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INVESTMENTS

By

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To Sara

That which is not seen is often better worth studying than that which is seen.

ALFRED MARSHALL, *Principles of Economics* (8th ed.; London: 1922), p. 778.

PREFACE

Predominant in traditional approaches to the study of investments have been such technical, historical, and descriptive subjects as the organization of stock exchanges, the mechanics of corporation finance, and the distribution of securities. The experiences of investors during recent years, however, have demonstrated the need for a closer examination of forces bearing upon the quality and market prices of securities. This volume, therefore, focuses attention on the sources of investment income, the qualitative appraisal of the issuer, the establishment of standards for the selection of the industry, issuer, and security, and the analysis of market prices.

The aim of this book, then, is to give an understanding of sound criteria for the appraisal of investment values. To this end, the interplay of such forces as the health of the national economy, the ebb and flow of industrial activities, managerial policies and personalities, financial structures and ratios, the movement of market prices, and the investment phases of governmental regulation and taxation is traced. The influences of these forces on investment principles and practices are set forth concretely and realistically.

A comprehensive, general analysis is made of various investment services, rating agencies, and counselors, classifying their services according to whether they offer factual, interpretative, or predictive reports. It demonstrates their use of economic and fiscal principles and their application of social, cultural, and political trends.

The underlying theme of this book is that the dynamic and expansive growth of the national economy is the primary source of investment value. The industrial life cycle—with its four stages of pioneering, expansion, stagnation, and decay—is minutely analyzed in order to point up the principle that an expanding company, in an expanding industry, in an expanding economy is the touchstone of investment success. The effects of the cycle's four stages upon a company's competitive position, the quality of its earnings, and its efficiency, as well as upon sales, break-even points, and profit margins, are demonstrated.

Throughout the work, practical, compact, and up-to-date illustrations, drawn from numerous sources and a wide range of in-

dustries, are liberally used and carefully integrated with the text discussion.

The counsel of various individuals and organizations has been of great help in the preparation of this book. In addition to my students on whom the material has been tested for several years, the author wishes to express his thanks to R. C. Coltman, Vice President, Philadelphia National Bank; K. G. Clement, Comptroller, Port of New York Authority; E. H. Davis, John Nuveen & Co.; R. H. Beale, Assistant Manager, Philadelphia Branch, Federal Home Loan Bank of Pittsburgh; G. V. Deegan, Chief Underwriter, Office of the Federal Housing Administration, Philadelphia; George Kneass, Vice President, Philadelphia National Bank; Osborne Roberts, Partner, Schmidt, Poole & Co.; David T. Rowlands, Willis J. Winn, and William E. Warrington, all of the University of Pennsylvania; Leighton Stradley, Counsellor-at-Law; R. W. Ritchie, Assistant Vice President, Philadelphia Savings Funds Society; and R. W. Wilbraham, Chief Electrical Engineer, United Engineers and Construction, Inc.

JULIUS GRODINSKY

Philadelphia
January, 1953

CONTENTS

PART I

The Economic Setting: An Introduction

CHAPTER		PAGE
1	Principles and Objectives	3
2	Source of Economic Values	23

PART II

Appraisal of the Industry

3	Expansion and Decline	45
4	The Industrial Life Cycle	64
5	Signs of Growth and Decay	79

PART III

Appraisal of the Company

6	Competitive Position of the Company	93
7	Financial Structure	104
8	Preferred Stocks	120
9	Financial Ratios	137
10	Plant and Operating Ratios	161
11	Quality of Corporate Income	183
12	Profit Margins	202
13	Break-Even Point	227
14	Publicly Regulated Industries	241
15	Management	259
16	Expansion and Managerial Changes	272

PART IV

Public Securities

CHAPTER		PAGE
17	United States Government Securities	291
18	State and Municipal Government Bonds	305
19	Revenue Bonds	327

PART V

Money and Markets

20	Yields and Interest Rates	347
21	Price-Earnings Ratios: Industry	373
22	Price-Earnings Ratios: Company	391
23	Market Analysis	403
24	Investment Services	426
25	Taxation and the Investor	458
26	Portfolio Management	479

PART VI

Institutional Investments

27	Banks and Life Insurance Companies	505
28	Property Insurance, Investment and Trust Companies	526
	Conclusion	546
	Index	553

ILLUSTRATIONS

FIGURE		PAGE
1.	Trends in Per Capita Consumption of Foods, by Groups. 5-year Moving Averages (1909-13 = 100)	46
2.	Wholesale Price Indexes: Coal, Oil, Gas, 1926-48	83
3.	The American Appraisal Company Construction Cost Indexes and Graph, 1913-52	191
4.	Simple Break-Even Point Chart	230
5.	Yield Patterns of Fully Taxable Bank-Eligible Treasury Bonds, Three Dates in 1946, 1948, 1949	353
6.	Aaa Municipals vs. Longest Eligible Treasury Bonds, Yields and Spread—Biweekly	357
7.	Treasury Bond Yields Compared with Corporate Bond Yields, Principal Movements, 1919-50	359
8.	High-Grade Preferred Stocks and High-Grade Bonds, Yields and Prices, 1910-50	366
9.	Price-Earnings Ratios of Industrial Stocks, Annual Averages, 1900-50	379
10.	Asset Ownership by Family Income Groups	382
11.	The Major Economic Trend Measure	435
12.	Dow-Jones Industrial Average and Stock Market Credit Indicator, 1919-52	437
13.	Composite Equity Index, 1919-1952	438-39
14.	Daily Graph of Buying Power vs. Selling Pressure	442-43
15.	Buying and Selling Graph	444-45
16.	Stock Market Prices and Trading Volume, Jan., 1951-May, 1952	447
17.	Value Line Rating and Report	449
18.	Ray Signals	451
19.	Dow-Jones Industrial Averages, 1897-1952	496
20.	The National Formula Plan	498

TABLES

TABLE		PAGE
1.	Country Bank Operations Commission's Investment Survey Data, by States. American Bankers Association, as of June 30, 1948	16-17
2.	Maturities of United States Government Obligations Held by Insured Commercial Banks, December, 1941-50	19
3.	Relative Shares of Intercity Freight Traffic, Public and Private, by Kind of Transportation. (Railway-Revenue Ton-Miles and Coastal and Intercoastal Ton-Miles Are Excluded, but Highway Ton-Miles of Private Carriers Are Included.)	56
4.	Sales Trends of Leading Ethical Drug Companies as Compared with Disposable Income and Retail Drug Sales, 1936-51 (1936-39 = 100)	58
5.	Movement of Freight Rates and Freight Revenues per Ton-Mile, 1946-50 (1938 = 100)	82
6.	Cost per Ton-Mile of Oil and Oil Products by Rival Transportation Agencies, 1946	83
7.	Cost of Heating an Average House in Ten Cities 1945-46 and 1949-50	84
8.	Selected Data of Atchison, Topeka and Santa Fe and St. Louis and San Francisco, 1924, 1929-31, Showing Effect of Leveraged Structure, in Years of Declining Earnings	109
9.	Selected Data of New York, Chicago and St. Louis, 1940 and 1950, Showing Effect of Leveraged Structure, in Years of Advancing Earnings	110
10.	Representative List of Noncallable Preferred Stocks, with Record of Continuous Dividend Payments, 1910-50	122
11.	Preferred Stocks of Representative List of Industrial Companies with No Outstanding Debts, Capital Structure, Earnings Coverage, and Per Share Earnings, 1950 Data	126
12.	Preferred Stocks of Representative List of Industrial Companies with Outstanding Debts, Capital Structure, Earnings Coverage, and Per Share Earnings, 1950 Data	129
13.	Representative List of Convertible Preferred Stocks	131
14.	Representative List of Preferred Stocks with Sinking Funds, October 1, 1950	134
15.	Jewel Tea—Trend of Earnings on Net Worth, 1935-50	141
16.	New York Central Railroad—Trend of Earnings on Net Worth, 1940-50	142

TABLE PAGE

17. Representative List of Successful Companies with Senior Securities, Showing the Financial Ratios of Working Capital per Common Share, 1939-50 145
18. Sales per Dollar of Gross Plant Investment of Representative Chemical Companies, 1939 and 1950 150
19. Profits (Pretax) per Dollar of Gross Plant Investment of Representative Chemical Companies, 1939 and 1950 151
20. Corporate Profits after Taxes, Dividends, Retained Earnings, 1945-50 158
21. Traffic Density and Funded Debt of Representative Roads, 1949 . 179
22. Shell Oil Co., Intangible Costs: Per Share and Percentage of Income 187
23. Amerada Petroleum Corporation "Cash" Earnings and Reported Earnings, 1940-50 (Based on Number of Shares, 1950) . 187
24. Rise and Fall of Sales and Profits of Typical Companies, Showing How Small Changes in Sales Produce Steep Changes in Profits, 1942-48 233
25. Method of Rate Base Determination Generally Applied, Electric and Gas Utilities 248
26. Ownership of Government Securities, Direct and Fully Guaranteed, December 31, 1951 292
27. Facsimile Pages from Bond Yield Book 350
28. Yields on Bonds and Stocks Compared—1941, 1945, 1946, 1947, 1949, 1950, and March, 1952 351
29. 1934-39 Prices of a Representative List of Electric Power and Light Holding and Operating Company Bonds, Called at Premiums between 1941 and 1947 . . . 361
30. Prices of Representative Low-Grade Railroad Bonds, 1935-36, 1937-40, 1941-46, 1947-49 (High and Low Prices) . 362
31. Bond and Stock Yields, 1920-52 365
32. Price-Earnings Ratios of Leading Railroad, and Chemical Stocks in Selected Years, World War II and Postwar Period 385
33. Price-Earnings Ratios of Companies in Chemical Industry, 1949 394
34. Comparison of Equity Ratios and Price-Earnings Ratios: Electric and Gas Utility Operating Company Common Stocks . 398-99
35. Yields to Corporations Investing in United States Government Bonds, Prime Corporate Bonds, Average Municipal Bonds, and High-Grade Preferred Stocks, May, 1952 . . . 468
36. Tax-Exempt Yields and Equivalent Taxable Yields . 474-75
37. Net Return to Investor from High-Grade Bonds, 1929, 1939, 1949, and 1951, Compared 480
38. Representative List of Railroad Bonds—Range of Prices, 1941-45 483
39. Investments of Representative Endowed Colleges, June 30, 1951 543

PART I

The Economic Setting: An Introduction

Chapter 1

PRINCIPLES AND OBJECTIVES

Investment and Speculation.—"You've asked me for a definition," remarks a character in Arnold Bennett's *Dream of Destiny.* "All you subtle people do that. I can't define. I never could. I can only state. If I am forced to define, I can only do so negatively." To define an investment is a real challenge. A definition should be clarifying. It should produce a clear concept, one that differentiates the defined object from all others. That objective in the field of investment is difficult to realize. The subtle distinctions in the investment-speculative world flow largely, though not entirely, from the increased investment buying of common stocks.

Many investors manage funds totaling billions of dollars on the basis of the exclusive purchase of bonds. Savings and loan associations, commercial and mutual savings banks, and life insurance companies are notable illustrations. No stocks are held by the associations and only a nominal amount by the banks and insurance companies. For such nonstock-minded investors, an investment may be defined as the purchase of an income, safety of principal being assumed.

Capital appreciation for these investors is not an objective in the investment process. Some increase in capital values may materialize, particularly in a declining money market when bonds are redeemed at prices above their face values. The 1940's, for example, were featured by large-scale redemptions of both public and private issues. These capital gains are, however, incidental and do not disturb the integrity of the idea that investment is the process of buying an income. (The discussion in this chapter is based upon the hypothesis that the principal of the investment is safe. The factors bearing on risks to invested principal are examined in Part II of this book.) The idea of buying for income, nevertheless, cannot be accepted as a clear-cut and all-embracing description of the investment process, even as applied to bonds. Many of the most conservative investors display no heroic allergy to bond trading, to the purchase and sale of bonds over short periods. A speculator, unlike an investor, is interested in capital gains. Furthermore, it is asserted, he buys to

hold only for relatively short periods. The investor, on the contrary, buys for income, and he holds his securities for relatively long periods.

At this point, confusion in definition cumulates. Many commercial bankers buy high-grade securities for capital appreciation. As interest rates on United States Government bonds declined from 1933 to 1946, their prices rose. Bonds were and still are bought, not to be held to maturity, but to be sold in order to take advantage of profitable price fluctuations due to changes in interest rates.

It is not uncommon, furthermore, for bankers to trade—to buy and sell—state and municipal bonds. A primary objective in these transactions is not income, but capital appreciation. Compare these dealings of "investors" with the activities of the "speculators." There are professional speculators—traders they are sometimes called—who buy and sell for the most part on a short-run basis. They buy one day and sell the next. They, clearly, are not investors.

Then there are others who, after careful investigation, buy securities for long-term holding. From the standpoint of the length of time held, these "speculators," buying for long-run capital gain, display more of the characteristics of "investors" than the bankers who frequently buy United States Government securities for relatively short-term capital gains.

When one moves from bonds to stocks, the task of definition grows even more difficult. There are, first, those who consciously disregard the income objective and who buy stocks for capital gains. Income, to others, is but a minor consideration. The tax on capital increments is lower than the tax on income for wealthy persons. Hence, stocks are bought to reduce taxes, and, to a wealthy buyer of securities, a capital gain instead of an income may be the primary attraction.

Stocks, furthermore, are held for prolonged periods, in the face of exceptionally low or no returns on the investment. Though they do not aim primarily for income, such buyers are, nevertheless, investors. They are buyers, in most cases, of high-quality stocks. Strangely enough, over the course of years the stocks they hold often pay high dividends and afford their holders substantial returns.

Most money, however, is committed to stocks for income and not for capital gains. Prices for stocks reflect a host of changing relationships to changing earnings and interest rates. An investor in bonds—high-grade bonds, of course—will retrieve his principal when the bonds mature. A stock buyer has no such assurance. Even the best stocks are likely, under some market conditions, to decline sharply in price. Careful, conservative investors—institutional and indi-

vidual—in search of income may be faced with heavy losses in market prices, and if cash is needed and the stock must be sold, the loss in principal might be serious. The loss is due to no error in judgment in appraising the quality of the investment. Indeed, the earnings and the financial resources behind each share might increase, while the price of the stock declines. This happened, for example, between 1946 and 1949. Thus, a holder of a high-grade stock who receives a reasonable income may have a capital loss.

This outcome is by no means unusual. It happens over and over again. Is a stock that pays a reasonable return while it shows a loss in principal an investment? And is the holder of such a stock an investor? Considerations of this kind have led some, perhaps they may be called cynics, to declare that an investment is a stock that advances in price and a speculation, one that declines in price.

Still another phase of the problem of definition is emphasized by the rise in commodity prices since the late 1930's. The return on a bond, preferred stock, or a stable common stock may be high in dollars, but low in terms of goods and services. The fixed number of dollars in an inflationary period buys fewer of the goods and services needed to preserve one's standard of living, to say nothing of improving that standard. An investor in an inflationary economy needs a return, it is asserted, in excess of the amount considered adequate in a noninflationary economy.

The purchase of securities, mostly stocks, that will increase the *number* of dollars received by the investor as their *value* declines has been widely stressed in recent years. Mutual funds, property- and life-insurance companies, and even savings banks have joined in emphasizing the necessity of stock investment to "protect" against the evils of inflation. Investment, in this view, thus becomes an accommodation to a change in the economy, which may be temporary. An investor buys for the short range, for the length of the inflation, unless one assumes—as some do—that the inflation is permanent and will continue until the currency loses most of its value in terms of goods and services.

These and other considerations lead to the concept of an investment in terms that are flexible and are not all-embracing, such as:

1. An investment is not the same for all investors and under all conditions.
2. For the large majority of investors, particularly institutional, the objective is a stable income.
3. For a smaller group, though increasing in number, the primary objective, especially for tax-reduction purposes, is capital gain.

4. The distinction between speculation and investment is growing more tenuous. Both processes reflect careful investigation, analysis, and judgment in reaching conclusions. Speculators, for the most part, seek capital gains, though many investors have similar objectives. There is, also, no clear-cut distinction on the basis of the length of time that securities are held. The more successful speculators and investors, generally, are those who hold securities for a relatively long time, though there are many more short-term speculators than short-term investors. Perhaps speculation and investment can be more satisfactorily distinguished on the basis of the relative risks assumed because of the kind of securities purchased. Investors, whether they invest primarily for income or capital gain, buy the better grade of securities. They do not generally buy the issues of untried industries and of untried companies, nor do they invest in the tried, but unsuccessful ones. Speculators, on the other hand, do make commitments in such securities.
5. An investment may, therefore, be defined as the purchase of high-grade securities that are thought to have slight risk of principal—for income, for capital gain, or for both. These securities are usually held for long periods.

Investment Objectives

The investor, in managing his funds, should have a clearly defined objective, though it is true that, especially for individual investors, this is not often the case. Occasionally an institutional investor, such as a commercial bank, spells out an investment program in writing. The statement indicates the quality of securities to be bought, the maturity and diversification of the portfolio, trading of securities, and the personnel charged with the responsibility for its supervision.[1]

Some investment decisions, on the other hand, are frequently made for reasons having little to do with investment values. There are complicated chains of relationships between sellers and buyers. Buyers of securities, such as cotrustees and partners in banking and brokerage houses, may be connected with selling groups. Selling pressure and mutual reciprocity in business relationships may be more important than investment quality in the decision to buy.

There are many different purposes that investors have in mind in setting up their investment program. No single form of investment, be it real estate, bonds or mortgages, preferred or common stocks,

[1] For a sample investment program see Roland I. Robinson, *The Management of Bank Funds* (New York: McGraw-Hill Book Co., Inc., 1951), p. 287.

can fulfill all objectives. Some securities are particularly suited to those who desire liquidity; others have a high degree of marketability.

Liquidity may be defined as the ability to convert investments into cash at a price close to the original or amortized cost. Marketability reflects the degree to which investments can be converted into cash at prices approximating those currently quoted. Commercial banks need liquidity, but an individual in need of funds for an emergency needs marketability. Colleges, endowments, and foundations usually need little liquidity or marketability, requiring, primarily, an annual minimum and stable return. Their expense budgets are largely fixed and they must adapt their investments to the necessity of meeting their expenses.

From time to time, of course, these institutions and others might be in need of both liquidity and marketability. An institution, for example, confronted with a building program to be completed over a period of years needs liquidity. It sells securities and the proceeds are utilized when and as required by the progress of the building program.

Income as an Objective.—The majority of investors are in search of a steady income. This motive is paramount in the minds of those who place their funds with savings banks (both mutual banks and commercial banks), savings and loan associations, life insurance companies, and other savings institutions. Although investment managers of fraternal associations, colleges, universities, foundations, endowments, and trustees and beneficiaries of estates have similar motives, they are more likely to consider the element of capital gain. It is obvious that no percentage figure could reflect the actual situation. The probabilities are strong, however, that most investors primarily seek, always assuming safety of principal, a reasonable income.

To such income-seeking investors who retain their securities until they mature, bonds and mortgages are the preferred investments. Mortgages, not being so marketable, usually provide a somewhat higher return than the more marketable bonds. Small investors can buy mortgages through shares of or deposits in savings and loan associations and a combination of bonds and mortgages through deposits in mutual savings banks. Up to $10,000 of the savings in these two financial institutions are insured by instrumentalities of the Government of the United States. Both mortgages and bonds can be bought directly, and, in that case, the returns are usually higher than those realized through the financial institutions just mentioned. United States, state, and municipal, as well as private corporate bonds, can be

bought. The relative safety of and income from these bonds are examined in different chapters of this volume.

Investment accounts for many years were able to secure 5 and 6 per cent on well-secured bonds and mortgages. So attractive was this return and so certain was the belief in their safety, that a school of investment thinking developed that identified investments with bonds and mortgages. They were the *only* class of investment, so ran the argument, since they only promised to pay interest and principal. This point of view was reflected in a volume by Lawrence Chamberlain, published in 1911.[2]

To income-minded investors in recent years, however, common and preferred stocks have become increasingly attractive. Some classes of stocks have a strong appeal in the later stages of the business cycle, when there is increased probability of a downward movement of the cycle and of a decline in profits. Some investors want a return higher than that realized on a bond or mortgage: they do not seek capital appreciation.

Stocks of leading companies with long dividend records, adequate financial resources, and in stable industries are, to these investors, desirable investment media. Typical common stocks would be: American Telephone and Telegraph, Philadelphia Electric, S. S. Kresge, and F. W. Woolworth. Typical of the preferred stocks would be: du Pont, National Lead, National Biscuit, and American Can. An investor, fearful of a cyclical reversal in business, might however want temporarily to sacrifice a large part of his income in exchange for greater price protection against a possible price decline. He might accordingly buy more bonds and short-term notes.

In the later stages of a depression, such an investor might be attracted by stocks with greater income potentialities. He might buy the stocks of the leading companies in the cyclical industries. Typical are: General Electric, International Nickel, Phelps Dodge Copper, and Allied Chemical and Dye.

Then there are many investors who, because of increases in living costs, vitally need more income from a limited dollar fund. They may be widows or orphans, they may be retired people living off the income from a life's savings, or they may be trustees for beneficiaries who require and demand more income. Their need for additional income becomes acute in periods of rising prices.

Since 1860 there have been three major commodity price rises: one, during and after the Civil War, terminated with the Panic of 1873; another, during and after World War I, collapsed in 1920;

[2] *The Principles of Bond Investment* (New York: Henry Holt & Co., 1911).

while the third, which began in the late 1930's, is at the present time still in progress. Common stock prices declined sharply both in 1873 and in 1920. In the former case, after a swift, short rise, stock prices fell to low levels in 1877. The pre-1873 prices were not again attained until 1881, and those prices, in turn, were not surpassed until the early years of the twentieth century. The high stock prices of 1919, on the contrary, were reached again in 1925, and in the next four years they ascended to the highest levels ever recorded. The decline that followed brought stocks, in 1932, down to extremely low levels. In the stock-price deflation, bonds proved to be relatively good investments. In the World War II and the postwar price rise, there was greater resort to stock-buying by conservative investors than ever before.

Inflation-minded investors take one view of ultimate possibilities, and they buy more stocks. Deflation-minded investors take another, and they buy bonds, or at least they have fewer stocks. One lesson taught by financial history is clear: investors holding a large proportion of stocks as a protection against inflation cannot protect themselves against deflation. Declines in living costs do not precede declines in stock market prices, thus investors cannot sell their stocks quickly enough. It is the other way around. The stock-price decline normally precedes the break in commodity prices. The downward movement in stock prices, furthermore, is usually sudden and unexpected.

A more consistent and insistent buyer of stocks than the seeker for protection against inflation is the active businessman. He is inured to risks. He is indeed the professional risk taker in the system of capitalism and free enterprise. He creates new ventures, new opportunities for capital and provides part of that capital. He is the most important of the stock-minded investors. The businessman is, furthermore, the creator of the numerous estates and foundations, the funds of which are so largely invested in stocks—the funds that are associated with the names of Rockefeller, Mellon, Ford, Sloan, Rosenwald, and du Pont, among many others. Of this extensive group, some buy only stocks of well-established companies, while others take greater risks and support new ventures. Andrew Mellon was for many years one of the major buyers of high risk-bearing capital in a wide assortment of industries—aluminum, oil, ship building, building construction, coal, coke-ovens, manufactured gas, and banking. James B. Duke was another, as were J. P. Morgan and George Pullman. The objective of these businessmen from the investment standpoint is largely capital appreciation, while personally and as businessmen they are also motivated by other influences.

There are thus a great variety of individual and institutional investor requirements that make necessary the adoption of different investment policies. Some investors need absolute safety above all else. They include the very young and the very old. For the young, there must be set aside sufficient funds to insure health, social standards, and adequate education. For the very old, a certain income and perhaps even a certain capital must be spent to provide for essential needs. Other investors can take reasonable chances (or they think they can) and, at times, unreasonable chances, in the hope of securing heavy gains as a reward for assuming heavy risks.

Between these two extremes, there are many varieties of investment policies. Individual temperaments, different backgrounds of life experiences, financial necessities, among numerous other factors, affect the policies of individual and institutional investors. Legislation determines some investment portfolios, particularly those of institutions.

Marketability as an Objective.—"Marketability" is a relative term. A security may be highly marketable in small, though not in large amounts. A small investor, in a given market at a particular time, may be able to sell 100 shares of New York Central stock or from one to five ($1,000 face value) of its bonds at prices close to their last quoted markets. A wealthier investor, desirous of selling 10,000 shares or 100 of such bonds, might not be able to sell all of these holdings at prices close to those last quoted. He might be able to sell, say, ten bonds at 90. The next bid for ten bonds might be 89, and, perhaps, another five bonds might have to be sold at 87. Another ten bonds might sell at 86.

If a relatively large amount of securities can be converted into cash with no substantial price concessions, the market is said to be "strong" or "firm." If, on the contrary, only small amounts can be sold, the market is said to be "weak" or "poor." An investor in 1952, for example, could sell readily, with only a slight decline in price, $100,000 of equipment obligations. He could sell even larger amounts of United States Government bonds. He could not, however, as readily sell such an amount of railroad mortgage bonds. The Government bonds could probably be sold with a decline of one thirty-second of a point, or even with no decline. The equipment obligation could be sold with a decline of about three-fourths of one point; and the mortgage bond could probably be sold only with a decline of as much as two or three full points.

Bonds are usually priced in terms of $1,000 face value. A point is therefore, customarily 1 per cent of this amount or $10. A share

of stock is, however, priced with no regard to face or par value. A point is a dollar for each share, regardless of its par or face value.

Marketability contrasts can be drawn in the market for stocks, both common and preferred. General Motors stock, for instance, has a firmer market than, say, Link Belt stock. Of the former, 5,000 shares could be sold in a representative market in 1952 with only a slight price concession, perhaps one-eighth to one-half of one point. To sell this number of shares of the other stock at prices reasonably close to the last sale, say 45, would be difficult. The price of this stock might drop three points or even more, before the full 5,000 shares were sold.

An investor who plans to sell a relatively large block of stock with a relatively poor market frequently engages a broker to make the sale. The broker sells the stock to his clients and, through other brokers, to other investors. The stock is sold at a concession of one-half point or more below the price quoted on a particular day. Such a sale is known as a "secondary offering," or "special offering." The stock is normally traded on an organized exchange (the New York Stock Exchange, for example), which is the "primary" trading market. The alternative channel is the "secondary" market.

In another sense, this terminology is not entirely accurate. The primary market for most securities, especially for bonds and preferred stocks, is represented by the sale of the issuing company to investment bankers and, by the latter, to investors. Many bonds are also sold directly by borrowing companies to investors—life insurance companies primarily. This channel is known as "private placement."

Common stocks of many companies are offered directly to their shareholders at prices below existing market prices. These opportunities to buy stocks at favorable prices are known as subscription rights. After the company sells the securities, they are then bought and sold on the securities exchanges. The exchanges, in this case, are the secondary markets.

It is sometimes said that securities listed or traded on organized exchanges have better marketability than these that are not so listed and that are not bought and sold on such exchanges. A listed security meets some minimum requirements prescribed by the exchange, particularly with respect to the disclosure of extensive corporate data. Such securities generally have satisfactory marketability.

It is, however, dangerous to conclude that marketability is due to the fact that the securities are listed on the exchange. Some highly marketable securities are not listed on any exchange. Equipment trust obligations and almost all state and municipal bonds are

illustrations. The greater marketability of listed securities reflects primarily their diffusion of ownership among thousands, even hundreds of thousands, of investors. These stockholders know enough, or believe they know enough, about listed stocks to induce them to exchange them for cash or vice versa. Most of the stocks traded off the exchange or "over the counter" are known only to a relatively few. By comparison with listed stocks, only a small number of investors are willing to swap unlisted stocks for cash or cash for unlisted stocks. It is chiefly for this reason that listed stocks, for the most part, have better marketability than those that are not listed.

Diffusion of ownership reflects the size of the companies whose stocks are listed. Such companies have great numbers of shares outstanding, and for that reason alone, the shares are usually held by so many different people.

Marketability over the past twenty years has been substantially reduced. This is due to different reasons: one important factor is taxes; another is the restrictions of the Securities and Exchange Commission upon the short-term trading activities of corporate directors and officers. There is, therefore, less incentive to trade, or to buy stocks for such short-run purposes as capital appreciation. The markets have become "thinner." The price of a stock now moves a point either way with the purchase and sale of fewer shares than formerly. The offering of 5,000 or 10,000 shares depresses the price of a stock more than in the 1920's. The ratio of the number of shares traded to the number outstanding has substantially declined. Stocks move upward more readily with a demand for a given number of shares and move downward more readily with a given supply than in former years. Hence, securities markets cannot as readily absorb stocks from sellers, nor as readily supply stocks to buyers.

MARKETABILITY AND SAFETY OF PRINCIPAL. Marketability is a distinctive feature of a security. A security may be a highly desirable investment: a mortgage on a home in a tiny rural community whose value is known only to a few neighbors; a municipal bond of a school district in, say, Oklahoma—too small to be rated by the rating agencies and whose value is recognized only by local investors. The mortgage or the bond may be secured by adequate earnings and an ample margin in property values over face value. These good things are known only to a few. Only *they* have enough information to serve as a basis for investment judgment. And if, on a particular day, these few investors have no funds, or if they have funds but not the disposition to buy, the security, regardless of its exceptional safety

and its satisfactory income, may have a poor market. On that day, the holders of the bond or mortgage may be unable to find a buyer. A prospective purchaser, not intimately familiar with the facts bearing on the merits of the security, may need weeks to get enough information to enable him to decide whether he wants to make a bid.

Furthermore, an investor may wish, for example, to sell a relatively large number of muncipal bonds of a small community. Local investors, well aware of their safety and their satisfactory yield, do not have sufficient funds for investment. Outside investors can, by a quick checkup, obtain enough data to justify making a bid. The price they will propose to pay will take into consideration the fact that many—particularly institutional—investors will probably not submit competitive bids. Many careful investors will buy only bonds that are well known, that are outstanding in large amounts, and that, in a relatively short time, can be converted into cash. It may be generally accepted that a bond is a desirable investment. At the same time, it is recognized that in an emergency it might be difficult to find buyers.

A security of exceptional merit may, therefore, have poor marketability. An unusually poor security, a bond or the stock of a company in bankruptcy, may on the contrary possess relatively good marketability. The securities of this company are held by many investors. The knowledge of the bankrupt's changing earnings and finances is widespread. A sustained improvement in earnings attracts investors—perhaps speculators is a better term. The company is still bankrupt, but many persons are buying and selling. The numbers of careful investors—those who bought the bonds when they appeared to be safe investments of a solvent company—sell as prices rise. Others, less careful but more imaginative, buy. Differences of opinion about the prospects of the company and the permanence of the improvement lead to more buying and selling. The volume of trading expands, and the securities of the bankrupt enterprise become highly marketable.

A good example is afforded by the Missouri Pacific Railroad. The company became bankrupt in 1934. Between 1940 and 1945, the prices of one of its bonds, the General 4 per cent, due 1975, advanced amidst a heavy turnover from 1¼ to 68. Between 1949 and 1951, a large volume of transactions accompanied a rise in the price of the company's preferred stock from 5¼ to 33¾. Both speculators and investors made the market. The investors were mostly sellers from the ranks of those who bought the securities, twenty or more years previously, as desirable investments of a solvent company. In the periods mentioned, the bonds and preferred stocks of

this bankrupt had a marketability superior to that possessed by the securities of many hundreds, perhaps thousands, of solvent enterprises.

The conclusion, therefore, follows that marketability is a feature of an investment not associated necessarily with security of principal or the size of the income. A security with little risk of principal may have poor marketability, while one with more risk may have more of this desirable characteristic. Of course, a risky security, known only to a relatively few, will probably have poor marketability, and in an emergency, almost none. In a declining market, bids for stocks and bonds of this kind frequently disappear.

CHANGING MARKETABILITY. Marketability of a security is not static; it improves with an increase in the total number of outstanding shares or bonds. A stock split-up usually aims to increase the number of stockholders, and people are more likely to buy a stock at $20 a share than at $200. A stock selling at 200 is split, ten to one; the stock then sells at about 20, and more investors are apt to buy the stock at that price than at the higher level. The stock, after the split, is likely to be more marketable.

In the midst of a generally recognized, far-reaching, adverse *change* in the affairs of a company, the marketability of its securities may suddenly deteriorate. The company has long been prosperous, and it has been paying interest and dividends. Investors learn that its affairs are turning for the worse and that fundamental influences appear certain to reduce earnings permanently. Prices of securities soon adjust themselves to the new state of affairs. The general body of investors are aware of the new forces. Selling rapidly increases, and bids are few and far between. Securities, for many years highly marketable, now cannot be sold, except at heavy discounts from recently quoted prices. A classical illustration of this phenomenon on a major scale is the price decline of railroad securities in 1931-33, and again in the fall of 1937. Bids for both stocks and bonds at current quotations vanished, and in a few months, prices were reduced 50 per cent and more in the presence of a relatively small number of transactions.

Upon occasion, a strong market for securities is created by forces that do not reflect the operations of an open market. The rivalry of sellers for buyers' bids and of buyers for sellers' offerings is overshadowed by the activities of a few, or perhaps even by one, investor. Such a market phenomenon usually continues only a few weeks or months, though it may last a number of years. The longer it lasts, the more likely is the investor to conclude that the marketability for

that security has been permanently changed. The removal of the temporary prop that supported the market will probably lead to unexpected losses. The investor may become so confident in the permanence of a supported market that he may not be able quickly to readjust himself to a new state of affairs. The most notable example of such an artificial market in American financial history is probably United States Government bonds, long supported by the Federal Reserve at prices of face value or better.

In private securities there are many case histories. In the fall of 1929, J. D. Rockefeller placed a firm bid of 50 for Standard Oil of New Jersey stock in the face of a general market collapse; in the following depression the S. S. Kresge Company for many months used company funds to buy its stock at relatively fixed prices. Such bids are temporary, and the appearance of a strong market for the security is equally temporary. An informed investor is thus enabled to liquidate securities at high prices. He can, if he wishes, later rebuy those securities at lower prices.

Liquidity as an Objective.—Liquidity is another aspect of an investment that requires consideration. There are investors for whom liquidity—assuming, of course, security of principal—is the primary criterion. Most important is the commercial bank. Its assets must be so invested as to permit their conversion into cash almost immediately and without any warning. Every day may be an emergency. Property and casualty insurance companies must also organize their investments to provide cash against contingencies. The risks cannot be accurately known in advance.

Mutual savings banks and life insurance companies on the other hand need less liquidity. The long-term contracts under which they accept funds reduce the relative significance of liquidity. The open-end investment companies (see Chapter 28) theoretically require great liquidity, though in practice, they have not yet been subjected to any critical tests. They must buy when funds are offered for investment, normally, in an advancing market, and they must sell when they are asked for cash in exchange for their own stocks, normally, in a declining market. These companies (subject to a few exceptions), having expanded principally in the booming 1940's, have not yet been obliged to pass through any heartbreaking deflationary experiences.

Commercial banks place great stress upon liquidity. They require investments that can be turned into cash in order to meet a continuous succession of requirements. A commercial bank knows from experience approximately what percentage of its deposits will, within

TABLE 1

COUNTRY BANK OPERATIONS COMMISSION'S, American Bankers Association,

INVESTMENT SURVEY DATA, BY STATES as of June 30, 1948

STATE GROUPS	NO. OF BANKS	PERCENTAGE DISTRIBUTION OF INVESTMENTS OF 3742 COUNTRY BANKS WITH DEPC EACH, GROUPED ACCORDING TO U.S. GOVERNMENT SECURITIES, STATE AN AND CORPORATE AND OTHER OBLIGATIONS, JUNE 30, 1948									
		UNITED STATES GOVERNMENT SECURITIES					STATE AND MUNICIPAL SECURITIES				
		UNDER 1 YR.	1-5 YRS.	5-10 YRS.	10-20 YRS.	OVER 20 YRS.	UNDER 1 YR.	1-5 YRS.	5-10 YRS.	10-20 YRS.	OVER 20 YRS
ALA.-FLA.	41	30.3	20.0	34.8	8.6	6.3	5.8	27.2	38.6	24.9	3.5
ARIZ.-NEV.-N.M.-UTAH	29	39.0	27.3	24.6	4.9	4.2	25.7	29.1	32.0	13.0	.2
ARKANSAS	43	50.1	21.0	24.8	2.8	1.3	15.0	24.3	27.2	23.7	9.8
CALIF.-ORE.-WASH.	75	35.1	30.1	27.5	4.3	3.0	13.6	36.4	26.8	20.4	2.8
COLORADO	50	50.2	25.7	15.4	3.6	5.1	20.9	25.4	25.7	22.1	5.9
CONN.-R.I.-MASS.	57	24.5	20.0	37.0	11.7	6.8	19.0	34.9	25.7	13.1	7.3
DEL.-D.C.-MD.	56	24.6	24.0	31.7	12.3	7.4	5.6	20.8	34.3	31.1	8.2
GEORGIA	34	35.8	31.0	26.7	3.6	2.9	40.4	19.8	17.5	18.9	3.4
IDAHO-MONT.-WYO.	41	49.2	22.8	23.4	2.8	1.8	26.6	36.3	26.3	10.5	3
ILLINOIS	183	35.4	23.5	30.5	5.3	5.3	25.8	27.7	28.5	17.2	.8
INDIANA	158	39.1	25.5	27.0	4.6	3.8	17.9	39.8	31.1	9.8	1.4
IOWA	175	45.3	23.6	24.8	4.3	2.0	19.3	34.2	30.2	14.4	1.9
KANSAS	228	51.2	24.8	18.6	2.5	2.9	23.2	35.8	27.1	13.5	.4
KENTUCKY	41	48.5	22.3	22.7	2.4	4.1	14.9	25.0	26.7	28.8	4.6
LA.-MISS.	55	45.9	19.7	24.7	7.5	2.2	12.4	35.0	27.2	21.2	4.2
MAINE-N.H.-VT.	83	27.9	21.8	29.9	11.6	8.8	41.1	17.4	18.6	17.9	5.0
MICHIGAN	163	31.0	25.8	32.4	5.2	5.6	8.3	30.5	41.2	18.6	1.4
MINNESOTA	252	48.7	22.7	22.1	3.8	2.7	30.4	34.2	24.4	10.1	.9
MISSOURI	163	41.2	24.8	24.5	6.3	3.2	21.0	30.1	32.6	14.8	1.5
NEBRASKA	149	46.4	22.3	24.6	4.1	2.6	35.5	19.4	24.8	18.0	2.3
NEW JERSEY	117	24.9	19.0	33.8	10.9	11.4	16.5	26.6	34.7	14.5	7.7
NEW YORK	218	21.3	18.7	39.8	11.3	8.9	16.4	32.0	27.3	13.9	10.4
N.CAR.-S.CAR.	38	36.5	23.4	23.4	14.7	2.0	9.3	45.5	26.6	17.7	.9
NORTH DAKOTA	32	48.7	24.0	23.2	2.8	1.3	30.7	20.8	37.7	10.8	--
OHIO	183	26.6	22.3	35.9	7.7	7.5	10.2	26.3	33.8	26.4	3.3
OKLAHOMA	115	51.3	23.5	21.3	2.3	1.6	18.0	41.5	26.3	13.7	.5
PENNSYLVANIA	303	20.1	20.8	34.0	12.8	12.3	10.9	17.1	28.1	27.4	16.5
SOUTH DAKOTA	68	62.1	19.0	15.7	2.5	.7	32.3	29.7	27.0	10.3	.7
TENNESSEE	41	40.0	22.5	28.6	6.2	2.7	9.0	34.8	35.6	18.8	1.8
TEXAS	219	47.6	23.1	22.8	2.7	3.8	20.2	32.6	29.0	16.9	1.3
VIRGINIA	54	26.1	22.8	31.2	10.5	9.4	7.9	25.8	28.0	29.0	9.3
WEST VIRGINIA	39	28.1	24.2	31.2	7.3	9.2	6.1	20.5	30.7	32.0	10.7
WISCONSIN	239	38.3	25.4	28.2	5.1	3.0	15.9	34.5	33.0	13.8	2.8
TOTAL	3742	37.8	23.1	27.8	6.2	5.1	19.5	30.4	29.1	17.0	4.0

SITS OF LESS THAN $10 MILLION ID MUNICIPAL SECURITIES. BY STATES.					PERCENTAGE OF DEPOSITS OF 3742 COUNTRY BANKS REPRESENTED BY UNITED STATES GOVERNMENT SECURITIES; STATE AND MUNICIPAL SECURITIES; AND CORPORATES AND OTHER OBLIGATIONS, JUNE 30, 1948 BY STATES.				RATIOS OF TOTAL CAPITAL FUNDS OF 3742 COUNTRY BANKS TO: TOTAL RESOURCES; TOTAL RESOURCES LESS CASH AND UNITED STATES GOVERNMENT SECURITIES WITH MATURITY OF ONE YEAR OR LESS; AND TOTAL LOANS AND DISCOUNTS, JUNE 30, 1948 BY STATES.		
CORPORATE AND OTHER OBLIGATIONS					PERCENT OF TOTAL DEPOSITS REPRESENTED BY:				RATIO OF TOTAL CAPITAL FUNDS TO:		
UNDER 1 YR.	1-5 YRS.	5-10 YRS.	10-20 YRS.	OVER 20 YRS.	LOANS	GOVERN-MENTS	MUNICI-PALS	CORPO-RATES	TOTAL RESOURCES	TOTAL RE-SOURCES LESS CASH AND 1 YR. U.S. GOVT.	LOANS AND DISCOUNTS
19.9	53.6	22.6	1.0	2.9	24.2	50.8	6.6	1 3	6 3	10.6	35 3
14.2	39.7	8.3	18 3	19.5	35.2	42.8	4.3	1.2	5.7	9 4	20.4
10.7	51.0	7 1	3.6	27.6	28 3	45.2	4 9	4.1	6 7	13.5	30.3
24.8	36.6	16.5	8.4	13.7	29 2	50.0	5.0	2.0	6.8	10.5	29.4
23.6	36.9	14.6	12.2	12.7	26 2	47 7	4.7	3.4	5.8	15.2	28.6
8.8	23.3	12.8	28.5	26.6	29.7	50.4	4.3	3.8	8.7	12.8	38 4
11.7	23.4	11.0	24.6	29.3	32 6	51 1	2.9	5.9	8.8	12.6	41.9
--	69.3	8.2	17.7	4.8	39.9	44 3	3.3	2.6	9.4	18.3	31.0
35.1	37.9	10.1	2 5	14.4	27.2	48.3	4.2	1.5	5.6	11.8	26.3
21.9	27.8	22.5	14.8	13.0	18.6	57.3	5.5	2.9	6.0	10.2	38.9
18.2	29.0	25.5	14.3	13.0	23.0	57.9	3.2	2.4	6.0	10.5	35.4
21.3	38.4	12.8	13.8	13.7	24.4	55.3	6.3	3.4	5.9	11.1	30.5
23.1	50.6	16.2	4.0	6.1	25.6	51.0	6.4	2.1	6.2	13.1	33.3
7.1	49.5	11.6	17.7	14.1	28.7	56.5	2.9	4.3	7.6	14.3	34.3
28.7	58.7	9.1	3.5	--	26 6	42.2	14.9	1.8	6.5	12.2	35.3
4.8	18.7	16.4	14.1	46.0	39.5	39.9	4.5	6.8	10.0	14.7	35.0
11.1	34.4	23.4	12.5	18.6	21.2	45.9	6.2	2.7	6.7	10.2	23.8
40.6	40.6	12.4	3.9	2.5	24.2	54.5	4.9	4.2	5.9	11.7	30.3
19.7	34.2	16.6	14.8	14.7	32.2	46.1	4.5	4.3	6.9	12.3	24.2
3.7	69.0	16.5	1.8	9.0	18.8	60.8	2.1	3.3	5.8	12.6	38.5
10.1	18.8	16.8	22.1	32.2	27.3	51.6	6.1	5.8	6.6	9.2	34.6
7.7	24.4	18.8	18.9	30.2	29.4	52.8	4.3	4.8	8.4	12.0	41.6
7.2	42.0	21.6	12.3	16.9	41.5	43.4	6.7	2.2	8.2	12.1	25.3
33.1	58.0	6.3	.2	2 4	11.6	68.2	3.4	3.6	4.7	13.6	50.6
8.8	29.9	18.0	16.9	26.4	27 9	49.4	7 3	3.4	7.2	10.0	31.7
--	51.2	18.8	20.0	10.0	26 0	41.2	6.3	.9	6.8	14.7	34.0
8.0	15.0	11.9	21.9	43.2	27.9	52.7	4.5	7.7	9.3	12.9	48.4
60.5	29.7	9.7	1	--	16.5	63.6	4.4	3.7	5.3	14.1	45.0
--	71.6	1.8	6.6	20.0	33.8	42.9	8.9	.5	6.9	11.2	28.1
37.1	37.2	8.6	9.7	7.4	27.5	40.4	7.0	2.0	6.6	13.6	30.6
9.1	26.3	14.9	16.6	33.1	44.2	39.5	4.5	2.7	9.0	13.0	25.2
10.6	15.9	9.3	14.8	49.4	29.0	47.9	4.3	3.3	6.7	10.4	29.4
10.7	42.7	18.0	13.3	15.3	25.1	57.1	4.2	3.3	6.2	11.2	33.2
16.4	32.8	15.6	14.4	20.8	26.7	51.0	5.3	4.5	6.9	12.0	34.2

given time limits, be withdrawn. If the deposits increase sharply, as they did in the period during and after World War II, the probability of increased withdrawals can be anticipated. To avoid the necessity of selling long-term bonds in the open market and to protect themselves from losses arising from such sales, commercial banks purchase bonds with varying maturities. Thus, as bonds mature cash becomes available to meet the needs arising from deposit withdrawals. The bank thus avoids the necessity of outguessing the trend in interest rates.

An unexpected rise in interest rates does not compel a bank to sell bonds on a declining market. Capital losses resulting from such rises in interest rates have been incurred by banks in many periods in American financial history—on a major scale in 1893, 1907, 1920-21, and in 1931-33. In 1951, declines in the price of high-grade bonds, led by long-term United States Government bonds, produced capital losses for some investors, including commercial banks.

The scope of the use of spaced or staggered maturities of bonds, as the method of acquiring liquidity by depending for cash upon maturing bonds is described in financial parlance, is shown in Table 1. This shows the operations of 3,742 country banks with deposits of less than $10 million by state groups as of June 30, 1948. The maturities are arranged by groupings of one year or under, one to five years, five to ten years, ten to twenty years, and over twenty years, separately classified for United States Government securities, state and municipal securities, and for corporate and other obligations. The table also shows the percentage of deposits in loans and securities.

Observe the high percentage of all classes of securities held in maturities under one year, and also in the one- to five-year maturities. In rural areas in which there was a rapid war and postwar expansion of deposits reflecting farmer prosperity, the percentage of short-term Government securities was unusually high. In South Dakota, North Dakota, Minnesota, Nebraska, Arkansas, and Colorado, banks held a substantially higher percentage of short-term maturities than those located, for example, in New England, and in New York, New Jersey, Pennsylvania, and Ohio.

Federal and state governments, municipalities, school districts, and authorities issuing revenue bonds must weigh this investment policy in deciding upon the kind of bonds to finance their needs. Short-term maturities, in recent years, have sold at higher prices and have afforded the investor lower yields than those realized on longer maturities. The shorter maturities, nevertheless, find a ready market in bank portfolios.

The maturity-spacing program and the short-term maturity concentration (less than five years) of the commercial banks is also revealed by Table 2. This shows for all of the insured commercial banks the maturities of United States Government obligations, annually from 1941 to 1950.

TABLE 2

MATURITIES OF UNITED STATES GOVERNMENT OBLIGATIONS HELD BY INSURED COMMERCIAL BANKS, DECEMBER, 1941-50

Dec. 31	Total	Marketable issues								Non-marketable issues [3]
		Direct							Guaranteed issues	
		Bills [1]	Certificates [1]	Notes [1]	Bonds maturing in- [2]					
					5 years or less	5 to 10 years	10 to 20 years	Over 20 years		
Amount (in millions)										
1950	$61,047	$4,122	$ 1,937	$16,774	$22,594	$ 7,737	$2,987	$2,554	$ 11	$2,331
1949	65,847	3,692	12,488	5,812	27,278	7,692	4,461	2,409	6	2,009
1948	61,407	2,822	10,068	3,395	19,374	15,114	6,581	2,059	8	1,986
1947	67,960	2,124	7,555	5,920	18,341	22,202	7,534	2,654	14	1,616
1946	73,575	1,272	12,293	6,781	12,728	29,700	6,597	3,008	15	1,181
1945	88,933	2,456	19,075	16,047	9,030	32,230	6,092	2,787	22	1,194
1944	75,896	3,972	15,303	15,781	5,918	25,467	5,796	1,917	978	764
1943	58,693	4,637	13,220	7,673	5,790	16,776	6,160	1,620	2,501	316
1942	40,712	4,462	6,729	5,800	2,865	10,047	6,470	1,337	2,718	284
1941	21,047	988	....	3,159	1,551	3,970	5,930	1,347	4,102	[4]
Percentage distribution										
1950	100.0%	6.7%	3.2%	27.5%	37.0%	12.7%	4.9%	4.2%	[5]%	3.8%
1949	100.0	5.6	19.0	8.8	41.4	11.7	6.8	3.6	[5]	3.1
1948	100.0	4.6	16.4	5.5	31.6	24.6	10.7	3.4	[5]	3.2
1947	100 0	3.1	11.1	8.7	27.0	32.7	11.1	3.9	[5]	2.4
1946	100 0	1.7	16.7	9.2	17.3	40.4	9.0	4.1	[5]	1.6
1945	100 0	2.8	21.5	18.0	10.2	36.2	6.9	3.1	[5]	1.3
1944	100 0	5.2	20.2	20.8	7 8	33.6	7.6	2.5	1.3	1.0
1943	100 0	7.9	22.5	13.0	9.9	28.6	10.5	2.8	4.3	.5
1942	100.0	11.0	16.5	14.2	7.0	24.7	15.9	3.3	6.7	.7
1941	100.0	4.7	. ...	15.0	7.4	18.8	28.2	6.4	19.5	[4]

[1] Treasury bills are generally issued with maturities of 91 days; certificates of indebtedness have maturities of approximately one year; and Treasury notes are issued with maturities of from one to five years.

