148
reëstablishes gold standard, 156–157
unprecedented monetary powers of, 152–156
Rural Electrification Administration, 465

Saving, rate of, 28
Savings, 420–425
outlets for, 422
personal and business, 27–30
Savings banks, 449–454
Savings insurance, 496
Say, J. B., 562–563
Scott, F. V., 36
Scrip, 152
Second Bank of the United States, 253–256
Securities, as assets, 72
behavior of, 81
near-money, 67
purchase or sale of, 427
spending and, 28–30
Securities Act of 1933, 485–488
Securities and Exchange Commission, 426, 485
Securities exchanges, 433
Securities merchants, 431–438
Security holdings, 200–205
Security speculation, 364
Shaw, Edward S., 71
Sherman Silver Purchase Act, 123
Shinplasters, 115
Sight draft, 186
Silver, as money, 54
Silver advocates, 123–124
Silver certificates, 58, 306
Silver dollars, suspension of, 112
Silver-gold standards, *see* Gold-silver standards
Silver movement, 132, 160–164
Silver prices, 1874–1905, 123
1933, 153
Silver Purchase Act, 162
Silver purchases, in 1934, 162
Silver standard, defined, 103
Small-loan companies, 443

Snyder, Carl, 36
Solvency, of banks, 238–242
Spending, 20–48
  fluctuations in flow of, 20–22
  savings and, 423
Stabilizing agencies, in international exchange, 673–675
State banking, 1834–1863, 256–259
State bank notes, pre-Civil War, 261
State banks, abuses by, 259–262
  1811–1816, 252
  1863–1914, 265–266
  National Banking Act, 265
Stock exchanges, 435–437

Tax deficits, 336
Tax surplus, 336
Time bank draft, 187
Time draft, 186, 187
Time trade draft, 187
Title, 181
Token coins, 56, 61
Trade, volume of, in monetary theory, 515–518
  money supply and, 526
Trade acceptance, 189
Trade draft, 186
Transactions, and monetary theory, 503–519
Treasury, U.S., 69
  balance, 337, 347, 352
  bank deposits and, 205–212
  cash holdings and deposits at Federal Reserve banks, 315–316
  conflict with Federal Reserve System, 391
  currency outstanding, 306–307
  debt management policies, 339
  determination of money supply, 73–75
  Federal Reserve System, 292, 391
  instruments of monetary management, 335–341
  monetary gold stock, 304–306
  monetary management, 345–355
  transactions, 338–341
Treasury currency, 74
Tripartite Agreement, 165, 693
Trust companies, 438
Trust functions, of financial institutions, 438–440
Trust Indenture Act of 1939, 488

Underwriting, 432
Unemployment Insurance Trust Fund,
Uniform Small Loan Law, 443
Union Guardian Trust Company, failure of, 145
United States, banking history, 1781–1914, 250–270
  See also American banking
U.S. Bureau of Labor Statistics, 36–39
U.S. Government obligations, 327
Unsecured loans, 234
Upham, Cyril B., 408
Urban mortgages, 469–475

V–J Day, 385
  price indexes, 381
Velocity, of money, 509–515
Veterans Administration, 475

Wall Street, 275
Warren, George F., 154
Wartime exchange restrictions, 678–680
Wealth, distribution of, 45
White, Horace, 261
Whittlesey, C. R., 62
Wholesale price index, 36
Wholesale prices, 1808–1952, 38–39
  World War I, 129
Wicksell, Knut, 509
Wingfield, B. Magruder, 281
Wire transfer of funds, 296
World Bank, see International Bank for Reconstruction and Development
World War I, and end of gold standard, 127
  Federal Reserve credit policies, 372–374
  U.S. debts, 132
World War II, economic conditions, 380–382
  exchange restrictions, 679
  Federal Reserve policies, 374–379
  gold standard, 160–165
  monetary policy, 380
  price dispersion in, 540