[2] Based upon number of years to final maturity.

[3] United States savings bonds, Treasury bonds (investment series A-1965), and depositary bonds. Prior to December 31, 1947, this item included United States savings bonds only; depositary bonds were included with other United States bonds according to maturity.

[4] Nonmarketable issues were not reported separately on December 31, 1941.

[5] Less than 0.05 per cent.

Source: Federal Deposit Insurance Corporation.

Institutions other than commercial banks also have liquidity problems, though they may not be as critical as those confronting the commercial banks. In a period of financial stringency, funds may be withdrawn on a substantial scale from savings and loan associations,

savings banks, and life insurance companies. These institutions have relatively heavy investments in real estate mortgages. These securities possess neither liquidity nor marketability to any important degree. In postwar years, however, federal legislation has improved both of these phases of real estate mortgages.

A mortgage portfolio, furthermore, can be arranged so as to possess a considerable degree of liquidity. Prior to the mid-1930's, mortgages were issued for three or five years, with little or no provision for amortization. Since that time, the short-term mortgage has been replaced largely by long-term loans with scheduled amortization over a period of twenty years or more. Some of the mortgages authorized by federal housing legislation have an amortization schedule spanning a period of 40 years.

A mortgage-loan portfolio, like a bond account, can thus be arranged so that amortization payments on existing mortgages will annually provide substantial sums of cash. A typical portfolio of this kind is that of the National Life Insurance Company of Montpelier, Vermont. Between 1935 and 1949, for example, payments on existing mortgages averaged between 10 and 23 per cent of the average amount of mortgage loans on hand. Funds were thus made available to meet current contingencies. It is difficult to express hard-and-fast conclusions about the merits of this investment policy under depression conditions. This satisfactory experience was recorded in a generally prosperous period.[3]

Diversification as an Objective.—At all times, whether in inflationary or deflationary periods, the rule is almost universal in managing investment portfolios that diversification is a wise policy. No single investor or group of investors is omniscient. Psychological, social, economic, and financial imponderables render it impossible for any investor to be absolutely certain of the results to ensue from a given investment choice. Whether the portfolio consists of high-grade bonds exclusively, or of some combination of good bonds and good stocks, it is dangerous to commit one's funds to any single security.

It is also dangerous to carry diversification to excessive lengths. Mistakes in selection are bound to be made. Hence the portfolio may wisely be limited to a number of industries and companies that can be carefully analyzed and whose changing fortunes can be observed and interpreted. Perhaps the major exception is United

[3] The experience of the National Life Insurance Co. on mortgage loan portfolios was presented by L. Douglas Meredith, Chairman of its Committee on Finance on Dec. 28, 1949, before the Joint Round Table of American Finance Association and American Association of University Teachers of Insurance.

States Government bonds. Those securities are intimately woven into the national fabric. They are as safe as the national economy. The risk here is a rise in interest rates that might reduce the price of long-term bonds. The purchase of short-term maturities minimizes this risk. There is also the loss in purchasing power characteristic of all bonds under inflationary conditions.

It is impossible for an investor to be sure that the corporation in which he invests his funds will always be well managed, that the industry of which the corporation is a part will always be prosperous, or that the public borrower, in whose bonds he has made a commitment, will always be able and willing to honor his obligation. The scattering of risks among different kinds of securities (bonds and stocks), different maturities, different companies within an industry, and different industries (all of whom are prosperous when the securities are bought) constitute a protection against lack of knowledge and foresight. Diversification is indeed the investor's insurance policy to protect him against losses arising from his ignorance. There is nothing scientific about this procedure. Diversification is merely a policy of prudence.

The individual investor can diversify his portfolio directly through the purchase of securities of different companies and of different industries. He can also accomplish the purpose by buying securities of the institutions that have diversified portfolios. Prominent among these are the property and life insurance companies, closed-end and open-end investment companies.

QUESTIONS AND PROBLEMS

1. Over 90 per cent of the 173,000 shares of the New York and Harlem Railroad are owned by the New York Central Railroad. The balance, not owned by the New York Central, is listed and traded on the New York Stock Exchange. Between 1936 and 1952, the price fluctuated in a range from 60½ to 673. In 1951, it sold at its high price of 673. The road is leased to the New York Central. Since 1866, it has paid a dividend of $5.00 per share.

   The Pennsylvania Railroad's more than 13,000,000 shares are also listed on the New York Stock Exchange. The price of the common stock of this railroad during the same 1936-52 period ranged between 50¼ and 13¾ and in 1952 it sold at 18. It has paid dividends annually, though in varying amounts, since 1848.

   Since 1936, the New York and Harlem stock has thus scored a substantial price advance, while the Pennsylvania Railroad stock has

registered a substantial price decline. Which of these two stocks, under these considerations, is more marketable and why?

2. Contrast the relative marketability of the following pairs of securities:
   a) City of Philadelphia bonds, not listed on any organized Exchange, and the income bonds of the Chicago and Eastern Illinois Railroad, listed on the bond section of the New York Stock Exchange.
   b) Great Atlantic and Pacific Tea common stock, listed on the New York Curb, and Safeway Stores common stock, listed on the New York Stock Exchange.
   c) National Biscuit common stock and Budd Company preferred stock, both listed on the New York Stock Exchange. What data would you try to ascertain in reaching conclusions?
3. Explain some of the problems involved in defining the meaning of "investment."
4. Examine the different motives actuating investors who buy common stocks.
5. The stock of Insurance Company A is selling at $1,500 a share, pays $30 a share in dividends, and thus returns to the investor 2 per cent. The stock is split 20 to 1. The new stock, then, sells at $75 a share, and pays a dividend of $1.50 a share, thus, also affording the investor a return of 2 per cent. Which stock, the old selling at $1,500, or the new at $75, is more marketable and why?
6. Compare the value of liquidity as an investment factor to savings banks, commercial banks, and such endowments as the Carnegie endowment, for example. What securities furnish maximum liquidity?
7. Explain the major argument in favor of an investment policy based on diversification.

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Chapter 2

SOURCE OF ECONOMIC VALUES

Measurement of National Income and Product.—Dividend and interest payments to investors are paid out of national income, and national income is created by the production and distribution of goods and services. The volume of payments made to investors is related to the volume of income generated by the national economy. It is, therefore, essential to investment success to make decisions in the light of the pattern set by national expansion and contraction.

The statistical units that reveal the fluctuations in the movement of the economy are relatively simple. Earnings paid to the factors of production (wages, rents, interest, and profits) make up national income. Expenditures, measured by the dollar value of all final goods and services produced, make up gross national product. The income of individuals, including wages and salaries, dividends and interest, and government payments, constitutes personal income, and this income, less federal and state taxes, equals disposable income. This is an important item: it discloses personal income available for spending. Disposable income, less consumption expenditures, equals personal savings. The latter is but an approximation. Also, it does not disclose liquid funds available for the purchase of securities.

The data on national income and national product are described by government statisticians as constituting

> ... a summary view of the economic system in terms of the types of transactions which we know from experience and from business-cycle theory to be the important determinants of the level of and changes in business activity. As such, national income and product are the broadest and most general indicators of changes in business and economic activity that have been constructed.[1]

They are, nevertheless, only statistical measurements of economic trends. They reflect not the causes, but rather the results of those trends.

[1] Philip M. Hauser and William R. Leonard, eds., *Government Statistics for Business Use* (New York: John Wiley & Sons, Inc., 1946), p. 19.

Even though interest and most rents are payable in a fixed number of dollars, the movement of national income and national product exerts a significant influence on the amounts available for the payments made to investors. A sharp drop in national income reduces revenues available for interest and rents. If the drop is sufficiently steep, many borrowers are unable to meet these obligations. As national income rises, the margin by which earnings protect interest and rent increases, thus making these contracts more secure. The stockholder, as the major beneficiary of rising income and the major loser of falling income, is even more vitally affected by fluctuations in national income and product.

The concept of disposable income is also important for investment analysis. It represents the largest segment of purchasing power available for exchange against goods and services offered by business enterprises. The volume of sales by retailers and wholesalers and of some consumer-goods industries bears a close relationship to the trend of disposable income, as will be shown in detail in a subsequent chapter.

Sound evaluation of the expansion or contraction in the national economy is essential to sound investment. The prosperity of an industry and a company, the market price of a security, and the trend of interest rates are affected and frequently determined by the strength of the economy. An investor, before he plans the purchase (or sale) of a security of a particular company in a particular industry at a given price level, must first reach a decision on the nation's economy. Is it headed for expansion or contraction? Is productivity increasing or decreasing, i.e., is the output of goods and services rising or falling? Is the debt, both personal and corporate, moving up or down in absolute figures and in relation to income? Are savings expanding or contracting in absolute figures and in relation to income and to national spending? Is the economy headed toward inflation or deflation? Is the population rising or falling?

National Product and Capital Formation

Fluctuations in productive capacity and in production are closely associated with changes in national product. A large part of the economy's output of goods and services is used up in current consumption. In periods of business expansion, consumers have more food, clothing, and shelter. They enjoy more services; they have longer vacations; they travel more. They spend more dollars than in depressions, though in relation to national product, the amount spent is lower. For example, between 1929 and 1932, gross national product declined from $103.8 billion to $58.3 billion, while expenses

for personal consumption declined only from $78.7 billion to $49.2 billion. The percentage of personal expenses to the gross national product rose accordingly from 75.9 per cent to 84.3 per cent. By 1951, consumption expenditures had soared to $205.5 billion. But in relation to national product, the amount spent had fallen to 63 per cent.

The decline in the percentage that consumption expense is of national product in prosperous periods reflects the relative increase in the significance of two other major portions of national product: gross private domestic investment and government purchase of goods and services. (Another item, net foreign investment, is a relatively small item.) Government purchases rise to great heights in years of war and preparations for war.

Investments in Time of Peace.—Under peacetime conditions the most dynamic component of gross national product is gross private domestic investment. It embraces the funds expended for producers' durable equipment, residential and other construction, and changes in inventory. Funds utilized for producers' durable equipment and other construction are spent largely by businessmen. These businessmen's expenditures on plant and equipment bear a close relation to the character of the American system and to the American standard of living. They mean more and better tools and machines, more and better goods and services, and a greater output by the existing labor force. As labor productivity increases, unit costs decrease. Such decreases make possible higher wages to workers, lower prices to consumers, and higher profits and dividends to investors. Mechanical ingenuity contrives new and better tools, metals, engines, fibers, drugs, chemicals; businessmen bring together men, materials, and equipment to exploit the superior methods; and the investor supplies the funds to enable both the inventors and the businessmen to carry out their tasks.

Businessmen, with permission from investors, use corporate profits to finance business needs, and investors (savers) supply additional funds for the same purposes. These sums are diverted currently from personal consumption and are added to the fund of capital, i.e., to the supply of plant and equipment. This process is called capital formation. In an economy characterized by the absence of capital formation, production is consumed by individuals and by government, or stored by the latter in some nonjob-creating tasks.

Expenditures for capital formation *average* from 10 to 20 per cent of national product. In depression, the percentage drops sharply. For example, a record low of 1.5 per cent was reached in 1932. This

decline served as a basis for a similar movement in national income and in payments made to investors. In prosperity, however, capital expenditures soar up to and occasionally beyond 20 per cent of the national product.

1929 and the "Maturity" School of Thought.—The sharp break in the 1929-32 period, and the incomplete and partial recovery in the middle and late 1930's of capital formation was without precedent. It provided, in part, the statistical basis for the "maturity" school, i.e., for the doctrine that economic progress had come to an inglorious end. This was a new experience. Some economists had an explanation for this phenomenon. A. H. Hansen, a leading American advocate of this new school, said in December, 1938:

> It is my growing conviction that the combined effect of the decline in population growth, together with the failure of any really important innovations of a magnitude sufficient to absorb large capital outlays, weighs very heavily as an explanation for the failure of the recent recovery to reach full employment.[2]

The new school of economic thought proved to be a poor guide to investment policy. The depression in the 1930's was more prolonged than informed observers, based on precedent, had anticipated. The boom of the 1940's was, nevertheless, characterized by the same phenomena that featured previous expansions. Production increased: between 1939 and 1950 productive capacity doubled. New industries appeared in abundance: television, long-distance natural gas pipe lines, antibiotic drugs, atomic energy equipment, petrochemicals (the manufacture of chemical products from petroleum and natural gas), new metals, such as titanium and beryllium, glass fibers, nylon, synthetic fibers, and the end is nowhere in sight. Population increased, and at the most rapid rate in history. Gross national product (in part because of heavy government expenditures) advanced sensationally. Witness the evidence:

1940	$101.4 billion
1945	215.2 "
1950	279.8 "
1951	327.8 "

Part of the increase reflected price rises, but even when corrected for prices the rise was substantial. On the basis of the 1939 dollar, gross national product moved from $100 billion in 1940 to $166 billion in

[2] Alvin H. Hansen, "Economic Progress and Declining Population Growth," *American Economic Review*, March, 1939, p. 11.

1951. National income also increased. Here are the data on national income:

1940	$ 87.3 billion
1945	182.6 "
1950	239.1 "
1951	277.5 "

Corporate profits after taxes were also greater. They rose from $6.4 billion in 1940 to $8.5 billion in 1945, and to $21.2 billion in 1950; in 1951 they fell to $18.6 billion. While the dollar corporate profits (prior to 1951) rose, the percentage to national product and to national income fell slightly. Dividends also advanced to record levels, though in relationship to national product and national income, they declined somewhat.

A Lesson in Relationships.—The experience of the 1940's reinforces an empirical lesson of great moment. There are direct relationships between national product and profits and between national income and profits. In depression, these relationships are disturbed. Substantial declines in national product and in income frequently accompany a far more rapid break in profits. Indeed, as in the depression of the early 1930's, profits are replaced by deficits. Substantial *expansions* in production, sales and income are, however, paralleled by expansions in profits and dividends. This correlation holds fast, even in the face of rising costs, wages, and taxes. In 1950, for example, corporate tax rates (aside from excess profits taxes) were increased to 47 per cent. In 1929, the rate was 12 per cent. Wages and other costs were substantially higher. Corporate profits after taxes, nevertheless, also rose as noted above. In 1950, they amounted to 9.5 per cent of national income—not much of a change from the 8.8 per cent of 1929. In 1951, however, there was a decline to less than 7 per cent; while corporate taxes rose to 52 per cent (aside from the excess profits taxes) of corporate income.

Expanding production from the investor's standpoint is not an unmixed blessing. The time comes when the economy becomes overexpanded. Ever-expanding productive capacity is the heart of the American system of dynamic expansion. The system has, however, not learned to adapt demand, over the short run, to supply. In every boom, industrial capacity ultimately exceeds demand and the economy slows up. The industries making goods and services, largely for the purpose of increasing productive capacity, are the major sufferers. Investors, while they are still profiting from the expan-

sion of production in a boom, must, therefore, keep a wary eye on the possibilities of overexpansion and the termination of that boom.

This correlation of national product and income with profits and dividends does not extend to interest. In expansion eras, prior to the decade of the 1940's, interest rates and total interest payments did indeed rise. In that decade, however, the Treasury Department and the Federal Reserve joined forces to keep interest rates low. (See Chapter 17.) In 1929, at the height of the boom when profits and dividends were high, interest represented 7.5 per cent of national income. In 1932, in the economic valley when profits and dividends were low, interest in relation to the attenuated national income was high, at 13 per cent. By 1950, in the midst of another boom, stronger than that of 1929, interest rates were so low that despite the rise in debt, interest was only 2.4 per cent of national income and, in 1951, only 2.3 per cent.

It will be observed that in both World War I and World War II periods, the dollars spent for private domestic investment declined. This was obviously due to government expenditures to buy goods and services needed to finance the war. The investor in both periods was obliged to give serious consideration to this phenomenon. Increase in productive capacity was deferred to the postwar years. In both periods, postwar expansion in capacity quickly filled the vacuum created by the wars. After the end of World War II, private domestic investment, in relation to national product, reached a high level by 1950-52.

Expenditures in Plant and Equipment.—To the investor, the most important part of private domestic investment is the expenditure on plant and equipment. These expenditures are the most productive factors in the economy. They show that the investor's place in the inventor-businessman-investor trinity is essential to the formation of capital and to the ever-increasing supply of consumer goods and services. The investor's return in this process is, however, a relatively small part of the expanding national product and income. Over the two decades between 1930 and 1950, while national income increased, the investor's dividend-interest-rental share of the income declined.

The amount spent for plant and equipment, though small in relation to national product, is of primary importance in an expanding economy. It is the great variable. If these expenditures drop or rise, a decline or increase, respectively, in personal income usually ensues—at least in peacetime. A rise is also accompanied by an advance of corporate profits, dividends, and market values of stocks.

Fluctuations in business expenditures on plant and equipment, since 1945, are instructive. In 1945, expenditures were low, and investors looked forward to a rise. Their consideration of such a possibility was justified by ample precedent, even in face of official government forecasts of extensive unemployment and general unsettlement. Government planners were in error, and rapid increases in national product and income followed. In 1952, investors were obliged to wrestle with other uncertainties. Expenditures for plant and equipment had increased rapidly and, for 1952, had reached record figures. Corporate earnings, dividends, and securities' prices also attained high levels. Would they continue? The answer depends in part upon the trend of business capital expenditures.

Capital Formed Largely by Private Business.—As the government participates more actively in the economic life of the country in building more highways and power plants and in slum-clearance projects, for example, the percentage of gross product spent by the government rises. Capital formation is, nevertheless, largely the responsibility of private business. It is essential in the free-enterprise system that capital be formed by creative private enterprise, rather than by the government, which is spurred on not by the quest for efficiency, low cost, and greater economies, but by social objectives. In terms of economic fruits, government expenditures produce little in consumer goods and services, and this little is produced at relatively high cost.

National Economy in Physical Terms

The growth and decline of the national economy in physical, rather than in financial, terms are measured by an index of production. The most popular index, though it is not entirely satisfactory, is the Federal Reserve Board Index of Production. This measures activity in the manufacturing and mining industries and does not include distribution and services, such as transportation, electricity, wholesale and retail sales, and agricultural production. It does, however, represent the major creative phase of the national economy. The index reflects the activities of job-creating industries. Service and distribution industries are largely derivative.

There is a secular growth trend in production, reflecting the rising population and the increase in per capita consumption. This growth is the foundation of expanding national income and national product and, also, of rising security values. Between 1899 and 1937, the annual rate of increase of manufacturing output averaged 3.5 per

cent. In this period, the population rose 73 per cent; manufacturing production, 276 per cent; and per capita production of manufactures, 120 per cent.[3] Various statistical studies indicate an annual increase in the product per man-hour of about 2½ per cent; in national income, of about 3 per cent; and in high-grade common stock prices of about 3 per cent.

Population Factor.—Changes in population obviously affect national product and income. The increase or decrease, the composition among age groups, their geographical dispersion, all must be considered by the investor. The expansion of the economy, at least prior to 1930, was accompanied by an increase in population. The rate of increase, however, was lessening. In the 1870-80 decade, the average annual increase had been 2.4 per cent; by the 1920-30 period, the increase had dropped to 1.5 per cent. By the decade of the 1930's, the forward march had come to a halt. The reduction in immigration, due in part to legislation enacted in the second decade of the century, combined with the lower birth rate to produce a pessimistic outlook on future population growth. Sociologists vied with economists in asserting, on the basis of the extrapolation of historical data, that the population decline would continue.[4] The stagnant population concept lent additional support to the thesis of the mature economy (see p. 26).

Investors who adopted and carried out an investment policy based on these findings made a bad mistake, for in the decade of the 1940's, the population trend of two generations' standing suddenly reversed itself. In that ten-year period, the country's population increased by 19 million—the largest increase in any one decade in history.

Regional population shifts on a substantial scale are also of investment importance. In the 1940's, the Pacific Coast states reported a population increase of about 50 per cent. In the New England and the Middle Atlantic states, the increase was a trifle over 10 per cent, while in some areas, such as South Dakota, the population declined. The rapid rise on the Pacific Coast was responsible, in large part, for expansion in the traffic and earnings of the Southern Pacific and the Atchison, Topeka and Santa Fe railroads. The increased sales volume of existing food chains and the establishment of new ones can be attributed largely to the dynamic population factor. Relocation of numerous industries to serve the new population groups produced many new investment opportunities.

[3] Solomon Fabricant, *The Output of Manufacturing Industries, 1899-1939* (New York: National Bureau of Economic Research, 1940).

[4] See, for example, William B. Reddaway, *The Economics of Declining Population* (London: George Allen & Unwin, Ltd., 1939).

There are many other investment facets of dynamic population changes. The high birth rate widens the market for prepared infant foods, and many companies in that field prosper accordingly. The increase in numbers strengthens the demand for more homes and school buildings, thus stimulating the construction industry. At the other end of the life cycle, the lengthening life span increases the demand for drugs. Some part of the prosperity of the drug industries in the 1940's may be credited to this factor. These are only illustrations of the pervasive influence of widespread population changes. The alert investor should be able to benefit from these and numerous other trends.

Fluctuations in Savings.—The investor must also keep a watchful eye on the trend of savings. Savings produce funds that may be used to increase productive capacity, to enlarge production and sales, and to expand profits and dividends. They may also represent a potential demand for securities. If the supply of securities is not increasing, or is increasing less rapidly than the demand (as represented in part by liquid savings), the prices of outstanding securities may increase. If the supply of securities tends to exceed the supply of savings, the price of outstanding securities may decrease. Investors, alert to these possibilities, may frequently be able to buy or sell securities at attractive levels. An example is afforded by the power and light industry in the 1940's. The Public Utility Holding Act directed the Securities and Exchange Commission to dissolve a large number of holding companies. In numerous cases, these companies were liquidated by the sale of the stocks of their subsidiary power, light, and gas companies. This substantial increase in the market supply of securities of a particular kind reduced their prices and increased the yields to the investor. On a wider scale, more representative of the national economy, fluctuations in the supply of savings exert some influence on changes in money rates.

There is another side of the economic significance of savings. A shift of income from personal consumption to savings, or the other way around, leads to corresponding shifts in the demand for capital goods or for consumption goods and services. Consumption-goods industries respond to expansion in personal incomes by increasing production and inventories. Consumers, however, may decide to use less of their incomes for consumption, and transfer more to banks and to other savings institutions. This is what happened in the spring of 1951. Inventories expanded rapidly after the outbreak of the Korean War in June, 1950. Disposable income also increased to record levels. In the last half of 1950 and in the first two months

of 1951, spending on consumption goods and services also increased. In the following months personal savings suddenly rose, and by July of that year, government estimates suggested that personal savings were approximating an *annual rate* of more than $20 billion. This compared with savings for 1950 of $10.7 billion.

In the postwar years of 1946, 1947, and 1948, however, a reverse shift occurred. In 1944 and 1945, personal savings amounted to $35.4 billion and $27.9 billion, respectively. In the following three years, the corresponding figures were, respectively, $12.0 billion, $3.9 billion and $10.4 billion.[5] Since disposable income in these three years increased, the percentage of savings to income declined sharply. The decline in personal savings in the 1946-48 period increased the profits and dividends of numerous consumer industries, particularly in the durable sector, such as automobiles and domestic appliances. The sudden increase in savings in 1951, in the midst of a rapid rise in personal income, led to declines in demand and in the prices of many consumer goods and impaired the earnings and dividend outlook of many consumer-goods corporations.

Savings Data.—Data on personal savings are published by the Department of Commerce and the Securities and Exchange Commission. The Department of Commerce computes savings by deducting personal consumption expenses from disposable personal income. The S.E.C. estimates the volume of each class of savings. Despite the differences in methods of computations, the results obtained reveal no substantial discrepancies, and investors use this data with care. Savings, as thus determined, do not show the volume of liquid savings available for investment, nor the amount available for the purchase of consumer goods and services. These savings data, for example, embrace expenditures for private insurance and pension reserves and for reductions in mortgage and consumer debts. They also include expenditures for inventories, plant, and equipment in unincorporated business enterprises. In general, they represent the economist's concept of savings.

Careful analysis of the data aids the investor in ascertaining useful and relevant information. Furthermore, separate figures are available on changes in demand deposits, time deposits, mutual savings bank deposits, purchases of United States Government bonds, postal savings, and so forth. It should be noted that there is no normal or generally accepted relationship between the volume of liquid savings and the amount of stocks and bonds purchased for investment.

[5] Savings data are supplied by the U. S. Department of Commerce.

Private Debt.—The movement of private debt, personal and corporate, also influences the expansion and contraction of the national economy. The growth of debt at the commercial bank level through the growth of deposits increases the supply of money. Various kinds of assets—real estate, inventory, automobiles, domestic appliances—are pledged for the payment of bank loans. While these loans are outstanding, the newly created bank deposits (money) also remain outstanding. Personal, corporate, and public debts, if created at the banks, all have one effect in common: they increase the supply of money. If the debts are incurred at noncommercial banking institutions, such as life insurance companies, saving and loan associations, mutual savings banks, or through individual lenders, the supply of money is not increased.

Private debt usually increases in periods of prosperity. At such times, personal income and corporate profits expand. Corporations borrow to increase working capital and to expand productive capacity. Individuals borrow to buy homes, automobiles, furniture, and domestic appliances. Funds that cannot be used by lenders are transferred to borrowers who are both able and willing to utilize them. Bank and nonbank created debts, unless counterbalanced by other forces, add to the demand for goods and services. Prosperity is thus fed not only by expansion in current income, but also by the concurrent debt expansion.

To this increase in private debt there must be added the state and municipal debt. This debt also tends to expand in prosperity and decline in adversity. A boom is stimulated by debts incurred to finance the building of public works. Many of these bonds are bought by commercial banks, and so add to the money supply. Other bonds find their way into the portfolios of other investors, and so may activate existing idle funds.

Investors must also wrestle with the problems growing out of still another form of debt: that of the United States Government. There are some vital differences between this debt and other debts. Most of this debt is incurred to finance wars or to prepare for wars. It is, therefore, not usually characterized by such economically useful assets as land, inventory, equipment, and so on. Usually, a government debt is balanced by goods and services needed to destroy property and human lives. The assets created to finance a war cannot, for the most part, be used to liquidate the debt. In this sense, it differs from a private debt. If such a government debt is created in exchange for a bank deposit, new purchasing power emerges. The new deposits (money), as they circulate throughout the economy,

increase the demand for goods and services. The supply of economically useful goods and services is, however, not increased.

Government debt is also incurred to pay for public works and to finance a deficit created in a depression. Only a relatively small part of the federal debt has been created for this purpose.

The federal debt, unlike private, state, and municipal debts, need not necessarily be paid out of current income. When debts mature, assuming that they cannot be refunded and that taxes in sufficiently large amounts cannot be raised, the government can issue treasury money.

Prior to the 1930's, the government followed the practice of reducing its debt. Since that time, the policy, for all practical purposes, has been reversed. There has been little disposition to reduce the national debt.

Private debts must, however, be paid, although companies in some industries, such as railroads and local public utilities, frequently look upon debts as a permanent feature of corporate life. Corporate debts are paid out of earnings, or out of the proceeds of stock issues. Paying an existing debt with the proceeds of a new one does not, of course, retire a debt. It merely replaces one debt with another. In the midst of a period of prosperity, perhaps close to its peak, the private debt may become excessive. At the very time when the national economy is benefiting from the expanded purchasing power created by the increased debt, investors prepare themselves for possible liquidation of that debt.

The payment of a private debt reverses the purchasing power process. Payment of bank loans reduces deposits, thereby curtailing purchasing power. Debtors must use part of their current income not to buy goods and services, but to pay debts incurred for goods and services bought at some previous time. Debt liquidation may, therefore, be deflationary and, if carried out on a wide scale and in a short period, might precipitate a sharp break in prices, reduce production, and increase unemployment. Businessmen carrying heavy inventories in a business boom suddenly encounter sharp declines in demand. Consumers use their income not to buy goods, but to pay debts.

Investors, therefore, watch the data on debts. In World War II and the postwar years, for example, the total debt, public and private, soared from $212.6 billion in 1941 to $522.7 billion in 1951.

This sweeping increase raised concern in many minds. Can the economy sustain such a burden? Will the prospective liquidation of a debt of this size upset the economy? Before a conclusion is drawn, the strength of the economy that sustained the debt at that

time must be examined. In this same ten-year war and postwar interval, the expansion in national income surpassed the rise in debt. The total debt in proportion to national income thus fell from 205 per cent in 1941 to 190 per cent in 1951. Similarly, the economy's output of goods and services increased more rapidly than the private debt. The debt in 1941 was 170 per cent of the gross national product and only 160 per cent ten years later. The increases in both private corporate and noncorporate debt were more than equaled in these same years by expansions in corporate profits and in personal disposable income respectively. The economy thus seems able to carry the heavy debt.

Debt liquidation after a prolonged rise is, nevertheless, a real possibility. Statistics do not reveal the composition of the debtors. A rapid retirement of debts by a number of debt-ridden income groups might spell deflationary trouble, even if the total debt appears reasonable in relation to other factors. Furthermore, a sharp decline in prices, in output, or in both would greatly increase the burden of the debt and the economic peril of its liquidation.

Rising Government Expenditures.—Growing government expenditures also raise problems of investment importance. One school of economic thought insists that the expanding economy that has characterized the life of the country can be continued only by government spending. In the event of a reduction in private spending, the government must fill the vacuum with more spending. If the funds thus spent are raised by taxation, little is accomplished. Those who are taxed have less to spend, and the government has more. Spending is merely shifted from the private to the public sector. The government, therefore, must spend more than its income. The deficit through the sale of bonds to banks is converted into bank deposits, i.e., money. National income rises, and so does the government debt. The rise in the debt is looked upon with equanimity as long as the national income rises proportionately. The short-run effects of this policy have been favorable. A boom in farm prices has been facilitated by government deficits financed partly by the proceeds from the sale of bonds. A record housing boom in 1949 and 1950 was made possible largely by government credit. Booms financed by debt are, of course, nothing new; in fact they are classically financed by that very method. This new form of debt creation, however, is novel: it receives the blessing of the government. The investor has no precedent for this in American experience. The new philosophy expresses no fear of an internal debt; the people owe it to themselves. The interest on the debt is income to some, just as

it is expense to others. A public debt, unlike a private debt, so it is contended, cannot be liquidated under pressure of creditors.

Whatever the eventual outcome might be, the fiscal policy of the government has become a vital factor in the national economy. Fiscal policy embraces debt management, the government budget, and the money supply. The government can encourage inflation by spending more than its income and by paying the deficit through the creation of new money, or it can stimulate deflationary tendencies by imposing heavy taxes. It can sell bonds to the banks and thereby increase the money supply, or it can sell bonds to nonbank investors and refrain from increasing the supply.

Investors thus face many uncertainties, and the prospect of a heavy burden of taxation, in the event of the inability to continue the deficit financing policy, must not be overlooked.

Normal and Abnormal Conditions

The annual fluctuations in the physical and financial factors in the national economy are not regular. The short-run investor is therefore confronted with the problem of judging the degree to which annual changes in economic phenomena are normal. The Federal Reserve Index, for example, is based upon the hypothesis that the 1935-39 period is normal. This word "normal" presumably represents the condition of affairs that exists most of the time. Hence, abnormal conditions are those that occur infrequently.

But there is hardly a time when conditions are "normal." At the end of World War II investors and others were warned by government sources that unemployment would increase and prices decrease. The contrary occurred. The government overlooked the abnormal. There was an accumulated demand for homes, automobiles, and domestic appliances. In the war years people had made substantial savings that they were willing to exchange for needed goods. Superimposed upon this was an abnormal production for export. Residents in other countries had deferred needs, and some at least had dollars. Those who did not were given dollars, partly by grants and loans by the government and partly by loans of the International Bank for Reconstruction and other such institutions. Dollars were exchanged largely for American goods, and exports rose to record figures.

Another experience with so-called normal trends was recorded in 1950-51. The Federal Reserve Board Index of Production in 1950 rose to almost 190. Some analysts then made computations

suggesting that the "normal" level was only about 155. In June, 1951, due largely to an "abnormal" factor, the Korean War, the Index advanced to 222.

The 1935-39 period, the base for the present Federal Reserve Index, was in many ways itself abnormal. (In 1952 a new Federal Reserve Index with 1947-1949 as a base was in preparation.) In those years the volume of capital formation was low, unemployment was high, and government relief payments were introduced on an unprecedented scale. A depression of such long duration, in which abnormal relationships are so common that one is almost inclined to suggest that they are virtually normal, may well be termed abnormal.

Few, presumably, would agree that the 1927-29 period was normal. Excessive speculation and real estate activity, heavy collateral loans by nonbanking sources, and excessive security issues, particularly by investment companies and holding companies for nonproductive purposes, cannot be considered normal.

Every boom is characterized by the abnormal expansion of an industry or of an economic component. In fact, some believe that the abnormal expansion of a particular industry actually produces cyclical booms. The boom of the 1920's is thus explained in terms of the rapid rise in the construction, automobile, and the electric light and power industries. In the depression of the next decade, numerous economic phenomena, such as abnormally low outlays for plant and equipment, dormant industrial production, and a low rate of residential building, were recorded.

In the post-World War II boom, however, abnormally high records were made. The ratio of farm-implement sales to farm income exceeded previous levels; automobile production and residential housing construction attained new records; the extension of grants and credits to foreign governments, the proceeds of which were spent largely in the United States, created record export surpluses. A rapid rise in consumers' personal debts, from low level in 1945, introduced another abnormality.

There are no accepted rules by which an investor can judge at any given time and at any stage of the business cycle, whether the national economy is functioning at normal, subnormal, or above normal levels. The secular growth (i.e., growth as may be observed over a very long period of time, often including several cycles) is a useful tool for many purposes and is resultant of abnormal growths. The investor, in appraising the normality of a phenomenon, must use seasoned judgment patterned upon a wide background of knowledge and experience.

It is significant to observe that, even retrospectively, informed persons are frequently unable to agree upon the normality of a significant economic trend. Writers in the 1930's, for example, differed upon the extent to which the physical volume of production in the 1920's was normal or abnormal. One writer declared that, in the 1921-29 boom, the rate of industrial growth approximated the average rate in the preceding forty years.[6] Another, however, insisted that the rate of increase in the physical volume of production "was clearly in excess of that which prevailed during the period of expansion prior to the World War [I]."[7] Part of this difference of opinion probably reflects the length of the period the writers had in mind.

The investor, therefore, cannot accept gross national product, national income, or the Federal Reserve Board Index as the *sole* measures of prosperity. The investor is on guard constantly to interpret these and other indexes in a pattern of secular and cyclical influences.

Business Cycle.—The distinctions between normal and abnormal and between recurring and nonrecurring influences reach a climax in the business cycle. There is a long-term growth trend in production of national income and national product. This expansion in production, income, and wealth does not, however, occur regularly and evenly from year to year. The increase is rapid in prosperity and slow, sometimes negative, in depression. Countless books, pamphlets, and other contributions have tried to explain the causes of these changes in business activity, known generally, though not accurately, as business cycles. Elaborate and realistic descriptions of the courses of such cycles have been made.[8] Even more elaborate inquiries into the statistical measurements of the cycle have been recorded.[9]

These inquiries are satisfactory within a limited scope. Causes of the cycles are, however, not known—certainly not with sufficient accuracy to be used as a basis for public policy and for private business and investment decisions. Theories for the explanation of the cycle exist, however, in abundance. Some writers are confident that one cause produces the cycle, although such explanations "have been

[6] Carl Snyder, *Capitalism the Creator* (New York: The Macmillan Co., 1940), p. 200.

[7] Frederick C. Mills, *Economic Tendencies in the United States* (New York: National Bureau of Economic Research, 1932), p. 530.

[8] Wesley C. Mitchell, *Business Cycles* (New York: National Bureau of Economic Research, 1927).

[9] See especially Arthur F. Burns and W. C. Mitchell, *Measuring Business Cycles* (New York: National Bureau of Economic Research, 1946).

more and more discredited and should be regarded with suspicion." [10] Changes in money and credit or in crops, new inventions, deficiencies in consumer purchasing power or in capital goods, or on the contrary, surpluses in capital goods, and psychological factors, among others, have been offered as explanations. There are controllable and uncontrollable factors. There are economic and non-economic explanations of the cycle. None of these theories has been generally accepted and none can be used as a safe basis in investment analysis to anticipate at any time under any set of conditions the change from boom to depression and from depression to boom.

Expansion of National Economy Is Normal.—Until the 1930's, one statement of the greatest importance could have been made. After every depression, i.e., interruption in the forward march of employment, payrolls, profits and economic activity, a renewed expansion advanced the economy to new records. In the early 1880's, after the decline of the 1870's; in the late 1880's, after the break in the middle of the decade; in the late years of the nineteenth and in the opening years of the twentieth century, after the collapse in the middle 1890's; in the 1916-20 period, after the decline preceding World War I, and in the 1920's, after the 1920-21 break: new production and income-creating records were attained.

In every advancing phase of the national economy, skepticism arose in the face of the renewed expansion; conservative opinion looked with suspicion upon the new group of entrepreneurs. The shortages that prevailed in the last stages of the preceding boom were replaced by surpluses in the following depression. New shortages, most noteworthy in the field of capital goods, appeared in the early stages of the renewed expansion. Renewed capital formation accompanied the rapid increases in production and income to record heights in every period of cyclical expansion, prior to 1930.

In the recovery of the 1930's, however, new records were not made. The rate of capital formation declined. Less capital was made available to each worker, and less capital was formed in relation to national product. The explanation of the depressed decade by the new school of economists fails to recognize the dynamic concept of American industrial growth. American productive and merchandising enterprise, combined with technological ingenuity and financed by investor savings, have produced new industries and new purchasing power to absorb the output of those industries. The investor has reaped his return in a relatively slight proportion of the

[10] Gottfried Haberler, *Prosperity and Depression* (3rd ed., New York: Columbia University Press, 1946), p. 5.

added national income thus created. Railroads, coal, copper, electricity, street railways, oil, iron and steel, farm equipment, automobiles, movies, airlines, television, rayon, chemical synthesis, and natural gas, among many others, have all, in an unsteady succession, their growth interrupted by depressions, produced new investment opportunities. Each new industry has also brought with it heavy losses, and if the losses were subtracted from the gains, the percentage of national income garnered by the contributors to the stream of capital formation would probably be slight.

The long-term advance in national income and national product lays the foundation for advance in earnings, dividends, and market values. Short-term interruptions in these advances must also concern the investor, for the recurrence of booms and depressions is likely to continue. The investor must, therefore, adjust his investment policy and his portfolio to the inevitability of cyclical fluctuations imposed upon a pattern of long-term growth in the economy. He must watch the growth of national income, national product, and the expansion in job-creating industries (mining and manufacturing) in prosperity, and their decline in depression. He must master the concept of secular growth punctuated by cyclical disturbances.

The investment task, in its adaptation to cyclical changes, is much more than the sale of securities at high prices and their repurchase at lower prices. Each depression introduces some new influences that are favorable or unfavorable to many groups of securities. The advantages of investment liquidation in the midst of a business boom, with its rising prices, are substantial. They are sufficiently so to repay the investor's time in studying the phenomenon of cyclical declines as part of the expansion in the national income, the national product, and in industrial activity. Even more important, however, is the recognition that the long-term growth of the dynamic economy is the basis of investment values.

QUESTIONS AND PROBLEMS

1. What is the normal relation between disposable income and department store sales and earnings? Under what conditions would this relation not hold?
2. Why do investors follow carefully the estimates made by the Department of Commerce of current and future expenditures by businessmen for plant and equipment?
3. Population of the United States in the 1940's increased at a very rapid rate. What industries would be most immediately and favorably affected by this development?

4. In a period characterized by high prices, currently published data, let it be assumed, indicate that personal savings and corporate retained earnings are increasing, and that business expenditures for plant and equipment are high and are also increasing. Are these developments favorable or unfavorable to the purchase of securities for investment, and for what industries? Would the trends suggested by these data lead you to expect further inflation? Explain reasons.

5. Expansion is the normal characteristic of the American economy. Explain why this statement is of importance to the investor.

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PART II

Appraisal of the Industry

Chapter 3

EXPANSION AND DECLINE

Changing Importance of Basic Industries.—The secular rise in production, discussed in the preceding chapter, has facilitated a rising standard of living, i.e., an increase in the amount and variety of goods and services. This expansion in production, however, has not benefited all industries, nor has it benefited all industries equally. To start with, the rise in the standard of living has been normally accompanied by a change in the relative importance of various human needs. In consumption goods the importance of food and clothing in the scale of demand has decreased. Between 1899 and 1929, the percentage of production represented by food and clothing declined from 57.9 per cent to 43.6 per cent. In grain products, for example, flour consumption per capita in 1951 averaged about 135 pounds per year as compared with about 200 pounds fifty years earlier, but use of fruits, vegetables, and dairy products has increased. The trend in the per capita consumption of food between 1911 and 1945 is reflected in Figure 1.

Equally important changes have occurred in clothing. The use of wool for both women's and men's wear has declined, and the consumption of silk has all but disappeared.

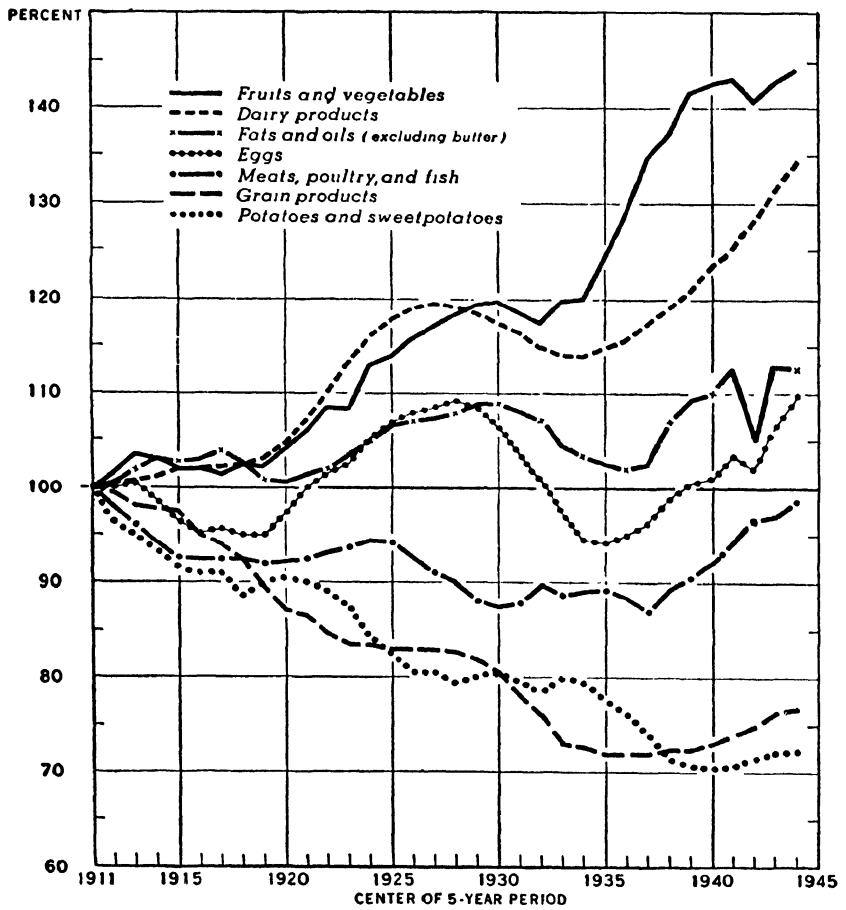
Meanwhile, in the last quarter century, two new giant textile industries have grown up. The rayon industry, starting almost from scratch in 1920 (though production started some ten years earlier in the United States) has, up to 1952, with the exception of a few depression years, regularly made new annual production records. Nylon, controlled by du Pont, has displaced silk in women's hosiery and has invaded many fields formerly occupied by other textile materials. An increasing variety of new fibers made by chemical synthesis are competing with clothing raw materials that have dominated the field for years.

Another industry whose record goes back to the earliest days of mankind is on the defensive. For a number of years products made of synthetic rubber and plastics have fought to replace leather in shoes. In 1949, it was estimated that, in one out of every three pairs

of shoes, this battle has been won by leather's competitors. The securities of the leather industry, having held for many years a high place in investment circles, have now fallen from grace. Leather's earning power has largely disappeared.

FIGURE 1

Trends in Per Capita Consumption of Foods, by Groups
5-YEAR MOVING AVERAGES (1909-13 = 100)



Bureau of Agricultural Economics.

The introduction of the electric motor in the household has given rise to another group of industries. The modern standard of living is closely associated with the use of electrically powered domestic accessories. Profitable investment values have emerged from the expansion in the use of these appliances. Perhaps the most sensationally profitable invention responding to a new concept in the

American standard of living is the automobile. The automobile industry supports a substantial part of the American business and investment structure. While it has destroyed large amounts of investment value, it has created more than it has destroyed. This industry, together with that of automobile accessories, is one of the most important outlets for steel. Producers of nonferrous metals, rubber, chemicals, electrical equipment, instalment finance, cleaning compounds, glass, textiles, and building materials and equipment depend to an important degree upon the automobile.

Another expansion record is revealed by industries responding to the demand for stimulants and sedatives. Even here there is a difference between industries. While the demand for cigarettes has expanded, the demand for cigars has declined. The demand for manufactured tobacco and snuff, after remaining stable for many years, declined suddenly in the middle 1930's. The earning power of this industry, because of this relatively slight decline, has been impaired, and dividends in the prosperous 1940's were reduced. But as if in compensation, the chewing-gum and soft-drink industries have rewarded the investor with reasonable returns through substantial rises in sales.

The shortening of the work day, made possible largely because of the electric motor and other mechanical media, has led to a great increase in leisure time. The demand for services to be utilized in such moments has stimulated the growth of many industries and products. Movies, outdoor sports, card-playing, club-work, lectures, and the cultivation of the fine arts have increased the size of many industries catering to these leisure-time activities.

Investment Consequences of Changes in Demand

This cursory sketch of fluctuations in demand is suggestive of investment consequences. Industry is not organized on the basis of supplying one primary need. There are specialized divisions, subdivisions, and still more subdivisions within an industry serving a primary need, such as food, clothing, shelter, transportation, amusements.

Consumer Goods.—The subdivisions of the food industry include packaged foods, foods in tin, glass, and fiber containers; frozen, canned, and fresh foods. Each food industry sells one class, although one company may perform a composite service. Competition between these various divisions of the food industry is intense. Packaged food competes with bulk; fruit juices with fresh fruit;

starches in the form of spaghetti and potatoes with manufactured cereals; corn sugar with cane sugar; soft drinks with hard drinks; and so on in endless variety.

In this competitive battle, some branches of the food industry have prospered and some have not. The packaged-food industry, represented by such companies as General Foods, Beechnut Packing, General Mills, Ralston, Quaker Oats, and Cream of Wheat, have done well, although Standard Brands, also a member of the packaged food industry, has not. The demand for fruit and vegetable juices has increased at an unusually rapid rate in recent years, at the expense, in part, of fresh fruits and vegetables. Frozen concentrated juices have sharpened the competition.

Similar differences occur in the textile industry. The cotton division of the industry has been adversely affected by declining demand, while the rayon industry, a major beneficiary of rising demand, has reported increasing earnings. The falling consumption of cotton is due also to competition from the paper industry. The increase in supply and the reduction in the cost of sulphate pulp has paved the way for the heavy increase in the output of heavy paper bags, particularly the multiwall products. Increased sales of paper towels, napkins and many other consumers' articles have been in part at the expense of cotton. Glass textiles represent another competitive threat to the future of the cotton industry. The high price of wool in 1950 and 1951 stimulated the progress of still another new textile—so-called synthetic wool. Yarn with wool-like qualities is in production by major chemical and textile companies. Such comparisons of expansion and decline characterize many consumer goods industries.

Capital Goods.—Similar trends have taken place in capital goods industries. Such goods are designed not for purchase by the ultimate consumer, but for the use of businessmen in making a profit to be secured by efficient production at low cost. The classification here presented will serve the purpose of distinguishing between industries in accordance with trends of demand. Such differences serve as the most important factor in producing profits in one group and losses in another. The classification of capital goods and services is as follows:

1. Metallic raw materials—ferrous and non-ferrous ores, iron, nickel, aluminum, copper, lead, zinc, gold, and silver. Many others such as beryllium, titanium, tantalum, and chromium are of growing importance for a number of uses.
2. Industrial fuels—bituminous coal, crude oil, and natural gas.

3. Synthetic materials—products produced by chemical processing from raw materials, such as salt, coal, oil, natural gas, lumber, limestone, air, and water.
4. Materials for construction—glass, wood, steel, ferrous and nonferrous metals, plastics, gypsum, and asbestos.
5. Machinery and machine tools—metal cutting tools, transmitting and conveying machinery, machines for specific industries, hydraulic presses, forging hammers.
6. Mechanical power—subdivided into steam, oil, and electric power.
7. The services required to make these operations possible—railroad, marine, and pipe-line transportation, electricity, telephone, telegraph, and building construction.

This classification is suggestive for the purpose of outlining trends in demand, but it is not all-inclusive.

METALLIC RAW MATERIALS. The demand for metallic raw materials has expanded in the last 150 years. The most important material is iron ore, which is used in the manufacture of steel. Between World War I and World War II, the demand for iron ore declined because of two factors. The first was the competition of scrap, and the second, the relatively heavy weight of iron. The extra weight meant waste in freight cars, locomotives, streetcars, and engines. Metallurgical research devised methods of lightening metals without sacrificing strength by mixing the iron with various alloys. There was a pronounced rise in the demand for light metals in airline, railroad, street-railway, and bus transportation. Savings in weight through the use of light metals paid and still pays off handsomely. To meet the competition of the lighter metals, the steel industry, threatened by loss of a part of its market, succeeded in introducing light-weight alloys, thereby diminishing the weight of the metal. Passenger cars, freight cars, busses, trucks, passenger automobiles, trailers, truck bodies, farm equipment, and dirt-moving equipment are now built with high-strength alloy steels. In many applications, three tons of high-strength steel are equal to four tons of ordinary steel. An important market for many alloys has, therefore, been found in the steel industry, and the trend of demand for alloy steel has been favorable.

World War II demands and the postwar reconstruction needs made a heavy draft on both ferrous and nonferrous ores. While the trend of the demand for these metals may be favorable, the investor must ignore neither the cyclical nature of demand nor the certainty of competition between the light-weight and the heavy-weight metals

and between all metals fighting for a given market on the basis of minimum cost and specific qualities.

INDUSTRIAL FUELS. Equally important as metal is the fuel that supplies both heat and energy. The age of steam was built upon coal, and until the end of World War I, coal showed satisfactory increases. Since that time, except for war and other short and nonrecurring interludes, the demand for bituminous coal has declined. Between the early 1920's and the middle 1930's, interest and dividends of leading companies were reduced or omitted, and a number passed through bankruptcy or receivership.

The demand for coal has been reduced by two factors. The first is the economy in coal consumption made possible by the use of such appliances as superheaters, waste-heat boilers, and boilers built with metals capable of withstanding severe temperatures and high pressures. Results are startling. Iron and steel plants in 1918 used 3,194 pounds of coking coal to make one net ton of pig iron, and only 2,708 pounds in 1949. In 1919, the power and light industry used 3.20 pounds to generate one kilowatt-hour, and only 1.17 pounds in 1951. In 1952, plants were built to produce a kilowatt-hour with 0.74 pound of coal. In 1919-20, the railroads used 170 pounds of coal to move 1,000 gross ton-miles, and only 114 in 1947.[1]

Technological improvements have been supplemented by the increasing competition of fuel oil, natural gas, and water power. Fuel oil and natural gas are carried largely by pipe lines, an industry characterized by a low percentage of labor to unit costs. Furthermore, while fuel oil and natural gas are also low labor-cost industries, coal production is a high labor-cost industry.

The rise in labor costs has thus favored the liquid fuel and natural gas industries at the expense of the solid fuel, bituminous industry. Between 1899 and 1949, accordingly, the proportion of the country's energy needs (in terms of standard heat units) supplied by bituminous and anthracite dipped, respectively, from 68.4 per cent to 35.9 per cent, and from 20.7 per cent to 3.4 per cent. Meanwhile, the proportion of natural gas rose from 3.2 per cent to 19.4 per cent; of petroleum from 4.5 per cent to 36.4 per cent; and of water power from 3.2 per cent to 4.9 per cent.[2] Between 1919 and 1948, the combined production of petroleum and natural gas increased fivefold, while the output of coal was about the same in both years.

Data of the Bureau of Mines disclose further that, on the basis of 1918 = 100, over the 1889-1949 period, the index number in 1949

[1] Department of the Interior, Bureau of Mines; *Minerals Yearbook, 1947*, p. 266.
[2] *Ibid., 1949*, p. 277.

for bituminous coal was 75; for domestic production of crude oil, 517; for natural gas, 798; and for water power, 221.[3]

The increase in labor and transportation costs in the postwar period has already reversed the favorable trend in demand for coal in the war years. The demand for natural gas, fuel oil and domestic heating oil, on the other hand, increased at an exceptionally rapid rate in the 1945-52 period.

SYNTHETIC MATERIALS. Synthetic materials produced with expensive capital equipment and from cheap raw materials have laid the foundation for the prosperous chemical industry. Its progress has been rapid in the last generation as one raw material after another has been brought into the commercial field. In the late 1930's petroleum was added to coal tar as a base for production of organic compounds, and the beginnings were laid for the industry that converts oil, natural gas, and oil-refinery gases, formerly wasted or used for fuel, into solvents, alcohols, acids, and numerous other products. This industry—dubbed petrochemistry—expanded sensationally in the postwar years. Between 1947 and 1950 the value of its output doubled, while in the 1940's the annual production rose from $350 million in 1940 to almost $2 billion in 1950. The doubling and even tripling of sales in these years was almost commonplace in the chemical industry: chlorine, synthetic ammonia, detergents, numerous plastics with strange and forbidding names, synthetic methanol and formaldehyde are only a few illustrations.

CONSTRUCTION MATERIALS. Chemical and engineering sciences have also stimulated competitive forces in construction materials. Here the pattern had long been standardized. Brick, wood, cement, steel, and wrought and cast iron were standard materials. But developments in the last two or three decades have impaired this interindustrial adjustment. Lumber and cast iron have encountered reversals in demand, and the securities of these industries have lost much of their value. Almost all of the important producers of heavy steel have added light steel products to maintain their earning power and the investment status of their securities.

Tonnage of gypsum products for lath and wall board between 1929 and 1952 more than tripled, with gypsum lath replacing wood. Plastic tile made from asphalt and synthetic resins, combined with asbestos fiber, is also finding numerous uses in the building industry. In some applications, glass blocks have been used, though the demand has not become particularly strong. The light materials,

[3] *Ibid.*, p. 16.

used so extensively for equipment, such as aluminum, nickel, and magnesium, are finding increasing uses in the construction industry.

MACHINERY AND MACHINE TOOLS. In the machinery and machine-tools industry, great changes have also occurred. These are the tools that convert raw materials into finished articles. It is difficult to set up suitable classifications for this complex industry. Distinctions based on mechanical lines would be useless for investment analysis. Various types of equipment made in a similar mechanical manner and with the same efficiency show different trends of demand. Some equipment is made for particular industries, such as coal mining, railroad transportation, printing, pulp and paper, and chemical industries. These industries show widely different demand trends. For investment analysis, it is, therefore, essential to use classifications that disclose favorable and unfavorable demand trends.

One fundamental branch of this industry is machine tools. The production of almost all equipment is based upon the accuracy and speed with which metal can be cut into proper size and shape. Machine tools are sold almost entirely to industry, and businessmen usually buy them only when funds are available and prospects of profits are favorable. The machine-tool industry is in the van of the march of industrial progress. It is constantly producing new products designed to cut unit costs, to increase labor productivity, and to eliminate waste. The demand for tools, nevertheless, is highly cyclical. The earning power of the industry is, therefore, unstable, and few machine-tool securities are successful candidates in the field of investment values.

MECHANICAL POWER. Steam long monopolized the field of power. In the 1930's, there was an extensive change to Diesel power, particularly for railroad switching and farm tractors. The 1940's were characterized by a further, far-reaching diversion from steam to Diesel power, for railroad freight and passenger transportation.

Electrical power, developed on a small scale in the 1880's, has advanced sensationally. In competition between steam, electrical, and internal-combustion equipment, steam, generally, has given way, having almost collapsed in the railroad industry. For electric light and power, steam equipment is useful only as far as it is complementary to electric equipment. In many other industries, steam is still used for industrial processing, though in many lines, steam and electric power are joint products. The growth of electrical power has laid the foundation for the prosperity of equipment producers, such as General Electric and Westinghouse Electric.

The internal-combustion engine, both gasoline and Diesel, has found an increasing use in a large variety of expanding industries, such as natural-gas and oil pipe lines, tractors, earth-moving shovels, and so forth.

The specialized-equipment industries reveal a trend of demand derived from the demand for products and services for the industries to which they sell. There is little that an equipment industry can do to reverse the trend of demand if the demand for the products of the equipment-using industry is unfavorable. Perhaps the leading example of this relationship is the reversal in the fortunes of the railroad-equipment industries. Most of its securities are listed on the New York Stock Exchange, and in the depression of the 1930's, every major company with a bond outstanding in 1929 encountered financial difficulties.

SERVICE INDUSTRIES. In the field of services, the expansion in the demand for electricity has been accompanied by a decrease in the demand for railroad transportation. In the nineteenth century and in the first quarter of the twentieth century, the steam-railroad industry enjoyed a monopoly in the land movement of coal and bulky raw materials, such as wheat, ferrous and nonferrous ores, iron, and steel. The railroads had an almost equally strong position in the movement of fabricated and finished goods.

Various forces, such as industrial decentralization, hydroelectricity, transmission of energy over long distances by wire, thus replacing coal movements in railroad cars, increasing competition of liquid against solid fuels, and the widespread use of the truck, bus, and passenger automobile, as well as the more recent development of airline transportation, have reduced the demand for railroad transportation service. The demand for other forms of transportation, meanwhile, has expanded.

Demand Trends and Investment Values.—This cursory sketch of expansion and decline in the major industries provides sufficient background to confirm the conclusion that changing trends of demand underlie long-term investment values. Increasing production lays the foundation for increasing profits. The rise in sales dilutes the increasing overhead, and overhead is a constantly rising factor in American industry. Capital equipment necessary to reduce labor costs carries a fixed overhead, such as interest, maintenance, depreciation, and salaries for skilled and professional personnel. Social security funds and appropriations to special welfare insurance funds are on the increase. The break-even point, the point in the percentage of capacity operation of a plant at which, at a given price and

cost structure, the company covers its expenses, steadily increases. (See Chapter 13.)

For an industry to operate at a profit under such conditions, it is essential that the demand increase, so that plants can operate at a higher percentage of their capacity. In an industry thus favored by expanding demand, the overhead declines per unit of output, while in a declining industry suffering from a declining demand, the overhead per unit of output increases.

This process moves largely in one direction, through steady expansion, stabilization, decay, and decline. It rarely reverses itself to move from decay to expansion. The cycle of action and reaction does not apply here. In a period of expansion, a declining industry may have an increase in demand. It is, however, less than the increase in the demand for goods and services of all industries or for the goods and services of a competitive expanding industry.

Growth and Decline in the Pioneer Stages.—Industries in the earliest periods of their expansion record exceptionally rapid progress. Numerous divisions of the chemical industry, such as nylon, plastics, phenol, synthetic nitrogen and synthetic resins, for example, have grown in recent years at rates more rapid than the increase in population, industrial production, or demand for consumers' goods and services.

Many basic industries that have long lost their power of expansion and whose profits and dividends have not increased, were, in the heyday of their progress, leading expanding industries. Looking back to 1897, for example, informed opinion could state that, in the preceding 30 years, the per capita consumption of sugar had more than doubled.[4] Ten years later it was observed that the rate of annual increase in the street-railway earnings was close to 10 per cent.[5] The electric railway, first developed in the middle 1880's, enjoyed a rapid expansion in the following two decades. Between 1902 and 1912 this industry more than doubled its miles of track.

The spirit that characterized the expansion in the steam-railroad industry, the largest of all expanding industries in the nineteenth and early twentieth centuries, is well illustrated by the remark of a railroad man that a railroad must always be conceived as a going affair. There must be nothing stationary in the conception of the plant except the depot.[6] It is significant to observe the judgment of a Philadelphia banking house, in 1909, in regard to the progress of one of the nation's leading railroads. The business of the Pennsyl-

[4] *Bradstreet's,* July 3, 1897, p. 419.
[5] *Ibid.*, Aug 10, 1907, p. 501.
[6] Quoted in the *Wall Street Journal,* cited *ibid.,* Nov. 12, 1895.

vania Railroad, observed this banker, at a minimum calculation doubled every ten years, and in the decade before the Panic of 1907, it had increased more than 150 per cent.[7]

Andrew Carnegie, in 1908, made a similar observation regarding the coal industry. Coal consumption, he declared, was increasing at an astonishing rate. "During the period for which statistics have been gathered it has doubled in each decade; of late it has more than doubled." Carnegie then entered the realm of prophecy. Based upon statistical records, he predicted that in 1937 coal production would exceed 3.5 billion tons.[8] In fact, the production of coal in 1937 was 85 per cent less than the amount predicted by Carnegie The coal industry had lost its power of expansion.

Measuring Growth and Decline in Competitive Industries

It is apparent, then, that an important tool in the hands of the investor is his skill in analyzing the ability of a company or an industry to expand. At least three methods of analysis have been evolved, and it will be seen, upon further study, that each tends to complement the other. Probably no one method alone is sufficient for the purpose of investment analysis, but when used in conjunction with the others, it will round out the details of a company's or an industry's potentialities. The three methods discussed here are:

1. Comparison of percentages of business done by competitive subindustries with a basic industrial grouping.
2. Comparison of expenditures for goods and services with disposable income, in consumer goods and services industries.
3. Comparison of the index of industrial production with sales trends of capital goods.

Percentages of Business of Subindustries.—The existence of expansion can frequently be revealed by a comparison of the percentages of business done by competitive subindustries within a basic industrial grouping. For example, in the common-carrier, passenger business, the railroads have rapidly fallen behind. Between 1929 and 1950, the percentage controlled by railroads declined from 74.9 per cent to 47.7 per cent, while the portion carried by airlines increased from 0.3 per cent to 13.9 per cent; and by busses from 21.1 per cent to 36.3 per cent.[9]

[7] Edward B. Smith & Co., "Probable Effect of the Opening of the New York Terminal of the Pennsylvania Railroad Company on the Company's Stock," 1909.

[8] Cited by Dr. William Otis Hotchkiss, President, Michigan College of Mining and Technology, reported in the *New York Times*, Mar. 23, 1935.

[9] *Bus Facts* (Washington, D. C.: National Association of Motor Bus Operators, 1951).

In intercity freight traffic, trends adverse to railroads can also be discerned. Table 3 shows freight movements by types of carriers from 1939 to 1950. The expansion of the railroads' share in the war years was due to nonrecurring factors, and in the following years of peace, its proportion dropped to sharply lower levels. Automobiles (highways) and pipe lines are gaining, in part, at the expense of the railroads.

TABLE 3

RELATIVE SHARES OF INTERCITY FREIGHT TRAFFIC, PUBLIC AND PRIVATE, BY KIND OF TRANSPORTATION. (RAILWAY-REVENUE TON-MILES AND COASTAL AND INTERCOASTAL TON-MILES ARE EXCLUDED, BUT HIGHWAY TON-MILES OF PRIVATE CARRIERS ARE INCLUDED.)

(Per cent of total ton-miles)
1939-50

Year	Railways *	Highways	Inland Waterways †	Pipe Lines	Airways
1939	64.26	8.33	16.86	10.55	‡
1940	63.36	8.36	18.38	9.90	‡
1941	64.72	8.50	17.59	9.19	‡
1942	71.08	5.36	15.29	8.27	‡
1943	72.79	4.60	12.91	9.69	0.01
1944	70.19	4.45	12.87	12.48	0.01
1945	68.90	5.33	13 14	12.62	0.01
1946	68 64	7.33	13.11	10.91	0.01
1947	67.55	7.92	13.82	10.69	0.02
1948	64 39	8.72	14.97	11.90	0.02
1949	60.60	10.60	15.80	13.00	0.03
1950(§)	58 70	12.40	16.20	12.70	0.03

* Steam and electric, including mail and express.
† Including Great Lakes.
‡ Less than 0.005 per cent.
§ Preliminary.
Source: *Volume of Intercity Freight Traffic, Public and Private, by Kinds of Transportation, 1939-49.* (Washington, D.C.: Interstate Commerce Commission, Bureau of Transport Economics and Statistics, Sept., 1950; 1950 data from *Monthly Comment,* Oct. 12, 1951, published by same source.)

An instructive illustration can be taken from the paper industry. There are many divisions in this line. One comparison can be made between book paper and sanitary paper, including napkins, cleaning, toilet, and facial tissues. While the per capita consumption of book paper advanced from 23.4 pounds in 1939 to 34.1 pounds in 1950—an increase of 46 per cent, the per capita use of sanitary paper moved 97 per cent, from 7.4 pounds to 14.6 pounds, in the same period.[10]

An interesting variation is disclosed in the farm equipment industry. There is, in this industry, a trend toward mechanization due

[10] August Research Corp. release, *Kimberly Clark Corporation,* Aug. 9, 1951.

largely to the increases in farm labor costs. Retail sales of farm implements, as compiled by an authoritative trade source, advanced from less than $400 million in 1935 to almost $2 billion in 1948. After allowing for price increases, the expansion in physical production exceeded the increase in production in the national economy by a wide margin. This sales expansion was closely tied in with the fluctuations in farm income. In fact, the percentage of implement sales to farm income was slightly less in 1948 than in 1945, for example, but the dollar sales were greater because of the great expansion in farm income.

The growth in the fertilizer industry is similarly measured in terms of its relation to farm income. Between 1929 and 1950, total fertilizer consumption, in tons, based on an index 1930-35 as 100, increased from 109 to 247, and in dollars from 139 to 351.[11] There is a reasonably close correlation between farm income and outlays for fertilizers. Cash farm income over the same period and on the basis of a similar index rose from 133 to 328. The investor in the securities of this industry accordingly watches farm output and price trends.

Comparison of Expenditures with Disposable Income.—A significant picture of expansion or decline may be drawn by comparing, over a long period of time, the expenditures for the goods or services of an industry with the disposable income. The fact that a change in percentage of a dollar-figure expenditure may reflect unusual price fluctuations opens this relationship to criticism. But in conjunction with other measurements of demand, such a comparison is, indeed, useful to the investor. It may be noted that this means of measuring demand is concerned largely with consumer goods and services industries.

A stimulating contrast of industrial growth in relationship to disposable income is afforded by the ethical drug industry, which manufactures drugs for hospitals, laboratories, and the medical profession. A period of rapid growth based upon revolutionary medical findings was begun in the middle 1930's. Late in that decade and in the 1940's, many new drugs of great benefit to mankind were introduced. These include penicillin, streptomycin, the sulpha compounds, terramycin, and aureomycin, among others. Between 1939 and 1947, shipments of ethical drugs, according to Census figures, increased from $149 million to $508 million. The expansion is revealed further by a comparison of the growth of major ethical companies with that of disposable income and retail drug sales. On the

[11] *Ibid.*, release, *Davison Chemical Co.*, Apr. 10, 1951.

basis of the index number 1936-39 = 100, the relative rise is shown in Table 4.

TABLE 4

SALES TRENDS OF LEADING ETHICAL DRUG COMPANIES AS COMPARED WITH DISPOSABLE INCOME AND RETAIL DRUG SALES, 1936-51

(1936-39 = 100) *

Year	Disposable Income	Retail Drug Sales	Merck & Company	Abbott Laboratories	Sharp & Dohme
1936	97	95	88	81	99
1940	111	110	148	135	121
1947	248	246	427	622	316
1949	274	242	460	705	406
1950	300	244	580	765	440
1951	327	300	754	880	475

* Based upon data of Argus Research Corp.

It is probable that, in the postwar period, both retail drug sales and sales of ethical drug companies underestimated the actual expansion in physical units. While price inflation increased the disposable income, retail drug prices remained stable and prices of ethical drugs declined.

Another enlightening experience is revealed by growth in retail sales in general merchandise fields. Between 1929 and 1948, disposable income, on an index of 1935-39 = 100, increased from 125 to 288; the sales of department stores according to the Federal Reserve Board index, which is a 70 per cent sample of the industry, advanced from 117 to 302. The department store figures, as published by the Federal Reserve Board and the Department of Commerce, however, do not separate the sales trend of the metropolitan department store chains and the decentralized units, such as Sears, Roebuck; Montgomery Ward; J. C. Penney; and Mercantile Stores, which sell more extensively on a price-appeal basis, with slight emphasis on service. A breakdown of these figures, made by one of the investment services, shows that, in contrast with the increase in department store sales, as above, the sales of the two leading chains, Sears, Roebuck and Montgomery Ward, advanced from 76 to 387. A further analysis of the trend in the sales of these two stores discloses that, while their mail order sales rose from 111 to 207, their store sales moved up more sharply from an index of 50 to 454.[12] The growth of these two chains arises from a set of influences that favor decentralized retail, as contrasted with centralized, metropoli-

[12] These figures are based upon an analysis in Argus Research Corp. releases, *Sears, Roebuck,* Feb. 1, 1949, and *Outlook for Department Stores,* Aug. 18, 1948.

tan merchandising. Traffic congestion, high taxes, and high service costs of the latter have favored the growth of the former.

The more favorable sales trend of the decentralized chains is paralleled by similar trends in earnings, dividends and market values. The financial growth of Sears, Roebuck, J. C. Penney, and Montgomery Ward in the 1940's is outstanding in the field of investment securities. Both the sales and earnings of the conventional department stores, meanwhile, have presented an unexciting record. The World War II and early postwar boom was punctured by the thrust of competitive realities in 1948 and later years.

For some industries, a more refined concept of personal spendable income than that afforded by disposable income is necessary. There are some luxury or semiluxury industries whose goods or services are bought only after provision is made for necessities and personal overhead expenses. Carpets and rugs, distilled spirits, and musical instruments are illustrations. To aid in the measurement of buying power for the output of such industries, the concept of "supernumerary" income has been devised. From personal disposable income there are deducted expenditures for consumer essentials (such as food, clothing, gasoline) and for consumer services (such as rent, public utility charges). There are also deducted down payments, as well as debt installments, on durable goods (homes, automobiles, and domestic appliances). The balance is available for expenditures on luxury consumer items.

The sales of such goods and services fluctuate over a wider range than is characteristic of other consumer items. A marked expansion of personal income between 1943 and 1946, for example, at a time when many durable goods were unavailable and when installment debt payments were low, led to a heavy sales increase of distilled spirits. In the following three years, durable goods became available, down payments and debt installment payments increased, and living costs rose. So, even in the face of rising personal incomes, expenditures for distilled spirits declined.

Comparison of Production Index with Sales Trends.—The investor may acquire considerable insight into the relative growth of many consumer goods industries by comparing the trend of disposable income and of supernumerary income with the sales trends of particular industries, as in the foregoing section. But the standard of disposable income cannot well be used, however, in capital goods industries. Production is irregular, and a stable and even a slightly rising trend of disposable income might be accompanied by a decline in industry income. It is, therefore, more realistic to con-

sider the growth trend of a capital goods industry in terms of the trend in general industrial production. (The latter is frequently measured by the Federal Reserve Board Index of Industrial Production.)

A notable illustration of rapid expansion in the field of capital goods industries is afforded by the chemical industry. Between 1923 and 1947, for example, an index of chemical consumption (with 1935 as a base) shows a rise of 340 per cent, compared with a rise of the F.R.B. Index of Industrial Production of 113 per cent (1935-1939 as a base). In the past quarter century, furthermore, this industry's annual growth has averaged 10 per cent, compared with about 3 per cent for all industry.

In a general rise of production, the output of almost every major industry rises, and in the midst of such an expansion, unwary investors frequently purchase the securities on the basis of what appears to be a favorable trend, reversing one formerly unfavorable. By comparing the increase in production of a capital goods industry with the increase of an index of general production, the existence of growth or decline may be more effectively spotted. One useful device that can be employed in an industry producing a standard good or service is to relate production in an industry with a unit in the Federal Reserve Board Production Index. For example, a comparison of railroad ton-miles per each point on the F.R.B. Production Index shows some advance during the World War II and early postwar years, followed by a renewal of the long-term decline in 1948, 1949, and 1950. In 1936, there were 3.29 billion ton-miles for each point in this Index, and strange as it may seem, in the face of the expansion of railroad traffic in the war, there were only 3.14 billion ton-miles in 1944. The top postwar figure was reached in 1947 at 3.50 billion ton-miles, followed by a drop to 2.94 billion in 1950, a decline of 16 per cent.

The growth of the electric light and power industry, on the other hand, is disclosed in the increase in kilowatt-hour sales—the sales unit in this industry—in relation to the F.R.B. Index. The expansion of the industry in terms of the national economy is reflected in the increase in kilowatt-hour sales by the electric utilities per point Index of Production from 1920 to 1950. In the postwar years between 1945 and 1950, for example, industrial power sales by these utilities advanced from 530 to 695 million kilowatt-hours per such F.R.B. unit.

The rise in labor costs in the past decade or so has promoted the rapid expansion of those capital goods industries manufacturing

mechanisms capable of reducing labor costs. Moving-material equipment, business machines, coal equipment, and automatic equipment for canning and preserving are examples of industries that have expanded at a rate exceeding the increase in industrial production.

Basis for Growth in Capital Goods Industries.—The basis for expansion in the capital goods industries is continuous technological progress, resulting in lower costs and improved quality. The theoretical end of this progress is the attainment of an irreducible minimum of unit costs. Until that ideal is reached, technological changes will continue. In every industry, there is a constant succession of more or less minor changes. These detailed modifications cause little concern to the investor. Able management, supported by an ample supply of funds, can introduce these mechanisms as they become available. It is the revolutionary technological innovations that are of such concern to investors. Numerous mechanical changes characterized the hand rolling of steel, but only the perfection of the continuous rolling mill in the middle 1930's made the hand-operated mills obsolete.

In oil refining, catalytic cracking replaces thermal cracking, thereby enabling the industry to make gasoline at lower cost. In paints until the early 1930's, natural products dominated the drying oil and resin fields. Since then, synthetic resins have conquered the field. A new hydrocarbon synthesis, based upon a German process developed in 1925, extracts gasoline and many chemicals from natural gas, and the same technology promises to extract the same products from coal. These are only a few examples. Technological progress is a normal feature of American industry.

The mechanical improvements of concern to the investor are those that supersede other mechanisms and other industrial processes. They are the technological changes that replace existing industries and build up new ones. Once a technological improvement builds a new industry, it sets up a pattern within which many other industries develop. Passenger automobiles, motion picture production, chemical synthesis, aircraft, telephone, electricity, natural gas, electrical refrigeration, radio, and television are illustrations of new basic industries. Other industries develop to produce accessories or to utilize the new equipment to produce services.

Basis for Growth in Consumer Goods Industries.—Still other industries, mostly in consumer fields, expand in response to deep-seated social and institutional forces that are difficult to trace. Frequently, the underlying forces cannot be observed even after the

growing industry has declined. It must be a difficult sociological task, for example, to explain the increase in consumption of snuff in the early years of the century, the subsequent stability, and the gradual decline begun in the middle 1930's. Snuff companies which paid stable dividends in the depression of the 1930's reduced their dividends in prosperity. It was equally difficult for investors to locate the forces that led to the rapid growth of the restaurant habit and to the rise of the soda fountain, with its benefit to the fortunes of the ice cream industry. Reasonably exact standards to explain the growth of such consumer goods industries probably cannot be set up. Observation here takes the place of explanation.

Expansion and Contraction in a Dynamic Economy.—Expansion and contraction characterize a dynamic economy. The rate of growth of one industry may exceed the average rate for all goods and services. In prosperity its growth is more rapid, in depression it declines less rapidly. This dynamic quality highlights the differences between industries in the field of capital goods, and between industries in the field of consumer goods. In depression, declining consumer goods industries, such as leather or flour milling, will perform better than expanding capital goods industries such as nickel or aluminum.

Expansion in production and demand does not, by itself, create investment values. Expanding industries do, however, have a notable advantage. "We are fortunate in our business that we always have demand," said the chairman of the Texas Corporation, at an annual stockholders' meeting. This statement is eloquent in its simplicity and reveals the truth in a flash. Rising demand gives the expanding industry the opportunity to earn a profit. An expanding industry may, through unwise price reductions, lose this opportunity. Companies, through unwise management and inability to obtain supplies of capital, also may not be successful.

The expanding industry, however, has the overpowering advantage of expanding demand. With this in its favor, an industry can overcome many disadvantages, such as high break-even points, high taxes, and rising labor and construction costs. In many cases, rising demand can even absorb losses from improvident management, for expanding demand is the foundation of investment success. With demand, industry has the foundation for earnings. The investor in an industry with rising demand has a chance to succeed. The investor in an industry with declining demand is handicapped and finds it difficult to avoid a loss.

QUESTIONS AND PROBLEMS

1. Examine the basic factors accounting for the variations in the pattern of demand. Contrast the differences between the determinants of the demand for producer and consumer goods.
2. What effects may the following factors have upon the pattern of demand (1) in consumer (goods and services) industries; (2) and in capital (goods and services) industries.
   a) Television
   b) Shortened work week
   c) Changes in the age composition of the population
   d) Movement of population to the suburbs and to the outlying sections of the city
   e) Synthetic fibers
   f) Extensive air-conditioning installation in homes and industry
   g) Atomic power
   h) Frozen foods
   i) Socialized medicine
   j) Movements of industry closer to its raw materials
   k) Continuous increase in wage rates per hour
   l) Extensive increase in reserves of natural gas

READINGS

See Chapter 5.

Chapter 4

THE INDUSTRIAL LIFE CYCLE

Pioneering Stage in Growth of an Industry.—Every industry has a life cycle. In its early stage, demand expands rapidly. Opportunities for large profits are numerous. Venture capital enters the field. Competition normally, though not always, is rife. As a rule, business mortality is high, surviving corporations lay the foundations for success. There is no rule, however, to guide the investor in the selection of a successful company in this early industrial stage. Nor is there any rule to enable him to determine its length.

In almost every American industry, this beginning period is characterized by hard competition, slashing price reductions, and heavy losses, followed later by the emergence of a relatively few successful enterprises. Standard Oil, Carnegie Steel, Westinghouse Electric, General Electric and American Tobacco, organized at various times in the last three decades of the nineteenth century, emerged into solid concerns in the midst of a financial wreckage within their respective industries. Price-cutting toward the end of the 1860's brought the oil refining industry to the brink of insolvency. John D. Rockefeller, in buying out his competitors, created a monopoly for Standard Oil. Andrew Carnegie in steel, on the other hand, succeeded with a policy of price-cutting based on efficient administration and low unit costs.

Westinghouse Electric, under the leadership of George Westinghouse, established its position on the basis of still a different pattern. Rapid expansion was here accompanied by poor financial administration, and a quarter century of leadership finally culminated in receivership and the loss of control by Westinghouse. It was several years before the securities of that company were considered attractive for investment. General Electric traced still another pattern. Organized as a consolidation of other companies in 1892, it almost immediately fell into financial difficulties, only to be saved by a combination of sound corporate management and financial practices under the leadership of J. P. Morgan.

Stage When Securities May Be Bought. In the pioneering stage of expansion, the industry thus may record large profits and

suffer heavy losses. Here the investor has no place, for this is the opportunity for the venture capitalist, or, as he is more popularly known, the speculator. Though it is easy to observe that securities must not be bought in the pioneering stage, the rule is difficult to apply. No one knows with certainty, on the basis of any principle laid down by reasoning or experience, that the pioneering stage has been passed.

Some general observations may, however, be made. The passing of the pioneering stage and the arrival of the period when securities may be bought for investment may be generally described as follows: By consolidation and internal expansion a relatively few companies control a large percentage of the business. They establish a strong financial position. Their working capital is adequate, and their supply of cash, and of assets convertible into cash, is also adequate. They have sound financial structures. They have no debts, or their debts are relatively slight. They have an established dividend record. They have paid dividends in one or, better, in two depressions, or, as the more modern economists would have it, in "recessions or disinflations."

The arrival of this period of industrial growth is, however, subject to no rule and must be determined by the investor on the basis of observation and judgment. It is necessary to reach a conclusion at one and the same time about the industry and the corporation.

A large number of automobile manufacturing companies battled for leadership in the 1920's. By the early 1930's, only three major concerns survived. One of these was Chrysler, the outgrowth of an unsuccessful company burdened with a large bond issue. Incorporated in 1925, it staged a rapid and successful expansion. In 1926, however, from the standpoint of past dividend records, earnings, financial strength, and financial structures, Hudson Motor, Pierce Arrow, Packard, Studebaker, White and Nash, among others, enjoyed preferential positions. None of these companies succeeded in building up an investment position, and of the group of publicly owned companies at that time, only General Motors and Chrysler remain as investment survivors. The others went into bankruptcy, were liquidated, or operate on low profit and dividend-paying levels.

It was not possible in the middle 1920's to decide definitely that the industry had passed from its pioneering stage to a status of investment stability. The expansion and earnings of General Motors and Chrysler came largely between 1927 and 1929, and investors buying stocks at that time had heavy market losses on their hands by 1932. Nor was it possible for investors to protect themselves against market fluctuations as they did in the railroad and electricity

industries through the purchase of bonds. The successful companies in the automobile industry issued no bonds; those that did fell upon evil days.

The early difficulties attending investment in an expanding industry were again illustrated by the air transportation industry in the 1940's. By 1946, the airlines had behind them a record of exceptionally rapid expansion and of excellent service. Until the postwar period, the industry had financed its requirements from the sale of common stock and by the use of earnings. Stock prices had advanced in spectacular fashion to the normal accompaniments of speculative excitement, stock dividends, and stock splitups. This exhibition of growth in sales and in financial resources attracted conservative investors, including a number of investment institutions. The industry thus found for the first time a receptive market for its senior securities. Trans World Airlines sold $40 million of debentures to Equitable Life Insurance, and American Airlines sold $40 million each of debentures and of preferred stock at yields exceptionally low for an untried industry, still unseasoned by the severe test of a business depression.

Smaller companies, like the Pennsylvania-Central Airlines (now Capital Airlines), in the wake of an exceptionally rapid expansion program, succeeded in inducing the investing public to buy $10 million of a novel financial hybrid in the form of an income debenture bond. Income bonds had, for many years, been created in the process of the reorganization of insolvent corporations, and they had been secured by a lien on the borrower's property. Manuals on corporation finance define an income bond as a conditional promise to pay, dependent upon the company's earnings, and secured by a mortgage lien. In 1946, however, so strong was the confidence in the strength and stability of the earning power of this pioneer industry, that the company was able to sell for cash a large bond issue with no mortgage lien and with a conditional interest coupon.

In two years, the earnings of the expanding airline industry suffered a serious collapse. Between 1945 and 1947, sales of five leading carriers increased by about 60 per cent. Capacity, measured by seat-miles, rose by an even wider margin. Hence, the passenger load factor, expressing the percentage that utilized capacity is of total capacity, dropped from 89.33 per cent in 1945 to 80.33 per cent in 1946, and to 66.94 per cent in 1947. Prices of the industry's common stocks dropped about 75 per cent. Penn-Central Airlines passed the interest on its debentures and many of the common stocks passed their dividends.

What company will succeed in building up a strong earning and dividend-paying record, thus justifying the purchase of its stock for investment purposes, only the future can tell.

New and spectacular industries are booming in the 1950's. A recent one to fire the imagination is the television industry. More than 100 companies, in 1952, participated in its growth. Most of the business has already been captured by a relatively few concerns. A number of financially powerful companies are fighting for a share of the business, including such well-established enterprises as the Radio Corporation of America, Crosley Radio, Zenith, Philco, General Electric, as well as a number of more recently established concerns, such as Motorola, Admiral, Farnsworth, Magnavox, and Dumont Laboratories. Investment analysis furnishes no standards and formulates no rules to enable an investor to select the successful companies from this host of rivals.

Causes of Losses in Pioneering Stages. The difficulty of separating the good from the bad, of selecting the successful amidst a host of competitors, must be ascribed largely to the persuasiveness of competitive forces. The lure of high profits attracts personal ability and risk-bearing capital. Industrial capacity increases rapidly in reflection of rising demands. Each management makes its own estimate of the relationship between rising supply and rising demand.

It is difficult and, in most cases, impossible (aside from legal considerations) for managements in the pioneer stages of rapid growth to agree to restrict production in order to stabilize the price structure. Efforts to achieve such results have characterized American business history. The failure of such attempts led to the successful effort of Rockefeller, in the 1870's, to monopolize the oil refining industry. A period of about a quarter century of repeated attempts to produce stabilization met with failure in the railroad industry. Pools and other cooperative arrangements in the steel industry were destroyed largely by the business genius of Carnegie, whose lower costs enabled him to underbid so many of his competitors.

In the early stages of the growth, neither technology, individual skills, nor consuming markets are standardized. Management is not willing to surrender any competitive advantage in order to help the industry as a whole. A better product or a superior skill is retained as a business secret.

Furthermore, the rapid increase in capacity normally, though temporarily, outruns the available market. This may result from the saturation in the demand for the product at a given price level,

from a temporary recession in general business, or from the development of new models or new products that may reduce demand for the goods of other producers. For these and other reasons, the earning power of an industry in its pioneering stage is usually disturbed by price wars. In a free competitive market, subject to little or no restraint by agreement or otherwise, prices tend to drop to a point barely exceeding unit costs, and frequently to a level even below that necessary to enable the industry to reimburse itself for its fixed costs.

The passing of the pioneering period and the arrival of the stage of industrial growth in which investor purchase is justified suggests no static demand. Investment maturity is not synonymous with industrial maturity. Indeed, industrial maturity, the period of slow expansion or no expansion at all, as envisaged by the depression-born school of economic theorists, is a sign of investment danger. In the stage of investment maturity, the expanding industry moves forward. Every cycle of business growth is characterized by an upsurge in demand and by expansion in plant capacity. And at almost every stage of renewed demand, voices are heard that the market has been saturated and that the industry is overexpanded.

Repeated Expansion Stages and Saturation.—Repeated expansions to overcome shortages characterize the growth of every industry. In the early 1870's, there was a shortage of railroads. In the upsurge of 1879-81, a shortage of coke, iron, and steel rails sent prices soaring. In 1899-1901, shortages again appeared in railroads, iron, steel, street railways, and telephones. In the expansion that terminated with the panic of 1907, a writer looking back at the record in the previous decade observed that anyone who had predicted that world production of copper would have doubled in a decade, "would have been deemed unduly optimistic." [1] The industry, by that time, had long passed the pioneering stage, but the increased use of copper for electrical equipment, engineering, and shipbuilding had led to an unprecedented demand.

At about the same time, another writer referred to the repeated expectation of the arrival of the saturation point in the telephone industry. Those predictions by that time had already been belied by results.[2] The arrival of the saturation point in the automobile industry has been prophesied repeatedly and has even had the benefit of scientifically accurate approval.[3]

[1] *Bradstreet's,* May 12, 1906, p. 291.

[2] Frederick W. Coburn, "Telephone Development in the United States," *Atlantic Monthly,* November, 1905, pp. 644-50.

[3] See, for example, Harold T. Davis, *Theory of Econometrics* (Bloomington, Indiana: The Principia Press, Inc., 1941), p. 234, that the saturation level in the automobile industry has been reached.

In the electric light and power industry, the president of a major company examined the saturation point in 1951.

> ...I see no ceiling on residential service. I can remember when a customer averaged around 500 or 600 [referring to kilowatt-hours consumed per year] and people thought that if we reached 1,000 that would be the end. Then we attained 1,000 and some people in our industry talked about 2,000 being a ceiling. The national average is something like 1,800 or 1,900. In our own corporation, we are up in the neighborhood of 1,800 and 2,300.[4]

The list of industries whose market appeared to have reached the saturation point in the opinion of contemporary observers could be greatly lengthened. A curious illustration appeared in the early 1930's. After the repeal of the Prohibition Amendment, there was a belief that, in view of the approaching competition with distilled liquors and beer, the market for soft drinks would diminish. There was considerable investor selling of Coca-Cola stock. A rapid upturn in demand began in the middle 1930's, caused largely by the opening up of the home market through the introduction of the six-bottle package and the installation of bottle-vending equipment. The company's earnings and the market value of its stock registered substantial gains in the following fifteen-year period.

There are some industries in which the saturation of the market can be measured. A leading example is afforded by the modern "A B" railroad brakes. These new brakes are so superior to the old ones that the Interstate Commerce Commission ordered the railroads to install the new brakes on *new* freight cars, with time limitations on *existing* ones. The market for brakes on existing freight cars can be determined, and in the standardized railroad industry, the number of new cars built can be ascertained with only slight margin for error.

In most industries, however, the limits to a market cannot be accurately measured, though the managements of and the investors in the industry are almost continuously engaged in making such efforts. An example of such an estimate in the steel industry is afforded by a study made in 1951 by Lionel B. Edie & Company, an investment counseling and statistical organization. Pertinent extracts from this study follow:

> The purpose of this study is to comment briefly on the probable influence of at least three important forces on the post defense outlook for the steel industry. Businessmen, in the postwar period, have become aware of these forces which consist of (a) a vigorous growth trend

[4] *Analysts Journal,* second quarter, 1951, p. 47.

in population, (b) an unusually high rate of new family formation, and (c) a pronounced upward shift in the distribution of our national income. [The data on (c) are omitted.]

Keyed to peak industrial boom years of the past two decades are significant figures showing the approximate changes in population, new family formation, the civilian labor force and the total employed persons. In the years 1946 through 1951, family formation increased at a faster rate than in the two preceding periods aggregating 17 years.

	Approximate Increase							
	1929-1937		1937-1946		1946-1951		1946-1954	
	Millions	Per Cent	Millions	Per Cent	Millions	Per Cent	Millions	Per Cent
Population	7.0	5.8	12.6	9.8	12.8	9.0	20.0 E	14.1 E
Number of families	4.1	14.0	4.8	14.2	6.6	17.3	9.3 E	24.4 E
Civilian labor force	4.8	9 8	2.5	6.5	6.5	11.3	9.1 E	20.5 E
Total employed	1.3*	2.8*	8.9	19.3	6.7	12.2	8.8 E	15.8 E

* Decrease.
E = estimated.

Since most consumer durable goods are family purchases, the expanding capacity of the steel industry might well be viewed in its relationship to family formation rather than on the conventional per capita basis. The figures are revealing in that they imply that if industry ingot production were to be 104 million tons in 1954, finished steel output *per family* would be only about as much as was available in the 1947-1948 period.

Year	Hot Rolled Iron and Steel Produced Net Tons (Millions)	Tons per Capita	Tons per Family
1946	50.9	0.3602	1.3334
1947	66.2	0.4594	1.6931
1948	69.2	0.4720	1.7000
1949	60.9	0.4083	1.4461
1950	74.8	0.4932	1.7201
1954 E	81.0 E	0.5019 E	1.7053 E

E = estimated.

That segment of the steel industry concerned with capital goods is also influenced by these dynamic factors of population and income. The projected present trend as given in the table on page 71 shows that by

1954 there will be five more dependents per 100 productive workers than in 1950.

Year	Number of Dependents per 100 Productive Workers (Age 18 to 64)
1946	59.7
1950	65.0
1954 E	70 E

E = estimated.

Thus, a total increase in productivity of five per cent is necessitated in the next four years in order merely to maintain the present standard of living. This gain must be added to the historical increase which has been two per cent to three per cent annually. If we are to have a dynamic standard of living, the logical development would be the accelerated introduction of labor saving machinery, the more efficient utilization of the labor force and the construction of modern, better located plants. An increasing portion of the dependent population consists of persons over 65 with some income. Greater provision for the care and amusement of this age group will be required also.

Transition from Expansion to Decline.—Eventually an industry loses its power of expansion. In a boom, its sales increase at a rate less than the expansion of the general economy or of a competitive industry. In depression, the demand slides off at a rate more rapid than that of the general economy, or of a competitive industry, or of both. To the majority of investors, the decline is unexpected. It is rarely forecast. The shock follows from the fact that, shortly before the cessation of growth, the industry had been prosperous and had built up a record of good earnings, interest, and dividends. Though there are exceptions, the transition from expansion to decline normally is not abrupt and is not concentrated within a limited period. A notable exception is the street railway industry. The emergence of the private passenger automobile, together with the rapid rise in labor and material costs between 1915 and 1917, transformed the industry from prosperity to poverty.

Latent Obsolescence.—While an industry is still expanding, economic and financial infection may develop. Though its future is promising, seeds of decay may have already been planted. These seeds may not germinate, and the industry may remain strong. If the seeds do germinate, the latent decay becomes real. These seeds may be described as "latent obsolescence," because they may not be-

come active, and they are the earliest signs of decline. Such factors must be examined and interpreted by the investor.

HIGH LABOR COSTS. In such industries as railroads and street railways, anthracite and bituminous coal, cotton and woolen textiles, lumber, telegraph and telephone, wages, which represent a large share of unit costs, are a prime factor of latent obsolescence. Many industries compete with others whose wage costs are lower. The railroad competes with the liquid fuel and natural gas pipe lines and also with the ocean-going oil tankers, whose labor costs are relatively low. (See Chapter 12.) Cotton and woolen industries have higher labor costs than the rayon yarn industry. In a period of rising wage rates, a high labor cost industry suffers in competition with a low labor cost industry.

The labor cost relationship is not the fault of management. It is the outgrowth of the nature of manufacturing processes and the amount of labor needed to produce a unit of output. Sometimes a solution may eventually be found in superior mechanisms. Some progress along this road has recently been made, for example, in the bituminous coal industry in which mechanical improvements promise to reduce the amount of labor that is needed to turn out a given tonnage.

High labor costs in some declining industries frequently require unwise price adjustments. Take the railroads, for example. Some industries that depend upon railroads compete with others that use less railroad (or other transportation) services per unit of output. Lumber, for instance, competes with gypsum, glass, asphalt, asbestos and plastics. These competitive products require less raw materials (normally bulky) and move shorter distances than lumber. Hence, they need less transportation per unit of output. Also, the shorter haul gives the truck an advantage over the railroad. The high railroad rates have, in recent years, accelerated the declining trend of demand for anthracite and bituminous coal—major users of railroad service. Lower labor costs, meanwhile, have helped the natural gas and liquid fuel pipe line industry. High railroad rates have led to suggestions for the movement of coal, which is an important contributor to railroad earnings, by pipe lines. In 1950, an amount of natural gas with a fuel value equal to that of a ton of coal moved by pipe line for 33 cents per 100 miles. The railroad rate for carrying one ton of coal from the coal mines of the Pittsburgh Consolidation Coal Company in Southeastern Ohio to Cleveland in the spring of 1951 was $2.74. The coal company at that time was laying plans to build a pipe line to carry pulverized coal mixed with water. Company

officials believed that a freight saving of $1.00 per ton could thereby be realized.

SOCIAL HABITS. Latent obsolescence is always present in the "habit" industries—chewing gum, tobacco, cigars and cigarettes, soft and hard drinks, and proprietary drugs. Chewing gum, soft drinks. and cigarettes have long been favored by expanding demand, rising profits, and good market values for their securities. The demand for snuff, chewing tobacco, and cigars in recent years has declined. Latent obsolescence in these industries takes the form of the possible appearance of new social habits and social attitudes. If society changes its point of view about the relative attractiveness of the currently favored habits, then the latent obsolescence might become real.

TRADEMARKS. Closely allied with the habit industries is a group whose earnings are based upon the success of trademarks. Such industries make products difficult to distinguish from competitive articles that are not widely advertised. The earnings of such industries are based not upon low costs or superior qualities, but upon consumer preference. Wrigley's in chewing gum, Coca-Cola in soft drinks, "Genuine" Bayer's aspirin in that field, Ivory and Life Buoy in soap, Schlitz and Anheuser-Busch in beer, favorite brands in hard drinks, are some of the illustrations.

Such brands have attracted the public to a point where companies using these slogans enjoy an advantage over their competitors. Many of these brands have lasted for years. There is always, however, the possibility of a shift of consumer preference from one trademarked article to another. In the 1930's and early 1940's, a decline in earnings of the Lambert and Vick chemical companies came largely from a decline in consumer preference for some of their trademarked articles.

LOCATION. Industries, or companies within an industry, may be threatened with obsolescence arising from a particular location. The coarse cotton textile industry of New England; the newsprint industry in central and northern New York; the pulp industry of the Lake States, for example, have largely disappeared because of shifts to other regions.

The elimination of the basing point in the steel and other industries is a factor of latent obsolescence to some companies in such industries. Under the basing point system, the transportation costs from competitive centers were the same, so that a steel plant located in Chicago, Gary, or Detroit could compete in common markets. A Supreme Court decision in 1948 throws doubt upon the legality of

the system. Its elimination would force each plant to include in its selling price the actual transportation costs from the factory to the point of destination. Under the basing point system accordingly, those plants located far away from a substantial part of their markets are infected with latent obsolescence, and that will become real as and when the basing point system is removed.

IMPROVED TECHNOLOGY. A vital factor of latent obsolescence is the possibility of supersession because of technological improvements. Technological advances are reported in technical and trade journals. The potentialities of new processes and mechanisms are known long before they are introduced into industry. Every existing technology is exposed to the competition of an improved technology. The possibility of revolutionary changes so burdensome as to increase the costs or reduce the demand for the goods or services of an industry is always present. Continuous production (displacing batch or hand methods), chemical processing (replacing mechanical methods), by-products and joint products of a primary process (replacing another process without the benefit of such products), engines with greater heat efficiency (replacing those with lower heat efficiency) are some of the more notable illustrations of the technological evolutions that have favored some industries and impaired the fortunes of others.

GOVERNMENT REGULATION. Another form of latent obsolescence is government regulation and control. Neither the timing of its appearance nor its consequences can be anticipated by the investor. The outlines of the movement, however, and the nature of its relation to profits are clear. Government intervention must be accepted as a probability; for it aims to improve the position of the underprivileged—the wage-earners, the farmers, the small businessman and the depressed industries. The powerful businessman is strong and, so it is argued, needs no state protection; the expanding industry is prosperous and needs no aid. If an industry buys its raw material from the farmers and if the raw material represents a substantial proportion of the costs of the buying industry, the latter then is subject to the risk of sharp increase in costs. Dairy products, refined corn products, vegetable oils, and naval stores are some illustrations. Laws increasing minimum wages influence the earnings of variety stores and hotels, for example. Government competition may be around the corner in the housing industry. It has already become important in a number of sections in the electric light and power industry.

STATIONARY DEMAND. Another line of evidence, which is of aid to the investor in ascertaining the point at which growth stag-

nates and decay develops, is the occurrence of stationary demand. An industry may have recorded substantial growth, and in every business expansion, its sales and earnings may have recorded new highs. Then comes an expansion in which the demand for the goods or services of the industry increases, but at a rate below that of the national economy, and perhaps less than recorded in previous booms. Though the industry is still sound, its growth is no longer vigorous. The new forces are only in their infancy.

Normally, the experts, those thoroughly familiar with the industry, cannot recognize such forces. It is significant, for example, to observe the number of close observers in the 1920's who discounted the growing competition of the prosperous railroad industry. "One thing we know very definitely," observed the Secretary of Agriculture in 1925, "there is no basis for the fear that the motor truck is going to compete seriously with the railroads." In the same year, the president of the Delaware & Hudson remarked that, while motor trucks were competitive in certain fields, they were no rival of the railroads in the larger aspect. W. Z. Ripley, a professor of transportation and an authority in the railroad industry, declared at about the same time that the motor truck could never serve as a dangerous competitor to the railroads.

A somewhat similar pattern developed in 1951 in the woolen industry. An announcement of a government proposal to make a heavy investment in synthetic wools led to a statement by a leader in the wool industry that "there is simply no question about the superiority of wool over synthetic fibres in characteristics desired by consumers—ability to protect and wear, resiliency, thermal qualities, and capacity to absorb perspiration." [5]

It is difficult for those who have long been habituated to a certain line of thinking to discard that pattern. Investors, holding securities of a well-established industry paying interest and dividends, will not easily conclude that a slight decline in demand is necessarily the harbinger of evil days. And they have ample evidence to support them in their conclusions. There are many companies in industries with an arrested demand that continue to do well. The shoe industry, for example, has had no growth factor for more than twenty years. Its share of the consumer's dollar is not rising. The earning power, nevertheless, of such concerns as International Shoe, and Endicott-Johnson, and of such retailers as Melville Shoe, has been sustained. Though dividends have not substantially increased, the securities have on the whole been good investments.

[5] Dennis E. Tiberlis, Vice-President, Drake America Corp. in *Journal of Commerce*, Aug. 6, 1951.

Another example is afforded by the variety chains. The growth in the 1940's has been slight, though owing to price changes, precise figures are not available. The industry, however, is stable. It sells low-priced articles and does particularly well in depression, when the housewife develops a sense of price consciousness. Leading companies, such as F. W. Woolworth, S. S. Kresge, and W. T. Grant, have prospered.

The cessation of growth and its replacement by a stationary demand must, nevertheless, be interpreted as a form of stagnation that investors must carefully watch. The retardation in growth, particularly when it is associated with rising labor or other costs, eliminates an advantage that had long favored the industry. An arrested demand becomes doubly dangerous in the presence of a strong inter-industrial competitive force. In such a case, a retardation of demand is probably the prelude to more rapid declines. Decreases in sales in the presence of heavy plant capacity, too, spell rising unit costs.

A relatively stationary demand in the prosperous 1920's in many industries was evidence of stagnation that no investor could safely overlook. In that decade, the demand for railroad services slowed up. From 1882 to 1907, the freight tonnage doubled every decade, and from 1907 to 1923 it increased, annually, at the rate of about 3 per cent. Between 1923 and 1929 the traffic increase slowed up in a period of industrial expansion. In 1924 the revenue ton-miles per mile of road declined 2 per cent; in 1925 and 1926 it increased 2 per cent and 7 per cent, respectively, and in the following two years there was a decline of 0.4 of 1 per cent, and a nominal increase of 0.005 per cent, respectively. In 1929 the increase was 3 per cent. There was thus revealed the slight increases in demand characteristic of a declining industry in a period of industrial expansion.

In the early and middle 1930's the drop in ton-miles was much sharper than the drop in general production, while in the years of business expansion of 1936-37, traffic remained below the peak of the 1920's. In the post-World War II years, this arrested demand continued. Despite the record expansion in national product between 1946 and 1950, railroad ton-miles declined 1 per cent; indeed the slight depression of 1949 led to a drop of more than 10 per cent from 1946.

Neither experience nor general reasoning can disclose any empirical rule by which the length of this period can be determined. It was relatively long for the railroads and short for the Chilean nitrate industry. While synthetic plants in this country were being built, the demand for the Chilean product was maintained. The actual

market entry of the synthetic article in 1925 was accompanied by a sharp decline in demand for Chilean nitrate. The period of arrested demand was short in the street railway industry and prolonged in manufactured ice.

Under some conditions, the emergence of an arrested demand may go hand in hand with a heavy decline in the market value of the securities of the industry. Thus, the investor may have little time to prepare himself to liquidate his holdings properly. Examples are afforded by the cotton, woolen, and leather industries in the period of expansion and sharp depression following World War I, between 1918 and 1921. The securities of these industries between 1918 and 1920 sold at high levels. They had been expanding and had long records of earnings and dividends. Earnings and market value of their securities in the war and postwar years up to 1920 were based largely upon inventory appreciation. The drop in commodity prices in 1920 produced heavy losses. These losses also characterized the fortunes of the expanding industries, such as automobiles, decentralized chain and variety stores, oil and nonferrous industries. In the subsequent years of business expansion, however, these industries recovered their earnings while the declining industries did not.

QUESTIONS AND PROBLEMS

1. Explain the concept of a life cycle of an industry. Examine those factors that lead to this pattern of behavior and that limit management's ability to offset or cope with the problem of decay.
2. In what stage of the industrial life cycle would you place the following industries and why?
   a) Diesel engines
   b) Airlines
   c) Synthetic fibers
   d) Titanium
   e) Small plane manufacturing
   f) Proprietary drug
   g) Motion picture
   h) Small loan—personal finance
   i) Dairy
   j) Television
   k) Central city department store
   l) Ethical drug

3. Compare the terms "industrial maturity" and "investment maturity."
4. Explain the factors of latent obsolescence present in the following industries:
   a) Flour milling
   b) Railroad
   c) Drug chains
   d) Automobile accessories
   e) Crude oil
   f) Glass container
   g) Investment banking
   h) Newspaper
   i) Hotel
   j) Distilled liquor
   k) Bus transportation
   l) Commercial banking

READINGS

See Chapter 5.

Chapter 5

SIGNS OF GROWTH AND DECAY

The growing industry must expand in order to meet the incessant demands of the market. In depression, almost every industry shows excessive plant capacity. In prosperity, however, the national economy expands its capacity for producing goods and services largely through the activities of the growing industries. Although it may not occur in the first expansion wave following the depression, the market for the goods or services of the expanding industry eventually absorbs the excess capacity. In many cases in which the management of the expanding industry is conservative, shortages may develop before plant capacity is again increased.

Plant Capacity.—In the declining industry, additional demand is normally met by more effective utilization of existing plant capacity. If the demand is declining rapidly, as seen, for example, in street railways, leather, and anthracite coal, the capacity, even in a business boom, may decline. If demand increases because of some market windfall, such as a war, the industry uses high cost, stand-by equipment. A growing industry accordingly in periods of general business expansion adds to its plant capacity, while a declining industry does not add to and, frequently indeed, may reduce its capacity.

In the textile industry, for example, rayon is expanding and cotton is declining. From 1925 to 1950, the number of cotton spindles in operation declined to only slightly above the number in operation in 1907. In the rayon industry, on the other hand, the substantial increase in demand could be met only by increases in capacity. Almost every company has repeatedly built substantial additions over the last quarter century. Owing to technological improvements and multishift operations, increased production of cotton textiles has been accomplished in the face of a reduction in the number of spindles. A static capacity in the presence of rising demand constitutes additional evidence of the declining nature of the cotton textile industry, just as the shortage in capacity and the necessity for building additional plants reflect the expanding nature of the competitive rayon industry.

In the fuel and energy business, similar significant contrasts prevail. In the period from the 1920's through the 1940's the anthracite and bituminous industries did not increase their plant capacities. The oil industry, meanwhile, engaged in an intensive search for oil. Though the industry substantially increased its plant capacity, the increase in demand, in the early post-World War II period, outran the supply. A temporary shortage was followed by heavy investments in new plants and the shortage was made up by early 1949. The postwar years were also featured by substantial increases in the proved recoverable reserves of natural gas. Such gas reserves between the years 1925 and 1951 increased more than 700 per cent.

Another instructive illustration may be taken from the public utility industry. Both the street railway and the electric light and power industries are subject to the same laws regulating the selling prices of their respective services. Both industries legally are entitled to the opportunity to earn a return on their properties. The expanding electric industry has earned a reasonable return. It has had, since its very beginning, a rapid increase in demand, and in almost every expansion period since the late 1880's it has expanded its plant capacity. Between 1940 and 1950, for example, the kilowatt (a kilowatt is 1000 watts, as compared with a horsepower, which is equal to about 746 watts) capacity of the industry increased about 80 per cent. The street railway industry, since its beginning in the 1880's, had also expanded its capacity in every period of prosperity until the second decade of the twentieth century. Since then, however, it has added no new mileage, and on balance, has opened no new routes. Furthermore, despite its utility status, it has, in the past three decades, incurred substantial losses. In brief, the expanding and profitable utility-electric industry increased its capacity, while the declining and unprofitable utility street railway industry in the last 35 years did not.

Another publicly regulated industry, air transportation, more than tripled its seat-mile capacity between 1944 and 1946, while the passenger carrying capacity of the railroad industry either remained about the same or slightly decreased. The Civil Aeronautics Board was greatly impressed by the expansion of the airlines industry. "It is probable," it observed, "that there are few instances in the history of American industry where a faster rate of expansion has been experienced than in the air transport industry since the war." This experience, however, is normal and characterizes the early stages of the typical American industry. Similar rates of growth in their pioneer stages were experienced by such industries as steel, radio,

coal, electrical refrigeration, railroads, street railways, electricity, and in more recent days, by fiber glass, plastics, television, synthetic fibers, ethical drugs, and others.

A difficult investment problem is posed by the progress of the solvents industry during World War II and the postwar period. Because of war conditions, the plant capacity in the industrial alcohol (fermentation section) was substantially increased. At the same time, however, a new technology was perfected for the manufacture of synthetic alcohol, by use of a heavy capital investment and a nominally priced raw material. The rise in the plant capacity of the fermentation alcohol industry and the new capacity of the synthetic division were telescoped into a short period.

In the natural resource industries, such as oil, natural gas, ferrous and nonferrous ores, and coal, productive capacity is difficult to measure. Despite these difficulties, it is clear that heavy capital expenditures are made in discovering new reserves in expanding industries, while few and frequently no expenditures are made in the exploitation of reserves in declining industries.

Other contrasts between increasing and decreasing capacities, in expanding and declining industries, respectively, can be developed. The tendency is clear. In a declining industry plant capacity ceases to expand. The expansion of the national economy in the post-World War II period was characterized by slight capacity increases in such declining industries as street railways, railroads, anthracite and bituminous coal, leather, flour milling and baking, manufactured ice, sugar refining, woolens and worsteds, and fermented industrial alcohol. Meanwhile, expanding industries, including not only those already cited, but also cellophane, paper board, paper specialties, ethical drugs, chlorine, nitrogen and other synthetic organics, metal containers, packaged foods, decentralized department stores and price appeal chains, electricity, natural gas pipelines, gypsum, asbestos and asphalt roofing, among others, increased their capacity.

Price Rises in Declining Industry.—Another symptom of decay is the relative rise in prices, compared with prices of a competitive expanding industry, or with the general price level, or, with both. Declining sales increase unit costs, and an increase in selling prices is a logical remedy. An expanding industry, however, is favored with an increasing demand and falling unit costs, and the logical effect, here, is for such an industry to reduce its selling prices. Though price increases in the declining industry is a dangerous remedy, it is one that can scarcely be avoided.

It may be difficult at times to measure selling prices in competitive industries. In the railroad industry, a declining rate per ton-mile may reflect a rising price trend for some of its services. A per ton-mile rate is a composite average of the rates for long and short hauls, for finished and unfinished goods, for bulky raw materials and light finished goods, for goods requiring high terminal costs, and for others requiring low terminal costs.

Horizontal rate increases, of the kind that have characterized the industry in the post-World War II period, may be followed by price reductions on traffic when competition with rival transportation agencies is strong. Meanwhile, rates on items for which little or no competition prevails are maintained. It follows, therefore, that rates per ton-mile on goods that move mainly by rail may increase, while on other goods subject to pipe line, motor truck, and internal waterway competition, rates may decline. A comparison of freight rates and freight revenues per ton-mile reveals a significant trend. Table 5 shows the facts for the years 1946-50.

TABLE 5

MOVEMENT OF FREIGHT RATES AND FREIGHT REVENUES * PER TON-MILE, 1946-50
(1938 = 100)

	Freight Rates	Freight Revenues per Ton-Mile
1946	100	99
1947	117.6	109
1948	137.8	127
1949	151.7	136
1950	157.3	135

* Lionel Edie & Co. data, as presented in "The Railroad Situation," May 25, 1951.

In 1946, freight rates were the same as in 1938, while freight revenues per ton-mile were slightly down. By 1950, however, a substantial lag appeared. Between 1946 and 1950, rates advanced 57 per cent, while revenue per ton-mile advanced only 36 per cent. Items carrying relatively low rates, such as iron ore, coal, and coke continued to move by rail. But items carrying higher rates, such as refined oil and textiles, for example, were to a considerable degree diverted to competing transportation services. Shippers of many products were either unable or unwilling to pay higher railroad rates.

While railroad rates were thus advancing, rates of competitive transportation agencies were falling. Take the fuel industry, for example. Railroads were charging more for coal movements. Coal

moves largely by rail, but its competitor, oil, can move by pipeline, water, or rail. Railroad rates for oil, however, are relatively high, and an increasingly large proportion of the oil traffic is leaving the rails. Relative transportation costs for the carriage of oil are shown in Table 6.

TABLE 6

COST PER TON-MILE OF OIL AND OIL PRODUCTS BY RIVAL TRANSPORTATION AGENCIES, 1946 *

Railroad	$0.01695
Pipeline (gasoline)	0.00445
Pipeline (crude)	0.00344
Water	0.00082

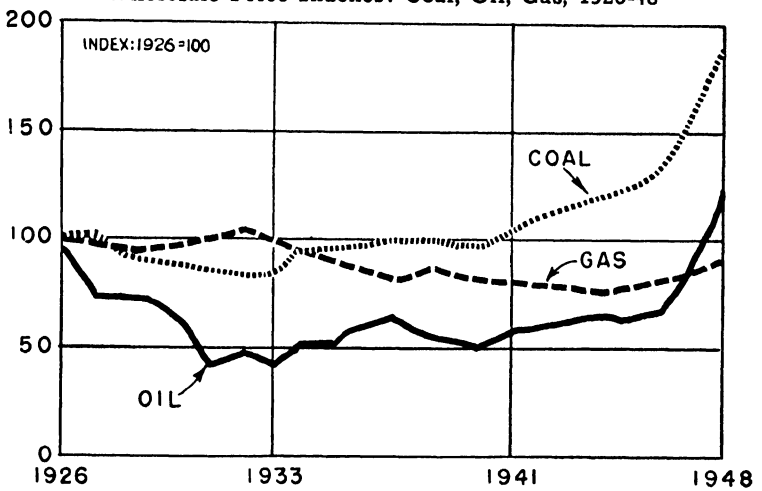
* Report of the President's Advisory Committee on the Merchant Marine, Nov., 1947, p. 42.

The spread against rail rates, furthermore, has steadily increased over the past twenty-five years.

In the fuel field, furthermore, the rapid expansion in the sales of natural gas in recent years has been accompanied by only slight rises in selling prices, in comparison with the sharper increases in the prices of the competitive coal and domestic heating oils. The price trends, as revealed by wholesale indexes based on 1926 prices, in the declining coal industry and in the expanding oil and natural gas industries, are shown in Figure 2. The rise in coal prices is evident.

FIGURE 2

Wholesale Price Indexes: Coal, Oil, Gas, 1926-48



Source: *Journal of Commerce*, Aug. 10, 1949, p. 11.

The relative trends of selling prices for the expanding natural gas and the declining coal industries for house heating are clearly seen in Table 7.

TABLE 7

COST OF HEATING AN AVERAGE HOUSE IN TEN CITIES 1945-46 AND 1949-50

	* 1945-46			* 1949-50		
	Coal	Oil	Natural Gas	Coal	Oil	Natural Gas
Atlanta	$ 97	$131	$ 83	$115	$124	$ 75
Buffalo	124	99	101	155	130	109
Chicago	111	96	113	151	161	115
Cleveland	†	†	†	135	146	83
Columbus	86	125	87	121	174	77
Los Angeles	‡	48	31	‡	52	34
Minneapolis	123	115	96	180	150	96
Oklahoma City	62	61	30	63	62	30
St. Louis	60	88	89	97	133	91
Washington	72-86	76	103	120-128	118	118

* Costs shown are for 1945-46 and 1949-50 winter seasons or an average winter.
† Not available.
‡ Coal is not generally available in this market and is not used as a househeating fuel.
Source. Data are from questionnaire furnished by principal companies in the areas named. (*Moody's Stock Survey*, Oct. 16, 1950.)

Observe how, in the four-year period of advancing prices, the price of coal has increased much more than the price of natural gas. This price differential plus the convenience factor are probably the main causes for the strong trend toward the use of gas and the declining demand for coal (and also oil) for house heating.

One of the most rapidly expanding and profitable industries in the last generation has been the automobile and its numerous accessories. The cost of operating an automobile in the first decade of the century, in the earliest stages of the industry's growth, averaged at least three times the 1940 level of operating costs.[1]

In recent years, the quality of the automobile has continued to increase, resulting in lower costs per mile and per year. In the World War II and postwar years, the price level turned upward. The average wholesale price index of passenger automobiles, according to figures of the Bureau of Labor Statistics, increased almost 90 per cent between 1930 and 1950. Increasingly higher quality of the product, however, means a reduction in operating costs. Furthermore, the increased cost must be compared with higher selling prices of other forms of transportation services.

[1] Wilfred Owen, "Automotive Transportation," Brookings Institution, 1949, p. 15.

Neither can the entire picture of relative price decline and advance in the automobile industry, as compared with competitive industries, be understood unless the prices of all other phases of automobile operation be included. The price of rubber tires, for example, has declined, while the quality has improved. By 1940, the price of tires had declined to less than one-quarter the 1920 figure, while the average use per tire had increased more than four times. In the 1940's, furthermore, substantial improvements in tire quality provided additional mileage, while prices held close to prewar levels.[2] Also fuel mileage greatly increased. A survey of 29 cars made in 1951, for example, showed that average fuel mileage at a cruising speed of 40 miles an hour had between 1930 and 1950 increased from about 15 miles per gallon to nearly 20 miles per gallon.[3] Meanwhile, the price of gasoline (not including tax) declined substantially from about 18 cents in 1925 to about 13.5 cents in 1950. Although the case is not as clear for the automotive and accessories industries as for other surveyed industries, the price advantage is still retained. The price advance, including the improved quality, is substantially less than the price increase for corresponding transportation services, and of course, the unique advantages of the automobile transportation services cannot be even approximately reflected in statistical data.

The difference between the expanding and declining industries can be readily explained. Declining demand in the one industry forces increases in selling prices. Increasing sales in the expanding industry reduces unit costs, thus making possible decreases in selling prices. Meanwhile, the declining industry, by raising selling prices, contracts its market, and the market of the expanding industry, by price reduction, widens. Competition between the two is so hopelessly unequal that, in the course of time, the declining industry necessarily loses.

Price Wars.—The relative decline in selling prices, favoring the expanding industries with higher profits and dividends, often degenerates into price wars. Prices are reduced at a rate more rapid than the decline in unit costs. Such price wars, forced by competition within the industry, have characterized the growth of most of the expanding industries, though the number so affected within recent years has been declining.

Prices, in these cases, are reduced beyond the point justified by increased volume and reduced costs. Industries that follow these

[2] *Ibid.*, pp. 28-29.

[3] *Automobile Facts*, June, 1951, p. 2. (Published by Automobile Manufacturers Association.)

policies are unable to earn satisfactory profits, but many do just this in their early pioneering stages. In public utilities, such as railroads, electricity, manufactured gas, and, in 1947, air-freight transportation, and also in nonpublic utilities, such as oil, biscuits, steel, coal, sugar, and many others, price-cutting has, from time to time, disturbed earnings and impaired investment values. In the 1920's and 1930's, even a number of old and well-established industries engaged in these unprofitable practices. Newsprint, rubber, full-fashioned hosiery, paper bags and paper board, kraft, crude oil, refined petroleum, carbon black, and asphalt shingles can be cited.

There is opinion, supported by sound reasoning, that prices are inflexible and that price wars do not occur in industries in which a few corporations produce the major portion of the product. Monopoly power, or concentration of control, leads to price control, and the investor, it is maintained, is thus assured against unprofitable price-slashing in these "duopolies" or "oligopolies." Unfortunately, this is not true. The output of the newsprint, rubber, and carbon black industries in the 1920's and 1930's was controlled by a few companies. Price wars, nevertheless, characterized all three. The price of carbon black, for example, dropped in 1938 to a low level. In the opinion of a leader in the industry, the price was "way below the cost of production. . . ." [4]

In the summer of 1951, another industry whose output is controlled by a limited number of companies (rugs and carpets) was adversely affected by heavy price cuts. A number of firms reduced prices, while others for some time refused to follow. Eventually, competition forced the laggard concerns to follow suit. In 1952, a price war slashed the earnings of the penicillin industry, even though a few large concerns did almost all the business. Even more suggestive of possible price cutting in an industry controlled by a limited number of businessmen was afforded earlier in the post-World War II period by the phonographic record industry. Two large concerns, R.C.A. and Columbia Records, do most of the business. That fact, however, did not preclude vigorous and retaliatory price competition in 1949.

On the other hand, governmental regulation has reduced the possibility of price-cutting in a number of other industries. The allocation of demand among oil producers on a pro rata basis by state authorities maintained crude oil prices in 1949 and 1950. Action by federal and state agencies keeps prices "sticky" in the liquid milk

[4] Investigation of the National Defense Program, 79th Congress, 1st Session, Sen. Res. 55, p. 14,093, 1945.

industry, and federal regulation also maintains sugar prices at levels that tend to inhibit price reductions.

If the industry is expanding, the investor can look forward to the probability that, eventually, price-cutting wars may be avoided. Here again there is no rule that the investor can follow. Price wars may last for relatively long or short periods. They were long for the railroads for over a generation in the nineteenth century; they were short in carbon black.

By 1949, after a prolonged absence of price-cutting in newsprint, rubber, printing paper, paper board, and kraft, it was still impossible for investors to decide that the era of "war" had terminated. In that year, a slight depression led to price reduction in rubber tires, paper board, and paper containers. In paper board and containers, the reduction in the number of producers from about 250 in the 1930's to about 15 or 20 in the post-World War II period and in rubber tires, from over 130 to 24, lends support to the hope that price cutting in these industries will be eliminated. Experience, however, suggests that, despite control of an industry by a limited number of companies, price cutting is still possible.

The major reason for price cutting in the expanding, as well as in the declining, industries is excessive plant capacity, accompanied, though not always, by excessive inventories. The relationships between rising supply and demand are constantly changing and the investor is always on guard against the probability of an expansion in capacity in excess of demand.

A physically expanding industry is, therefore, profitable if it reduces its selling prices, but not too far. *Price reductions tied to the anchor of declining unit costs is the golden mean.* Such price reductions with expanding volume lead to profits and dividends.

Choice of an Industry for Investment.—Investors in choosing an industry will be wise in selecting one characterized by rapid growth. They will, however, avoid the industry in the early stages of expansion. At that time, losses are likely to exceed gains. They will buy into an industry as and when a few companies control a large share of the output and when a still smaller number establish a record of dividends based upon earnings, thus building up a good financial position. They will maintain their securities until evidence develops that the demand has become stationary and has begun to decline. Though not all industries characterized by slow growth or slight decline eventually lose their earning power, the tendency is in that direction. The broad exceptions to that rule are not sufficient

to lead the investor to ignore the symptoms. Investors who sell at this period, before other symptoms emerge, normally obtain relatively high prices. Major *investment* losses, both in stocks and bonds, occur in transitional periods from industrial expansion to stagnation and decay.

The views of conservative investors, attuned to the determination of investment values based upon past records, is well illustrated by Roger W. Babson, in his contention in 1930 that the underlying bonds of the large railroads "should be absolutely good. . . . Due to the inherent stability of the industry and the seasoning of its past experiences, railroad bonds as a group are regarded as high class investments in the field of securities." [5] A word of caution was, however, added. The bonds must be carefully selected. Some of the roads may have to be reorganized. Many railroad bonds, it was declared, were leading investments for savings banks. Examples are the bonds of the Atchison, Topeka & Santa Fe, the Chicago Burlington & Quincy, the New York Central, the Pennsylvania, and the Union Pacific.

The losses of institutional investors in bonds in the 1930's came largely from the railroad industry, which by the mid-1920's had entered into a secular, long-range decline. Another instructive illustration of the failure to grasp the significance of a transformation in the earning power of an industry is furnished by American Woolen. In the early stages of decay of the woolen industry, in 1925, the president of the company observed, "If the majority of companies in our line make money, you shareholders will continue to get your dividends on the preferred stock like a mortgage bond. . . ." [6]

An important foundation for investment success is, therefore, laid in the selection of the industry. A company in an expanding industry may not necessarily be profitable. Good management, sound financing, avoidance of price-cutting, and expansion of plant capacity in line with demand are essential ingredients. Given these factors, corporations in expanding industries are likely to succeed. In declining industries, however, investment success is difficult. Matured industries, in which the growth factor is absent, provide for possible investment success. Investors, however, must be on guard to detect signs of stagnation and decay.

Conclusion.—The investor has now made two major decisions. He has examined the strength and weakness of the national economy. He has satisfied himself that, all things considered, the economy is

[5] *Investment Fundamentals* (New York: Harper & Brothers, 1930), pp. 29-30, 31.
[6] *Wall Street Journal*, Mar. 4, 1925.

sound, and that sound securities should be bought. He has examined the economy's industries and he has identified those that are sound. The industries meet the following tests:

1. They are growing rapidly; preferably more rapidly than the national economy, but at least as rapidly. Growth can be measured on a per capita basis; or in relation to disposable or supernumerary income, to national product, to competitive industries, or to some other comparable time series.
2. As sales increase, the growing industries are reducing selling prices as unit costs decline. Changes in selling prices are judged in the pattern set by the movement of the general price level, and by the prices of goods and services of competitive industries.
3. Forces of obsolescence threatening the continued growth of the industry have not appeared and do not appear to be imminent.

The investor is then ready to select a company whose securities—stocks or bonds—he will decide to buy. Part III accordingly examines the considerations affecting the investor's choice of a company and a security.

QUESTIONS AND PROBLEMS

1. Between 1930 and 1952, the capacity of the ice manufacturing industry remained static, while the capacity of the mechanical refrigerator industry expanded substantially. How do these facts bear upon the relative desirability of the securities of these two industries?
2. The selling price of electricity has increased about 10 per cent since 1945. What price comparisons would you make before reaching a conclusion as to whether this industry is in the expanding or declining group?
3. Explain the problems involved in the measurement of the trend of the selling prices of railroad freight service. How are these problems associated with investment values?
4. How do the fluctuations in selling prices in the building materials industry develop the concept of industrial advance and industrial decline?
5. Explain the difference between price wars, an unfavorable investment factor, and relative decline in selling prices, a favorable investment factor. Present illustrations in both categories.

READINGS

MEAD, EDWARD S., and GRODINSKY, JULIUS. *Ebb and Flow of Investment Values.* New York: Appleton-Century-Crofts Co., 1939, examines in considerable detail the investment philosophy considered in this and in the two preceding chapters.

PLUM, LESTER V., and HUMPHREY, JOSEPH H. *Investment Analysis and Management.* Chicago: Richard D. Irwin, Inc. 1951, chap. ix.

PART III

Appraisal of the Company

Chapter 6

COMPETITIVE POSITION OF THE COMPANY

In choosing a company and its securities, the investor must take into consideration these eight factors: (1) the competitive position of the company within its industry, (2) the company's financial structure, and (3) its financial strength, (4) an analysis of physical and operating data, as distinguished from financial data, (5) the quality of its earnings, whether recurring or nonrecurring, whether higher or lower than reported to shareholders, (6) the forces determining profit margins, (7) the break-even point, i.e., the volume of sales factor and its relation to the profit margin, and (8) the ability of management, relative to corporate success. Each of these factors will be examined in this and in subsequent chapters, though, of course, there are still other factors that merit consideration.

Competition in most industries is generally strong. There are many candidates for investment success, but the successful ones have numerous tests to pass. They must secure control of a reasonable percentage of the sales of an industry. They must maintain adequate profit margins. They must establish and maintain sound financial structures and an adequate working capital position, and out of the earnings that thus emerge, they must be able to pay reasonable dividends.

The size of a corporation confers certain outstanding advantages. A large company has access to capital markets. It can afford to engage the best technical brains available and to pursue extensive research programs. It can build expensive plants with ample capacity to produce a heavy output at low unit costs. And it has the advantage of broad national markets, with their benefits of stability and regional diversity.

It is contended in some circles, however, that large corporations are not as efficient as smaller ones. Though the evidence of this is not conclusive, it is possible that the larger concerns may not achieve the same operating efficiency as the smaller companies do. But as indicated in Chapter 12, such discrepancies in efficiency are not the

major causes for differences in profits, out of which emerge varying investment values.[1]

Industrial Control by Major Concerns.—The tendency toward control of an industry by a single corporation, first developed on a large scale by John D. Rockefeller, was impeded by the Sherman Antitrust Act in 1890. Since then, single corporate control has come to be replaced with combined control by a limited number of concerns, a trend that does not seem to be altered by Government regulation.[2]

With the exceptions of commercial banks, railroads, and local public utilities, the investor is limited to relatively few companies in any one industry. The multiplicity of competitors in these latter two fields is due partly to Government policy. The Supreme Court decision in the Northern Securities case in 1903 and the Interstate Commerce Commission's investigation of E. H. Harriman's consolidation program in 1906 blocked further concentration in the railroad industry until the 1920's. Heavy losses incurred in railroad acquisitions in those years have discouraged further activities along those lines. The Public Utility Holding Company Act of 1935 reversed the tendency toward concentration of utility ownership by means of holding companies, which had assumed extensive proportions in the late 1920's.

The abatement of single corporation dominance, following the passage of the Sherman Act and the formulation of other adverse Government policies, made way for the rise of many more, but smaller, organizations to the rank of "big business." Now, for example, three automobile companies produce almost 90 per cent of the output, the same number of bakeries account for over 40 per cent of the biscuit and cracker industry's poundage, three more concerns produce 80 per cent of the nation's output of soaps, and three steel companies command more than 50 per cent of steel production.

In some industries, however, smaller companies compete vigorously and successfully, thus preventing the major part of the business from being captured by a few large concerns. This is true in industries producing oil products, chemicals, dairy products, and particularly, cotton textiles and shoes.

[1] See Temporary National Economic Committee (T.N.E.C.), *Relative Efficiency of Large, Medium-Sized and Small Business*, Monograph #13.

[2] A summary of concentration of corporate control in various industries is presented in a Federal Trade Commission report, *Concentration of Productive Facilities as of 1947*. For further data on prewar conditions, see T.N.E.C. *Economic Concentration and Monopoly*, Monograph #27. The table on p. 102 lists products valued at more than $10 million each in whose manufacture the four largest producers controlled more than three-fourths of the total output in 1947.

There are different ways in which a few concerns emerge into positions of business power. Some acquire power largely by consolidations and mergers. General Foods and Standard Brands, Kennecott Copper and Anaconda Copper, Continental Can, Pennsylvania and New York Central railroads, and National Dairy and Borden, for example, have grown largely by acquisition of existing concerns.

Other companies resort only slightly to this method, and expand internally through the construction of new plants and expansion and modernization of existing facilities. General Motors after 1920, Chrysler (with the exception of the Dodge acquisition), and Ford; Armour, Swift, and Wilson; Coca-Cola; and Otis Elevator are among the illustrations. Many concerns adopt both plans, and even though they have expanded largely by merger, they have expanded still further by the construction of new plant facilities.

THE UNPREDICTABILITY OF COMPETITIVE STRUGGLE. Numerous reasons explain this phenomenon of industry dominance by a few concerns. Whatever the reasons, there is no rule that enables the investor to determine in advance the outcome of a corporate battle for survival in a given industry. The investor cannot anticipate the identity of the successful rival. He can only be patient and await the outcome.

The company, *ultimately* successful in acquiring a sufficiently large proportion of the business of an industry to justify the investor's expecting it to become one of the dominant concerns, is not always *immediately* successful. Excessively rapid expansion frequently involves financial penalties. Often, a successful concern, particularly in the earlier stages of expansion, is inefficient. The company may have been managed by dynamic personalities skilled in achieving increases in sales or of acquiring other companies. It may not have been able to reduce costs and improve services. It is, therefore, not surprising that a substantial percentage of concerns whose securities bear high investment ratings have gone through the valley of despair and have encountered many losses. Such outstanding companies as United States Steel, General Motors, Westinghouse Electric, Corn Products Refining, Diamond Match, and Atchison Topeka & Santa Fe are but a few of the many that could be cited.

Companies may, however, benefit in the long run from unwise expansion and from still other errors in the short run. Some of the most brilliant successes have been made in the securities of companies temporarily overexpanded. The investor here again can be guided by no rule of unerring accuracy. Able management cannot be anticipated. In selecting the security of a company which has been

successful in expansion though temporarily unsuccessful in maintaining financial solvency, the investor must be guided by observation and experience.

Diversification of Output.—The task of locating a successful company in a particular industry has been complicated in the last quarter of a century by the increasing tendency toward the diversity of output. There are many companies, of course, that are successful in producing one good or service. Coca-Cola, Ford Motor, Hershey Chocolate, and concerns in the natural resource industries, such as ores, coal, natural gas, crude oil, and sugar, are significant illustrations. In manufacturing lines, however, a strong tendency toward multiproduct output prevails.

In the chemical and electrical equipment industries, for example, there are hundreds of specialties. Union Carbide & Carbon reveals a rapid growth in synthetic organics. It is also a leader in industrial gases and in plastics, and a major producer of ferro-alloys, thereby largely serving the steel industry. That company enjoys different percentages of control in different industries.

Though General Electric has less than a majority of the entire electrical equipment business, it controls more than a majority in particular fields such, for example, as incandescent lamps. Eastman Kodak produces photographic equipment, cellulose acetate filament yarn, acetate staple, fiber sheeting and molding powder. National Dairy Products, organized in the 1920's primarily as a fluid-milk distributing company, expanded into cheese and other products, including such articles as mayonnaise salad dressing, caramels, frozen foods, sandwich spreads, soft drinks, meat products, coffee, oleomargarine, and animal and poultry feeds. A more recent candidate for investment honors in the comparatively new television industry, the Philco Corporation, is also an important unit in the refrigerator industry.

There are various reasons for this trend. Consumption goods lines have been added to capital goods lines in order to promote stability of earnings. The heavy losses of Westinghouse Electric in the depression of the 1930's, for example, led that company to enter more extensively into the field of domestically powered appliances. In other industries, new products can be produced at low cost as joint products of a particular industrial process, using a by-product of one operation to produce new finished products, frequently of great value and productive of high profit margins. Hence meat packing companies have gone into numerous allied food lines, and some oil companies now produce chemicals.

In other cases, a search for products carrying high profit margins have been a motivating force. Leading concerns in printing ink have diversified into chemical specialties, such as paints, varnishes, lacquers, textile colors, household chemicals, and pharmaceutical and nutritional products. These newer articles have higher profit spreads than the older and well-established lines of printing inks.

Shift from Declining to Expanding Line.—Perhaps the most significant cause of industrial diversification is the effort to reverse corporate fortunes because of the decline in demand for a major good or service. Declining demand is a serious threat to financial and investment stability. Able management of corporations, adversely affected by declining demand, shift to the production of those goods or services favored by expanding demand. Some notable corporate successes have been thereby achieved. York Ice, faced by a drop in sales for ice manufacturing equipment, shifted to the production of air conditioning equipment and has thereby achieved a fair measure of success. Mullins Manufacturing, for many years a producer of stampings for a wide variety of industries, succeeded in reversing its declining trend of earnings by entering the field of kitchen equipment. In that line it has made good profits. Pullman Company, long a manufacturer of railroad equipment, invested part of its ample cash balance in the manufacture of petroleum refining equipment. Another concern in the same industry, American Car and Foundry, has endeavored to retrieve its declining fortunes through the acquisition of companies in the motor bus, trolley equipment and in the tank car transportation industries. This program has not been particularly successful.

In raw materials, diversification has been motivated by the same factor. Weyerhaeuser Lumber, in the middle 1930's, entered into a field promising more profit than that of lumber. It built a number of sulphite pulp mills and, since that time, has expanded its activities into this relatively profitable activity. International Agricultural Chemical, faced in the 1920's and 1930's by declining demand and low profits in phosphate rock, changed its management and launched upon a program of expansion into potash and numerous chemical specialties obtained as joint products in its potash operations.

In another standardized industry, flour milling, for which profit margins due to close competition are low, General Mills has, for more than twenty years, followed a program of profitable diversification. It has become a producer of popular packaged cereals, sales of which have increased many fold since their introduction. The profits from these products, supplemented by further ventures into

other seemingly nonrelated fields, have produced a profit margin and an earning power substantially higher than that obtained by competitors in the flour milling industry.

In judging competitive strength, it is therefore essential for investors frequently to examine a company's position in a number of industries. In most cases, statistical data on the percentage of business coming from various industries are not available. Investors must, nevertheless, examine the background carefully and reach approximate conclusions. Such conclusions, though not statistically accurate, serve as a basis for investment judgment.

Measuring Competitive Positions Within an Industry.—The relative position of a major company in an industry is not static. Whether the industry is growing or declining, competition among companies, be they few or many, is normally keen. The changing competitive position of two or more companies in a given industry can be measured in various ways. Comparison can be made between the growth of sales and the expansion in disposable income. In the expanding automobile and automotive accessory industries, for example, General Motors and Libbey-Owens-Ford are two of the major prosperous concerns. Using 1939 as a basis, a rise in the disposable income between 1934 and 1948 from 74 to 274 was accompanied by an expansion in the sales of General Motors from 63 to 342, and of Libbey-Owens-Ford from 58 to 299. Libbey-Owens-Ford supplies automotive glass for General Motors and a substantial part of the glass requirements of such companies as Studebaker, Packard, and Willys Overland, plus some business for Ford.

A similar comparison of the rise in disposable income with the sales of Greyhound Corporation and of the passenger business of the railroads emphasizes a point that should keep investors on guard in the interpretation of statistical data. Using 1935 to 1939 as a basis, disposable income between the bottom of the depression in 1932 and 1944 moved from 71 to 214, gross revenue of Greyhound from 59 to 343, and Class I railroads' passenger revenue from 93 to 440. This record might be construed by unwary investors as a reflection of the expanding character of the passenger railroad business. This conclusion would be incorrect. The substantial advance in the early and middle 1940's reflected temporary wartime forces. By 1949, the railroads' passenger revenue had dropped to an index number of 212, while the Greyhound's gross revenue had increased to an index number of 403.[3] It is important that statistical data by industry

[3] Index numbers furnished by Argus Research Corp.

and by company be continuously examined and re-examined in order to eliminate nonrecurring influences.

Another measure of the relative growth of a company is a comparison between its sales trend and that of the industry. To use the Greyhound illustration again: though no reliable continuous figure of Class I Motor Bus carriers is available, authoritative studies indicate that their passenger miles quadrupled between 1935-43 as compared with a twelve-fold gain for Greyhound. This figure must again be carefully interpreted. A substantial proportion of this company's expansion program has been carried out by the acquisition of other companies, and it is therefore necessary to check this rise carefully with the rise in net profit. The profit comparison is also favorable to the enterprise and reveals an expansion program profitable to the stockholder.

Important to the investor is the increase in the percentage of business of an expanding industry controlled by a particular company. Many investment successes emerge from companies in this category. Notable illustrations are afforded by Scott Paper, in toilet tissue and toweling; Merck and Abbott Laboratories, in ethical drugs; American Can, in metal containers; Sears, Roebuck, in decentralized price appeal merchandise; and International Business Machines, in that industry, to mention only a few. A major company, increasing its percentage of business in an expanding industry, that does not score a success for its investors, is rare. This statement does not exclude the possibility of financial reversals in periods of overexpansion.

In local public utilities, such as water, street railway, telephone, electric light, and gas distribution, the rate of expansion is normally regulated by local considerations. In an expanding public utility industry like electricity, the growth of a successful company may lag far behind the growth of the industry because of the slow growth of the community served. A company located in such a community grows less rapidly than its sister companies in the industry. Consolidated Edison of New York, for example, has expanded its sales substantially less than the average rate of the industry. Between 1930 and 1947, its electricity revenues increased 49 per cent as compared with 93½ per cent for the country as a whole; while in the 1940-47 period, the figures were 32 per cent for the company and 57.9 per cent for the industry. Another unfavorable experience was recorded by the Boston Edison, reflecting the lack of growth in its community. With the index 1930 = 100, the number of its customers increased to 119 in 1946, while the number for the country

increased to 147. Comparison of kilowatt-hour sales shows the same unfavorable trend.

In nonpublic industries, such wide differences in the rates of growth among major companies rarely develop. Competition and the existence of a national market reduce lagging companies to a position of investment insignificance. Both intraindustrial competition and a national market do not prevail in local public utilities, however, and investment values can and do emerge for a company which is falling behind in its relative industrial standing.

CHANGES IN COMPETITIVE POSITIONS. Sometimes dramatic changes occur in the relative competitive position of one company within a given industry. In automobiles, the dominant position held by Ford Motor was lost in the late 1920's. General Motors and Chrysler thereafter captured a substantial part of the business. Coca-Cola has long occupied a position of relative strength in the soft drink industry, although in the late 1930's and early and middle 1940's, its position was challenged by the growth of Pepsi-Cola. In ethical drugs, the dominant positions of Parke-Davis and E. R. Squibb was reversed in the 1930's and 1940's by the phenomenal expansion of Abbott Laboratories, Pfizer, and Merck. Not until the late 1940's were the first two of these drug companies able to introduce new policies that enabled them to retrieve part of their lost fortunes.

Such changes in the intraindustrial position of companies occur in a wide variety of industries. In cigarettes, there is a constant flux between the big three (American Tobacco, Liggett & Myers, and Reynolds) and also in the relation between these major companies and the two smaller ones (Philip Morris and Lorillard). Between 1948 and 1950, there was a considerable shift in sales among these five cigarette companies doing most of the business. Of their combined sales, American's share dropped from 35.0 per cent in 1948 to 33.2 per cent in 1950, and Liggett & Myers, from 22.2 to 20.2. Reynold's share advanced slightly from 28.6 to 28.9. The share of the smaller companies increased by wider margins: Lorillard's from 5.6 to 6.4, and Philip Morris' from 8.6 to 11.3 per cent.[4] Prior to the 1940's, American, Liggett, and Reynolds dominated the industry. By 1950, Philip Morris and Lorillard had acquired sufficient business to qualify them for admission into the select circle of dominant concerns. The upward sales sweep of Philip Morris in the 1940's was accompanied by an upsurge in the price of its stock, at

[4] Percentages from Argus Research Corp., *R. J. Reynolds Tobacco Co.*, Apr. 30, 1951.

the very time when the prices of the stocks of its competitors were declining.

In oil refining, meat packing, chewing gum, copper, diesel engines, electrically powered accessories; in machine tools, railway equipment and in other equipment designed for particular industries; in metropolitan as well as in decentralized retail chains; in food, drug, shoe and variety chains, as well as many other industries, changes occur frequently between the competitive positions of major concerns. It is, nevertheless, a striking phenomenon that a position of major importance once attained is rarely lost. Major companies in an expanding industry rarely disappear. Competition results usually in the surrender of only a part of the business to a competitor. If the company is in a growing industry, a smaller proportion of the enlarged sales might, and usually does, lead to a substantial increase in sales.

A notable illustration is afforded by United States Steel. Upon its formation in 1901 it controlled about 44 per cent of the country's annual steel capacity, as compared with slightly less than one-third in 1951. The company was, nevertheless, in 1951 more powerful, industrially and financially, than in 1901. The smaller percentage of the higher production in 1951 produced greater profits and served to support higher prices for its securities.

Established business affiliations, reputations based upon years of trading, patents or trademarks, or advantages based upon low cost, or on superior qualities, especially in natural resource industries, are difficult to upset. Within the pattern of an expanding industry, characterized by relative declines in selling prices based upon cost reductions, the major companies maintain a status of competitive importance. After periods of trial and tribulation, a company becomes seasoned.

There is a tendency toward major competition in the natural resource industries. The location, from time to time, of new oil fields, or of copper, iron, lead, or zinc deposits, produces new competitors. In the 1940's, smaller copper companies, such as the Magma Copper, Miami Copper, Copper Range, and Quemont Mining discovered substantial deposits, and in that decade, they either prepared plans to exploit the ores at some future date, or like the Quemont Company in Canada, installed the machinery and began production.

The Government introduced competition in aluminum on a substantial scale. In 1940, the Aluminum Company of America was the only domestic producer in the industry. By 1950, it produced only about 50 per cent of the industry's output. Reynolds Metals had, since 1926, been making aluminum foil, but in 1940 it entered the

field of primary aluminum by building two plants, and in 1949, through the purchase of six government-owned plants, it greatly extended its operations. Still another concern, the Kaiser Aluminum and Chemical, leased three major, government-owned plants in 1946, thus adding a new competitor. By 1950, this company accounted for 10 per cent and Reynolds Metals for 30 per cent of the industry's output.

Even in natural resource industries, however, competitors tend to consolidate into one or a limited number of more powerful enterprises. This happened in the copper industry in the early and middle 1920's, and until Government-sponsored competition of the 1940's, it was long the case in the aluminum industry. In tin, nickel, molybdenum, and sulphur, for example, low-cost reserves are found in relatively few, limited areas. Ownership of these has been acquired by a comparatively small number of corporations. In bituminous coal, on the other hand, ownership is more widely diffused. The largest companies control only a relatively minor part of the output.

Factors in Competitive Success. All this does not mean that the major companies always afford the best investment values. In many cases, probably in most, they do. The exceptions are too numerous to warrant the investor's assuming an attitude of complacency. Managerial lassitude by major companies has frequently led to investor losses. (See Chapter 16.)

The strategic dominance of so many industries by a limited number of concerns is due to powerful differential advantages. Welfare legislation of the last fifteen years, such as minimum wages, social security, high corporate taxes, and nationwide collective bargaining, has probably strengthened the major companies against their smaller rivals. Trade connections, differences in cost, consumers' preference based upon advertising and trademarks, control of a limited supply of goods or services through patents, by ownership of natural resources, or by superior financial management, give one or more companies in an industry a power that produces long-time benefits to the investor.

The investor must bear in mind that a basic advantage of a company within an industry is its power of expansion. Continuous increases in sales are necessary to absorb rising costs. "Yours is a rapidly growing company in a growing industry," John E. McKeen, President of Pfizer & Co., told the company's stockholders in 1951. This observation may well serve as an underlying philosophy for the maze of concepts customarily used in the analysis of data bearing on company success.

QUESTIONS AND PROBLEMS

1. Identify the dominant companies (whose securities are listed on the New York Stock Exchange) in the following industries. Approximately what percentage of the business, dollar sales basis, of the industry does each company control, on the basis of the last year for which data are available?

   a) Dairy
   b) Steel ingots
   c) Distilled spirits
   d) Tin containers
   e) Glass containers
   f) Rayon
   g) Airline transportation
   h) Copper
   i) Refined sugar
   j) Cigarettes
   k) Fiberglas
   l) Rubber tires and rubber products.

2. Take a successful company, i.e., one that has paid dividends for ten successive years or more, in the above industries or in some other industry, and identify the reasons for its success, either from the points mentioned in the chapter or because of other reasons.

READINGS

The basic data are given in the report of the Federal Trade Commission, *Concentration of Productive Facilities as of 1947,* and in T.N.E.C. Monograph #27, *Economic Concentration and Monopoly.*

Chapter 7

FINANCIAL STRUCTURE

A corporation's financial structure reflects the methods used and policies followed to finance its requirements, i.e., to build and to improve its plant and equipment, to secure the cash and credit needed to extend credit to its customers, to build up inventories, and to buy the goods and services necessary to carry on its business. The financial structure consists of long-term debts, short-term debts, stock, and surplus.

Short- and Long-Term Debts.—It is assumed that short-term debts, maturing generally in less than one year, can be paid out of liquid assets. This is an assumption, however, that is not always safe to follow. Particularly important is the approaching maturity of a heavy long-term debt in a period when refinancing is difficult. In the high money market of 1921, a $230 million joint debt of the Northern Pacific and Great Northern railroads, despite the high credit standing of the borrowing companies, was paid off on onerous terms.

An even more difficult problem confronted borrowing companies in the spring of 1933. At that time the money markets for both short- and long-term capital were closed, and such profitable concerns as Allis-Chalmers, American Rolling Mill, General Refractories, and Toledo Edison, for example, were unable to pay relatively small maturing obligations. Special arrangements for the payment or extension of these debts were made to avoid the stigma of default and insolvency.

VARIETY OF DEBTS. There is a wide variety of debts. The technical character of the lien and the nature of the contract expressing the relationships between borrowers and investors have over the past two decades, however, approached standardization, particularly in public utilities.

Regardless of the size or location of a company, the provisions of the contract between the borrower (company) and the lender (investor) are almost the same. The contracts in industrial bonds, even

in widely varying industries, similarly show little change. Prosperous utilities, such as electricity, telephone, water and natural gas, issue largely first mortgage bonds, though in recent years they have increased the amount of debentures, i.e., promises to pay with no mortgage provision, the security of which is based entirely upon the borrower's earnings.

Railroad bonds assume three principal forms: income bonds (on which the interest is payable if earned), first mortgage bonds, and equipment obligations. The latter are unique instruments. Railroad equipment, such as freight and passenger cars and locomotives, is bought *largely* with funds supplied by investors; the railroad usually makes some down payment. The title to the equipment is transferred to a trustee (for the investors), and the equipment is leased to the railroad. The rent paid by the road to the trustee for the use of the equipment is just sufficient to meet the principal and interest payments to the investor.

The equipment obligation is a certificate of participation entitling the holder (the investor) to participate in the distribution by the trustee of the rents received from the railroad. When all the equipment obligations are paid, the trustee, for a consideration of a nominal price, say one dollar, passes title to the equipment to the railroad. Under another scheme, the railroad uses the equipment, not as a lessee, but under a contract of conditional sale. Equipment obligations in the post-World War II period were issued in record volume in order to finance the railroad industry's program of modernization.

It should be noted that some older bonds, with an antiquated terminology, are still outstanding. Income bonds are created in reorganization plans and are exchanged for fixed interest bonds on which borrowers are no longer able to pay principal or interest or both. The issuance of this hybrid bond, instead of preferred or common stocks, is largely due to the fact that the fixed-interest bonds are held by institutions, such as life insurance companies and savings banks. Under the laws regulating their investments, they could hold bonds, but not stocks, except to a limited degree. By accepting income bonds in reorganization, the institutions retain the form though not the substance of their investment.

Major borrowing companies in the expanding and profitable industries, other than utilities, have for the most part issued debenture bonds. Their credit is good, their debt is low, their fixed charges are covered by wide margins. Hence, they do not usually elect to mortgage their properties, nor do the investors insist upon it. Mortgage bonds in this division of corporate borrowing are, accordingly, rare.

Many companies borrow money from banks and life insurance companies on a ten to fifteen year basis.

NO-DEBT STRUCTURE IS IDEAL. To the purchaser of a stock or bond, an analysis of the financial structure is indispensable. The investor here has a wide choice. In the industrial field, the ideal is a structure represented by common stock, with no bank loans and no bonds. This is a financial goal that every well-managed corporation desires to attain. Prudence and elementary considerations of safety, born of prolonged experience, dictate the wisdom of such a course.

Debts have the unhappy facility of maturing in times of stress. Experience in this phase of business life is fascinating to the observer though tragic to the investor. In 1907 and 1908, receiverships of the Chicago Great Western and the Wabash railroads and the Westinghouse Electric were precipitated by the inability to discharge relatively small maturing obligations. Receivership of the Erie Railroad early in 1908 was avoided by the dramatic decision of E. H. Harriman to supply the cash required to pay a small obligation. In 1916, the Wheeling and Lake Erie Railroad was another victim. Companies with high credit standing—Pennsylvania Railroad, operating companies of the American Telephone and Telegraph, and Kennecott Copper, for example—were obliged, in 1921, to pay from 6 to 8 per cent to raise funds to meet pressing obligations. Again in 1933, companies with good credit ratings, like those already mentioned, found themselves unable to discharge maturing debts.

Businessmen do not easily forget such harrowing experiences. Those who are surprised at the reluctance of many corporations to borrow are not aware of the lessons of experience. In the post-War II period, the incentive to borrow was particularly inviting. Record low interest rates of 3 per cent and less, together with the exemption of earnings used for interest payments from federal income taxes, encouraged the creation of debts. Despite these advantages, many profitable enterprises did not borrow. They did not avoid borrowing because they needed no funds. On the contrary, they were among the leaders in expanding their plants and in increasing their inventories and receivables. In most cases, they issued no securities whatsoever. They financed their needs from earnings. They raised funds to pay for their plant and equipment in the same way as they financed their payrolls.

These methods cannot be adopted to the same extent by the publicly regulated industries, such as the railroads and the utilities. Companies in these industries must, of necessity, borrow heavily. They borrow whether money rates are high or low. They borrow

whenever they expand and improve their plants, provided, of course, that investors are willing and able to purchase their securities.

Leverage.—In all industries, regulated and nonregulated, companies pursue varying financial policies. Some issue more bonds and less stock, and others issue more stock and less bonds. An enterprise that issues more bonds (and preferred stock) is said to have a "leveraged" financial structure. Normally, a corporation can earn more than the interest paid on a bond or than the dividend paid on a preferred stock. The difference between such earnings and the amount paid to bondholders and preferred stockholders accrues to the common stockholders. The earnings on the assets acquired with the funds provided by the bondholders and the preferred stockholders provides the "lever" that increases the earnings for the common stockholders.

A simple illustration will clarify the point. A company invests $1,000. It earns 7 per cent. It secures the funds through the sale of $800 of 3 per cent bonds and $200 of common stock. The earnings for the common stockholders, therefore, work out as follows: $1,000 times 7 per cent = $70. Interest on $800 of bonds at 3 per cent = $24. This leaves earnings of $46 on the stock investment of $200. This is a return of 23 per cent on the investment of the stockholder. Out of this profit, of course, the company must pay the debt, though some companies, like public utilities, consider a debt as a permanent fixture. When it matures, it is refunded.

Furthermore, when an earning power, say 6 per cent on the company's funds, *seems* in the mind of the investor reasonably to be assured by government action, the temptation to bond and preferred-stock financing increases. The demand in the 1940's for natural gas, for example, rapidly expanded. This fuel had a price and convenience advantage over its competitors. The investor, therefore, believed that the completion of a natural gas pipe line would be followed by capacity operation. The pipe lines, furthermore, had contracts both for the purchase and sale of the gas from and to responsible persons. In addition, the Federal Power Commission, the regulatory agency (prior to 1952), decided that these companies were entitled to a return of 6 per cent on the original cost of the property, less depreciation, plus working capital. Prudent lenders, such as life insurance companies, were attracted by a 3 per cent return. Natural gas pipe line companies in the post-War II period, therefore, issued bonds in large amounts. One company secured as much as 87 per cent of its funds through the sale of bonds, 3 per cent from preferred stock, and only 10 per cent from common stock.

REVERSE LEVERAGE. The airline industry followed a similar policy. The wartime boom was followed by a rapid postwar expansion program. Between July, 1945, and July, 1947, sixteen companies spent $235 million for property and equipment. More than $140 million was raised by bonds, $14 million from working capital and short-term loans, and less than $80 million from preferred and common stocks. In part, because of this program, the ratio of long-term debt to total capitalization increased from 0.19 per cent in 1945 to 44.6 per cent on June 30, 1947. Industry profits, contrary to expectations, declined; losses mounted; bank loans on top of long-term debts increased; and leverage in reverse reduced earnings and market prices per share in 1947, 1948, and 1949.

If the optimistic expectations of the borrower do not materialize, then reverse leverage occurs. Interest exerts additional power, or leverage, in reducing earnings for the stock. To continue with the previous hypothetical illustration, earnings on the $1,000 drop to 2 per cent, or $20. The interest of 3 per cent on $800 of bonds is $24. The company is insolvent. The reduction in earnings from 7 per cent to 2 per cent on invested capital reduces the earnings for the common stock from 23 per cent to a deficit. The inability to realize earnings on a high debt in a period of poor business by otherwise well-managed corporations in profitable industries is a major cause of corporate failure and investment losses.

Importance of Earnings Per Share.—Leverage may thus be defined as an arrangement between debt and stock, whereby a change in earnings is accompanied by a proportionally more rapid change in the earnings for *each share of stock.* A relatively small change in total profit induces a much wider change in earnings per share. In prosperity, the earnings per share of a leveraged company increase more rapidly than the per share earnings of a company that is less leveraged. Once the earnings cover interest charges, a given increase in dollar earnings produces more earnings per share of a highly leveraged company, merely because there are fewer shares. The holder of such a stock has fewer "partners."

Unwary investors, not familiar with this problem, are likely to be attracted to a company with a rapid rise in earnings per share. In view of the heavy interest charges, rising earnings increase the coverage of interest charges only slightly, even though the earnings per share of common stock rise substantially. An illustration taken from the railroad industry in the late 1920's and early 1930's is instructive. The St. Louis and San Francisco and the Atchison, Topeka, and Santa Fe are competitors between Kansas City and

Oklahoma and western Texas. Table 8 compares various traffic and financial factors in typical years between 1924 and 1931:

TABLE 8

SELECTED DATA OF ATCHISON, TOPEKA, AND SANTA FE, AND ST. LOUIS AND SAN FRANCISCO, 1924, 1929-1931 SHOWING EFFECT OF LEVERAGED STRUCTURE, IN YEARS OF DECLINING EARNINGS
(In millions of dollars)

	1924	1929	1930	1931
Atchison, Topeka and Santa Fe				
Preferred stock	124	124	124	124
Common stock	232	241	242	242
Bonds	275	311	310	309
Net railway operating income	47.2	68.6	44.8	31.4
Income available for fixed charges	53.7	74.4	50.5	36.5
Fixed charges	11.5	12.7	12.8	12.8
Times fixed charges earned	4 6	5.8	3 9	2.8
Net income	42.1	61	37.3	23.1
Income per share common stock	15.47	22.69	12.86	6.96
St. Louis and San Francisco				
Preferred stock	7.5	49.1	49.1	49.1
Common stock	50.4	65.5	65.5	65.5
Bonds	299.0	280.0	296.0	293.0
Net railway operating income	21 0	21.0	16.5	9.4
Income available for fixed charges	21.4	22.9	18.5	10.2
Fixed charges	10.4	12.5	12.7	13.3
Times fixed charges earned	2.0	1.8	1.4	(def.)
Net income	10.5	10.1	5.6	(def.)
Income per share of common stock	11.76	11.82	4.08	(def.)

Because of the heavy debt and fixed charges of the St. Louis and San Francisco, a drop of 55 per cent in the income available for charges between 1929 and 1931 made the company insolvent. Its earnings were insufficient to pay its interest. Because of the Atchison, Topeka, and Santa Fe's lighter debt and fixed charges (relative to its capital liabilities and income) a decline of 50 per cent in income for charges in the same period reduced the margin for interest from 5.8 times to 2.8 times, a reduction of about 52 per cent. The company, however, remained solvent by a comfortable margin. While the earnings per share of common stock of the former road disappeared, those of the latter declined from $22.69 in 1929 to $6.96 in 1931, a drop of about 70 per cent.

Although there were other relevant factors, it is probably close to the truth to say that the one road remained solvent while the other descended into bankruptcy principally because of a difference in the size of the outstanding debts. In the period of expansion of the rail-

roads and the public utilities, a heavy debt was normally the main cause of investor losses.

In prosperous years, however, heavy debts and preferred dividends frequently make possible sensational expansion in earnings *per share* of common stock. The percentage increase in gross revenue and in dollar profits is substantially less than the percentage increase in dollars available for the common stockholder. In these years, the stockholder in a leveraged company—often a company with a poorer credit standing than a nonleveraged one—fares exceptionally well. The earnings applicable to the stock, the dividends paid on the stock, and its market price advance rapidly. An example taken from the railroad industry in the post-World War II period is illuminating. The New York, Chicago, and St. Louis had approached insolvency in 1938. It had difficulty in financing a bond maturity, and the price of its common stock had dropped to $7 a share. In January, 1943, its stock was still selling at $11 a share. By October, 1950, accumulated unpaid dividends on the preferred stock amounted to $60 per share. Observe, now, the data for this company for 1940 and 1950, in Table 9, and note the spectacular rise in the per share earnings on the common stock.

TABLE 9

SELECTED DATA OF NEW YORK, CHICAGO AND ST. LOUIS, 1940 AND 1950, SHOWING EFFECT OF LEVERAGED STRUCTURE, IN YEARS OF ADVANCING EARNINGS
(In millions of dollars)

	1940	1950
Preferred stock	36.0	36.0
Common stock	33.7	33.7
Bonds	153.7	119.5
Net railway operating income	8.5	25.1
Income available for fixed charges	10.6	25.8
Fixed charges	7.0	4.8
Times fixed charges earned	1.51	5.32
Net income	3.6	21.0
Income per share common stock	4.29	52.34

The St. Louis and Southwestern and the insolvent Missouri Pacific (in bankruptcy since 1933 and remaining so in 1952) serve as additional illustrations. The student will find it of interest to work out these illustrations for himself.

EFFECTS OF A POOR ERA. The squeeze on a leveraged structure usually comes in periods of poor business. A failure may be costly,

for a company may lose its working capital and its position in the industry and may require many years for its recovery. It is significant to observe that, in the profitable automobile industry, for example, almost every enterprise that issued bonds in the 1920's was unprofitable, lost its position of competitive strength, or defaulted in its interest payments. Observe the procession: Durant, Studebaker, Willys-Overland, Maxwell Motors, Auburn Motors, Dodge Brothers, and Pierce Arrow. Of these, Auburn, Durant and Pierce Arrow were liquidated; Willys-Overland and Studebaker passed through receivership; the debts of Maxwell Motor and Dodge Brothers were assumed and subsequently paid off by Chrysler. Observe further that the three companies controlling a large proportion of the business of the industry, Ford, General Motors, and Chrysler, issued no bonds. General Motors, under the first administration of William C. Durant early in its history, sold some bonds. It learned its lesson and, thereafter (except for an issue in 1946 which it paid in 1948), prudently and successfully avoided any such further experiences.

In many industries, the less successful competitors with ragged dividend records are frequently chronic borrowers. Those companies that succeed in avoiding or minimizing debts are normally, though not always, the efficient and low-cost enterprises. Within a given pattern of demand for their products or services, their earnings and dividends are usually, though not always, more stable than those of their debt-issuing competitors. They have normally a better supply of working capital and are thus able to spend more money for research and to develop new products and services. The high-grade stock investments are most frequently to be found in the debt-free and low-debt companies.

Loss of Investor Confidence. In many expanding and profitable industries, leading companies create debts that frequently produce financial reversals. After the debts are liquidated or reduced to manageable proportions, investor confidence is not immediately restored, and the stock may for some time continue to sell at relatively low prices. Before buying its stock the careful investor awaits a new record of earnings and dividends and the solidification of the company's financial position.

International Paper, a leader in the newsprint and kraft industry, entered the depression in 1930 with a heavy debt of $72 million. By 1946 this debt was eliminated. Its finances in 1952 were good, and its earnings high. The price of its securities, however, remained low in relationship to its earnings and dividends. Another example is

afforded by Anaconda Copper. This company in 1928 had a heavy system debt of $119 million compared with capital stock of $182 million. By the end of 1948, the company had paid off its debt. Both this company and International Paper paid no dividends during the long period of debt liquidation. The stock of Anaconda Copper, like that of International Paper, had by 1952 not recovered its former investment status.

The chemical industry, long featured by dynamic growth, has borrowed little. Du Pont and Allied Chemical and Dye—two of the big three in the industry—have for many years borrowed nothing. Air Reduction, a smaller concern though a leader in the field of oxygen and acetylene, had, in the ten-year period from 1939 to 1948, increased its sales by 244 per cent, but because of new competitive factors its margin of profit declined almost 50 per cent. In 1947, it passed the extra dividend (equal to its regular dividend) that it had paid for a number of years, and at the same time it created a bond issue.

Union Carbide and Carbon, second largest in the chemical industry, has increased its earnings in the past quarter century and, for the first time in many years, found it essential to finance part of its program by borrowing. After World War II, it created a note issue of $150 million. Though the price of Air Reduction stock declined about 60 per cent between 1946 and 1950, the price of Union Carbide moved up in line with the pattern in the chemical industry. Both stocks in 1952 were highly regarded by the investor.

This tendency toward debt creation in this industry is not looked upon with satisfaction. The ratio of debt to capital liabilities of the chemical industry, on the basis of the eleven largest companies, rose sharply between 1946 and 1948. One observer expresses the growing fear of debt financing in the following way: "A chemical company built on funded debt is inviting domination of its program by outside financial groups. It is dooming itself to a 'play it safe' philosophy that inevitably will leave it far behind its competitors. All chemical manufacturers know this, and increase funded debt only as a last resort." [1]

Choice of Bonds Based on Financial Structure.—The investor in many profitable industries must, therefore, make an investment choice based upon a debt philosophy. He can buy bonds, mostly debentures (except in railroads and utilities), of companies whose debts are only a small part of their capital liabilities. These are high-grade bonds. In this category are the obligations of such enter-

[1] *Journal of Commerce*, June 3, 1948.

prises as Standard Oil of New Jersey, Dow Chemical, and Gulf Oil. In the publicly regulated and expanding industries, bonds issued sparingly by well-managed companies are also among the more desirable securities. These include the bonds of such companies as Commonwealth Edison, Consolidated Edison of New York, Detroit Edison, Philadelphia Electric, Bell Telephone of Pennsylvania, and New York Telephone, among others. These bonds are outstanding in amounts usually less than 50 per cent, and in some cases, less than 40 per cent of total capital liabilities. The bonds of the largest of the publicly regulated enterprises (American Telephone & Telegraph) represented in 1951 approximately 44 per cent of capital. That amount, in the opinion of the management as expressed in the company's annual report for that year, was "still too high."

The earnings of a well-managed company in a prosperous nonregulated industry may be as high as ten to twenty times the interest. In an expanding, though publicly regulated, industry the earnings of a good company range from three to five times the interest.

As the volume of bonds issued against existing assets and a given earning power increases, their investment quality decreases. Rules of thumb have been set up to determine the point where investment value stops and speculative value begins. Such rules are useful as suggestions to aid the investor's judgment. Whether a financial structure containing one dollar of stock to one dollar of bonds of an industrial makes the bond good depends, among other things, upon the cyclical or noncyclical nature of demand for the goods of the industry, of the extent of price cutting in a period of slow business, or of the relation of labor costs to total costs in a period of rising wage rates, and so forth. Similar differences characterize the utilities and the railroads. A ratio of fifty cents of stock to fifty cents of bonds, though too low for a street railway, for example, would be adequate for a telephone company operating in the same area.

Choice of Stock, Based on Financial Structure.—The investor buying common stock is also confronted with the necessity of making a choice. If the company has a small debt and many shares, the price of its stock within a given industry and a given financial strength and earning power *tends* to sell at a high price and to yield a relatively low return. If the company has no debts, the price of the stock *tends* to be even higher and the return even lower. It is impossible to draw any hard-and-fast arithmetical conclusions. Market prices of stocks reflect so many other circumstances. It is, however, probable that the investor usually, though not always, pays a premium in the form of a higher price for the stock of a company with

no debt or with a debt of small proportions. The stocks of companies with substantial debts do not, normally, command this premium. (See Chapter 22.)

It is clear, nevertheless, that more bonds (and also preferred stocks) and fewer shares of common stock create more leverage for heavily indebted companies. Preferred stockholders and bondholders provide more capital to work for the common stockholder. There are more dollars of senior securities (i.e., bonds and preferred stocks at par values) and more preferred dividends and interest payments per common share. The aggressive investor or trader gloats over a high leverage, while the careful and defensive investor, wanting less leverage, hesitates and runs. The former keeps his eye on the high profits to the stockholder from a rise in earnings; the latter levels his sights on the heavy losses arising from a drop.

The company with little or no debt can follow a flexible managerial policy. It can face a depression with equanimity, since it need not consume its liquid assets to pay interest and, perhaps, principal. During such a period, it can buy inventory at low prices. It can pursue a consistent research policy without disturbance by creditor claims; it can maintain its staff of skilled technicians awaiting the return of better times. It can plan its plant expansion and technological improvement programs without fear of interruption by creditor pressure. In the period of transition from depression to prosperity, it can use its liquid assets to take advantage of the upswing in consumer demand and to realize improving profit margins. It need make no appeals to either the commercial or investment bankers. Such companies can reduce or eliminate dividends in depression and use their resources for sound corporate purposes. These are some of the considerations that have led so many well-managed companies to forego the temptations to create heavy debts.

Financial Structures of Commercial Banks.—The financial structure of a commercial bank is unlike that of most other industries. A bank has no expensive plant and equipment, though many banks own office buildings that do a substantial rental business. Neither does it have a heavy selling expense. It needs no long-term financing program to raise funds for these purposes. A bank does, however, need capital—liquid capital—for a unique purpose. A bank has heavy liabilities; they are called deposits. The deposits are invested partly in cash and United States Government securities. These assets are presumed to be riskless, though Government securities under some circumstances, carry an element of risk. (See Chapter 17.)

The remainder of the assets (other than the relatively slight portion in bank premises) consists of loans and securities (other than those of the United States Government). It may happen that the loans and securities will not be paid when due and the securities, furthermore, may decline in price. Depositors may also withdraw their funds when it is impossible to convert assets into cash at prices equal to their cost to the bank.

The bank's capital, represented by common stock, surplus, and undivided profits and reserves, serves as a fund to protect the depositors. From the standpoint of the investor in bank stocks, however, the relation between a bank's assets and its capital accounts are examined in light of their leverage effects. A national bank pays interest on time deposits, but none on its demand deposits (those that can be withdrawn by check). The bank earns a return on all of its assets, except of course on its cash. The greater the assets for each dollar of capital accounts, the greater the leverage. In the 1930's and 1940's, leverage for bank stocks increased substantially. Between 1934 and 1951, for example, the ratio of capital accounts to assets of insured commercial banks declined from 13.2 per cent to 6.7 per cent. More than 300 banks in 1951 had a ratio of less than 4 per cent, while 244 had a ratio of 15 per cent or more.

This increase in the amount of assets per dollar of capital accounts is justified, in part, by the heavy increase in United States Government securities held by the banks. These riskless assets are believed to require only slight protection by the banks' capital funds. Even with these securities (and cash) eliminated from the calculations, however, there has been a considerable expansion in leverage. Between 1934 and 1951, the ratio of capital accounts to assets, exclusive of cash and government obligations (again for the insured commercial banks), declined from 26.1 per cent to 16.6 per cent.[2] This relationship is called the risk-asset ratio. In relation to bank loans, the riskiest asset in the banks' portfolio, the trend is the same: loans have increased more rapidly than capital.

One would conclude that this increasing leverage, especially in the prosperous 1940's, should have produced rising earnings, dividends, and market values for bank stocks. Operating expenses, however, in line with inflationary forces increased, while selling prices for services rendered (e.g., interest rates) declined to abnormally low levels. Banks throughout the 1940's and the early 1950's needed more capital to protect their risk assets. Bank stocks, however, sold at prices that made the cost of raising funds too expensive at the then existing dividend rates. In 1952, financial structures of

[2] Data from *1951 Report of Federal Deposit Insurance Corp.*, p. 43-44.

many commercial banks, in the opinion of conservative investors, had too few shares of stock in relation to deposits. There was excessive leverage.

Rents in a Leveraged Structure.—Although interest and preferred dividends, which are payable ahead of common dividends, can be computed from the balance sheet, the amount of rentals payable cannot. Interest and rent are, however, in substance though not in form, comparable expenses for the use of property. Interest is paid to the holder of debts against property owned by the borrower; rent is paid to the owner of the property by the tenant. Both interest and rent are contractual payments, and both are deductions from income. To compare *only* the interest payments of two or more companies when there are large rentals, in order to reach conclusions on comparative bond values, is to invite grievous errors. One company may have only a nominal debt, or none at all. Based on the balance sheet, its financial structure may have less leverage than another with a heavier debt. The company with a small debt may, nevertheless, have greater leverage than the company with a larger debt. Its rents, payable annually, may be higher than the interest on the bonds of the other, perhaps even more than the latter's interest plus repayments of principal.

The nonpayment of rent leads to the same financial disasters as the nonpayment of interest. As a result of the former, the property is transferred to the landlord and, in the latter case, to the lender. In both cases, the property is lost to the stockholder. In years of prosperity the difference between the earnings on the owned or leased property and the fixed dollar interest or rent payments accrues to the benefit of the stockholder.

A good example of the problem involved may be taken from the department store industry. Gimbel Brothers in 1951 had a debt of about $44 million. Most of this debt, $32.8 million, carried an interest charge of 3 per cent, while the bulk of the remainder paid 3½ per cent. Federated Department Stores, a company with greater earning power, had a debt of only $31 million, in February, 1951. Its annual rental payments, however, amounted to $4,047,000. Capitalized at 3½ per cent, this rent equaled a debt of $115,628,000, and at 3 per cent, of $134,900,000.

The financial structures of the railroads have also interest-rental problems. The New York Central and the Pennsylvania, for example, have much higher rentals than the Baltimore and Ohio or the Erie. The investor in railroad securities has a further problem to

consider. The New York Central and the Pennsylvania pay rents in the form of guarantees on preferred and common stocks of other railroads that own the property. The tenant railroads, however, own a large proportion of the stocks of the landlord railroads. To the extent of this ownership, the tenants really pay rents to themselves.

Under the accounting system prescribed by the Interstate Commerce Commission, the rentals paid must be deducted from income as a fixed charge, the same as bond interest. The income received from the rents paid in the form of dividends on the stocks of the landlord railroads, which the tenants own, must be included separately as income. From the total rentals paid by the tenant, the investor deducts that part received by the tenant as dividends on the securities of the landlord. The balance is the net rental that should be capitalized and added to the tenant company's debts.

The accounts of the Pennsylvania Railroad for 1949 may be used to illustrate the point. For that year the company paid in rentals on its leased roads $46,768,038. (The interest for that year was $24,846,471.) It received $26,408,744, as income in the form of dividends and interest on securities of leased roads. Its net rentals, the amounts paid to others, were, therefore, the difference between $46,768,308 and $26,408,744, or $20,359,564. Even this does not tell the entire story, for other roads—part of the Pennsylvania system, partially or wholly controlled by the Pennsylvania Railroad—received an additional $4,678,266 from dividends and interest on securities of leased roads of that system. The net rentals paid to investors, not connected with the Pennsylvania system, amounted to $15,681,000. Capitalized at 3½ per cent, the principal amount would be $448,028,000. On such a debt at 3½ per cent, interest of $15,681,000 would be paid. The debt of the Pennsylvania Railroad at the end of 1949 was $693,346,000. It is, therefore, important that an investor, in assessing leverage effects on such a property, should not overlook the rental account.

Postwar Debt Increases.—The post-World War II period, despite the avoidance of debt by so many corporations, has been featured by a heavy increase in debt. Department of Commerce data disclose that private corporate debt, long and short term, increased between 1945 and 1951 from $85.3 billion to $155.8 billion. A substantial percentage was created by the companies not in the highest investment category. Other sizable increases were made by well-managed companies in financing their heavy postwar expansion pro-

grams. A market for their bonds was found largely in the life insurance companies and savings banks.

In a period of rising national and corporate income, these debts can easily be serviced. When income declines, however, the interest charges remain. The tendency of debt creation may prove to be dangerous. The investor must watch the balance sheet to measure the changing financial structure, and the rise and fall in cash and in assets readily convertible into cash, for only cash can be used to pay interest and principal. He must watch the income statement to measure the changing relationships between income and interest, and between income plus balance-sheet liquid assets in relationship to maturing debts. He must take a running look into the future. The investor with vivid imagination, long memory, and skeptical or pessimistic temperament will sell the bonds or stocks of corporations with overweighted financial structures long before any significant reversals in financial values have occurred. In the face of declining national income and profits, the investor does well to sell bonds and stocks of companies with high debt ratios and low stock ratios.

QUESTIONS AND PROBLEMS

1. Careful investors prefer to buy the stocks of nonleveraged companies, while speculators prefer to buy the stocks of leveraged companies. Is this true? Explain.
2. What are present-day incentives to debt creation by corporations?
3. Discuss debt creation in the automobile industry, and the relative failure and success of the debt-issuing policy?
4. Compare for the past five years the companies with no debts or with only light debts, and those with heavy debts in the following industries: coal, biscuits, textiles, retail merchandising, and rayon. Study their relative financial success from the standpoint of the common stockholder.
5. Explain the nature and significance of reverse leverage.
6. Company A, in the variety chain store industry, has 50 per cent in bonds and 50 per cent in common stock outstanding. Company B, in the same industry, has 10 per cent in bonds and 90 per cent in common stock. Company A owns all its property in fee, while Company B leases 95 per cent of its property. In comparing the relative leverage and burden of fixed charges of both companies, why must the rentals paid under lease by Company B be considered? In comparing the relative debt burdens of the two companies, explain how the rentals can be converted into debts.

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Chapter 8

PREFERRED STOCKS

Varying Views.—There are widely varying views on the investment value of preferred stocks. Some skeptical investors consider preferred stocks risky. Preferred stocks share all the risks of common stock and, unless they are convertible or have a participating provision, get none of the gains accruing to such stock. If the company's earnings decline, then common and preferred dividends can be and frequently are passed. The management does not have to sweat to pay preferred dividends, as it must to pay interest. Even if the preferred stock is cumulative, unpaid dividends do not create a corporate liability. They set up only a priority against the common stockholder, who can receive no dividends until the preferred stockholder is satisfied. If the preferred dividend has not been paid for a number of years, and if the company realizes profits, the accumulated preferred dividends are frequently, perhaps in the majority of cases, not paid in cash. They are paid in common and preferred stock, thus making it possible for the common stockholder to get his dividends sooner. The management, it is assumed, is common stock-minded. The provisions in preferred stock contracts to transfer the management, in the event of the passing of preferred dividends, to the preferred stockholders, have not been particularly successful, that is to say, from the standpoint of the preferred stock investors. The fear of the transfer of control to preferred stockholders has not, generally, improved the quality of management.

To these theoretical objections there is added the record of experience. Taken as a group, the showing of preferred stocks is not satisfactory. The passing of preferred dividends and serious declines in market prices of preferred stocks have been excessively frequent in their occurrence, too much so to suit the views and needs of the careful investor. This critical judgment is well reflected by one statistical study of industrial preferred stocks. Of the new issues over a 60-year period, only 41 per cent paid all dividends in the critical decade of the 1930's. Although dividend arrears on another 25 per

cent had been paid by 1940, the stocks, in the opinion of the author of that study, could hardly classify as sound investments.[1]

This unfavorable judgment is by no means universal. Despite their theoretical deficiencies, preferred stocks, issued in small amounts by well-managed companies in growing industries, have proved to be sound investments. There are good and there are not so good issues in this investment sector as in others. It is not helpful to an understanding of the truth to lump the good and the bad and to draw conclusions. In fact, many high-grade industrial preferred stocks have displayed a better record than the high-grade bonds of many industries. Over the 40-year stretch from 1910 to 1950, many highly regarded bonds of many industries defaulted on their interest or principal, or on both. At some time during those years, these bonds sold at high prices, and gave the investor low returns. And at other times their prices dropped and the yields rose; or, because of the nonpayment of the interest, the yields disappeared. Illustrations are numerous. They include street railways, lumber, leather, railroad, anthracite coal, bituminous coal, sugar, fertilizer, and meat packing.

During these years, dividends on many high-grade industrial preferred stocks were paid with no interruption. Because many stocks were noncallable, investors fared even better than those who bought the best-grade bonds that had maintained their quality in all these years. Most of the bonds were callable, and in the years of declining money rates, they were called and the investor was obliged to buy bonds affording progressively lower yields. The investor in the noncallable preferred stocks, meanwhile, received his dividends regularly, and he was not a victim (through the redemption of his stock) of declining money rates. High-grade, noncallable preferred stocks fluctuate in price in accordance with money rates. Hence, the yields of these preferred stocks parallel those of long-term bonds, though with a higher return to the investor. (See Chapter 20.) A representative list of such preferred stocks is of interest and is presented in Table 10.

Industries Issuing Preferred Stocks.—In the thirty years 1920-50, numerous additional preferred stocks of good quality enriched the discriminating investor. These are noted under various headings in the following discussion.

RAILROADS. A survey of preferred stock issues by industries reveals significant variations in policy. The railroad industry has a considerable number of preferred stocks, but for the most part, they

[1] Roger F. Murray, "Preferred Stocks for Trust Investments," *Trusts and Estates,* Jan., 1948, p. 27.

TABLE 10

REPRESENTATIVE LIST OF NONCALLABLE PREFERRED STOCKS, WITH RECORD OF CONTINUOUS DIVIDEND PAYMENTS, 1910-50

Name of Company	Dividend Rate (per cent)
American Can	7
Corn Products Refining	7
Diamond Match	6
International Harvester	7
American Tobacco	6
Liggett & Myers	7
National Biscuit	7
G. W. Helme	7
American Snuff	6
Eastman Kodak	6
Ingersoll-Rand	6
Procter & Gamble	8
United States Tobacco	7

were issued not for cash to investors, but rather to disappointed and discouraged investors in reorganization. It is really surprising to observe the extent of this practice. The preferred stocks of a substantial majority of the leading roads are included in this category.

Only a few roads have sold preferred stock to raise funds: Illinois Central, Union Pacific, Boston and Maine, Bangor and Aroostook, Cincinnati-New Orleans and Texas Pacific, and Chesapeake and Ohio are major examples. Other important properties, such as the New York Central, Pennsylvania, Northern Pacific, Southern Pacific, and the Chicago, Burlington, and Quincy, have no preferred stocks. Most of the railroad preferred stocks passed their dividends at one time or other, and most of them were issued as securities of slight investment calibre. They were exchanged by insolvent roads in reorganization for their junior bonds, and occasionally in part, for senior bonds.

Railroads have been heavy borrowers. In its long history, over a century, the industry's credit, despite financial reverses and successive reorganizations, had been good up to the 1930's. There was normally a receptive market for its bonds, which were eagerly sought after by investors, particularly institutions. Railroads, therefore, in raising funds through the issue of senior securities, sold bonds instead of preferred stock. They thereby obtained capital on more favorable terms.

PUBLIC UTILITIES. Among utilities there are significant differences in the policy of issuing preferred stocks. Telephone com-

panies, like railroads, rarely sell preferred stocks. Neither the American Telephone and Telegraph nor its wholly controlled operating companies (the Pacific Telephone and Telegraph is an exception) have an outstanding issue. One of the non-Bell system telephone units, the General Telephone, has a preferred stock. The American Telephone and Telegraph system operating companies have evolved a distinctive financial pattern. They sell common stock to their parent company, and bonds to individual and institutional investors.

The electric, as well as the combined electric and gas, utility companies have, on the contrary, been large sellers of preferred stock. The electric industry started its career in the middle 1880's, and it grew until about the 1905-10 period, except for a few metropolitan properties, in the form of small companies. Few had good credit, and many delivered their securities to the electrical equipment companies, such as Westinghouse Electric and General Electric, in exchange for supplies and equipment. In these years, common stocks and bonds were issued almost exclusively.

In the expansion program of the industry in the period from 1900 and into the 1920's, preferred stocks were, however, sold in large amounts. By the end of the 1920's, preferred stock had become an accepted medium of financing the capital needs of the industry. Companies of almost all shades of credit standing have resorted to the use of this security. Table 34 on pages 398-99 presents a representative list of electric and gas utilities, and it will be observed that most of them have preferred issues. Almost all, furthermore, were sold to investors; they were not exchanged for other securities in the process of reorganization.

Public utility holding companies should not be included. The preferred stocks and the bonds of such concerns are not genuine senior obligations. They are (or rather were, since most of them have disappeared) common stocks, one or more steps removed. The holding companies held the common stocks of utility operating companies and, not infrequently, the common stocks of other holding companies. The poor investment record of the preferred stocks (and of the bonds) of many holding companies cast discredit not upon preferred stocks, but rather upon heavily leveraged financial structures.

That the disastrous career of the public utility holding company preferred stocks was not representative is strongly suggested by the record of the issues of the electric and of the electric-gas utilities. The preferred stocks of the well-managed companies, those, that is to say, which had satisfactory investment rating when they were issued,

proved to be desirable investments. The dividends were paid, in most cases, without interruption. Typical in this group are the preferred stocks of such companies as Commonwealth Edison, Consolidated Edison of New York, Philadelphia Electric, Southern California Edison, Pacific Gas and Electric, Kansas City Power and Light, among many others.

In the critical years of the 1930's, this class of quality preferred stocks justified the reasonable expectation of careful investors. Those who in the 1920's bought the highest-rated electric utility preferred stocks suffered no diminution of income in the 1930's. But those who, in the same years, invested their savings in the highest-rated railroad bonds lost a considerable part of their income in the following years. Statistical tabulations covering *all* preferred stocks of many industries and of a wide variety of investment qualities may disclose numerous facts. They do not, however, disclose the truth, and the truth in this discussion is the satisfactory record of investment quality electric utility preferred stocks.

High investment-quality preferred stocks, furthermore, fulfil investor expectations from still another viewpoint. Preferred stocks give the investor higher returns than those obtainable from the bonds of the same company, and lower than those realized from common stocks. There are, of course, some exceptions to the latter differential, especially when the common stocks of growing companies sell at high prices in anticipation of future dividend increases. Normally, however, the preferred shareholder accepts a lower income than that available to the common stockholder of the same company. In exchange, he gets the assurance that, in years of poor earnings, the common stockholder will get less income, or perhaps none, while he gets his income undiminished.

In the field of electric utility preferreds, this principle has been realized in practice. In the poor-earning years of the 1930's, the investment-grade companies continued to pay both interest and preferred dividends. A number of them, meanwhile, reduced their common dividends. In the majority of cases, furthermore, the prices of the common stocks dropped sharply, and by 1950, two decades after their price peaks were attained, these high prices had not been surpassed. Indeed, for the most part, 1950 prices remained substantially below the 1928-29 price levels. Common stock electric utility buyers in the 1920's thus had considerable capital losses, in 1950. The preferred shareholders, on the contrary, benefited in two ways: in the 1930's and 1940's their income was the same as in the 1920's, and the price of their stock, in almost all cases, substantially exceeded the purchase price paid in these years.

A word of caution must be added. Most of the investment-quality preferred stocks issued in the 1920's have since been redeemed and replaced by lower dividend-rate stocks. In these cases, of course, the loss in income was partially made up by the premium above the face value at which the stock was called.

Industrials.—There is one major difference, with respect to preferred stocks, between railroads and utilities, on the one hand, and industrials on the other. Railroads and utilities almost universally issue bonds; a debt-free company in those industries is a rarity. In the other group, a substantial proportion of the companies issue no bonds, and many other industrial companies issue bonds in small amounts. They are, however, not so reluctant to issue preferred stocks, and that, in turn, tends to make many of these securities desirable investments. On the basis of the record, many, perhaps most, of this class of good-quality preferred stocks have proved to be better investments than many highly rated bonds. Preferred stocks of no-debt companies have a first claim on earnings. That claim is not, indeed, supported by legally enforceable provisions. The priority in the distribution of earnings is, however, strengthened by adequate cash assets, sound expansion, long-term growth, and the reinvestment of earnings in plant, equipment, and working capital.

The preferred stocks of no-debt major companies in rapidly growing industries are, if issued in reasonable amounts, satisfactory investments. A representative list of preferred stocks issued by no-debt companies is presented in Table 11. The percentage of preferred stock to total capitalization, the number of times the preferred dividend was earned, and the earnings per share of preferred stock are also given.

It will be observed that the percentage of preferred stock to total capitalization for most of the companies is below 25 per cent; for a few, above 30 per cent; and for others, below 10 per cent. The earnings coverage for many of these stocks, particularly when they are issued in small amounts, is highly satisfactory. For 1950, Eastman Kodak with earnings of $1,003 per share, Ingersoll-Rand $741, American Radiator & Standard Sanitary $648, and United States Gypsum $348, are typical. For each of these companies, the preferred stock was less than 6 per cent of total capitalization.

As with bonds, so with preferred stocks: safety is an ally of moderation. When excessive resort to senior securities is avoided, the safety of such securities is increased. Stringent restrictions in railroad mortgages, beginning for the most part with the reorganization

TABLE 11

PREFERRED STOCKS OF REPRESENTATIVE LIST OF INDUSTRIAL COMPANIES WITH NO OUTSTANDING DEBTS

Capital Structure, Earnings Coverage, and per Share Earnings, 1950 Data

Company	Percentage of Preferred Stock to Total Capitalization	Times Earned: Preferred Dividends	Earnings per Preferred Share
American Brake Shoe	31.7	7.4	$ 30.06
American Radiator & Standard Sanitary	2.8	95.0	648.67
American Smelting & Refining	20.0	12.2	(n) 85.44
American Snuff	26.3	8.0	40.85
Anchor Hocking Glass	21.0	19.3	87.92
Armstrong Cork	24.9	12.4	49.80
Atlas Powder	27.3	8.7	37.49
Borg Warner	12.0	48.4	171.42
Case (J.I.)	11.7	17.0	162.92
Corn Products Refining	18.7	13.5	93.74
Container Corp.	14.5	30.0	151.74
E.I. du Pont de Nemours	21.8	27.7	114.50
Eastman Kodak	1.7	154.5	1,003.28
Endicott Johnson	12.0	3.2	19.23
General Motors	11.8	64.6	(n) 294.13
General Railway Signal	15.5	15.	76.35
Glidden	14.7	17.4	42.91
Great Atlantic & Pacific Tea	25.9	18.3	126.91
Hercules Powder	12.2	36.3	166.06
Hershey Chocolate	25.2	13.6	53.58
Ingersoll-Rand	3.2	93.5	741.60
International Nickel	9.2	25.6	176.51
International Paper (Moody's Service)	6.67	72.44	289.77
Jewel Tea Co.	30.2	14.3	58.73
McCrory Stores	16.8	26.5	87.75
Montgomery Ward	3.9	53.0	367.93
National Lead	27.2	12.6	83.66
Pfizer (Chas.)	10.8	49.5	203.91
Scott Paper	29.6	18.0	65.41
United Aircraft	20.6	10.2	51.01
United States Gypsum	5.4	54.6	348.60
United States Tobacco	8.6	14.5	31.15
West Virginia Pulp & Paper	15.4	20.5	92.91

(n) Nominal debt: less than 5 per cent of total capitalization. Data taken from Studely, Shupert & Co., Boston.

of the 1890's, placed a wholesome restraint upon management. The sense of prudence displayed by numerous industrial managements in the issue of preferred stocks was not, however, the result of contractual injunctions and restrictions. It was voluntary, and this mana-

gerial characteristic has served to protect preferred stockholders against theoretically adverse possibilities, such, for example, as the creation of heavy debts.

Another significant aspect of the no-debt preferred stocks should be noted. Most of these stocks are callable. They can be paid with the proceeds of bond issues. Interest would be less than preferred dividends. Also, federal income taxes would be lower: there is no tax on income used to pay interest, while there is a tax on income used to pay preferred dividends. Many of the preferred stocks, despite these savings realizable from their redemption, are not called. Investors thus continue to receive a satisfactory return on their preferred holdings.

All of the no-debt preferred stocks are not of the same investment quality. Aside from the earnings coverage, there are other features that introduce quality variations. Some companies, such as du Pont, National Lead, and Corn Products Refining, for many years had no debts, and they paid preferred dividends regularly. Their preferred stocks obviously are of better quality than those of companies of more recent entry into elect investment circles. International Paper issues, for example, were for a number of years veritable pariahs in the investment community. The company needed more than twenty years to pay its debts and to initiate dividends.

Many other industrial preferred stocks, though preceded by debts, are high-quality investments. Major companies in growing industries issue both bonds and preferred stocks in relatively small amounts. There are, for example, strong ratios of net quick assets and of plant values behind preferred stocks of such companies as Corning Glass, Dow Chemical, and Monsanto Chemical. Investment in plant capacity out of earnings also tends to increase earnings coverage for the senior securities. The preferred stocks of such companies may not have the highest statistical coverage. Earnings of Dow Chemical and Monsanto Chemical do not cover preferred dividends by as wide a margin, for example, as do those of Minneapolis-Honeywell Regulator. The margin is, however, adequate in both cases, and the greater incidence of growth and the more stable nature of demand for the products of the Dow and Monsanto companies are weighty offsetting factors.

Particularly strong stress should be laid upon the stability factor. Earnings of such companies as Dow and Monsanto, and of American Tobacco, General Foods, General Mills, and Quaker Oats, for example, do not fluctuate with the business cycle to the same extent as do those of Armco Steel, Wheeling Steel, and Servel. A smaller

earnings-coverage for the preferred dividends of the former group may give the investor greater protection than a considerably higher coverage for the latter.

Statistically, the earnings per each share of preferred and the earnings in relation to preferred dividends and fixed charges combined can be studied, not for one year, but over a complete business cycle—say from 1935 to 1950. There are, however, deficiencies in such an approach. The earnings of a rapidly expanding company may be underestimated. A company may have charged its expense accounts with heavy sums for research and plant expansion, or its earning power may have been realized only in the last few years of the period. American Cyanamid, Dow Chemical, and Merck & Co. are good examples of the defects of a 1935-50 average. On the other hand, the last few years of the period for which the earnings are averaged may represent peak earnings—the approaching end of a growing company. Chicago and Northwestern and Baltimore and Ohio are equally pertinent examples of the deficiency of a 1915-29 average. There is no rule on these matters.

Table 12 presents a representative list of preferred stock of industrial companies with outstanding debts.

Convertible Preferred Stocks.—Preferred stocks, convertible into common stocks, are attractive to some investors. Prior to the 1930's, there were many convertible bonds, and some turned out to be profitable. The number of convertible bonds have, since the early 1930's, been greatly reduced, though in the latter 1940's, there were a number of issues in the telephone and electric utility fields. Many companies in the postwar years have issued convertible preferred stocks. The plant, equipment, receivable, and inventory-expansion programs could be financed in many cases only with the help of outside capital. Price, in relation to dividends paid, was too low to justify prudent managements in selling common stocks. At market prices then prevailing, it would often have been necessary for companies to pay from 7 to 10 per cent for common stock money, and frequently even more. The better-grade companies sold their bonds largely at private sale to insurance companies and other institutions.

Since many companies, in postwar years, were disinclined both to create more debts and to issue more common stocks, the logical alternative was the sale of preferred stocks. Most of these concerns were members of expanding industries. They were profitable, and upon completion of their expansion programs in whole or in part, they might be expected, given a prosperous national economy, to increase their earnings. Some investors, skeptical of common stock

TABLE 12

PREFERRED STOCKS OF REPRESENTATIVE LIST OF INDUSTRIAL COMPANIES WITH OUTSTANDING DEBTS

Capital Structure, Earnings Coverage, and per Share Earnings, 1950 Data

Company	Percentage of Preferred Stock to Total Capitalization	Times Earned: Preferred Dividends and Fixed Charges	Earnings per Preferred Share
Allied Stores	17.2	8.4	$ 58.36
American Tobacco	10.1	4.2	79.19
Armco Steel	6.3	17.5	257.76
Bristol-Myers	17.7	7.8	66.74
Cluett, Peabody	29.4	7.4	167.37
Continental Can	7.1	6.7	99.15
Corning Glass Works	17.1	58.7	(n) 198.92
Diamond Match	24.2	5.5	13.36
Dow Chemical	16.5	9.1	72.88
General American Transportation	9.9	3.6	42.35
General Foods	12.0	17.0	109.15
General Mills (May 31, 1950 fiscal year)	32.7	7.3	42.34
Goodyear Tire & Rubber	13.6	5.5	61.66
B. F. Goodrich	8.1	12.4	163.39
Grant (W.T.)	19.3	11.7	54.02
Liggett & Myers Tobacco	5 8	5.8	139.20
Lorillard (P.)	11 9	4.5	68.75
May Department Stores	19.3	12.9	63.81
Mead	12.9	7.0	65.30
Minneapolis-Honeywell Regulator	18.1	25.4	115.90
Monsanto Chemical	13.2	18.9	107.10
Philip Morris	20.9	5.7	52.96
Reynolds (R.J.) Tobacco	16.9	5.9	53.68
Servel	14.6	7.3	53.73
Sharp & Dohme	46.0	10.6	36.68
Standard Oil (Ohio)	12.0	10.2	83.46
Sterling Drug	15 3	12.9	115.53
Sun Oil	3 3	45.9	389.41
Union Oil (California)	7.6	6.3	70.11
United States Rubber	25.0	3.6	37.87
United States Smelting, Refining & Mining	39.7	1.1	(n) 3.68
United States Steel	16.9	7.9	59.80
Wheeling Steel	20.9	6.2	50.67
Wilson	21.9	2.6	19.25

(n) Nominal debt: less than 5 per cent of total capitalization. Data taken from Studley, Shupert & Co., Boston.

prices, were, however, willing to buy preferred stocks with convertible provisions.

A representative list of convertible preferred stocks is presented in Table 13. Except for the last column, the data are as of November 4, 1949. The first seven columns are self-explanatory. Column 8, Present Conversion Value of Preferred, is obtained by multiplying column 5 by column 7. For example, American Brake Shoe preferred is convertible into 2.25 shares of common. Each common share on November 4, 1949, sold at $32. Hence, the conversion value of the preferred was 2.25 times 32, or 72. The preferred stock, however, sold at 101, or at 140 per cent of its conversion value. This relationship is noted in column 9 and is computed by dividing column 2 by column 8. Column 10 is the return (on the basis of returns on preferred stocks of comparable quality with no conversion privilege) that an investor should receive on nonconvertible preferred stocks. American Brake Shoe preferred, it is thought, should return 4 per cent, while Minneapolis-Honeywell preferred should return only 3.50 per cent. Column 11, Ratio Price to Value as Straight Preferred, indicates the premium the investor pays for the conversion privilege. Take Armstrong Cork, for example. The stock without the conversion privilege should yield, it is estimated, 3.79 per cent (see column 10). At what price should a stock paying 4 per cent sell in order to return the investor 3.79 per cent? Divide 4.00 by 3.79 and the answer is 105. The selling price of the stock (in column 2) is 113. And 113 divided by 105 is 107. The investor is therefore paying about 7 per cent more for the stock than its value as a preferred issue with no conversion privilege.

This premium paid for the conversion privilege is a risk factor. To the extent of the premium, the investor is paying a price for a potential increase in capital. He is in reality thus buying a call on the common stock. Of course, he buys with a theoretical floor, though in practice this floor is fairly flexible. If the price of the common stock declines, the preferred stock will drop to the price representing its investment value as a preferred stock. The size of the premium reflects the expectation of the investor of the future value of the conversion privilege. Observe that, on November 4, 1949, American Cyanamid and Dow Chemical preferreds sold at prices that reflected premiums for conversion rights of 23 per cent and 38 per cent, respectively (column 11). These were substantial premiums to pay. The optimism of the investors was, however, abundantly justified. In less than two years, these two preferred stocks sold at 294 and 267½, respectively—a handsome capital appreciation from the November 4, 1949, prices of 108 and 110.

TABLE 13

REPRESENTATIVE LIST OF CONVERTIBLE PREFERRED STOCKS

Data as of November 4, 1949 Except for Column 12

Issue	(1) Dividend	(2) Price	(3) Call Price	(4) Per Cent Yield	(5) Conversion No. of Shares Common	(6) Feature to	(7) Price Common	(8) Present Conversion Value of Pfd.	(9) Ratio Pfd. Price to Conversion Value	(10) Estimated Value as Straight Pfd. (Basis)	(11) Ratio Price to Value as Straight Pfd.	(12) Highest Price of 1951, prior to Sept. 1, 1951
1. American Brake Shoe	4.00	101	102½	3.96	2.25	9/30/57	32	72	140	4.00	101	114
2. American Cyanamid	3.90	108	105	3.24	2.35	6/30/57	45	106	102	4.00	123	294
3. Armstrong Cork	4.00	113	105½	3.54	2.00	1/ 1/58	47	94	120	3.79*	107	120
4. Beneficial Loan	3.25	81	106	4.02	2.80	5/31/51	27	75	108	4.25	107	85¼
5. Dixie Cup A	2.50	52	45	4.81	1.00	(p)	35	35	148	5.32	110(c)	70
6. Dow Chemical 2nd	3.25	110	105½	2.95	2.15	7/14/57	51	110	100	4.10	138	267½
7. Dresser Industries	3.75	77	107½	4.87	2.50	9/14/55	18	45	171	4.87	100	93½
8. Food Machinery & Chem.	3.25	92	102½	3.53	2.01	(p)	27	54	170	3.90*	110	107
9. General Mills	3.37	108	104	3.08	2.00	(p)	52	104	104	3.92*	127	120
10. Liquid Carbonic	3.50	68	103	5.15	2.77	2/ 1/51	15	42	162	5.15	100	81
11. McCrory Stores	3.50	99	105½	3.54	2.50	(p)	34	85	117	3.80	112	106½
12. Minneapolis-Honeywell	3.20	98	109	3.27	1.33	(p)	60	80	123	3.50	107(c)	134
13. Southern Cal. Edison	1.14	31	27	3.67	0.92	(p)	34	31	100	4.50	122	30⅛
14. United Aircraft	5.00	108	105	4.63	2.50	1/ 1/52	23	57	189	5.00	108	112⅛

* Based on yield of outstanding nonconvertible preferred.
(p) Perpetual.
(c) Called. Price is highest prior to date of call.
Except for last column, table was prepared by Richard B. Willis, Assistant Vice-President, Land Title Bank and Trust Co., Philadelphia, Pa.

The negative phase is provided by the price movements of two stocks bought at premiums in 1946. On April 10 of that year, Liquid Carbonic 3.50 per cent preferred and McCrory Stores preferred, with the same dividend, sold at 119 and 120, respectively. The premiums paid for the conversion privileges were 35 and 31 per cent. In the first eight months of 1951 the highest prices at which these stocks sold were respectively 81 and 106½. On November 4, 1949, they sold at 68 and 99.

Computation of Earnings Coverage.—For a preferred stock of a no-debt company, the earnings available for the preferred are compared with the dividends. Thus, if a company earns $60 a share on a $6 preferred stock, the dividend is earned ten times. This method is not acceptable for a debt company's preferred stock. There is the same flaw in this method as in the prior deduction method for the computation of earnings coverage for junior bonds. (See Chapter 9.) For such a preferred stock, i.e., of a company with bonds, the earnings are compared with the sum of the preferred dividends and fixed charges. Thus, Allied Stores in 1950 earned (in millions) $27.7; interest was $1.1; taxes were $11.7; and preferred dividends paid were $0.8. Earnings after taxes (but before preferred dividends and interest) amounted, therefore, to $16. million, while preferred dividends and interest charges combined amounted to $1.9 million (16 divided by 1.9 equals 8.4). Preferred dividends and fixed charges were therefore earned 8.4 times, as noted in Table 12, column 2.

Sinking Funds.—An effective argument against the investment quality of preferred stocks is their lack of maturity. If money rates rise, callable preferred stocks usually remain outstanding; they are not redeemed. If rates fall, however, they are frequently called—especially if the stocks are of high investment merit—and are replaced sometimes by preferred stocks with a lower dividend rate, though upon occasion they may be redeemed with funds on hand, or with funds raised through the sale of common stock. Occasionally they are retired with cash raised by the sale of bonds.

When money rates rise and the market price of the preferred stock falls, the investor has a paper capital loss on his hands. If he needs cash and sells his stock, his paper loss becomes real. When money rates decline, and his stock is called (usually at a premium, it is true), he must seek another investment, and since money rates are lower, his return is also lower. This phenomenon also characterizes bonds. Bonds, however, have a maturity date, and as they

approach maturity in a period of rising money rates, their prices rise from discounts below face to their face values.

The investor—in both bonds and preferred stocks—should have no reasonable objection to the redemption of his security at a premium, but there is, of course, strong ground for dissatisfaction with a preferred stock whose price drops sharply. A remedy, a partial one of course, to this deficiency is a sinking fund. A company is required to set aside out of earnings, funds sufficient (before payment of common dividends) to retire some of the preferred stock. If the latter is selling below its face value, the company or its agent can buy it in the open market, thus sustaining its price. If the stock is selling above the callable price, the stock can be called, or the company can ask stockholders to tender stock. Whether the company buys the stock in the market, or directly from stockholders by call or tender, the earnings coverage of the remaining stock is increased—assuming of course that all other factors influencing earnings remain unchanged.

In the postwar years, especially after the stock market decline of 1946, the number of sinking-fund preferred stocks increased. For various reasons, including unprofitable price cutting in some industries, substantial price declines in some preferred stocks occurred. General Tire & Rubber, 3¼ per cent preferred, for example, dropped from 100½ in 1946 to a low of 45 in 1949.

Willys-Overland 4½ per cent preferred was an even more tragic case, both for the investors and the bankers. The stock was sold in 1946 at 100; the bankers were unable to sell all the stock at the issue price. Shortly after the stock was issued, the price declined precipitately to 50, and in 1949 to a low of 42¾. The operation of a sinking fund in 1946 might not have prevented, or even seriously retarded, the price decline of the Willys-Overland stock. This preferred stock had a sinking fund, which, however, did not begin to operate until December 15, 1948.

Many investors believe that, over the years, sinking funds aid in sustaining market prices, and by decreasing the number of outstanding shares, also increase their investment quality. A representative number of preferred stocks with sinking funds, showing separately those in the industrial and in the electric- and gas-utility groups, is listed in Table 14.

Sinking fund preferred stocks in the natural gas pipeline industry, one of the rapidly growing industries in the post-World War II years, have traced a clear-cut pattern. They are for the most part set up in such a way that they are retired over a 30-year period.

TABLE 14

REPRESENTATIVE LIST OF PREFERRED STOCKS WITH SINKING FUNDS

October 1, 1950

I. INDUSTRIAL

Allied Stores 4%
American Metal 4½%
American Viscose 5%
Anchor Hocking 4%
X Beatrice Foods 3⅜%
Borg-Warner 3½%
Bristol-Myers 3¾%
Burlington Mills 3½%
Caterpillar Tractor 4.2%
Container 4%
Corning Glass 3½%
Crane 3¾%
Crown Zellerbach 4.20%
Dana 3¾%
Federated Dept. Stores 4¼%
Firestone Tire & Rubber 4½%
Flintkote 4%
Fruehauf Trailer 4%
General American Transportation $4.¼
General Foods $3.50
Gimbel Bros. $4.50
Goodyear Tire & Rubber 5%
M.A. Hanna 4¼%
Hecht 3¾%
H. J. Heinz 3.65%
Hershey Chocolate 4¼%
Jewel Tea 3¾%
Johnson & Johnson 4% 2nd
M. Lowenstein 4¼%
May Dept. Stores $3.75
Minnesota Mining & Manufacturing 4%
National Cylinder Gas 4¼%
Philip Morris 4%
Pillsbury Mills $4
United States Plywood 3¾%
Safeway Stores 5%
St. Regis Paper 4.4%
Scovill Manufacturing 3.65%
Alex. Smith & Sons Carpet 3½%; 4.20%
Squibb $4
Standard Oil (Ohio) 3¾%
Thompson Products 4%
Union Oil of California 3¾%
X United Aircraft 5%
Westinghouse Electric 3.80%
Wilson 4¼%

II. ELECTRIC & GAS UTILITY

Appalachian Electric Power 4.5%
Consumers Power $4.52
X El Paso Natural Gas $4.25
Florida Power 4.90%
Kansas City Power & Light 4%
New York State Electric & Gas 4.50%
X Northern Indiana Public Service 4½%
Northern States Power (Minnesota) $4.80
Potomac Edison 4.7%
Southern California Edison 4.88%
Transcontinental Gas Pipe Line, $2.55

X—also convertible into common stock.

Preferred stocks, in most cases, exhibited good dividend records in the postwar years; though, since this was a prosperous era, the feat was not spectacular. Their price movements were largely the outcome of the prosperity of the company and the industry. The postwar profitability of the rayon, ethical drug, and paper industries may be taken as illustrations. Thus, American Viscose, Squibb, Bristol-Myers, and Crown Zellerbach preferred stocks sold at relatively stable prices, though they were, of course, not exempt from price fluctuations due to changes in money rates. Bristol-Myers 3¾ per cent preferred, for example, reflected the 1950-51 rise in interest rates by a downward price movement from 105½ to 94½.

Prices of other preferred stocks with sinking funds reflected disturbing profit and other financial factors. Fruehauf Trailer 4 per cent preferred, with a sinking fund authorizing the purchase of stock at a premium, sold at 67 in 1949, due for the most part to a decline in earnings from $45.80 per share preferred in 1948 to $23.73 in 1949 and also to the heavy debts created after the issue of the preferred stock. Other sinking fund preferred stocks whose prices moved within wide price ranges in the postwar years are Gimbel Brothers and Burlington Mills.

A sinking fund, obviously, is no protection against an impairment in earning power or financial strength. It does, however, buttress the price of a stock within a given pattern of money rates, especially as the age of the stock increases. The supply of the stock is then reduced and the earnings coverage increases, assuming of course a given volume of earnings. This expectation can be defeated by the issue of new series of preferred stocks, as so frequently happened in the post-World War II years.

The increasing tendency toward the use of sinking funds and convertible provisions in preferred stock issues leads to an interesting concept. These two features in the same stock theoretically throw a protective cordon around preferred stocks in two ways. When a company's profits rise, the conversion privilege permits the preferred shareholder to participate in prosperity. When its profits fall and the price of the preferred stock tends to drop, the sinking fund acts as a sustaining price influence.

Conclusion.—Preferred stocks should not be judged as a class. There are various investment grades. The dividends on the high grades are well protected by earnings. The no-debt company preferreds, in theory, are first claims upon earnings, and have recorded a satisfactory investment experience. Heavy interest charges have, on the contrary, tended to impair the investment quality of other preferred stocks. Some of the poorest records have been made by stocks in this category; though there are also many high-grade ones in the same group. Discrimination and careful analysis in this field should pay the investor well.

The tax phases of preferred stocks are examined in the chapter on taxation.

QUESTIONS AND PROBLEMS

1. In 1951, interest rates advanced. A good measure of such advance was the decline in price of United States Government 2½ per cent bonds due in 1972 from 102 to 97. In that year, Philco Corporation (tele-

vision, refrigerators, etc.) 3¾ per cent preferred stock declined in price from 95 to 81; Panhandle Eastern Pipe Line (natural gas) 4 per cent preferred stock declined from 104 to 92; and American Viscose (rayon) 5 per cent preferred declined from 120 to 116. Explain why the American Viscose preferred price declined so little as compared with the other two stocks. What data, in addition to that given above, are needed to consider this problem? What general principles can be deduced from the price movement of these three preferred stocks?

2. Is it possible, over a considerable period of time, for the price of a preferred stock and a common stock (both high-grade investments) of a well-managed company in a growing industry to move in opposite directions? Explain the conditions under which such a contradictory price movement may occur.
3. Explain how, theoretically, an investment-quality convertible preferred stock can be used as a hedge against a short sale of common stock of the same company.
4. Under what conditions may preferred stocks (nonconvertible) of good investment quality produce over a considerable period of time relatively high yields, as compared with the vast majority of other preferred stocks of similar investment quality?
5. Why is the conclusion reached in this chapter that preferred stocks as investments should not be considered as a single class or group?

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Chapter 9

FINANCIAL RATIOS

Importance of Balance Sheets and Income Statements.—The acid test of investment quality is registered in balance sheets and income statements. They record successes in dollars and cents; they are the records of past actions. Investors must examine these documents to measure managerial abilities and to interpret future possibilities. The tale of financial results embodied in income statements and balance sheets is told in the language of the accountant. Though there is a technique needed to understand these documents, it is one that can be understood with little difficulty. The relationships between various items in income statements and balance sheets require only a knowledge of commercial arithmetic. Only arithmetical ideas would be necessary, could the figures reported in these statements be taken at their face value. The financial significance of assets and liabilities must, however, be interpreted by the investor. Inventories, receivables, fixed assets, investments in and advances to other companies (particularly subsidiaries), reserves, and surplus have a value in financial terms that may or may not be the same as that which appears upon the company's books. The practice of financial analysis has the interpretation of book items in terms of financial and business realities as its major justification.

Terms Defined.—It will be helpful to present the terminology used in the balance sheets and income statement:

The balance sheet is a record, at a moment of time, of assets and liabilities. The income statement is a record of revenues and expenses.

Assets are the things owned. Fixed assets consist of real and personal property, such as land, buildings, and equipment, and are expected to be retained for a relatively long period. Securities of subsidiaries or of affiliated enterprises are part of the fixed assets. At times, they are separately stated. This may be suitable for convenience of accounting, but for purposes of investment analysis they are part of the fixed assets.

Current assets consist of cash, government bonds, accounts receivable, notes receivable, inventory, and marketable securities. They are assets that, in the normal course of business operations, are expected to be converted into cash within a one-year period, or within a short time thereafter.

On the liability side of the balance sheet, long-term debts include bonds and long-term notes.

Current liabilities are obligations that the corporation must discharge within the period of a year or slightly more.

Capital stock is the evidence of corporate ownership.

Nature of Surplus.—Surplus is a term which has been gravely abused. Surplus represents neither cash nor any other current asset, nor for that matter, any fixed asset. It represents, largely, earnings recorded on the income statement and not paid in dividends. These earnings are retained by the company and are used to finance its requirements. The funds are held in cash, or are invested in plant and equipment, in securities, or in inventory or accounts receivable. Surplus can be more accurately called invested or retained earnings. Earnings may be spent profitably or unprofitably. In either case, they are noted as "surplus" on the balance sheet.

The significance of surplus to the investor is, therefore, not represented by the dollar value appearing on the balance sheet. A heavy book surplus may characterize a bankrupt enterprise. Classical in this field are the railroads: a balance sheet surplus of many millions of dollars of the Chicago, Rock Island, and Pacific, the Chicago and Northwestern, the Wabash, and the New York. New Haven & Hartford in the early 1930's, did not save these companies from insolvency.

Neither did these surplus accounts interfere with the elimination of the common stocks by the Interstate Commerce Commission in the reorganizations of the 1940's. A generation ago, this Commission was disturbed by the accounting practice of many railroads. The companies, so said the Commission, had charged to operating expenses sums spent for the elimination of grade crossings, for new equipment, and for other capital purposes. Hence, their expenses were increased and their profits diminished.

The railroads, in 1911, asked for increased rates. The Commission, among other things, responded by ordering the railroads to charge expenditures for additions and betterments to asset accounts. This would decrease expenses and increase profits. It would also increase the railroad's balance sheet surplus. Hence, many railroads built up heavy surplus accounts. The surplus, however, was fre-

quently represented by assets that either never had any earning power or had, for many years, lost it. A distinguished attorney, in a rate case in the early 1930's, argued before the Commission that the heavy surplus reflected prosperity and that the industry, therefore, was not entitled to any rate increase. Such is the artistic beauty of technical jargon.

A distinction is drawn between earned surplus, paid-in surplus, and capital surplus. Earned surplus reflects assets acquired by the use of past earnings not paid in dividends. A paid-in surplus reflects that portion of assets acquired from the proceeds of the sale of stocks in excess of their par or stated values. A capital surplus is created by a restatement of book values, by a restatement of the par or stated value of a stock, or by a combination of such readjustments. The earned surplus, paid-in surplus, and capital surplus should not normally be accepted by investors at their balance sheet values. They may be worth more or less than those values.

In balance sheets of commercial banks and trust companies, but rarely of industrial concerns, the term "undivided profits" appears. Earnings in this account are normally available for dividend payments. The surplus of such institutions is considered a permanent part of capital funds and is not usually used as a source for dividend payments.

Nature of Net Worth.—Net worth is the difference between the assets and the liabilities; hence it is the capital stock plus surplus. Like surplus, it is a term that has been widely misinterpreted. High returns upon net worth have been used as a means to justify increases in wages and reductions in selling prices and to support the contentions that profits are excessive and that stockholders benefit at the expense of the wage earner, the consumer, or both. As far as any relationship between earnings and net worth is concerned, these charges have little basis in fact. Net worth to a considerable degree is a creature of accounting.

A company like Cluett-Peabody, manufacturer of men's wear, writes off millions for its good will and patents, thus reducing both its net worth and surplus. Another company does not write off this amount, thus maintaining its net worth. An oil company, Amerada, for example, spends large sums for drilling wells and charges these to operating expenses, thereby, for that year, neither increasing nor decreasing its net worth. Another oil company, Atlantic Refining, adds these expenses to its asset account, thereby increasing its net worth for that year. In automobiles, Chrysler charges to operating expenses the sums laid out for jigs, tools, and dies required for

changing its models. Another company charges these expenses to assets. The net worth of the first company remains the same. The net worth of the other increases. One company buys the stock or the assets of another. It places such stock or assets upon its own books either at cost, or at a figure equal to the net worth of the assets or stock on the books of the selling corporation, or at values determined by an appraisal of an engineering firm, or in some other manner. The net worth of the property is different in each case.

The net worth, like the surplus, does not always represent the stockholder's investment. Neither does it represent the market value of the investor's stock nor the liquidation value of the corporation's assets. Net worth is an arbitrary concept and may have little relation to the value of the stockholder's interest. "Faith in a single figure of 'net worth' to be derived from the balance sheet," writes an authority in accounting, "has fortunately been dispelled except for certain traditional legal purposes." [1]

Despite these deficiencies, the trend of net worth over many years is a significant measure of stock values. One of the early students of common stocks as investments set up a "law" that stock values grow in accordance with the rate at which earnings are reinvested in the business.[2] In appraising the merits of this conclusion, a distinction should be drawn between profitable and unprofitable industries and companies. Returns on net worth vary with companies and industries. (See Chapter 12.) In well-managed concerns in expanding industries, returns of from 15 to 30 per cent are frequently realized. This form of corporate savings, i.e., investment of earnings, is the safest kind of leverage. It costs the company nothing. No interest or preferred dividend payments are incurred. No heavy debt repayments are likely to threaten the company's solvency. Reinvested earnings are also helpful to the national economy. The demand for and the supply of savings are controlled by the same persons—the corporate directors. Savings are not hoarded: they are usually invested, i.e., they are spent, and for job-producing purposes; though expenditures that create jobs do not necessarily lead to profits.

A typical illustration of the productivity of reinvested earnings and the accompanying growth of net worth of an expanding company in an expanding industry is afforded by Jewel Tea. Table 15 shows the earnings realized on the total invested capital between 1935 and 1950. The increase was due entirely to reinvested earnings

[1] George O. May, *Financial Accounting* (New York: The Macmillan Co., 1943), p. 243.

[2] Edgar L. Smith, *Common Stocks as Long Term Investments* (New York: The Macmillan Co., 1924.)

between 1935 and 1940. Between 1941 and 1950, there was some preferred stock outstanding. The leverage effect of the preferred is reflected, in part, in the postwar rise in earnings on net worth.

TABLE 15

JEWEL TEA—TREND OF EARNINGS ON NET WORTH, 1935-50

(In millions)

Year	Total Invested Capital	Preferred Stock	Net Worth	Per Cent Earned on Net Worth
1935	$ 8.3	–	8.3	19.1%
1936	8.5	–	8.5	21.4
1937	8.8	–	8.8	16.8
1938	9.1	–	9.1	16.0
1939	9.0	–	9.0	17.5
1940	8.8	–	8.8	17.7
1941	14.2	5.2	9.2	16.6
1942	14.2	4.9	9.3	11.8
1943	14.3	4.9	9.4	10.1
1944	14.6	4.8	9.8	12.4
1945	15.0	4.7	10.3	13.0
1946	16.1	4.6	11.5	24.2
1947	20.3	7.5	12.8	25.5
1948	22.7	7 5	15.2	26.7
1949	24.3	7.4	16.9	24.4
1950	26.5	7.3	19 2	22.4

Source Argus Research Corp. release, *Jewel Tea*, August 3, 1951.

The New York Central Railroad, on the other hand, furnishes a typical illustration of the trend of net worth when reinvested earnings fail to realize adequate returns to the investor in a declining company in a declining industry. It may be observed, however, that the financial unproductivity of reinvested earnings does not impair its usefulness to the national economy. Corporate savings are invested (spent) for capital goods: money is disbursed for wages, supplies, and equipment. The investor, however, may share little, or not at all, in the resultant economic fruit of the corporate use of earnings in a declining company.

Table 16 presents, for the New York Central in the prosperous 1940's, the trend of net worth and the earnings on net worth.

Between 1940 and 1950 the net worth increased from $640.4 million to $872.5 million, an increase of 36 per cent.

Investment of corporate earnings increased net worth all right, but no expansion in profits followed. In the postwar boom, despite the increase in net worth, profits disappeared in 1946, declined to

TABLE 16

NEW YORK CENTRAL RAILROAD—TREND OF EARNINGS ON NET WORTH, 1940-50

(In millions)

Year	Total Assets	Long Term Debt *	Net Worth	Per Cent Earned on Net Worth
1940	$1,844.1	$614.6	$640.4	1.8
1941	1,881.8	601.2	736.7	3.5
1942	1,960.0	568.6	763.9	6.4
1943	2,102.4	544.6	815.7	7.7
1944	2,067.4	507.3	838.6	4.3
1945	1,734.7	494.3	853.1	2.8
1946	1,698.5	485.0	825.3	Deficit
1947	1,731.5	475.5	827.9	0.2
1948	1,754.2	474.1	840.9	1.7
1949	1,775.0	474.0	850.8	1.1
1950	1,843.5	469.9	872.5	2.2

* Excludes Equipment Obligations.

nominal levels in 1947, and remained on a low level in the three years following.

Working Capital.—Working capital is another term that the investor must scrutinize. By definition, it is the current assets minus the current liabilities. It pictures the extent, so it is believed, to which a company can convert its assets into cash within a reasonably short time. More accurately, it indicates the amount by which current assets can shrink before they will just equal current liabilities, which must be paid at face value.

Working capital is the blood stream of the company's affairs. Through the arteries pass the funds needed for the conduct of the business, for research, for the succession of new products so essential to rising earnings, and for the replacement of worn out and obsolete property. A rising supply of working capital is essential to growth, and the supply is continuously nourished from earnings, depreciation and depletion allowances, and from the proceeds of the sales of securities. Working capital per bond, per share of preferred, or per share of common stock are ratios readily computed and are widely used in financial analysis. Frequently, the working capital per share is compared with the market price per share. A company with a high working capital per share is presumed to have "financial fat" on which it can live during a period of business and earnings starvation. In the face of low earnings or even in the absence of earnings, it can continue research, maintain its technical and experienced help, and

preserve its organization intact, ready to expand as soon as business conditions warrant.

Here again, the investor must be wary. He cannot accept the concept of net working capital at its face value as presented in the balance sheet, either in relationship to each bond or share of preferred or of common stock. Inventory is a vital part of working capital. In many industries, however, inventory in substance, though not in accounting form, is part of fixed assets. A soap, textile, meat packing, fruit and vegetable canning, vegetable oil, or sugar company, for example, in order to conduct its business, must carry an inventory relatively heavy in relationship to current assets. The realizable value of inventory is affected by the way in which it is set up on the company's books. The inventory will have one value if computed on a basis of cost or market, whichever is lower, another if computed on a basis of average cost, and still another if computed on basis of replacement cost. It cannot be assumed that the inventory can be converted into cash at exactly its balance sheet figure.

Net Quick Assets.—A going concern frequently considers inventory or a large part of it as a fixed asset. This is so well recognized as to lead to the emergence of another concept known as net quick assets. From current assets, inventory is subtracted and from this figure current liabilities are deducted.

There is, however, no standard to guide the investor in determining the precise relations that should exist among the "net quick" (as this ratio is known in financial jargon) per share, the market price per share, and the earnings per share. In this, as in so many other aspects of financial analysis, no one ratio alone is controlling. A company that has spent less than necessary for repairs to maintain a high physical standard in its property, for example, generates more cash, which shows up in its working capital and in its quick assets. Or a company can capitalize its property expenditures and thereafter sell securities, thereby increasing its cash, thus bolstering its working capital and its quick assets.

Changes in quick assets should be compared with changes in debts. Quick assets may be bolstered through a bank loan or by the sale of long-term bonds. Such a company's quick assets may be diluted in future years by the payment of interest and principal.

Senior Securities.—There is at all times a question whether, in computing working capital for the common stock, allowance should be made for the senior securities. Bonds and preferred stocks have a claim on working capital ahead of the common stock. Some industries, notably the telephone, electricity, street railways, and some

companies in the meat packing, steel, and raw sugar industries, tend to look on their bonds as permanent obligations. When they mature, they are refunded. Some equity investors overlook the senior claims and determine the working capital per share accordingly.

When an industry has a heavy debt, however, it is not prudent to overlook the senior claims. And if the industry increases its debt in relation to working capital, the investor should take heed. The meat packing and raw sugar industries, for example, increased their debts in the inflation years prior to 1920. Their working capital per $1,000 of debt declined, and the severe commodity price deflation in that year emphasized the importance of working capital. Both industries have done hard work in reducing debts and in increasing working capital. But the lessons were harshly learned. Numerous receiverships, defaults, and prolonged dividend omissions represented the penance paid for their financial sins. Thirty years later, in 1950, the investor remains wary, and buys stocks of most of the companies in these two industries only at prices that afford relatively high returns.

The investor, under some conditions, however, may look with equanimity upon the stock of a company with a working capital deficit. A prosperous company in a profitable expanding and debt-issuing industry may be in the throes of a plant expansion program. It may be preparing to issue securities to finance its needs. A deficit in working capital for the common stock does not detract from the investment standing of either the company or its stocks. Investors, accordingly, were not disturbed in 1949, for example, by the almost $30 per share working capital deficit, after deduction for bonds and preferred stocks, of the Philadelphia Electric Company.

Successful companies in some industries with senior securities outstanding for many years report small ratios of working capital per share of common stock. Indeed, many have deficits. These companies have good credit standing and can, if necessary, sell securities to raise needed funds. Others do business on a cash basis, such as food, restaurant, and drug chains, while still others turn over their receivables rapidly, i.e., they receive payment on their outstanding accounts in from 10 to 30 days. The extent to which profitable companies whose securities have high investment merit have such slight amounts of working capital per share is significant. Table 17 gives a representative list.

Unexpected conclusions emerge from an examination of this table, conclusions that again throw doubt upon the universal usefulness of the working capital ratio. The lesson is driven home that a statistical relationship must always be critically examined in a background

TABLE 17

REPRESENTATIVE LIST OF SUCCESSFUL COMPANIES WITH SENIOR SECURITIES, SHOWING THE FINANCIAL RATIO OF WORKING CAPITAL PER COMMON SHARE, 1939-50

Name of Company	Working Capital per Common Share											
	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Scott Paper	d0.85	d0.90	d0.23	0.06	0.05	0.83	1.12	1.72	1.38	2.07	0.69	d1.89
Sharp & Dohme	d12.90	d12.38	d11.21	d10.43	d9.79	d9.22	d8.46	d6.70	d6.83	d4.69	3.30	3.52
Bristol-Myers	3.82	4.28	4.65	4.79	5.24	5.70	5.35	5.14	2.90	3.55	2.61	2.90
Radio Corporation of America ...	d5.02	d5.03	d4.98	d4.44	d2.87	d2.36	d2.02	d3.27	d3.34	d3.08	d2.75	d1.68
Crown Cork & Seal	d10.62	d10.62	d10.13	d10.52	d8.30	d6.28	d1.66	d1.08	d4.23	d3.23	d2.15	d1.66
International Business Machines ..	d2.28	d1.38	d3.08	d4.96	d3.66	d3.37	d1.63	d6.08	d8.90	d15.79	d19.05	d22.20
American Brake Shoe	7.35	7.91	9.24	10.17	11.45	10.73	15.63	13.25	2.93	0.36	0.46	2.47

d—deficit
Data from Studley, Shupert & Co., Boston.

of wide knowledge and experience. Take, for example, International Business Machines Corporation. Its stock stands in the higher ranks of successful growth companies. For many years, its stock has sold at high prices and has yielded exceptionally low returns to the investor. Yet, for every one of the 12 years covered in the table, the company had a deficit in working capital per common share. American Brake Shoe, on the contrary, a company in the railroad equipment industry, whose stock enjoys only a fair investment rating, had a high ratio of working capital per share until 1947. Even in the 1947-50 period, it had some working capital for each common share, while I.B.M. for these years had the most substantial deficit for the entire twelve year period. There are adequate explanations for this phenomenon, and the 1951 investor in the stock of I.B.M. was not particularly concerned. The point is, however, that, even though the working capital ratio per common share is important and in many cases vital to corporate success, no acceptability of its universal application can be assumed.

A significant contrast can be made between I.B.M. and the major cigarette companies. Both the former and the latter increased their debts in the 1940's. Both had low ratios of working capital per share. The yield on I.B.M. stock, however, remained low throughout these years, while the yields on cigarette stocks rose sharply. It is probable that the lowered working capital of the cigarette companies exerted some effect on the price of their stocks, though it had none on the price of I.B.M. stock.

Sales.—Working capital and sales are also compared. Here, the ratio of net sales per dollar of working capital is frequently used. An industry may have a high turnover, that is, its annual sales may be a high multiple of the year-end inventory. The inventory may turn over i.e., it may come in and be sold, say, in a month. The inventory would then turnover twelve times in a year. Such an industry—a food chain or a meat packing company, for example—would have a high ratio of sales per dollar of working capital. The Great Atlantic and Pacific Tea Company, one of the country's largest food chains, reported in 1950 (for its fiscal year ending February 28, 1951) net sales of $21.55 per dollar of working capital. This was much higher than the 1945 figure of $9.97. Most of the difference is probably due to the rapid rise in food prices. For a manufacturing enterprise in a capital goods industry, in which the inventory turns over slowly and a number of months, sometimes more than a year, is needed to finish a machine, the sales–working capital ratio is likely to be low. For Allis-Chalmers Manufacturing, a company making farm and electri-

cal equipment, the ratio in the 1940's ranged from a high of 3.99 in 1945 to a low of 1.67 in 1940. (The ratio of 0.84 in 1946 reflected the labor troubles early in that year and the resultant decline in sales.)

Sudden expansions in sales, whether due to higher physical volume or price increases, require more working capital in most cases. Such a need is registered in advances in the sales–working capital ratio. · Working capital must keep up with expanding sales. The inability to maintain proper relationship might lead to undesirable consequences: dividend reductions or omissions and bank loans. In the 1946-48 period of expansion, low stock prices in relation to dividends afforded high yields. Companies were, therefore, reluctant to sell equity securities. Hence, in order to bolster their working capital some sold bonds and preferred stocks. Still other methods are used, such as Sears, Roebuck's selling receivables to banks.

Cash–Current Liabilities Ratio.—The ratio of cash to current liabilities is also valuable in the analysis of financial statements. Cash and assets immediately convertible into cash, including government bonds and highly marketable securities, may determine the solvency of a corporation. Only such assets can be used to meet maturing liabilities; hence, this ratio is significant in reflecting corporate liquidity. For example, the value of Mack Truck's working capital of $27.03, at the end of 1948, compared with a market price of only $10, was impaired by the small amount of cash. Of the $56.2 million of current assets, only $5.6 million was cash, while current liabilities aggregated $15.8 million. Many are the companies with high working capital ratios and low cash ratios that have incurred heavy losses or have ignobly perished. The lethal dose is usually administered by an excessive inventory in a period of declining commodity prices.

An industry selling upon a cash basis requires only a low cash ratio. It does not follow, however, that companies in such industries may not become illiquid. They may, for one thing, be obliged to expand their plant and equipment. In the face of a poor securities market, they are likely to borrow money from the bank for temporary purposes. A financial crisis or a closing of the money and investment markets may place them in an embarrassing position. Furthermore, long-term debts may mature at a time when the investment and money markets make it difficult, or impossible, to refinance. Onerous terms may be exacted by senior creditors to the disadvantage of junior lien creditors or by creditors to the disadvantage of stockholders.

In some industries, exceptionally high ratios of working capital, net quick assets, and cash assets may be needed. This is especially so in those fields in which the time required to complete the cycle of purchase, production, sale, and conversion of receivables into cash is unusually long. Rubber, steel, hydroelectric equipment, aviation equipment, and motion picture production are illustrations. Here, the careful investor must familiarize himself with those ratios that normally characterize the successful companies within each industry.

Inflation and Deflation.—The working capital account, furthermore, must be analyzed in the light of inflationary or deflationary forces. A high percentage of inventory to current assets is a mark of good management in a period of rising prices, and of bad management in a period of falling prices. Between 1933 and 1935 when prices rose, such concerns as Sears, Roebuck and American Can substantially and profitably increased their inventory. High inventories in the 1920-21 period, however, impaired the earning power of many otherwise strong companies. In such industries as raw sugar, sugar refining, pulp and paper, lumber, fertilizer, leather, textiles, meat packing, and fruit and vegetable canning, high inventory losses combined in some cases with the secular decline in industrial growth to produce heavy losses. On the other hand, in the post-World War II years, price rises helped to increase the earnings of numerous industries, such as cotton and woolen, oil, textiles, lumber, nonferrous metals, pulp and paper, vegetable oils, and soap and soap compounds, among many others.

Well-managed concerns report their earnings and finances in such a way as to minimize the effects of inventory fluctuations. Through the setting up of reserves and the recording of inventories on the basis of replacement costs, nonrecurring elements in corporate profits are, to some degree, minimized. (See Chapter 11.) Investors look with suspicion upon profits in which inventory fluctuations play a large part.

Growth of Company.—The relative importance of working capital changes as a company grows. An expansion in production and sales should be accompanied by a corresponding strengthening of working capital. Substantial charge-offs for depreciation and payment of a small proportion of earnings in dividends enables a company to finance increased sales, in large part, out of its own resources. Outside credit may be needed only on occasion. When a company, however, is engaged in a rapid expansion program, it is frequently essential to secure outside help. A sudden increase in sales necessitates a rapid increase in inventory and receivables. The company's

growth may be so rapid, indeed, as to oblige it to increase its fixed charges. Before any long-term financial plan can be evolved, heavy bank loans may be incurred.

The investor frequently finds it difficult to interpret these changes. If a swollen volume of sales characterizes companies in a new industry or those with unsatisfactory dividend and credit records in an established industry, the investor may be skeptical. In a speculative market, where the contemplation of future possibilities is more important than the analysis of sober realities, the less conservative investor is likely to take a hand. He may purchase common stocks with the hope of getting both high returns and substantial appreciation. Many concerns, after World War II, built up satisfactory working capital positions. They paid small percentages of their expanding earnings in dividends; they paid their debts, expanded their plants, and improved their working capital. The inflation decade vastly improved their financial position—at least in terms of depreciated dollars. The number of such companies is lengthy, and the number of better investment grades of common stocks has also lengthened.

How High Should Working Capital Be?—Differences in working capital and net quick asset ratios prevail among companies whose stocks enjoy high investment ratings. Such concerns usually, though not always, maintain good liquid positions. How high should liquidity ratios be? There is no ready answer and there is no convenient rule. The best guide is that of safety. Sufficient working capital and quick assets should be retained to enable the concern to master any period of depression without resorting to temporary financial expedients, such as bank loans or voluntary recapitalization plans, to say nothing of insolvency. The financial position of such a concern should be sufficiently liquid to enable it to expand its plant and its inventories at the proper time in the early stages of a rising business cycle. At that time, wage rates are low, or, what amounts to the same thing, labor efficiency is high. Prices of materials, supplies and equipment are also low.

Sales per Dollar of Plant Investment.—Rapid sales expansion, characteristic of prosperous years, emphasizes the investment importance of still another ratio. Heavy expenditures for plant and equipment are required to produce the goods and services needed to meet increased customer demands. This leads to increases in annually recurring carrying charges. (See Chapter 13.) The higher expenses necessary to operate the plant addition must come out of higher sales. The greater the sales within a given pattern of costs,

selling prices, and operating and sales efficiencies, the greater the profits. Hence, the ratio of sales per dollar of plant investment is significant. A ratio of sales per dollar of gross and also per dollar of net plant investment is used. Gross investment is the total dollar cost, while net is cost minus depreciation. Rapid increases in sales-plant ratios occur normally in expanding industries. An illustration may be taken from the chemical industry. Table 18 lists ratios for a number of representative companies between 1939 and 1950.

TABLE 18

SALES PER DOLLAR OF GROSS PLANT INVESTMENT OF REPRESENTATIVE CHEMICAL COMPANIES, 1939 AND 1950

Name of Company	Sales per Dollar of Gross Plant Investment		Increase 1950 over 1939
	1939	1950	
American Cyanamid	$1.13	$1.66	47%
Allied Chemical & Dye	0.70	0.94	34
Dow Chemical	0.61	0.77	26
du Pont de Nemours	0.80	1.35	69
Hercules Powder	1.03	1.67	62
Monsanto Chemical	0.98	1.37	40
Union Carbide & Carbon	0.62	1.00	61

Source: Argus Research Corp., *American Cyanamid Co.*, July 5, 1951.

Du Pont shows the largest increase, followed closely by Hercules and Union Carbide. American Cyanamid is fourth. The investor, however, is interested in sales only as they contribute to profits. Therefore, a ratio reflecting profits is more significant. This is furnished by the ratio of profits (pretax) per dollar of plant. This ratio for the same companies and for the same years is presented in Table 19.

While du Pont showed the best sales gain, American Cyanamid had the best profit gain per dollar invested in plant. Opinions may differ on the reasons for the outstanding record of American Cyanamid. It may reflect superior operating efficiency, heavier research appropriations, and the manufacture of an increasing number of products with high profit margins. The probabilities are strong that all these factors contributed to the superior profit trends. There is no assurance, of course, that these trends will continue in future years.

The investor must use care in drawing conclusions from plant investment-sales relationships. Comparisons between industries are particularly difficult to make. Cement or electric light and power

TABLE 19

PROFITS (PRETAX) PER DOLLAR OF GROSS PLANT INVESTMENT OF REPRESENTATIVE CHEMICAL COMPANIES, 1939 AND 1950

Name of Company	Profits (pretax) per Dollar Gross Plant Investment		Increase 1950 over 1939
	1939	1950	
American Cyanamid	$0.099	$0.357	260%
Allied Chemical and Dye	0.106	0.171	61
Dow Chemical	0.110	0.185	68
du Pont de Nemours	0.298	0.551	92
Hercules Powder ...	0.169	0.304	80
Monsanto Chemical	0.159	0.323	103
Union Carbide and Carbon	0.155	0.313	102

Source: Argus Research Corp., *American Cyanamid Co.*, July 5, 1951.

require larger investments per dollar of sales than meat packing or cotton textiles. The sales turnover for the latter two industries is high, and hence, the sales per dollar of plant expense is correspondingly high.

Even comparison between companies in the same industry must be made with qualifications. Policies of integration or nonintegration or of sales specialization in one product as contrasted with sales diversity will exert varying influences. In the rayon industry, for example, Celanese exhibits a better ratio of sales per dollar of plant investment than American Viscose or Industrial Rayon. The investor must not conclude, however, that Celanese has a better plant efficiency. The difference may reflect

> ...the relative simplicity of the acetate process (Celanese) which requires less plant investment than the older and more complex viscose method but consideration should also be given to the higher dollar of sales emanating from the fabricating, plastic and chemical plant investment. Furthermore, in order to meet huge war time requirements, the company was able to increase the speed of its spinnerette and winding machines. It is believed that as a result the company experienced at least a 15 per cent betterment in rayon output without any increase in manufacturing facilities.[3]

Expansion in plant capacity may also be the by-product of a program of technological improvement. A modern printing press, for example, can run faster and print more pages in a given operation than the press it replaces. A Diesel electric locomotive has more

[3] Argus Research, April 22, 1947.

horsepower capacity than the replaced steam locomotive. A modern passenger bus has greater capacity than a prewar bus, thus requiring fewer vehicles to carry a given load. Improved machine tools, hydraulic presses, or the conversion of batch to continuous method processing, even though installed primarily for the purpose of reducing costs, normally leads to an increase in capacity. Modernization, therefore, may increase a company's plant capacity. An analysis based upon income statements, balance sheets, or other data reported by public and private agencies, cannot always reveal the total volume of such expansion. Investors, with the aid of those intimately associated with the company, can, however, form approximate judgments.

New Capacity and Technology.—Improved technology is a major phase of plant expansion and should be considered in connection with sales-plant ratios. Expansion carried out through new construction normally increases plant efficiency and reduces over-all costs. A new continuous rolling mill for steel may take over some of the output formerly produced by the old hand-operated mills, and a modern plant for the manufacture of anti-biotics, incorporating the latest findings of science, leads to the production of streptomycin and penicillin under conditions of greater efficiency. Again the investor has no measurable basis for the precise determination of the increase in efficiency and reduction in costs that any given expansion program generates.

Expansion, in the form of new plants with added facilities incorporating therein technologically efficient equipment and processes, represents a profitable form of capital improvement. Such an expansion, in fact, promotes both public welfare and private investment values and reveals the system of capitalistic ownership operating under favorable conditions. The new plants produce a greater volume of goods and services at lower costs. Selling prices, in relation to the trend of general commodity prices, decline. Wages rise, prices drop, the margin of profit increases, and dividends expand. All parties, including the tax collector, benefit. They may not benefit in proportion to ideally equitable considerations, but it remains well established, nevertheless, that such a form of plant expansion is helpful to all.

A typical illustration is afforded by the growth of Industrial Rayon. Late in the 1930's, the company introduced the continuous process for rayon production. Prior to that time, the rayon yarn was finished by several processes of washing, desulphurizing, bleaching, drying, sorting, and grading. By the new method, these opera-

tions were combined into a continuous system, thus giving Industrial Rayon an edge over its competitors. Partly with the help of this process, the company in the 1936-46 decade grew more rapidly than the rayon industry as a whole. From 1939, when the process was first introduced in its plant, through 1946, the company revealed a sales increase of 280 per cent, while American Viscose and Celanese showed an increase of less than 175 per cent. Another illustration is the construction of additional plants by du Pont, to meet the ever increasing demand for nylon.

The well-managed company in an expanding industry is characterized by repeated expansion waves. These cycles of expansion and improved technology embrace both the public utilities and mining and manufacturing industries, although the territorial monopoly of local public utilities may restrain the spirit of enterprise and inhibit the installation of the most efficient mechanical improvements. It is not, however, true, as is frequently alleged, that utility companies "probably do not borrow and invest more money until they are practically sure of getting larger additions to total revenue than the additional costs." [4] Prosperous periods are normally accompanied by rapid expansion in dynamic public utility industries, just as in nonpublic utility industries. Overexpansion can and does occur in the former, as it can and does in the latter. The rapid multiplication of generating plants, transmission lines, and distribution systems in the 1920's produced a surplus capacity with which the industry struggled in the depressed 1930's. And the increase in the natural gas transmission lines in the 1940's might also produce a problem of surplus plant capacity in the future.

It is important that investors in interpreting the sales and profit ratios to plant investment appreciate the time element. Over a short period, say a year or two, expansion of plant capacity may lead to a decline in both sales and profits per dollar of investment. It may take more than that time to secure enough sales to operate at a high percentage of plant capacity. It is possible, on the other hand, that persistently low ratios, after the completion of plant expansions, may reflect overexpansion. Such a phenomenon may lead to price cutting and to substantial declines in profits.

Margin by Which Earnings Protect Interest Charges.—Items discussed in other chapters and gleaned from data in the income statement, are the operating ratio (see Chapter 10) and the profit margin (see Chapter 12). The income statement shows also the

[4] Emery Troxel, *Economics of Public Utilities* (New York: Rinehart & Co., Inc., 1947), p. 382.

earnings available for interest. Gross revenues minus all operating expenses and taxes gives this figure, though frequently such earnings are shown before federal taxes.

If a company has a reasonably long history, the ratio "times interest earned" is helpful. This shows the number of dollars of earnings available for each dollar of interest and can be computed either on a basis of one year's earnings record or averaged over a longer period. Prior to 1949, the law in the State of New York regulating investments for life insurance companies distinguished between railroad and other corporate securities with respect to the relationship between earnings and interest. The law paid tribute to the mistaken importance of a distinction between industrial and railroad securities by insisting upon a higher ratio of times-interest charges earned for the former than for the latter. There is no validity in such a distinction. Some industries operate under cost-price relationships that closely parallel those in the railroad industry. Other industries, such as variety chains, food chains, and dairy products are relatively stable. To say that the bonds of a railroad are desirable for investment if, on a five-year average, they earn their interest charges twice, and that the bonds of a company in the dairy industry are good only if they earn their interest five times in a similar period is to ignore realities.

In some industries, particularly the railroads bonds have been issued with varying mortgage liens on the property. Regardless of terminology, a bond of a company may be secured by a first mortgage on all or part of the property, and another of the same company by a second mortgage. On the Erie Railroad, for example, there were at one time as many as five bonds with claims against a given piece of property. In such a financial structure, a bond with a first mortgage lien is called a senior bond, and one with a second mortgage a junior bond, though the second mortgage is senior to the third mortgage bond.

Under these conditions, largely historical, it was necessary to devise one technique to compute the margin by which earnings covered *all* of the company's interest, and another to show the margin by which the earnings covered the interest on the senior bond alone. The first is called the over-all method, and the second, the prior deductions method. In the prior deductions method, the earnings available for interest on the senior bond are compared with the interest on that bond only. When the coverage for the earnings on the second mortgage bond are computed, the interest on the first mortgage bond is subtracted and the remainder is measured against the interest on the second mortgage. Supposing, for example, earnings

of the company available for interest are $10,000. The interest on the first mortgage is $1,000; the interest on the second mortgage is $3,000; the total interest is $4,000. By the over-all method the company's interest charges are earned 2½ times. By the prior deductions method, the interest on the first mortgage is earned 10 times and on the second mortgage 3 times. If interest charges on the first mortgage were $6,000, and on the second mortgage $500, then, strange as it might seem, the second mortgage, by the prior deductions method, would show a greater coverage than the first mortgage. Other techniques can be used to determine the margin for senior, as compared with junior, bonds.

The experience in financial reorganization over the past half century has established the weakness, from the investor's standpoint, of the mortgage as a security for bonds. It is not the mortgage on the property, whether it be first, second, or third, that determines the value of a bond. A business property is a coordinated, well-balanced unit. If the entire property is covered by a first mortgage, then all of the borrower's earnings are available to cover the debt. There have been some railroads and street railways that were financed in that manner.

In numerous cases, however, particularly on the larger properties, there was an interlacing of mortgage liens on different parts of a property. On the Pennsylvania Railroad, for example, there is a first mortgage bond on the main line between Pittsburgh and Philadelphia, known as the consolidated mortgage bond. Another is secured by a general mortgage with a second lien on the Pittsburgh-Philadelphia line, and a lien partly senior and partly junior on other parts of the system. In reorganization it would be difficult for the holders of the consolidated mortgage bonds to decide upon the wisdom of operating the Pittsburgh-Philadelphia line independent of the other parts of the system. This line, in fact, might lose much of its earnings if it lost some of the traffic controlled by the general mortgage bondholders, who have liens on the system both east and west and north and south of the Philadelphia-Pittsburgh line, and also the traffic of the lessor system roads.

Indeed, this whole problem is academic. The division of such a transportation mechanism is contrary to the public interest. The system would have to be maintained as an integrated unit. In the actual business of transportation, no such priority of interest claims as envisaged by bond contracts usually exists or in most cases could be made to exist. A property that offers securities for investment must normally be operated as a unit and usually cannot be segregated to aid one group of secured creditors as compared with another.

These considerations, among others, have led in recent years to the emergence of simple financial structures. Industrial corporations with good credit standing normally sell debentures. The prosperous utilities (telephone, natural gas, water, and electricity) usually issue either first mortgage bonds or debentures.

No general rule can be laid down governing the margin by which interest should be earned, either by companies within industries or by industries as a whole. The record of each industry and of each company must be separately examined. This record must be judged in the light of such considerations as relative stability in demand, relative immunity from competition, absence of price wars, probability of inventory losses, and the secular growth or decline in demand. The setting up of minimum ratios for industries is of questionable value. Such minima change with conditions. A two-to-one ratio, for example, might have been adequate for eastern trunk-line railroads in the 1920's. It is not sufficient in the 1950's.

Net Income—Proportion Paid in Dividends.—The balance remaining after deduction of interest, and other fixed charges such as rent, and sinking fund appropriations, is called net income. This is the amount available for the payment of dividends. The net income is divided by the number of shares of stock, thus giving the dollars earned per share. Except under extraordinary circumstances, only a part of this amount is paid in dividends. The balance is used either to increase working capital or to finance other corporate requirements.

The portion of profits not paid in dividends and retained by the corporation, is a significant force in the determination of investment values. The precise percentage, can be measured by no rule. Neither economic theory, corporation finance, nor the art of investment furnishes the ingredients from which such a universally applicable rule can be formulated.

Soundly managed companies in the pioneer stages of an expanding industry usually pay little in dividends. They preserve their earnings for plant expansion and improvement, for the installation of technologically up-to-date machinery, for the widening of their markets, for the training of salesmen, and for those other purposes so essential to success in a new industry. The other extreme is the well-managed, well-financed and successful company. The company has achieved a major position in the industry, and has built up a satisfactory working capital, with an adequate percentage of cash and of liquid assets to current assets. Its current liabilities are rela-

tively small. Such companies as General Electric, General Motors, du Pont, Allied Chemical and Dye, and Corn Products Refining pay a high percentage of earnings in dividends.

Between the extremes are many corporations whose peculiar problems lead them to pay more or less of their earnings in dividends. Some use earnings to pay debts. The chairman and president of the Studebaker Corporation reflected this sound managerial judgment in a statement made at the 1950 annual stockholders meeting. The company, in 1948 and 1949, had paid in dividends slightly more than 21 per cent of earnings. A group of stockholders criticized this policy as ultraconservative. The Studebaker chief insisted, however, that as long as the company had a debt, its credit standing was not as strong as it would be without a debt. Some companies are precluded by contracts with creditors from paying more than a given percentage of earnings in dividends. Still others, like the railroads in the early and middle 1940's, may decide to use their earnings to reduce their debts, even though not so required by contract. Many railroads at that time bought back their bonds in the open market at substantial discounts from their face value. Other companies use their earnings to buy in their preferred stocks at discounts from par or face value. Others, because of inventory or other losses, devote their earnings not only to payment of their debts, but also to the rehabilitation of their financial strength.

Over the course of many years and taking the successful corporations as a whole, a substantial percentage of reported earnings is reinvested. Such a policy is indeed essential to corporate success. In fact, one elaborate statistical study concludes that from 1871 to 1938 "every $2.50 of earnings retained by a corporation has, on the average, been associated with an increase of $1.80 in the value of its stock." [5]

Over a long period, it may be assumed, rising market prices reflect rising investment values. This relationship does not, of course, hold for all industries, nor for short periods. Declining and unprosperous industries, for example, usually retain a large percentage of their earnings. The World War II increase in earnings in such industries as bituminous coal, anthracite coal, railroads, street railway, leather, and raw sugar was not followed by any substantial increases in dividend payments, though there were some exceptions, especially in the raw sugar industry. Neither can it be said that a positive re-

[5] [Alfred] Cowles Commission for Research in Economics, Monograph *#3, Common-Stock Indexes, 1871-1937* (2d ed., Bloomington, Indiana: The Principia Press, Inc., 1939), p. 42.

lation between market prices and reinvestment of earnings characterizes short time periods. Between 1944 and 1948, for example, the percentage of undistributed earnings, as measured by the book value of Dow-Jones Industrial stocks, rose from 118 to 160. The market prices of these same stocks, however, declined.[6]

The percentage of earnings reinvested is determined by corporate management in a pattern of comprehensive forces. When stocks sell at high prices and return low yields, corporations tend to pay a higher proportion of earnings in dividends. They can then sell more stock. When stocks are more difficult to sell, when their prices are low compared with earnings and dividends, and when yields, therefore, are high, companies are likely to finance their needs by retaining more of their earnings. In years of poor business, corporations frequently pay dividends that are not currently earned. They pay out of surplus from earnings realized in previous years.

Table 20, based upon figures of the Department of Commerce, reveals a substantial change between 1945 and 1950 in the percentage of profits paid in dividends.

TABLE 20

CORPORATE PROFITS AFTER TAXES, DIVIDENDS, RETAINED EARNINGS, 1945-50

(In billions of dollars)

	1945	1946	1947	1948	1949	1950
Profits after Taxes	8.5	13.8	18 5	20.9	17.0	22.7
Dividends	4.7	5.8	6.6	7.4	7.8	9.1
Retained Earnings	3.8	8.0	11.9	13.5	9.2	13.6
Dividends as Per Cent of Profits after Taxes	55.9	42 7	35.6	35.4	45.8	40.0

Source: Department of Commerce data.

For corporations as a whole, considerably less than half of the profits were disbursed to stockholders in the postwar period, as compared with approximately three-fourths in 1939 and about two-thirds in 1929.

It is dangerous to apply this general pattern to individual industries and companies. The scope of and the necessity for expansion are greater in one industry than in another, and while in one industry an expansion program can be distributed over a number of years, in another it must be concentrated within a short period. In the oil industry, for example, the sudden increase in postwar demand was

[6] *Jobs and Taxes*, study by the New York Stock Exchange, 1949, pp. 42-43.

unexpected, and the industry was ill prepared to finance its expansion program. It, therefore, relied upon earnings to raise most of its funds. Despite the 221 per cent increase in dollar profits in 1948, as compared with the 1942-46 average, the cash dividends paid by a group of 30 large, representative oil companies in 1948 was only 25 per cent of earnings. In 1949 and 1950, earnings declined, while the percentage of earnings paid in dividends rose, though only to about 40 per cent.

Expansion of plant in those years and also in 1951 remained imperative. Other industries, such as sugar refining or book publishing, for example, were under no such stress to expand quickly and extensively in these years. When expansion and inventory building programs are completed, higher proportions of earnings can be paid in dividends. This was a major factor in explaining the greater percentage of earnings paid out by corporations as a whole in 1949, compared with 1947 and 1948. (See Table 20.) When inventories and receivables are turned into cash, more of the earnings are likely to be paid to stockholders.

Numerous financial ratios expressive of relationships to gross revenue are also frequently useful. Such, for example, as the percentage of fixed charges to gross revenue, preferred dividends to gross, rents to gross, depreciation to gross, and working capital to gross may, on occasion, tell a significant story. In railroads, electric light and power, telephone, natural gas pipelines, steel and crude oil industries, all producing relatively standardized goods and services, ratio comparisons between companies are particularly valuable.

Conclusion.—It is necessary to observe, in conclusion, that these statistical measurements, despite their preciseness, are not unerring guides to sound investment values. Margins of safety, dividends, working capital ratios, etc., are useful. They cannot, however, be applied like a slide rule. Much horse sense is revealed by some remarks of Charles F. Kettering, formerly vice president of General Motors. Whenever he had been asked to buy securities, he said, the quotation of great quantities of statistics left him cold. When he was given information, however, which enabled him to visualize the position which a corporation or community occupied in the country's economy, he then had something tangible. It is necessary to express this word of caution, because, in some sections of the field of investment analysis, statistics are used too literally. Ratios are useful, but their usefulness must not be exaggerated. Their use must be tempered with sound judgment, a creative imagination, and a strong sense of caution.

QUESTIONS AND PROBLEMS

1. Examine the relationships between the market price per share of common stock, the working capital per share, net quick assets per share, and book values per share for the most recent year of the following groups of companies:
   a) Sears, Roebuck and J. C. Penney.
   b) General Motors and Chrysler.
   c) Dow Chemical and du Pont.
   d) American Can and Continental Can.
   e) International Business Machines and Burroughs Adding Machine.
   f) Safeway Stores and Great Atlantic and Pacific Tea Co.; or between any two major companies in any major industry. Explain any substantial differences in these relationships, particularly between the market price per share on the one hand, and the working capital, or net quick assets, or book value on the other.
2. Explain under what conditions an inventory reserve can be shifted to surplus, and why such a shift is of investment significance to an investor.
3. Examine the relationships between a substantial rise in working capital per share, earning power per share, and changes in wholesale and retail prices. Compare also the relative importance of these relationships among the following industries:
   a) Fruit and vegetable canning and rubber-making machinery.
   b) Steel mill equipment and corn products refining.
   c) Variety chains and department stores.
   d) Publishing and carpets and rugs.

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STUDLEY, SHUPERT & Co., Boston, makes available separately for utilities and for industrials a considerable number of significant financial ratios arranged conveniently to facilitate comparison over a long period of years. Only a limited number of companies are covered.

Chapter 10

PLANT AND OPERATING RATIOS

Financial results between corporations and industries discussed in previous chapters can be compared for the most part on a dollar basis. Earnings per share, margin by which earnings cover interest, depreciation expenses in relation to revenues or to book values, the ratio of current assets to current liabilities—all these and many other relationships can be presented in terms appearing on financial statements. Such financial ratios have definite meanings in almost all industries and companies. The investor, for example, can compare the margin of safety for a railroad and a street railway bond; for a bond of the oil or the natural gas industry.

Plant capacities, mineral reserves, operating efficiencies, and other such factors essential in assaying corporate earnings can, however, be analyzed only by the use of terminology of a particular industry. Each industry has unique physical features of plant and equipment. In some industries, the manufacturing or extraction operations are relatively simple, and easily understood ratios have accordingly been devised. In others, because of their complexity, the diversity of products of some companies, or the numerous by-products made under joint cost conditions by others, ratios of help to the investor can be made only with great difficulty. Operating efficiencies in physical units and unit costs, for example, cannot be readily determined. They can only be inferred from operating ratios between companies in an industry, or of a given company over a period of years.

Degree of Utilization of Physical Plant

The earning power of a company is based in part on its capacity to turn out goods and services and on the efficiency with which its physical plant is operated. In a depression, a plant may remain idle because of fixed overhead, but under similar conditions, another one may operate. In the depression of the 1930's, Aluminum Company of America, in the face of a slight demand, continued to produce and, with the help of bank loans, piled up a heavy inventory. The inventory was liquidated in the subsequent years of recovery. The

company followed this policy because of a minimum rate for electricity that was based upon the maximum demand for the light and power at some time during a previous, prosperous year. This fixed the price per kilowatt-hour for a smaller volume of production so high, as to make it more profitable to continue production, to use the energy, and so to convert raw material into aluminum, rather than to permit the plant to remain idle. Between the extremes of idleness and full use of plant capacities, extractive, transportation, and manufacturing industries are idle to some degree in both prosperity and depression.

In periods of expanding demand, an increase in volume combines with relatively stable fixed charges to increase profits. Not only extractive and manufacturing, but also service, industries, such as street railways, railroads, electric light and power, and department stores, are the beneficiaries of this phenomenon.

Sales in Relation to Plant Capacity.—The investor in search of a measuring rod to determine the increase in sales and profits from the full use of plant capacity can examine the book of experience. He can observe past increases in sales per dollar of plant. This is a financial analysis and, with some exceptions, can be used to measure the relationship between expanding capacity and expanding sales. In some industries, there is an approximately accurate relationship between a dollar of plant investment and future annual sales.

Extractive Industries.—In the extractive industries this financial approach to the problem of plant capacity is defective. An investor, in order to reach a conclusion on the adequacy of reserves in extractive industries, must acquaint himself with at least a minimum of technical terminology. In the oil industry, proven reserves are different from unproven reserves. Proven reserves represent the volume of crude oil recoverable by the use of a static technology from fields fully drilled, or sufficiently so to make possible reasonably accurate computations. Improved technique may increase, and over many years has increased, the oil recovery from existing wells. There is, furthermore, no generally accepted method of estimating accurately proven reserves. Nor should the size of reserves be considered independently of their quality, their production costs, their location in relation to market outlets, and the transportation changes to processing plants. It is therefore not surprising that some oil companies do not make official estimates of their reserves and that others make estimates only when public financing is done.

There is room, furthermore, within an existing crude-oil price pattern, for differences of opinion on the value of underground oil.

In the summer of 1949, for example, estimates of the value of domestic proven reserves varied from fifty cents to a dollar a barrel. Prior to the war years, forty cents was the general rule. In South America, the valuation was lower, and in the Middle East, because of political risks and higher transportation costs, it was still lower.

The value of reserves, furthermore, is based on the quality of the resource. Coal, natural gas, oil, and copper, zinc, lead and iron ores have varying characteristics. Some coals, especially from southern West Virginia, are low volatile and sell readily in western markets in competition with coals produced in mines much closer to such markets. Other coals, notably from the Connellsville area in southwestern Pennsylvania, are suitable for use by iron and steel plants. There are other quality variations in coal.

There are ores with varying metallic contents. The supply of high-grade iron ores (52 per cent natural iron) in the Mesabi Range, for example, is declining. There are, however, large reserves of lower grade ores, tonnage of which is sufficient to last many years. Similar differences prevail in zinc, lead, and copper mines. Many nonferrous ores contain varying percentages of different metals. The nickel ores of International Nickel have a substantial percentage of copper and lesser amounts of platinum and other metals. Kennecott Copper's Utah mine contains gold, silver, and molybdenum, whereas one of its Nevada properties is primarily a gold producer.

Crude oil formations may be more suitable for conversion into fuel oil or into the more profitable lighter oils, such as gasoline. Some oil reserves have substantial percentages of natural gas, while others have little or none. In phosphates, one of the major fertilizer elements, International Minerals and Chemical owns a mine, considered among the largest in the world, which yields phosphate rock of unusually high purity. To some extent this differential advantage was responsible for the company's upsurge in earnings in the 1940's.

The value of reserves, furthermore, depends upon the state of technology. Low-grade reserves under an existing technology may have little commercial value. Mining companies spend substantial sums on research to utilize low-grade ores. By superior concentration, leaching, and other chemical methods, great additions to ferrous reserves from existing deposits are expected to transfer vast tonnages from potential to actual mineral supply.[1]

[1] See for example the statement of C. M. White, president, Republic Steel, in *Seventy-Five Years of Progress in the Mineral Industry, 1871-1946* (New York: American Institute of Mining and Metallurgical Engineers, 1947), p. 569. This writer also looks forward to the possibility, through the use of concentration methods, of transforming billions of tons of low-grade iron ore in New York, New Jersey, and Pennsylvania into metal.

Price fluctuations also exert an influence on the volume of reserves. Oil, natural gas, ferrous and nonferrous ores, poorly located and constituting a commercially unavailable supply at one price level, become additions to reserves at another. There are high-cost, marginal properties in almost every natural resource industry. The securities of most of these companies are not of investment caliber, though there are many high-cost properties owned by profitable companies, most of whose earnings come from the operation of low-cost mines or wells. Anaconda Copper, for example, owns low-cost mines in Chile and higher-cost mines in Montana.

A price increase, furthermore, encourages expenditures for research and for the development of new technologies to utilize the existing low-grade reserves more effectively. The volume of reserves is also dependent upon the peculiarities of tax structures. When there are heavy ad valorem taxes on proved reserves, there is no incentive for mining companies to explore properties in advance of needs. Hence, reported reserves are added only when demand makes such additions to the supply essential. This is the case in Minnesota with respect to iron ore.

From time to time over the past half century investment decisions have been based upon the approaching exhaustion of liquid or mineral reserves. An impending scarcity of oil, for instance, has been a source of perennial comment. In 1908, geologists reported that the country had a maximum oil reserve of only 32 billion barrels; in 1915 another said that less than 6 billion barrels were available; while in 1922 an association of petroleum geologists accepted the accuracy of estimated reserves of slightly more than 8 billion barrels. More than any of these amounts have been consumed since 1908 and yet at the end of 1949 proved reserves were estimated at 25 billion barrels. Indeed, there is authority for the belief that undiscovered oil reserves are on the order of 1,500,000,000,000 barrels. This reserve, according to one geologist, is "the best and most reasonable that can be made under the present state of our geological knowledge." [2] This statement was criticized by other authorities. A similar trend is observable in the natural gas industry. In the face of the extraordinary increase in the consumption of natural gas in the 1940's, new discoveries far exceeded the amount used. For each year between 1945 and 1950, new records of gas reserves were at-

[2] A. I. Levorsen, Professor of Geology, Stanford University, *The New York Times,* August 23, 1949. Another geologist, president of the American Association of Petroleum Geologists, declared two years later, "I believe the point can convincingly be made by geologists that there remains enough oil to be discovered within the economic reach of the drill in the United States to last for generations to come." *Journal of Commerce,* May 14, 1951.

tained. And between 1925 and 1950, proved reserves increased about 700 per cent, while in the 1940's the reserves doubled.[3]

Similar experiences characterize the nonferrous industry. Statements emanating from government sources on the limited life of copper, lead, and zinc reserves in 1949 drew declarations from businessmen in these industries. The president of American Zinc, Lead & Smelting declared that the proven reserves of that company's mine in 1914 were less than 2 million tons, but that since then to 1950, 26 million tons had been mined. There remained, nevertheless, the largest proven reserves in the company's history. Representatives of other nonferrous companies have made somewhat similar statements.

Investors, therefore, use existing information on reserves with care. Statisticians compile voluminous data on the number of cubic feet of natural gas reserves, or the number of barrels of oil, or the number of tons of copper, zinc, iron, or lead per share of stock and per bond, and also per dollar of market value of stock. These ratios are useful in their way. They cannot, however, be used as a dependable guide. At times, they are not sufficiently useful for even approximate comparison. Available data must be used against the background of all relevant qualifications.

Power and Light Industry.—Potential supply in nonnatural resources industries is usually referred to as productive capacity. Some products and services are standardized and their capacities can be easily measured. A good illustration is the electric light and power industry. Capacity is measured in terms of kilowatts. The nominal kilowatt capacity of a generating plant is usually indicated on a plate attached to the generator by its manufacturer. As seemingly accurate as this measure of plant capacity may be, experience has revealed a substantial defect.

It was expected by some, especially in government quarters, that a shortage in electricity would develop in the World War II period. The Federal Power Commission and other agencies published elaborate calculations to buttress the conclusion that existing capacity would be insufficient to meet war needs. The capacity figures were based upon the name plate rating of the generators. The record, however, confounded the prophets. Plants were operated at a rate substantially in excess of the manufacturers' rating. Because of hydrogen cooling (instead of air cooling), equipment was run on an

[3] Detailed figures of reserves are found in the annual reports, *Proved Reserves of Crude Oil, Natural Gas Liquids and Natural Gas,* published jointly by the American Gas Association and the American Petroleum Institute, New York.

overload basis almost continuously. Indeed, some of the plants built in 1950 and 1951 can operate on an overload of 35 per cent or more. A generating unit with a name plate rated capacity, say, of 100,000 kilowatts might, therefore, have a dependable capacity of 135,000 kilowatts. A nice problem in definition of capacity arises in connection with hydroelectric plants. Clearly, installed capacity is not the same as dependable capacity. With an adequate supply of water made possible by storage facilities, operation in one plant is continuous. Another plant has no storage facilities, and in a drought, the plant closes down.

Capacity, furthermore, has expanded because of the increase in the amount of electricity interchanged between companies. In many sections of the country, power pools have been established to exchange electricity in such a way as to realize maximum economies. One plant, for example, serves an industrial area. Another, some miles away, serves a rural community. Industrial power customers of the former company may operate night shifts. The additional energy required to meet this demand is bought from the rural light and power company. Hence, the spare capacity of the one company is made available to the other.

Data on capacity in the electric light and power industry are publicly available from the Federal Power Commission, from each company, and from the Edison Electric Institute for the industry. Also available are scheduled additions to capacity.

The problem of capacity in relationship to consumer demand also merits examination. The generating capacity represents only a portion of the plant investment necessary to serve the public. A major part is the transmission, transformation, and distribution plant. The transmission lines carry energy varying distances, sometimes hundreds of miles, to the markets. The electricity carried at high pressures must be transformed into electricity of lower pressures to make it suitable for residential, commercial, and small power uses. The distribution plant consists of meters and the feeder lines to the premises of individual customers. The relative importance of these capacity expenditures may be gauged from the construction expenditures for 1949. Out of capital expenditures of $2,843,500,000, a total of $1,249,000,000 was devoted to production plant, $310,000,000 to transmission, $1,200,000,000 to distribution, and $84,500,000 to general plant. These percentages vary in detail from year to year. The conclusion, nevertheless, derived from an examination of these figures, is approximately accurate. That is to say, a major part of the investment in plant capacity is made for distribution purposes.

Reasonably accurate figures on the surplus or shortage of distribution and transmission capacity are, however, not available.

Railroads.—Measurement of the plant capacity of the railroads introduces other complexities. In the construction period in the railroad industry, which terminated, except for some major systems, in the 1890's, an increase in plant capacity was measured by the number of new miles of main line or of tracks built. Between 1910 and 1920, the mileage added was slight, and since 1920, it has declined. With a given number of miles of main line, tracks, sidings, and terminals, plant capacity is dependent upon a number of variables. The weight of the carload, the number of idle cars, the length of the train, the number of trains, the balance or unbalance between loaded and empty cars, and the speed in movement of trains are among the many factors that determine the volume of traffic that a railroad can carry. Estimates are made by operating officials. Independent of these estimates, there is no single ratio or set of statistical data that can be used in investment analysis to determine with reasonable accuracy the transportation capacity of a railroad property.

Investment conclusions may be drawn from experience. It may be inferred, for example, that once the railroad system in the 1941-45 period, for example, had revealed its ability to carry a given volume of business, the record could be duplicated in peacetime. Even this argument must be critically examined. Much of the wartime traffic was long-haul, moving long distances to ports for export. The traffic moved under government direction in long trainloads, at high speeds, and in full carloads. Under peacetime, competitive conditions, the number of fully loaded trains may be reduced; the trains moving in accordance with customer needs may not be as heavy nor as long and the cars may not be as fully loaded. It is possible that, in peacetime, more equipment, facilities, sidetracks, and terminal facilities may be necessary to accommodate the same volume of traffic carried in the wartime period.

Manufacturing Industries.—The determination of plant capacities in manufacturing operations is more complicated than in extractive and publicly regulated industries. There are no rules or principles applicable to these industries as a whole. Each has a problem of plant capacity uniquely its own. The measurement of capacity is the responsibility of technically trained persons familiar with the details of plant equipment. The problems involved in the determination of plant capacity are comparatively simple in some in-

dustries and more complex in others. In woolen and cotton textiles, the yardage of a standardized woven or knit fabric may be easily computed and the number of units that can be turned out in a thread, underwear, or hosiery factory can be estimated with reasonable accuracy, as can the capacity of a rayon yarn plant or a silk mill.

The capacity of a smelting and refining plant is based, in part, on the quality of ore treated. The feed of higher-grade ore increases plant capacity. The ingot capacity of a steel plant in standardized items, such as shapes, sheets, strip, tin plate, is well known, and the figures for each company are publicly available. In periods of strong demand, steel production may exceed measured capacity. This occurred for a number of months in 1951 and was probably due to a number of technological improvements, particularly the use of oxygen in the furnaces and the adoption of better refractory practices. On the other hand, when demand declines, some installations, not wholly modernized, will become high-cost units and will probably be abandoned, thus reducing steel capacity.

In other industries the problem is more complex. In many lines, capacity must be interpreted in qualitative terms. A company may switch from batch to continuous production, or from many model, low-volume to few model, high-volume production units. Many economies can be realized by standardized production of one model on an assembly line. Such a policy, feasible in a seller's market, can be carried out only with difficulty in a buyer's market. Changes in capacity, stemming from such factors, must be judiciously interpreted.

In electrical equipment, power shovels, material moving equipment, machine tools, automotive accessories, synthetic organic chemicals, photographic equipment, business machines, and many others, the investor can rely on no rules and on no accurate data. He must look to rule-of-thumb methods. He must depend upon estimates of officials of companies whose securities he holds, and he must, on occasion, accept the estimates of government bodies. His standards are empirical.

Despite the lack of information, or the existence of erroneous information, the investor must, nevertheless, take a stand and reach a conclusion. Except on the basis of relationship of sales to book-recorded dollars of plant capacity, the investor who is not intimately acquainted with the physical volume of plant capacity, could not, for example, in 1952 have determined the degree to which plant capacity had been pushed in many industries, in relationship to demand under peacetime conditions.

Plant Capacity and Debts.—It may be helpful to compare plant capacity and debts. This can be accomplished realistically only in those industries in which capacity can be measured on a standardized basis. Representative industries for this purpose are electricity, pulp, sugar, shoes, many kinds of paper, and steel. The relative size of the debt can be measured against the plant's capacity, i.e., against the maximum sales potential, assuming 100 per cent operation.

Under such operating conditions, a substantial increase in the amount of bonds per unit of capacity would suggest a high degree of leverage. If the plant operates substantially below capacity, the possibility of reverse leverage exists. Such a rise in debt took place in electricity in the post-World War II years. Between 1946 and 1950, the bonds per kilowatt of capacity increased from $138 to $154, an increase of 12 per cent. Each unit of capacity—each kilowatt—however, produced more sales, more kilowatt-hours. (A kilowatt-hour is defined as one kilowatt used for one hour.) In 1950, each kilowatt produced 8.5 per cent more kilowatt-hours than in 1946. Measuring the debt against the plant on this basis, the increase was not so extensive. Each capacity unit was a greater business producer in 1950 than in the earlier year.

In industries in which prices are not regulated by public authority, comparisons of capacity and capitalization reflect the effects of price changes. A substantial price decline reduces replacement costs per unit of plant capacity. A price rise, on the contrary, increases replacement costs. In the former case, competition on a base of lower costs is stimulated, and in the latter, because of higher costs, it is discouraged.

A good example of the way in which price increases place property values behind securities in periods of price rises is afforded by the steel industry. From 1935 to 1939, the cost of new steel capacity approximated $100 per ton; from 1947 to 1949, $200 per ton; and in 1951, considerably more. In 1951, the industry's capitalization was about $50 per ton of capacity.[4] The high property values, on a replacement basis, available for each bond or each share of preferred stock is not revealed in the balance sheet. Since it is not customary to write up asset accounts, these property values are not recorded in surplus and net worth.

Investors, however, must frequently consider the effect of technology on plant costs in a period of rising prices. The new plant may cost more, but it may be more efficient. Changing technology or changing raw material costs may even reduce costs of building

[4] Figures furnished by Philip Sandmaier of Republic Steel Corp., *The Analysts Journal*, 2d Quarter, 1951, p. 95.

new plants in years of ascending price levels. In 1951, for example, it was reported that the Food Machinery and Chemical Corporation would build a soda ash plant using a different raw material at a lower capital cost than that needed by an older process.

So much for plant capacity, though it must not be assumed that there are no further problems to be considered.

Operating Efficiency

While plant capacity determines the maximum volume of production, the cost of producing a unit of a good or service, within the pattern set by sales volume, price levels, and capital costs, is determined by operating efficiency. Efficiency is the absence of waste. One hundred per cent operating efficiency, an unattainable ideal, reflects results from the operating of a plant without human error. Perfect coordination in the movement of raw materials, into, out of, and within the plant; perfect scheduling of raw material movements in relationship to plant needs; perfect layout of work so as to coordinate incoming work with the available supply of labor and machinery; and the turnover of inventory (raw materials, unfinished and finished goods) with no waste in idle storage; are but a few of the almost infinite number of adjustments essential to avoid waste and realize maximum economies.

To enable an investor to appraise operating efficiency, it is essential to examine physical relationships. Operating efficiency can be expressed in terms of the physical output per labor-hour, or in the volume of raw materials required to produce a unit of a finished product. The investor must recognize that the pattern is constantly changing. The effect of technological advances must never be ignored. A new mechanical contrivance that reduces, for example, the number of labor-hours required for the production of a given good or service changes the pattern within which further economies can be introduced. Such an improvement reduces unit costs and, within the new pattern, further operating economies can be achieved.

Operating efficiency is also tied to the standard of maintenance. A property that is kept in repair, with parts promptly replaced when necessary, and with the work organized and carried out under expert supervision, is operated at a high state of efficiency in comparison with another on which maintenance is deferred. To reach sound conclusions on this, the investor again needs to compare such physical data as the number of gallons of paint used per unit of surface and the number of cubic yards of ballast used per mile of railroad track.

The facts of industrial and commercial life, unfortunately, do not square with these investment necessities. Over the investment field taken as a whole, such physical data are in short supply, and indeed, are unavailable for the greater part of American industry. This is particularly so for those industries not subject to public supervision of their selling prices. In such industries as automobile manufacturing, automotive accessories, farm equipment, business machines, steel, building equipment, among many others, such physical data on maintenance and operating efficiency are not public property. The knowledge is possessed by engineers and administrative executives associated with the operation of an enterprise. Those investors who are acquainted with officials can get information, assuming they can understand and interpret it, either by direct observation or from conversations. Some large institutional investors, such as investment trusts, life and casualty insurance companies, as well as individual capitalists actively interested in watching their investment portfolios, may secure information in this way.

Efficiency Data.—The great body of investors, however, draw inferences from financial statements. Only a minority of the financial statements of industrial companies reveal separately, maintenance expenses, depreciation expenses, direct operating payrolls, maintenance payroll and cost of supplies. If such information is available, comparisons can be made, for example, between maintenance expenditures and payroll expenses, and certain conclusions can be reached. A majority of corporations, particularly since the establishment of the Securities and Exchange Commission, make available gross revenue and total operating expense data.

A comparison of operating expenses with operating revenues reveals the number of cents of expenses required to produce a dollar of revenue—the operating ratio. A rise in the operating ratio reveals a declining margin of profit. The cause of the decline, however, may not necessarily lie in operating inefficiency. It may, for example, reflect inability to increase selling prices in line with rising costs due to consumer resistance, sharp competition, or the actions of regulatory agencies. For particular companies, inferences may be drawn from the movements of the operating ratio of a particular company as contrasted with other companies within a given industry. A rise in the operating ratio of a company in such stabilized industries as cigars or cigarettes and baking or flour milling, as compared with a static or declining ratio by competitors, may reveal inefficiency, plant obsolescence, or some other dangerous situation. Such an analysis is not, however, helpful over a large sector of American industry.

Many corporations, unfortunately, do not produce standardized goods or services that would facilitate comparison between two or more companies within an industry. Again, some companies control all branches of the production of a finished good, from the raw material through the manufacturing operation and the final distributing outlets. These concerns, to use a bulky word made popular by economists, are "integrated." Others are "semi-integrated." Many manufacturing companies produce a bewildering variety of articles. To compare operating ratios of such enterprises, when conditions of operation and of volume production are so infinitely varied, is to make a fetish of the universal workability of the rules of arithmetic, regardless of underlying considerations.

Measurement of Efficiency.—In the regulated industries, local utilities, and the railroads, progress has been made in the evolution of formulas designed to acquaint the investor with knowledge and understanding of data on maintenance and operating efficiency. The inadequacies of the operating ratio as a tool for the measurement of operating efficiency in the railroad industry has been recognized both by the Interstate Commerce Commission and the investor. A new ratio has been evolved. Operating expenses are divided into maintenance of way, maintenance of equipment, transportation, depreciation, traffic, and general. Maintenance expenses are the repair items with which every home owner is only too familiar. Such expenses are essential to maintain the physical condition of the property. Transportation expenses are those incurred in the actual movement of freight and passengers.

Transportation Ratio. The percentage of transportation expenses to gross revenue gives the transportation ratio. It reveals the number of cents of operating expenses needed to move one dollar of business. This ratio is preferred, as an index of operating efficiency, to the operating ratio and is used by investment analysts to judge the relative efficiency of two or more roads. The transportation ratio, however, being a dollar measurement, as it is, has many of the frailties of the operating ratio. It reflects not only the relative physical efficiencies, but also changes in the prices of coal, wage rates, and selling prices.

Volume of Traffic. Another line of approach to this subject is to develop the volume of traffic handled per employee. In recent years, this ratio has increased. Between 1939 and 1942, for example, the number of gross ton-miles per employee-hour increased from 438 to 511; thereafter, it declined to 458 in 1946, and rose to

552 in 1950.[5] These results were also due to expansion in ton-miles in the booming war and postwar years and to technological progress, particularly the installation of Diesel motive power in 1946-51 period.

TON-MILES PER TRAIN-HOUR. Other physical ratios in the railroad industry have been devised. Net ton-miles per freight train-hour, for example, has been called the best single measure of railway freight transportation efficiency. It combines the speed factor with the weight of the train. It reflects, also, the average performance for each hour of train operation. It discloses, furthermore, the volume of traffic moved per unit of expense. The ton-mile is the unit of revenue and the train-mile the unit of expense. This ratio, therefore, shows the number of ton miles moved by each expense-incurring train unit, per hour. Net ton-miles per freight train-hour in 1950 exceeded 1929 by about 80 per cent.

In the postwar years, increased profits of many railroads came largely from the operating efficiencies due largely to the replacement of steam by Diesel-electric locomotives. Take the Texas and Pacific Railway as an example. Between 1945 and 1951, that road almost completed a $31 million Diesel equipment program. In that period, gross ton-miles per train-hour rose 47.5 per cent, and net ton-miles per train-hour over 34 per cent. "The continued good showing of the Texas and Pacific and its ability to pay dividends to its owners," reported the management in its 1951 annual report, "has been largely due to the money put back into the property over the years; and the conversion to Diesel-electric operations has been a substantial contributing factor in reducing expenses and increasing net income." In other words, a substantial part of this company's dividends in the post-World War II years came from higher operating efficiency, arising from the use of Diesel-electric locomotives. This phenomenon also characterized many other railroads during these years.

There are other ratios, such as net ton-miles per train-mile, net ton-miles per serviceable car-day, among them. Specialists in railroad security analysis make further refinements and compute such ratios as man-hours chargeable to operating expenses per million equivalent ton-miles and of equated pounds of fuel per 1,000 gross ton-miles.[6] The investor can trace similar relationships in the railroad industry, whereas he can only infer or estimate them in most other industries.

[5] Bureau of Transportation Economics and Statistics, Interstate Commerce Commission, *Monthly Comment*, May 11, 1951, p. 15.

[6] Such ratios are computed by the Security Research Bureau, Philadelphia.

INFLUENCE OF AVAILABLE INFORMATION. A word of caution must be suggested. The presence of so much information on railroads leads to an undue emphasis on the industry. Investors may be misled. They may conclude that there has been a sensational rise in its operating efficiency. Late in the 1920's, for example, prior to the precipitate decline in the industry's earning power, there appeared an article by the chief of the Division of Research and Statistics of the Federal Reserve Board, in which reference was made to the growth in the traffic volume per worker. "Phenomenal improvements" were recorded in railroad efficiency.[7] It is probable that efficiency in other major industries was as great as and often greater than in the railroad industry. And again it must be stressed that the ratios used reflected not only efficiency, but also increased volume. An efficiency in the face of a rising volume is different from efficiency in the presence of a stable or declining volume.

AIRLINE RATIOS. The airline transportation industry presents the investor with many of the problems that have long plagued him in railroads. Operating ratios are as defective here as they are in other industries. In order to reflect underlying factors more effectively, the industry has also developed numerous ratios. Direct aircraft operating expenses are distinguished from ground and indirect expenses. The former resembles transportation expenses in the railroad industry. There is no major account in railroads, however, which compares with ground and indirect expenses in airlines. This account is designed largely to reflect overhead expenses and depreciation of equipment.

A decline in the ratio of ground and indirect expenses could be construed as an increase in operating efficiency. In the war years, when the domestic trunk lines realized substantial profits, however, the percentage of ground and indirect to total operating expenses rose sharply, from 50.4 per cent in 1940 to a high of 64 per cent in 1943. This was followed by a drop to 53.9 per cent in 1948-49.[8] An increase in efficiency as judged by the drop of this ratio was, nevertheless, accompanied by a decline in profits.

This ratio in the postwar years was, of course, affected by factors other than operating efficiency. The expansion in the number of new aircraft with high seating capacities required larger terminals. This should have increased the ratio of ground and indirect to total

[7] Thomas Woodlief, "The Economic Significance of the Increased Efficiency of American Industry." *American Economic Review,* March, 1928, supplement, p. 126.

[8] Figures from Frederick W. Gill and Gilbert L. Bates, *Airline Competition* (Boston: Harvard University, Graduate School of Business Administration, Division of Research, 1949), whose data were based on Civil Aeronautics Board sources.

expenses. Numerous economies operated, nevertheless, to reduce the total volume of indirect expenses, thereby reducing the percentage of these expenses to the total. At the same time, there was an increase, due to the use of the larger planes, in direct aircraft operating expenses. It is, indeed, difficult for the investor to determine what percentage of the increase in both classes of expenses reflect inefficiencies or only unused capacities.

In view of these and other considerations, it is not surprising that an executive of one of the trunk lines stated bluntly that there was "no single gage to determine economy and efficiency in operations." [9]

Fuel Efficiency. In electric light and power, operating efficiency in physical terms may be measured by a ratio reflecting the economy of fuel consumption. Electricity is generated either in "hydro" or in steam plants. A major expense in a steam plant is the cost of fuel. For many years, coal was used almost exclusively, and although in recent years oil and natural gas have emerged as competitors, coal is still most important. Since coal is useful for steam-raising purposes on the basis of its heat values, it is frequently considered in terms of British thermal units. A British thermal unit is the amount of heat required to raise one pound of water one degree (Fahrenheit). The amount of heat in a fuel—coal, oil, or natural gas—is measured by its B.T.U. content. One grade of coal may have less ash, or sulphur, and more B.T.U.'s. Based on coal with a value of 13,800 B.T.U.'s per pound, the electrical industry in 1882 used 138 B.T.U.'s per kilowatt-hour. The number of B.T.U.'s per kilowatt-hour has declined since that time with almost monotonous regularity.

Measured in another way, the same conclusion is reached. Between 1882 and 1950, the number of pounds of coal used per kilowatt-hour on the average by all steam plants declined from 10 to 1.18, although plants built in 1952 could produce a kilowatt hour with three-fourths pound. This increase in fuel efficiency was made possible largely through numerous technological improvements.

The importance of fuel efficiency in the electric light and power (steam plant) industry is graphically illustrated by 1949 data. In that year, many new steam plants, incorporating the most modern technological advances, were installed. Out of an increase of $99 million of net income in 1949, compared with 1948, about $72 million was accounted for by reductions in fuel costs. Data on savings for individual electric light and power companies are also available.

[9] Air-Line Industry Investigation, Hearings before Committee on Interstate and Foreign Commerce, Senate Res. 1950, 81st Congress, 1st Session, page 1356, 1949.

These differences in fuel consumption are transformed into fuel costs per kilowatt-hour. In a background of relatively stable fuel prices, this ratio may reveal changes in efficiency. In the last twenty years, however, fluctuations in coal prices have made it necessary to use this ratio cautiously. A drop in prices between 1929 and 1934 reduced fuel costs, and a rise between 1939 and 1948 increased them. Furthermore, some companies located close to the mines, for example the Appalachian Power Company, obtain their coal supply with slight transportation charges, while others, for example the Kansas City Power and Light, pay high charges. Neither the low costs of the one nor the high costs of the other necessarily reflect superior or inferior operating efficiency. In fact, it is possible that a company with low fuel costs per kilowatt-hour may have a low thermal efficiency.

Though low fuel consumption per kilowatt-hour is an indicator of production efficiency, it may not reflect the efficiency of the entire property. Economical fuel consumption may be achieved only by heavy capital costs. Lower fuel operating costs may, therefore, be balanced by high capital costs. Furthermore, only a part of kilowatt-hour costs at the point of consumption is represented by the generating costs.

Satisfactory ratios to measure the efficiency of transmission and distribution plants, though available, are too complex to be used in investment analysis. Higher losses of electricity in transmission of one company as compared with another, for example, might be construed to reflect inefficiency, but this is not necessarily so. Consolidated Edison of New York, Boston Edison, or Pennsylvania Power and Light may have lower transmission losses than Southern California Edison or American Gas and Electric. This does not mean, however, that the first-mentioned group of companies are more efficient. Their lines are short, while the lines of others cover more widely varying conditions, and differences in line losses flow largely from these underlying property characteristics, rather than from greater distances. The two groups of companies operate under efficiency variations.

Plant Utilization from Investor's Viewpoint

While productivity and efficiency data for most American industries, company by company, are not available, considerable information upon an industry-wide basis can be obtained. The Bureau of Labor Statistics and some private sources compile statistics on labor productivity by industries. The investor must not, however, fall into

the error of comparing productivity in an industry whose securities are of investment caliber with another characterized by high-cost plants. In such industries as lumber, leather, shoes, china or pottery, productivity data reflect the operations mainly of small enterprises, which are not influenced by the same forces of technological improvements and centralized management that feature the operations of the mass production industries.

Industrial Companies.—Investment analysis requires also an examination of the trend in sales, and dollar sales data are generally available. Sales trends, whether in dollars or physical units, should, however, be related to the maximum sales volume that a given plant investment and overhead can generate. Subject to changes in relationships between costs and selling prices, every company has a minimum fixed cost level. It is necessary that a certain volume of sales be made in order to meet these minimum costs. That point in sales volume, as explained in Chapter 13, is called the "break-even point."

It is, therefore, essential that the investor measure the degree to which sales utilize the physical plant. A rise in dollar sales, due to changes in selling prices, is irrelevant to this analysis. A plant can produce so many physical units of goods or services. A steel plant turns out tons of steel, either in ingots or in various finished forms. An integrated copper company mines, smelts, and refines so many pounds of refined copper, a cement mill produces so many barrels of cement, and a railroad yields so many ton-miles and passenger-miles. An investor wants to know how many units in a given period have been produced and the relationship of this volume to maximum capacity. If the plant is using all of its facilities, then plant expansion might be necessary, thus involving a new overhead expense. The investor is then confronted with the necessity of analyzing additional costs and price factors.

Information on the percentage of plant capacity varies with different industries. The percentage of plant operations in steel is published weekly. The tonnage of ingots produced and the capacity of the steel plants is generally known. Plant capacity in many industries that turn out standardized goods can be measured and such information is available to the investor. Sugar, cement, tinned and glass containers, unfinished cotton cloth, newsprint, and electricity are illustrations.

For more complicated manufacturing industries, especially for the multi-product and joint-product plants, capacity cannot be measured by some easily understood standard and is not, as a rule, freely

available public knowledge. To get such information the investor must familiarize himself with many technical facets of plant operations. In most cases, he must depend upon statements of officials of a company or of a trade association. Early in 1948, for example, the American Gas Association announced that gas range manufacturers had increased their production by more than 100 per cent over their prewar capacity. Early in 1949, there were dividend casualties in this industry. A percentage increase of 100 per cent might, however, be accompanied by an even more rapid sales expansion. The natural gas pipeline industry, for example, has increased its capacity in the postwar years by more than 100 per cent. There was, nevertheless, a scarcity of natural gas in 1950 and again in 1951, and 1952.

In almost every industry, rapid changes in sales relative to capacity may develop, with the investor only vaguely aware of the trend. Fluctuations over a period of weeks or months may not be permanent. They may be of only slight interest to the investor. On the other hand, changes indicative of a secular trend may appear, and the investor, looking only to corporate information as a guide, may be misled. The investor must usually examine industry-wide data in order to draw inferences and to reach conclusions regarding a particular corporation. The problem of course becomes more complex to the extent that the company engages in a variety of industries.

Railroads and Airlines. The publicly regulated industries perform a relatively standardized service. In railroads, the sales are measured in ton-miles. Ton-miles per mile of road give the "traffic density." This figure has been so carefully refined that it has been made available on branches or divisions of particular railroads. A private agency, H. H. Copeland & Son of New York, computes the traffic density between division terminals by dividing the ton-miles by the mileage. These data are of importance because of railroad bonds secured by liens on separate divisions. One bond of the Erie, for example, is secured by a lien on the line from a point in southwestern New York to Marion, Ohio, and another by a lien from Marion to Chicago. Many such railroad divisional bonds have been issued, though only relatively few are outstanding.

One railroad bond is, therefore, better than another to the extent that the property serving as a lien carries more or less traffic. It is thought that if a division carries enough traffic to generate earnings to cover the interest, the bonds are good, even though other bonds of the same road might default. There is some substance to this position, and in numerous reorganizations, some bonds of a road have

been undisturbed, while others of the same road were cut down in principal, in interest, or in both.

The ton-miles per dollar of funded debt is, therefore, useful information for investors, and investment is, at times, based on the traffic density per dollar of debt. Table 21 shows this ratio for a number of major roads in 1949:

TABLE 21

TRAFFIC DENSITY AND FUNDED DEBT OF REPRESENTATIVE ROADS, 1949

	Traffic Density (ton-miles per mile of road)	Funded Debt per Mile of Road	Traffic Density per $1,000 Bond
Atchison, Topeka and Santa Fe	2,521,000	$15,345	164,380
Union Pacific	2,991,000	18,241	163,970
Chicago, Burlington & Quincy	2,083,000	17,787	117,100
Southern Pacific .	2,989,000	38,446	77,745
Great Northern	1,999,000	25,871	77,267
Illinois Central	2,904,000	28,228	102,870
Kansas City Southern	2,847,000	35,163	80,965
Chesapeake & Ohio	7,162,000	47,490	15,081
Chicago, Rock Island & Pacific	1,762,000	7,194	244,920

The favorable ratio of the Chicago, Rock Island & Pacific is due, not so much to the heavy density, but to the low debt. This reflects the reorganization of its financial structure, which substantially reduced the company's debt. The Chesapeake & Ohio, with the heaviest density, has the lowest ratio. The traffic, however, moves in heavy, long-haul trainloads, and at relatively high rates. The bonds are of good quality. Observe again the data for the four transcontinental roads. The Southern Pacific has a greater debt than the Atchison, Topeka, and Santa Fe, the Union Pacific, and the Great Northern. The sales volume (traffic density) per bond is substantially higher for the Union Pacific than for the Southern Pacific, but about the same for the latter as for the Great Northern. Prior to the 1940's, the density per bond for the Southern Pacific was considerably lower than for the Great Northern, but the increase in population and production in the Southwest and on the Pacific Coast, served extensively by the Southern Pacific, had closed the gap by 1951.

In a larger sense, financial experience has taught investors the inadequacy of this ratio as applied to divisional liens. The railroad plant, like every other plant, is interdependent in character. Through-traffic movements cannot be broken up without disturbing

efficiency. The bickering and bartering among bondholders in the railroad reorganizations of the 1930's and 1940's placed a severe limitation upon the practical effectiveness of the traffic density ratios. The passage of the Mahaffie Act in 1948, placing railroad financial reorganization under the jurisdiction of the Interstate Commerce Commission, further reduces the significance of this kind of analysis.

Somewhat similar measures of plant utilization are used in the airline industry. American Airlines in 1951 flew more than twice as many revenue passenger miles per day and per route mile than Northwest Airlines though, of course, this does not mean a proportionate discrepancy in earning power.

LIGHT AND POWER. In electric light and power, different terminology is used to describe the relationship between capacity and sales. In this industry there is a sales cycle—daily, weekly, yearly, seasonally. Kilowatt-hour sales are light in the hours between midnight and six A.M. They pick up rapidly in the early hours when manufacturing plants open up and they reach a daily peak during the morning and late afternoon hours under the combined demands from industrial power and commercial and residential users. In these late afternoon hours, the peak or maximum demand occurs. The average daily load divided by the peak load is known as the load factor. Load factors are also applied to bridges, tunnels, airlines, and so forth. The ratio of peak demand to *capacity* is known as the utilization factor. The reserve capacity is computed by deducting the kilowatts used at the peak demand from the kilowatts of installed capacity.

A rise in either the load or utilization factor may be profitable to the company. The peak demand and plant capacity determine a substantial part of expenses. For a "hydro" property, more than 90 per cent and, for a steam plant, from 60 to 70 per cent of total costs are the fixed costs. The increase in expenses necessary to sell an additional kilowatt-hour in the off-peak period is slight. Thus, for example, the residential rate may be three cents per kilowatt-hour. The extra expense to produce an added kilowatt-hour may perhaps be four mills. Also, interest and depreciation charges (fixed charges) decline per dollar of revenue as the sales and revenues rise. An increase in the load factor from 50 per cent to 75 per cent may reduce such expenses per dollar of income by one-third. If, however, the increased demand absorbs the plant capacity and makes necessary the building of new capacity, the fixed charges are substantially increased. And this is exactly what has happened repeatedly in this industry, and indeed, in every growing industry.

An airline can, through family fares and coach travel, also increase its load factor. A street railway, however, has slight opportunity in this way to increase its profits. Its business bunches into two peaks, with relatively little in between.

An increase in the load and plant factor is thus profitable. It enables companies (as those in the electric light and power industry have so extensively done in the past) to raise wages substantially, reduce selling prices considerably, and increase profits slightly.

Detailed data on these cost-price relationships are publicly available in the electric light and power industry. It is, therefore, possible for investors to compare companies with one another and to trace the progress of these relationships for a particular company. When information is available, as in telephone, gas, and to a lesser extent, in steel and sugar industries, for example, similar analyses, though not in the same detail, can be made. In most industries, the investor, due to absence of information, finds it difficult to develop such comparisons. The principles sketched for the electric power and light industry are, however, applicable to all industries.

QUESTIONS AND PROBLEMS

1. An investor is comparing the sales per dollar of plant expenditure in the following industries: hydroelectricity, food chains, machine tools, heavy electrical equipment, and dairy products. What importance should the investor attach to a lower ratio for heavy electrical equipment than, say, for dairy products? Would such a lower ratio for the former, as compared with the latter, suggest overexpansion of the heavy electrical equipment industry?
2. What are the objections to using only the financial approach to the problem of plant capacity? Illustrate by examples from specific industries. How would the accounting policies be relevant to an examination of this subject?
3. Great stress is usually placed on raw material reserves in the extractive industries. Indicate briefly the problems in using these figures.
4. You are told that for five years (say, 1946 to 1950) the transportation ratio of the Class I railroads declined, while in the sixth year (say 1951), it increased. It is argued that the data reveal definitely that in the sixth year the operating efficiency of these roads was declining. Do you agree with this conclusion? Explain.
5. Two oil producing companies have the same volume of proven reserve figures. Do these figures imply that both companies should have the same profit margins as and when reserves are used? Explain.

6. Compare the methods of measuring plant capacity of the power and light and of the railroad industries.
7. A power and light company reports an increase in the load factor to record levels. Its peak load, however, has remained about the same. Which of these two items would be more important in causing the management to increase its plant capacity, thereby increasing the company's fixed charges?

READINGS

The basic data on ratios bearing on plant capacity and operating efficiency in the railroad industry are found in *Statistics of Railways in the United States,* published annually by the Interstate Commerce Commission.

Basic data on electric utilities are available in *Statistics of Electric Utilities in United States, Classes A and B Privately Owned Companies,* published annually by the Federal Power Commission.

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Chapter 11

QUALITY OF CORPORATE INCOME

The discussion of balance sheets and income statements assumes that the data reported to the stockholders are standardized and that they are comparable at their face values. For many terms included in financial statements, this is not so. A dollar, for instance, has an accepted value in exchange for goods and services at a given time in a given market throughout the country. A dollar paid for wages and salaries is accepted at its face and is not looked upon with either skepticism or suspicion.

Nature of the Profit Dollar.—The above, is not the case, however, with the profits dollar. Such a dollar is, in many cases, strongly suspected: it is scrutinized for hidden weaknesses and hidden strength. It is one thing if earned in a healthy, expanding industry, and another if earned in an unhealthy, declining industry. It is still another in the treasury of a company with a high inventory in a period of rising prices, and another in the hands of the same company with the same management in a period of declining prices.

The profit dollar is rarely available in cash. It is committed to a myriad of other forms: to land, real estate, improvements, or machinery; to accounts receivable, notes receivable, loans to affiliates, which may or may not be recoverable; to inventory, cash value of which is frequently based on factors beyond the control of management; to funds allocated for specific purposes, such as insurance and workmen's compensation, protection against drastic inventory changes, and against unknown and unpredictable, but reasonably probable, risks. Even that part of the profits available in cash cannot always be used to make payments to investors. It is needed to carry on the business, to pay wages, taxes, rent, and other items before the receipt of the revenue realized from sales. And much cash is needed for the building of new plants and equipment, and for repairs and improvements to existing properties.

The corporate profit dollar, before it can be converted into cash available for payment of interest or dividends, is subject to many

contingencies. The dollar invested in receivables may be lost through default of the debtor. Invested in inventory, it may be worth more or less, owing to world-wide forces only in small part controllable by the management. Invested in equipment, it may be destroyed by technological obsolescence, or it may appreciate in value because of the sale of new articles produced by such equipment before they can be duplicated in competitive markets. A dollar invested in a natural resource, such as anthracite coal, may be worth less because of the supersession of its use by some other commodity. Or, on the other hand, a dollar placed in another natural resource, such as oil, may have its value multiplied by an increase in demand, or by an increase in price, or by both.

The investor is constantly scrutinizing the quality of the earnings dollar. In his mind, there is always a pattern of the dynamic expansion or decline of the industry of which the corporation is a part. There is also recognition of the degree to which industry is able to maintain a declining price level closely geared to unit costs, and to prevent a decline with little consideration for such costs. The expanding industry, reasonably matured, with a limited number of companies controlling a large percentage of the output and whose selling prices are closely adjusted to unit costs, normally generates a good-grade earnings dollar.

The quality of corporate earnings is analyzed by the investor for the purpose of considering the effects of an infinite variety of circumstances. No copper-riveted classification of such conditions can be presented. The following sections are suggestive, though neither conclusive nor definitive.

A distinction is drawn between those factors that can be controlled by the management, and those that cannot. For convenience of discussion, the former are termed internal and the latter, external.

Internal Forces

Capitalizing Expenditures.—An interesting phase of business and financial history revolves around the degree to which expenditures for plant and equipment are charged to capital or to expense accounts. The setting up of expenses as an asset on a company's books is known as the capitalization of expenditures, while the charge to an operating expense account may be described as the "expensing of expenditures." To the extent that the former practice is followed, reported earnings *in a given year* are increased and, in the other case, earnings are decreased. There is no uniformity of this practice among industries and companies, just as there is no common account-

ing system in American industry that could make a uniform policy possible.

Carnegie Steel, prior to its sale to United States Steel in 1901, rarely set up book assets to reflect fully the cost of fixed assets. Blast furnaces, coke ovens, coal and iron ore lands, and plants for the production of steel ingots and their fabrication into finished or semifinished steel were charged largely to operating expenses. Prior to the first decade of the twentieth century, the charging off of the cost of most of the plant and equipment as a current expense was the general practice among well-managed industrial enterprises.

In the railroad business, the Vanderbilt lines (New York Central, Lake Shore and Michigan Southern, and Michigan Central) followed a similar practice. Such a conservative policy struck the unsophisticated public by storm in 1911 when the Interstate Commerce Commission justified its refusal to grant the railroads a full measure of requested rate increases on the grounds of this alleged understatement of earnings owing to the pursuit of this financial policy. Other roads, particularly those in the family controlled by Jay Gould, followed a contrary practice. Such roads as the Wabash and the Missouri Pacific placed in their asset accounts many items that were probably operating expenses. Public regulatory bodies, for different reasons of course, criticized those roads as severely as other regulatory bodies criticized the conservative roads.

STEPS TOWARD CONFORMITY. A strong impetus toward enforced conformity to the practice of charging property expenditures to the asset account was furnished in the form of an order of the Interstate Commerce Commission issued in 1912. Even here the effort to prescribe a standardized financial policy has been attended with exceptional difficulties. Many disputes have characterized the relations between the regulatory body and the regulated companies.

More than fifteen years after the Commission handed down this ruling a difference of opinion developed with the Chesapeake and Ohio Railroad. That company, in 1926, rebuilt 2,390 gondola cars, originally manufactured ten years before. They were sent to the shop where the bodies and underframes were removed and cut up for scrap. The trucks were reconditioned by replacement of defective parts and new bodies and underframes supplied to the repaired trucks at a cost to the railroad of approximately $1,700,000. The road charged the cost to an operating expense account entitled "Freight-Train Cars—Repaired." The Commission, insisting that the expense be capitalized, observed that the cars had been retired from service and replaced with property of like kind. Under the account-

ing pursued by the railroad, the Commission observed, "it would be possible for a carrier to replace units of equipment by rebuilding through operating expenses, retaining in capital investment only the [pre-World War I] cost of the original units, whereas any carrier which elects, or is compelled, to replace by purchases of new equipment would include in its capital investment a much greater sum for property of the same description and service life." [1] The Commission, accordingly, ordered the railroad to recast its income accounts, reduce its operating expenses, and increase its reported income and its balance sheet assets by the same amount.

NONREGULATED INDUSTRIES. In many industries in which selling prices are not regulated by government authority, corporate management pursues policies that, in a particular year, may increase or decrease reported earnings. In the copper industry, for example, some companies charge off development costs in the year in which they are incurred, while others spread them over the life of the ore bodies.

Significant differences in policy occur also in the oil industry. Responsive to the character of this industry, a substantial proportion of expenditures are incurred for the purpose of locating new wells. One company charges to expenses intangible drilling and development costs, while another capitalizes such expenses and amortizes them over the life of the wells. Shell Oil, Seaboard Oil of Delaware, and Amerada follow the former policy, whereas Standard Oil of Ohio and Atlantic Refining follow the practice of most of the other companies in the industry and capitalize such expenditures. In the latter case, the costs are usually charged to earnings in subsequent years upon the basis of a unit of production.

These intangible development and drilling costs are substantial in the oil industry. For the Shell Oil Company, for example, such expenses on a per share basis and in relation to net income are shown in Table 22.

COMPARISON OF "CASH" AND REPORTED EARNINGS. The investor recognizes that the *reported* earnings of companies that capitalize intangible expenses and those that do not are not strictly comparable. In the years following the one in which intangible items are expensed, the company realizes earnings that are not reduced by annual carrying charges for these items. The investor scrutinizes the accounts in such a way as to reflect comparable earnings on the assumption that all companies follow similar practices. He adds to

[1] *Accounting for Rebuilding Freight Cars by Chesapeake & Ohio Railway Company,* 153 I.C.C., pp. 9-10.

TABLE 22

SHELL OIL COMPANY, INTANGIBLE COSTS: PER SHARE AND PERCENTAGE OF NET INCOME

Year	Per Share	Percentage of Net Income	Year	Per Share	Percentage of Net Income
1936	0.72	51	1943	0.82	58
1937	0.81	49	1944	1.45	68
1938	0.83	101	1945	1.68	79
1939	0.87	101	1946	1.53	63
1940	0.94	79	1947	1.63	37
1941	1.12	87	1948	1.85	22
1942	0.69	42	1949	2.18	38

Source: Argus Research Corp., *Shell Oil Co.*, April 14, 1950.

reported income the charges for depreciation, depletion, and other noncash expenditures, so-called because they are charges to operating expenses not represented by cash spent in a particular year. He is thus able to compare profits on a basis more nearly approaching uniformity.

Table 23 lists for the Amerada Petroleum Corporation, a major crude oil producer, annually from 1940 to 1950, the noncash expenditures in dollars, the "cash" earnings on a per share basis, and also the earnings as reported to the shareholders. The "cash" earnings are the sum of the reported earnings and the noncash expenditures.

TABLE 23

AMERADA PETROLEUM CORPORATION
"CASH" EARNINGS AND REPORTED EARNINGS, 1940-50
(Based on number of shares outstanding in 1950)

Year	Noncash Expenditures in Millions of Dollars	"Cash" Earnings per Share	Reported Earnings per Share
1940	$ 5.4	$ 4.68	$ 1.26
1941	6.6	5.42	1.14
1942	7.1	6.59	2.08
1943	7.4	7.72	3.03
1944	12.0	10.96	3.35
1945	11.5	10.70	3.42
1946	11.1	12.65	5.61
1947	16.0	19.62	9.46
1948	22.4	28.55	14.35
1949	22.6	23.44	9.12
1950	18.8	21.70	9.76

The "cash" earnings run more than twice the earnings reported to the shareholders. In Chapter 22, it will be noted how market prices for stocks reflect this difference between "cash" and reported earnings.

The Bureau of Internal Revenue looks with disfavor upon the practice of expensing expenditures, particularly for geological and geophysical exploration. If these expenditures are capitalized, what is now an expense would become a "profit." Corporate funds used to locate useful assets would then be turned over to the government in the form of taxes.

Effect on Net Income. Aircraft manufacturing entails heavy development costs for new models. New planes, especially for military purposes, have an uncertain life. Hence, some companies, like Douglas Aircraft, do not capitalize all their development costs; while some of its competitors follow a different policy. In automobiles, Chrysler charges the tooling costs of new models to operating expenses; some of its competitors capitalize these costs. In the motion picture industry, one company spreads the costs of a film over the revenues of one year or even less, while another recovers its costs from the revenues of more than a year.

Such variations in the capitalizing or expensing of expenses are found in many companies. They also assume a wide variety of forms. In recent years, pension payments, for example, have become more important and occasionally unusually heavy charge-offs are made for this purpose.

It may, therefore, be concluded that net income, the figure reported on the income statement, should be assessed in light of the extent to which numerous expenditures are capitalized or expensed. What accounting charges for a given company in one year have been made as compared with a previous year or years? What differing policies are followed by different companies in the same industry? Net income for two or more companies and for the same company over a period of time should be adjusted so that reported earnings should reflect, so far as possible, the charging of similar items to expense and capital accounts.

Reserves.—Differences in financial policies among corporations also express themselves in higher or lower reserves. Charges to expenses and deductions from earnings are made for a variety of purposes. These charges are also noncash expenditures. Amounts equal to these charges are set up in the liability side of the balance sheet as reserves. Some companies set up higher and others lower, reserves, for similar purposes. The company with higher reserves

reports lower earnings for the year or years in which such deductions from earnings are made. Its earnings, to the extent of the additional reserves, are of better quality. In comparing reported profits of two or more companies, difference in reserve policies must therefore be considered.

Many companies are exceptionally liberal in setting up reserves. In the farm equipment industry, for example, International Harvester has long established substantial reserves for numerous purposes. It has made greater charges than other concerns in the industry, and it has provided reserves from earnings to guard it against losses from extension of credit to its customers, from declines in the value of its inventory, and from investments made abroad. It has, furthermore, created reserves for fire insurance, depreciation, and for unusual maintenance expenditures.

In some cases, International Harvester's reserves exceeded the amounts required to finance the contingencies against which they were set up. Hence, in 1944, the balance sheet account Reserve for Depreciation was reduced by $10.6 million with a credit not to current earnings, but to surplus. In 1942, the Reserve for Losses on Receivables was reduced by $14 million, again with a credit to surplus. In 1939, the Reserve for Special Maintenance was reduced by $9.5 million, with the credit direct to Surplus. In the same year, the Reserve for Development and Extension was reduced by $3 million, this time by a credit to current earnings. The Reserve for Fire Insurance was reduced in 1942 by a credit to surplus of nearly $3 million.

To compare this company with its competitors, without taking into consideration the extent to which these charges affected the reported earnings or the surplus of International Harvester would lead to incorrect conclusions. Here again, the investor analyzes reported data in quest of an earning power that is roughly comparable.

American Smelting and Refining is a recent example of conservative creation of reserves. By 1950 this company had reserves for protection against changes in metal prices and decline in the value of investments, for obsolescence and for investigations of mines and new business. In November of that year, the company returned these reserves, aggregating over $26.6 million to its original source, i.e., to surplus. Any losses thereafter would be charged to earnings in the years when they occurred.

Pension Reserves. Still other companies increase their expenses and reduce their earnings by varying amounts in different years for pension obligations. Sherwin-Williams, a leading paint

manufacturer, set aside relatively heavy sums for pension reserves between 1947 and 1952. This charge to expenses could be reduced and earnings in a year, say, of poor business, increased without impairing the actuarial soundness of the pension fund.

Depreciation Reserves. Varying policies in the establishment of depreciation reserves are widespread in many industries. Even in the local utilities, some companies make heavy and, others, light, charges for this purpose. Orthodox accounting principles permit inclusion in operating expenses of amounts necessary to write off the *cost* of those assets that have a relatively long service life. It is assumed that, at the end of their lives, their costs will have been recovered through charges to the operating expenses. Such a procedure may be sound accounting, but in the face of rising prices, it is not sound finance. Investors must, however, take note of the fact that frequently fixed assets outlive the rate of write-off, and hence, these assets produce goods and services long after they have no value on the books of the corporation.

The recovery from earnings of sums needed to replace worn-out facilities at their *cost* does not, however, provide adequately to finance their replacement when prices have advanced beyond cost. On the whole, subject to deflationary reversals, prices have been rising for many years. An index of construction costs, of Standard and Poor's Corporation, for example, disclosed a rise of 100 per cent between 1939 and 1949. Another index, that of the American Appraisal Company, reveals a more than fivefold increase in average construction costs between 1913 and 1952, and a 150 per cent increase in the 1940's. The American Appraisal Index is presented in Figure 3.

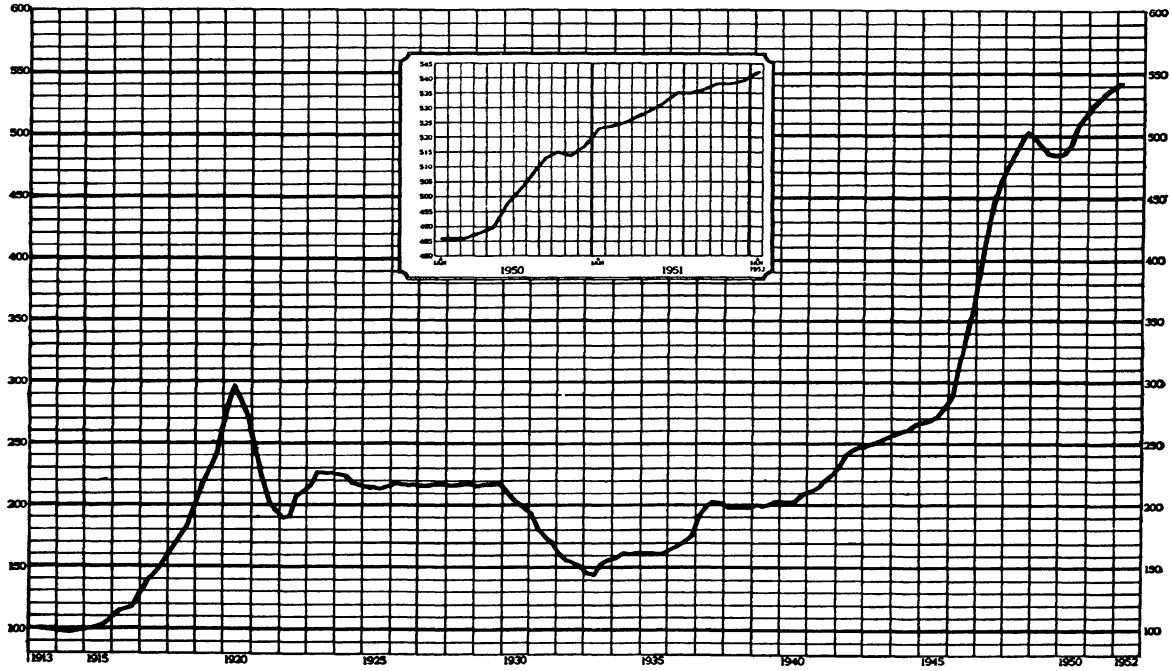
The increased cost of replacing property is recognized neither by accounting, nor by the federal income tax law. A company that adds to operating expenses only the amounts necessary to recover original costs in an era of advancing prices is thus overestimating profits. Income tax laws and their administration support this practice. Since income taxes are paid on profits that reflect a cost basis of depreciation, companies cannot deduct the differences between original and replacement cost from income for tax purposes. Many companies recognize, nevertheless, that such an additional charge to expense in an inflation period is necessary to report true profits. Companies that charge depreciation expenses on a cost basis in periods of rising prices report a profit dollar of relatively poor quality.

The problem of preserving the substance of the reported earnings dollar is recognized by forward-looking managements in a wide di-

FIGURE 3

The American Appraisal Company Construction Cost Indexes and Graph, 1913-52

COST INDEXES OF AVERAGE CONSTRUCTION AND REPRESENTATIVE ITEMS OF MATERIAL AND LABOR



Note: This index applies to construction only and does not include building fixture items such as plumbing, heating, lighting, sprinkler system, etc.; it is based on average costs under normal conditions with no allowance for overtime, premiums on materials, or special conditions. It is the composite of four types of buildings—frame, brick, concrete, and steel—in 30 representative cities, and therefore should be used only as a trend as it is not applicable to specific buildings.

versity of industries. In textiles, the Dan River Mills requested its stockholders to recognize that current replacement costs were double pre-World War II costs and that, accordingly, its net profit for one year was not "free and clear, but one which, properly speaking [was] burdened with a deferred cost to be liquidated in the future." In chemicals, Diamond Alkali informed its stockholders that a plant with an original cost of $40 million would in 1948 cost about $64 million to replace, and that, upon the assumption that building costs would remain at current levels, the reserve for depreciation was inadequate. Therefore, an amount of earnings equal to this deficiency could not "be construed as available for dividends or other corporate purposes, if we are to retain in the business sufficient funds to replace [at present costs] our older facilities as they wear out and become obsolete."

In 1951, the vice president of Food Machinery and Chemical declared that depreciation allowances were based on costs of 16 years earlier and that, in 1951, construction and equipment costs were 2¾ times higher. Youngstown Sheet and Tube informed its stockholders in the 1949 Annual Report that the income tax law provided only 25 to 40 per cent of the sums necessary to replace existing plants at prices then current.

An even more significant declaration was made by a representative of the accounting firm of Ernst and Ernst that, between 1946 and 1948, Republic Steel's reserves were $140 million short of covering its replacement needs. Its net income in that period was $75 million. It would take the company, it was estimated, 29 years to bring the annual depreciation charge in line with replacement costs. This company, accordingly, charges its expense accounts for "accelerated" depreciation.

National Steel and United States Steel follow similar policies. To place the *reported* earnings of these concerns on a comparable basis with others in the industry, one should add the "accelerated" depreciation to the earnings of these three. The president of the National Steel has some strong views on this subject. In 1951, he declared bluntly:

> While on this matter of investment, I would like to say that the financial situation of the steel industry cannot be considered at all satisfactory. This may be surprising to you in view of the reports of steel company earnings that you read on the financial pages. I dislike to say it, but part of what you read is fiction. The earnings of steel companies—our own included—do not tell the whole story. This is due to the method of taking depreciation resulting from the government policy to allow tax deductions for depreciation on the basis of original cost only. Yet

the cost of plant and equipment has advanced at least 2½ times over prewar.[2]

In almost all industries, this problem must be wrestled with by the managements, and their decisions must be interpreted by investors. As though to bedevil the investor even further, managerial judgments, owing to other pressures, are sometimes reversed. United States Steel, for example, in 1947 and for part of 1948, set aside substantial sums for depreciation over and above those needed on the original cost basis. The company, however, abandoned this practice, apparently in deference to the critical views of the American Institute of Accountants and the S.E.C. It then adopted the practice of charging "accelerated" depreciation. It changed the form, but retained the substance, of its policy of accounting for depreciation.

Neither the management nor the investor can resolve this problem with statistical accuracy. In many cases, the new asset is technologically more efficient than the exhausted asset. Each dollar of investment may thus generate a greater productivity in goods and services, and to that extent, the increase in cost may be counterbalanced. The same production, that is to say, can be achieved with fewer new units of equipment. There is, therefore, a wide margin in the investor's interpretation of managerial judgments.

DEFENSE COST WRITE-DOWN. A new wrinkle in the depreciation problem was presented in a law passed in 1950 to permit the write-down of the cost of new defense facilities at a rate more rapid than permitted under the income tax law. The Defense Production Administration permits the charging to expenses a given percentage of cost, over a five-year period. Kaiser Aluminum and Chemical, for example, was authorized to write off $80 million of plants with a cost of $100 million. Thus, this company can charge its expense account with $16 million a year for five years, plus the ordinary depreciation on $20 million. An idea of the size of this additional depreciation may be suggested by comparison with the depreciation item for its fiscal 1951 year, amounting to $4,693,000. The company's *reported* profits for the first five years will be lower, but in succeeding years they will be higher.

Inventory Fluctuations.—Differences in the treatment of profits or losses from inventory fluctuations are also reflected in reported earnings. For companies in industries in which costs of materials constitute a large percentage of cost, the inventory problem deeply

[2] Ernest T. Weir, at the Annual Convention, National Association of Purchasing Agents, June 5, 1951, p. 7.

concerns both management and investor. Declines in commodity prices frequently undermine the strength of many companies.

Until comparatively recent years, the difference between low costs and high selling prices was almost universally reported as a "profit." In a rising market, part of that profit, however, was lost in the purchase of new inventory at higher price levels to replace that which had just been sold. In view of high taxes on profits, this unrealistic method is particularly dangerous.

LIFO Inventory Method. In order to align inventory values more closely with current market values, many companies adopt a system of replacement accounting. A device that has been adopted by an increasing number of concerns (though they are still in the minority) is known as last in, first out, or LIFO. A minimum inventory, essential to conduct a business—the basic inventory—is carried on the books at the cost prevailing at the time LIFO was first introduced. In computing profits, this cost is not considered. The rest of the inventory above the basic minimum is used in profit determination. The cost of the last article purchased is the cost set up against the sales price. As prices rise, inventory costs rise, and hence, the margin of profit narrows. As prices drop, inventory costs drop, thus reducing the margin of loss. Profits and losses theoretically are narrower. In a period of rising prices inventory profits are reduced, and in a period of falling prices, inventory losses are also reduced. The LIFO method is thus a device to replace original cost by replacement cost, although not perfectly so, especially when prices decline below the levels embraced in the "basic inventory."

By their very nature, some industries must carry heavy inventories. In such industries, profits or losses arising from commodity price fluctuations are substantial. A representative list of these industries includes vegetable oils, soft- and hard-finished floor coverings, refined oil, soaps and cleaning compounds, woolen, cotton, and silk textiles, meat packing, fruit and vegetable canning, fresh fruits, raw and refined sugar, various divisions of pulp and paper, leather and shoes, and tea, coffee and cocoa.

Despite its theoretical advantages, only a minority of companies have adopted LIFO, and many others have applied it only to a part of their inventory. Difficult practical problems arise. It would be impossible, for example, for department stores to apply the theory literally on a commodity unit basis. As applied to the thousands of articles sold in a department store, this method of accounting would be so complex and expensive as to make its use impracticable. Instead, there has been worked out a complicated Department Store

Inventory Price Index, issued semiannually by the United States Bureau of Labor Statistics.

FIFO Inventory Method. Manufacturing companies, producing a variety of articles, with varying sizes, shapes, and patterns, rarely use the LIFO method. It would be difficult to account for the last prices paid for thousands of parts, and to allocate such parts to particular end products. In such industries as machine tools, electrical and railway equipment, among many others of a similar character, the so-called FIFO (first in, first out) or some variety thereof is generally used. Inventory profits in rising markets and losses in declining markets therefore abound, and investors must interpret financial statements accordingly.

Effects of LIFO. In the meat-packing business there are other problems. When animals are bought alive one day, then slaughtered, and the products sold on a weak market a short time thereafter, literal application of the LIFO method would be burdensome and unrealistic. Varying inventory policies are adopted by the leading companies in this industry. LIFO accounting is used most extensively by Swift and Company (on products accounting in 1952 for more than 75 per cent of its sales). Its securities also enjoy the best investment reputation of any company in the industry, though there are reasons, other than LIFO accounting, to explain investor preference.

LIFO is adopted for almost all the items with serious inventory risks, while other items are valued on the lower-of-cost-or-market basis. Due to the use of LIFO on such a large part of its inventories, Swift reported slight inventory profits in the rising markets of 1946 and 1947. Armour, which uses LIFO on products representing only about one-third of its sales, reported heavier inventory appreciation.

The absence of this factor in 1948, however, helped to reduce Armour's profits for that year (indeed to convert its substantial 1946 and 1947 profits into a loss), while Swift's profits declined somewhat less than 20 per cent from 1947. This factor, aided by a ten weeks' strike, plus a number of other reasons, led to the deferment of the Armour preferred dividend in 1949. In the first six months of 1949, the company had an inventory decline of about $27 million, but Swift maintained its regular common dividend payments intact.

"Our LIFO reserves enabled us," declared Armour's president, "to pull out about $8 million to cushion the loss, so we had a net loss of about $19 million. If we had had the LIFO base of Swift,

we wouldn't have had a loss at all. . . . On rising markets, Armour goes great guns, but when the market goes down we don't have the protection." [3]

Some companies, such as National Lead and American Smelting and Refining, have for many years carried a "normal stock" inventory at very low prices. The former adopted this method in 1914. The normal stock is a minimum inventory and is in the nature of a fixed asset. It is needed to carry on the business, and, like a machine, must be kept in the business permanently.

A change in accounting policy for inventory valuation sometimes produces an abrupt change in earnings and investors must be wary in comparing profits under the old and new methods. In 1947, for example, Bethlehem Steel changed to the LIFO basis for about 75 per cent of its inventories. As a result, its profit was approximately $17.5 million less than the amount it would have realized on the basis of its previous method. Due to the introduction of LIFO in the same year, profits before taxes of Allied Stores, a leading department store chain, dropped over $2.1 million.

A clear illustration of the way in which LIFO reduces inventory profits is furnished by the Pacific Mills. That company, an important weaver of cotton, woolen, worsted and rayon fabrics, reported for 1950 a profit equal to $6.39 a share. In that year, textile prices advanced appreciably, and in the same year, the company changed its inventory accounting, from first in, first out, to LIFO. Had it continued its old inventory valuation method, its 1950 profit would have approximated $10.11 a share.

The number of concerns changing to LIFO is increasing and comparisons of profits over a number of years must take this factor into consideration. For corporate profits as a whole, inventory profits in years of rising commodity prices constitute a significant portion of reported profits. So important is this factor that the Department of Commerce reports corporate profits in two ways: (1) as published by corporations, and (2) as adjusted to reflect inventory profits or losses. For the three-year period 1946-48, the Department's inventory adjustment was almost 25 per cent of reported profits. Profits, excluding inventory appreciation, were therefore that much less. For 1949, there was an inventory price decline. In 1950, prices rose again, and for that year, inventory appreciation contributed 23 per cent of corporate profits. These adjustments are estimates, of course, and the percentages are not accurate. The inventory valuation adjustment series of the Department of Commerce is an approximation of the difference be-

[3] *The New York Times,* February 18, 1950.

tween cost and current average price of inventories. Adjustments are also made for the inventories covered by the LIFO method of accounting.

Over- or Undermaintenance.—Investors also try to make adjustments in reported income for the purpose of reflecting the extent to which a company spends more or less than necessary for maintenance purposes. Maintenance expenditures are frequently not published, and when made available, are usually given only in dollars. In periods of changing commodity prices, it is necessary to analyze changes in maintenance expenditures.

In the railroad industry in the depression of the 1930's, some concerns, in order to provide funds to meet their fixed charges, reduced the standard of maintenance. They did not lay the number of tracks, treat the number of ties, replace the number of bridges that the condition of the property required. On the other hand, some roads charged their expense account with maintenance to such a degree that, in the course of time, they could reduce their expenditures without impairing operating efficiency. Occasionally, a company may even set aside in prosperous years funds to provide for future maintenance charges. Such a practice was followed by the Denver & Rio Grande, which during the World War II years, set aside more than $6 million for this purpose. In 1947 the company charged this fund with nearly $1.7 million for maintenance, thus reducing operating expenses and increasing reported earnings for that year.

Except for the railroad and the public utility industries, there are insufficient data to enable investors to ascertain the degree of maintenance. Broad inferences may be drawn, but they are matters of judgment. Such inferences represent the skill, not the science, of investment, and a skill can be subject to no textbook rules.

These special charges to reflect underlying forces are, by no means, an all-inclusive list. Illustrations are: special deductions for idle plant operations, for production difficulties in the opening of new plants, for "eventual reduction in the level of over-all construction costs," [4] for the cost of breaking in new machines, such as the DC-6's in the airline industry in 1946 and 1947, for the development of new products, for accelerated amortization of high-cost facilities, for the cost of prior service benefits in retirement plans, and for higher cost of facilities to retire older plants.

Service, Royalty, and Rental Revenues.—Many industries sell equipment in a market characterized by an irregular demand. Their

[4] Du Pont de Nemours, *Annual Report*, 1947, p. 15.

revenues and profits, nevertheless, are reasonably stable. Often, instead of selling their equipment, they rent it. Some companies also enter into annually recurring service contracts with equipment buyers. United Shoe Machinery and International Business Machines are illustrations. (See Chapter 12.)

Rental and service revenues create stabilizing influences. In railroad equipment, for example, General American Transportation, due in part to its rental and service revenue, was able to pay dividends in the 1930's at a time when most other corporations in that industry passed their dividends, or, like Pressed Steel Car, became insolvent. International Business Machines in its industry, although not for this reason alone, displays a financial record far superior to that of its industry competitors. Otis Elevator sells service contracts to an increasingly large number of its elevator users, thereby aiding in stabilizing its revenues.

External Forces

Of equal significance with the managerial policies affecting the quality of corporate earnings are economic, political, and social changes, which exert favorable or unfavorable effects upon these earnings and which are beyond the control of management. Wartime earnings in industries that are beneficially affected by government orders, for example, are nonrecurring. They are not of good quality.

Low-Cost Reserves of Resources.—Less obvious are various other factors that are more difficult to measure correctly. Raw material reserves, such as coal, oil, bauxite, limestone, iron ore, nonferrous ores, and natural gas, are purchased in large blocks at heavy capital costs. They represent supplies to meet future market demands. Their discovery and exploitation involve a large fixed cost, a cost that continues regardless of the number of units produced. Property taxes, insurance, a substantial percentage of maintenance costs necessary to keep the property in suitable physical condition, salaries of technical and supervisory officials, and interest on bonds (if bonds are outstanding) are some of the overhead cost items.

In depression, when sales are slight and production is low or even nonexistent (International Nickel, in 1931, for example, closed down all its mines), losses are heavy. These are, however, temporary losses. In periods of rapid expansion, a temporary scarcity may develop and prices may rise rapidly. The demand may be so insistent that the capacity of the industry may be strained. Further

price increases may be made in order to increase the production of the high-cost section of the industry. That output would not be available at the lower price level.

Such an increase in selling prices normally yields a rapid rise in earnings for those low-cost companies whose securities are normally of investment caliber. As the demand continues to expand, the industry makes additional investments to increase capacity, and the price level tends to rise to a point of yielding a profit on the most recently acquired reserves and plants. These become available only at the higher costs prevailing in a period of rising prices. Meanwhile, the existing companies have the benefit of the use of plants or of reserves of natural resources acquired years before at lower costs. This combination of low overhead costs and rising selling prices may produce rapid increases in profits.

An illustration is afforded by the rise in the earning power of the oil industry between 1945 and 1948, and again in 1950 and 1951. The expansion in the use of oil was to a considerable degree unexpected. The increased consumption by automobiles, domestic oil-heating equipment, and railroad motive power, and the continuous expansion of the airline transportation industry contributed to the rise in demand. Meanwhile, increases in supply had been retarded by reduction of drilling activities due to diversion of material and labor to war needs and the control of prices in the face of rising costs.

In the postwar years, costs rose, but not as rapidly as prices. By 1948, for example, oil replacement costs had, on the average, increased about 40 cents per barrel since 1941, while the price of crude oil had increased about $1.50.[5] Many major companies, however, had reserves developed in the 1920's and 1930's at materially lower costs. This was true also of copper, zinc, and lead companies. The renewed expansion in demand and rise in raw material prices in 1950, in some such sensational instances as rubber, and tin, led to increases in earnings of companies with low-cost reserves. Many of them increased their dividends, while others paid extras in 1950 and 1951.

Such earnings frequently are temporary; they represent a form of economic rent. Both the rising demand and the curtailed supply are to some degree transitory. Experience indicates that, despite woeful predictions to the contrary, additions to raw material reserves usually respond to the inspiring impetus of a rising price level. The new reserves in an inflationary economy are acquired at higher prices and the fixed carrying costs are higher than for the lower cost reserves. The margin of profit between the higher costs and a given

[5] Argus Research Corp., May 25, 1948.

selling price is reduced. Moreover, as the supply increases, the selling price declines, instead of remaining at its previous level. As costs rise and prices drop, the profit margin and corporate profits drop.

Nonrecurring Earnings.—Nonrecurring earnings also appear in other industries, under different circumstances, and for different reasons. In the department store industry there is normally a close relationship between sales and disposable income. In the World War II period, because of an inadequate supply of merchandise, department stores sales increased less rapidly than disposable income. From 1941 through 1944, for example, department store sales increased only 38 per cent, against a 58 per cent rise for disposable income. In 1945 and 1946, these trends reversed themselves. Against a rise of only 9 per cent in disposable income, department store sales rose 42 per cent. A large, deferred demand, built up in the war years, combined with a record increase in personal savings to produce the postwar rise in department store sales.

In the presence of a seller's market, department stores were able also to dispense with many of their normal services. The percentages of returned merchandise declined, as did sales on credit. The standard of retail service fell below normal, the sales per salesperson increased, and the profit margin widened. For 1946, as compared with the annual 1935-39 average, for example, the profits of a group of leading department stores jumped sixfold in comparison with the rise in disposable income of only 2.4 times.[6] Such profits are usually nonrecurring.

Another illustration is afforded by the distilling industry. Securities of this industry are considered high grade in England. In this country, they are not as generally acceptable. The sales and earnings volatility in the postwar years added little to their investment stature. In 1946, a spending splurge raised the sales of distilled spirits to $5.1 billion, as compared with $1.7 billion in 1940, amounting respectively to 3.22 per cent and 2.24 per cent of disposable income. The sales drop in the following years was sharp. The advance and the subsequent break were accompanied by an extensive rise and decline in share prices. The rise in both sales and earnings in the early postwar period was a bulge, and investors who mistakenly interpreted it as a trend paid for their errors in high stock prices.

[6] The department stores are Allied, Federated, Gimbel, Macy, and Marshall Field. This computation was made by Investograph Service, *Weekly Investment Letter*, June 11, 1948.

Rapid advances in share prices, because of fortuitous and nonrecurring conditions in war and postwar rises in sales and earnings, also occurred in railroads, street railways, meat packing, woolen, lumber, ocean shipping, and in some electrically powered domestic accessories.

QUESTIONS AND PROBLEMS

1. Explain the meaning of capitalization and noncapitalization of expenditures. Show by dollar figures the effect on reported profits of a policy of capitalizing and noncapitalizing of expenditures.
2. What adjustments of company financial statements do investors make in order to make reported profits more comparable—one company against another?
3. You are comparing the market value and the book value per share of common stock of two companies. How would the policy of the two companies, with regard to the capitalizing of expenditures, affect this comparison?
4. Explain how, in an inflation period, earnings reported upon a particular basis of depreciation may either overstate or understate such earnings.
5. Take any two major airline, aviation manufacturing, motion picture, variety chain, or business machine companies over the last five years, and explain how varying policies on the annual write off of capital expenditures affected the reported earnings per common share of each. Assume that both companies pursue similar policies; then restate the published earnings per share of both companies.
6. Explain purpose of LIFO Accounting to the investor who is appraising the quality of reported earnings.
7. Explain the significance of service, royalty, or rental revenues in appraising the quality of the reported earnings dollar.
8. What is meant by nonrecurring earnings and their investment importance? Illustrate by any one of the following companies, upon the basis of the data between 1941 and 1952: Schenley Industries, Pacific Mills, Gotham Hosiery, Bigelow-Sanford Carpet.

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Chapter 12

PROFIT MARGINS

Major Factors Bearing on Profit Margins.—In addition to the numerous ratios examined in previous chapters, the investor must acquaint himself with the forces that produce profit margins, which are that part of the revenue available for the creditor and stockholder. In approaching this subject, he is overwhelmed with complex and conflicting considerations. While he is studying one or two phases, which appear to be of primary importance, others, unimportant in the past, suddenly assume new and portentous significance.

In a period of expansion, characterized by rising prices and rising demand, enlarged capacity tends to produce higher profits. A reduction in the rate of expansion in demand or its replacement by decline reduces unit profits, and, after the break-even point (discussed in Chapter 13) is reached, expected profits are replaced by losses. Technological improvements reduce profits of those industries that are unable to exploit improved technology to the maximum and increase profits of those that are able to do so. Inventory fluctuations, either of a general character embracing the entire economy, or those affecting particular industries, sometimes increase or decrease profit margins. Increases in labor costs exert relatively unfavorable or favorable effects upon the industries that require more or less labor costs in production, respectively.

Comparison of Two Ratios

These and other forces are dynamic in character. The precise effect that individual factors exert upon profit margins can rarely be calculated in advance. The investor is concerned with the direction in which such forces are moving, and with the probable way in which their action and interaction will affect profit margins.

Return upon Capital.—Two ratios are normally used in the study of profit margins, both of which have their strong and weak points. One reveals the return upon capital employed, while the other discloses the profit per dollar of sales. The amount of invested

capital cannot be accurately ascertained. Cost is a historical factor of varying importance, and the books of account do not usually tell a uniform and accurate story. Much depends upon the vagaries of accounting practice. The capitalization or noncapitalization of expenditures exerts far-reaching effects upon the degree to which the cost of a plant is recorded on a corporation's books.

Whatever the reasons, an industry or a company may put a book value upon property in excess of or below cost. The electric light and power industry, for example, for many years recorded book values in excess of costs. Between 1937 and 1945 in accordance with the orders of the Federal Power Commission, the industry eliminated almost $1.3 billion out of a total of nearly $13.9 billion book value in 1937.[1] Additional amounts were taken out of the plant account since the adoption of new uniform accounting systems by some state commissions.

On the other hand, many corporations, particularly in depression, drastically reduce the book cost of their properties. A classical illustration is furnished by the United States Steel Corporation. In 1935, its net plant was reduced from nearly $1.6 billion to about $1.3 billion, and an "Earned surplus appropriation for and invested in capital expenditures" of $270 million was charged out of the company's account. That amount of assets disappeared from its balance sheet.

An even more drastic write-down characterized the actions of the new management that assumed control of the United States Industrial Alcohol Company (whose name was later changed to the United States Industrial Chemicals). When in 1933, the Air Reduction Company secured an interest in the stock of the other company, sufficient to enable it to control its management, the alcohol company's plant and equipment account was reduced from $19,301,000 to $1.00.

Even if accounts are recorded accurately on a cost basis, it does not necessarily follow that the value of its property is reflected on the company's books. Although the science of accounting requires the write-off of cost out of revenues over the anticipated life of plant and equipment, competition frequently forces managements to discard the use of machines that have long physical lives ahead of them. A management, in order to respect the principles of accounting, cannot forego the reduction in costs or the improvement of services made possible by new technologies. It is not unusual, indeed, for machines to be discarded even before they have actually been placed in operation.

[1] Details from *The Financial Record of the Electric Utility Industry, 1937-1944.* Washington, D. C.: Federal Power Commission, November 15, 1945.

In the absence of an accurate record of invested capital, an approximate measuring stick, net worth, is used. The investment as measured by net worth is a historical cost figure. In periods of rising prices, profits in less valuable dollars are measured against an investment (made in prior years of lower prices) recorded in more valuable dollars. The profit on net worth in the World War II and postwar years was high in many industries, such as oil, chemicals, steels and automobiles, in part because of low book values, compared with replacement values. In other industries, furthermore, the size of plant in relation to the volume of business is small. In retail lines, especially when the stores are leased, and in manufacturing lines, when engineering skill and rapid technological changes are important, a high return based on net worth is likely to mislead investors. Heavy investments made in research and in mechanical skill frequently do not appear in balance sheets—neither does the investment made in good will, or in the building up of trademarks and customer reputation. (See Chapter 9 for other aspects of net worth.)

Profits and Sales.—The other ratio used to measure profit margins is the relation between profits and sales. A satisfactory measure of profits for this purpose is the profit before income taxes. This method permits the comparison of results between two or more companies, or within a particular company over a period of time, without the necessity of considering the complications arising from tax adjustments. This ratio considers comparable units; it measures profits and sales in dollars of similar purchasing power. There are no such possibilities of major over- and undervaluations in sales as there are in the net worth concept, but this ratio has its own defects. The investor must beware of varying policies with regard to the capitalization or the noncapitalization of expenditures, depreciation, and depletion. Though this ratio is imperfect, it is, nevertheless, acceptable for the purpose of comparing profit margins. Except where otherwise noted, the ratio of pretax income to sales will be used throughout this chapter.

Profit Margins as Index of Efficiency.—The ratios both of profit to sales and of income to net worth have frequently been used as indicators of operating efficiency. The Federal Trade Commission, for example, in a monograph prepared for the T.N.E.C., stated categorically that, "because of the inability to obtain sufficient cost data for comparing the efficiencies of different chemical companies and because of the varying proportions of the many different chemicals produced by these companies, returns on invested capital furnish the only basis for judging the relative efficiencies of the chemical

companies." [2] Another government agency in 1947, this time a staff group of the Civil Aeronautics Board, expressed surprise that in the airline industry "little scientific job analysis was in progress, that only sporadic attention was being given to programs of work simplification." [3] On competitive business, it was declared, economy and efficiency can be gauged largely by the amount of profit.

These conclusions are questionable. A concern that has repeatedly expanded its plant capacity may increase its gross sales and, with stable overhead cost, report a higher profit margin. Further expansion may be burdensome in a period of declining volume and declining prices. Then, with higher overhead costs, it may realize a small profit margin, and perhaps an operating loss. It cannot be inferred that the company was efficient in the former case and inefficient in the latter. A high profit margin, to take another illustration, may be a temporary result of a speculative inventory policy. Such a margin is not necessarily an index of efficiency.

This discussion leads on into the broad and largely uncharted fields of corporate management. A normal profit, one recorded with relative stability over a period of years, is the result of a succession of managerial decisions bearing on operating efficiency, expansion of plant capacity, adaptation of purchases of raw materials and supplies to changing commodity price levels, a continuous parade of new products or improvements of existing products. It is a further result of the wisdom with which the concern succeeds in the face of multitudinous changes in preserving its financial status.

A satisfactory profit margin, furthermore, is an expression of the soundness of a policy of expansion or contraction, of buying and selling the right goods or services at the right time, of the creation or noncreation of debt, of the preservation of working capital in depression and of expansion in plant and equipment, inventory, and receivables at the right time. Frequently, a company can earn more by pushing its capacity and increasing its sales than it can by rearranging its factors of production to reduce unit costs. The investor, accordingly, in reaching a sound judgment on profit trends, must take a broader point of view than that contemplated in a study of operating efficiency. This latter fact must not be ignored, for it is vital in corporate affairs. It is, however, no more the only factor affecting profits than is the single factor of reducing governmental costs the only measure of wise statesmanship.

[2] *Relative Efficiencies of Large, Medium-Sized and Small Business;* Investigation of Concentration of Economic Power, T.N.E.C. Monograph No. 13; 76th Cong., 3d Session, Senate, p. 72, 1941.

[3] Statement of Civil Aeronautics Board before the President's Air Policy Commission, 1947, mimeographed, p. 119.

Domination by Raw Material, Labor, or Capital Costs

It is proper to turn now to the analysis of the details of the problems of profit margins, considering the forces affecting profit margins against a background of normal business conditions. "Normal" does not mean the good conditions in a boom nor the bad conditions in a depression, but rather the ever-recurring alternations of expanding and contracting general business movements.

Supply and demand forces play upon the profit margins in accordance with the degree to which raw materials, natural resources, labor, and capital exert an effect on the cost of production. In some natural resource industries, such as crude oil and natural gas, labor costs, ranging from 10 to 20 per cent of total costs, are relatively minor. In others, such as bituminous and anthracite coal and nonferrous metals, they are more significant, ranging from 60 to 70 per cent of costs. In iron and other metals, the labor cost is dependent upon the geological structure of the ore. Underground mines require a higher labor cost than open-pit workings. Hence, the proportion of labor to unit costs is higher for the shaft mines of Anaconda Copper in Montana than for the open-pit mines of Kennecott Copper in Utah or of Phelps-Dodge in Arizona.

Other industries are dominated by the price of raw materials that are converted into finished products. These processing industries are numerous, including vegetable and fruit canning and freezing; meat packing; flour milling; bread, cake, and biscuits; cigarettes, cigars, snuff, and smoking tobacco; candy and chewing gum; soft and hard drinks; dairy products, embracing liquid milk and cream, cheese, butter, and ice cream; cotton and woolen textiles, men's and women's apparel; hard and soft floor coverings; and sugar, raw and refined. The range of the proportion of raw material costs to unit costs in these industries is extremely wide.

Still other industries are characterized by a high percentage of capital costs. Large investments must be made in plant and equipment. The annual costs to carry the investment—interest, depreciation, part of maintenance, engineering, salaries, and so on—are controlling considerations in the cost set-up. Pipe lines, chemicals, machine tools; equipment producing industries such as electrical, aviation, railway, chemical, oil or textile equipment; internal combustion and steam engines; turbines; and coke ovens are illustrations.

There are no hard and fast distinctions between industries using more or less labor, raw material or capital. In all industries, from time to time and under varying conditions, changing factors bearing upon costs of raw materials, labor, and capital exert important influ-

ences. The investor must always be prepared to consider them in their proper relationship.

Heavy Raw Material Costs.—Taking up first the industries with heavy raw material costs, one is impressed with the thought that they are mostly in consumption goods: finished goods in the form that makes them available to the consumer. These industries handle such items as food, cigarettes, stimulants, drugs, and clothing.

In many of these industries, goods and services are sold at prices that frequently cannot be increased without encountering a strong psychological refusal to pay such advances. This attitude is popularly known as "price resistance." Even in the face of the postwar inflation, the nickel price for chewing gum, candy, Coca-Cola and other soft drinks, and a cup of coffee in most of the popularly priced restaurants prevailed up to the summer of 1950, and for some of these items they persisted even into 1952. The inelasticity of selling prices tends to reduce the earnings, dividends, and market prices of securities in periods of rising prices. Restaurants, soft drinks, candy, and cigar companies did not, for example, participate in the prosperity of 1950, 1951, and 1952.

In other such industries, prices can be advanced only occasionally and with the utmost consideration of the probability of a decline in volume. No economic theory or general principle can be expressed that would measure the precise time at which a given price advance would generate *any* reduction in volume, and whether a particular price change would or would not be profitable. "Try it and see what will happen" is still the rule.

In periods of rapid changes in commodity prices, the investor must walk with great care within the field of securities of the industries whose costs are so heavily charged with inventory values. In some industries, a raw material price rise does not immediately lead to higher costs. In cigarettes, for example, the tobacco must be aged before it is useful for consumption. The inventory cost is, therefore, on the basis of a two or three year average. Similarly, in distilling, whiskey must be aged for four years before it is ready for the market. In other industries, such as canned fruits and vegetables, and meat packing, for example, no such averaging is possible. It is necessary to sell the finished product within a relatively short time after processing. Rapid price fluctuations produce windfall profits or tragic losses.

In the early stages of a general rise in commodity prices, consumer price resistance rarely develops. Many of the cost of living items, such as real estate taxes or rent, public utility services, inter-

est and insurance are relatively stable. With additional wage income, generated by more employment and rising wage rates, a large part of disposable income is devoted to the purchase of consumer goods. Hence, sales and profit margins of food, textile, and other consumer goods industries are likely to increase. This was so in the post-World War II years, because of the absence of an adequate supply of consumer durable goods. After fifteen years of profit depression, the postwar profit margins of the cotton textile industry, for example, soared to unprecedented levels. When materials became available, such other consumer's industries as hard and soft floor coverings, glass containers, and motion pictures also reported high margins.

Such profits are likely to be nonrecurring. In the midst of the postwar boom, for example, J. P. Stevens & Company, one of the leaders in the textile industry, cautioned investors that "the relatively high margin of profit realized in recent years from operations is not likely to be maintained in the textile industry." [4] These profits are usually capitalized in the security markets at low prices. A dollar's worth of such annual earnings may sell at only three or four dollars.

On the other hand, low profit margins may also be temporary. A company may expend heavily for research or for promotion purposes, increase expenses, and thereby reduce profit margins below normal. The Studebaker Corporation in 1940 deliberately sacrificed its profit margin in order to improve its competitive position in the industry. This policy enlarged its profit margins in the postwar years. Extensive capital outlays to increase efficiency and reduce costs may also temporarily reduce profits. In 1946, American Brake Shoe closed five old plants, rearranged others, and built six new ones. Meanwhile, the rise in sales was not fully reflected in profits because of a decline in profit margins.

Effect of Government Regulation. Since the 1930's the federal government has emerged as a significant force in the determination of profit margins. The number of industries so affected include flour, fruit and vegetable packing, sugar, corn refining, naval stores, cotton textiles, tobacco, cigarettes, vegetable oils, banking, dairying, gold mining, and electricity.

Important government measures have been taken in the food industries. In order to preserve the purchasing power of the farmer, Congress directed the Secretary of Agriculture to support farm prices so as to give farmers parity prices for many commodities. Before the passage of the Agricultural Act of 1949, parity price was the

[4] Prospectus for common stock, J. P. Stevens & Co., July 31, 1947.

average price of a commodity in the period from August, 1909, to July, 1914, multiplied by the current index (with 1910 to 1914 as 100) of the prices of the products farmers bought, including taxes and interest rates on farm real estate loans. The 1949 law changed the formula. In general, the prices of cotton, corn, wheat, rice, peanuts, and tobacco—the six basic crops—are supported by federal funds in one way, and the prices of many others, nonbasic crops, are supported in another.

Profit margins of many industries are affected by this complex law and by the even more complex regulations. In fluid milk, for example, the margin between retail prices and the cost paid by the dairy distributing companies to the farmer is determined largely by public agencies. Neither economic theory nor investment analysis can inform the investor of the exact way in which the new relationships between Government-fixed raw material prices and retail selling prices will reduce or increase profit margins. Perhaps trends characteristic of this new relationship will develop in the future.

It is well established that the profit margin in the milk distributing industry has declined over the past fifteen years; but whether this decline is due to the establishment of minimum prices paid to the farmer is an open question. On the other hand, Government auditing of the books of milk producers since 1939 has prevented price-cutting wars. Though profit margins of the industry have narrowed, they have become more stable. The Government also supports the prices of milk and butterfat. Surplus milk, in periods of high production, does not depress prices. The surplus is converted into cheese, ice cream, and other products, which carry relatively high profit margins, i.e., higher than on fluid milk. Thus, while profit margins on fluid milk have declined, those on other dairy products—and these have been increasing in number and variety—have widened. National Dairy Products' and Borden's securities during these years became attractive investments.

Since parity prices do not extend to the same degree over the entire field of farm products, competition develops between finished products, dependent upon the extent to which their respective raw materials are affected by legislation. Cotton and paper, for example, fight for a share of the bag and container market. The cotton bag has been losing out to the paper container. Under existing legislation the government supports the price of cotton, but not of wood pulp.

To take another illustration somewhat more complicated: the price of corn is supported. Corn sugar competes with cane sugar. Though there is no official support level for either raw or refined

cane sugar, the government follows a policy of restricting supplies of cane sugar. Under the Sugar Act of 1948, the Secretary of Agriculture determines annually the amount of cane sugar that can be shipped to the United States by Hawaii, Puerto Rico, the Virgin Islands, the Philippines, Cuba, and other countries. To hold production down to these quotas, benefit payments are made to producers in American territories and in the United States. This law may either increase or decrease the price of refined sugar as compared with the price that would prevail in a competitive market. The profit margin of two important concerns, Corn Products Refining and Penick & Ford, are determined largely by the way in which this government price-determining and supply-restricting situation develops.

On the other side are the dominant sugar refining companies led by American Sugar Refining. Since the price of corn in the one industry and the price of raw sugar in the other are the controlling profit factors, it is evident that the activities of the government exert an important effect on the profit margins of both these industries.

Only a few illustrations of the relations between government activity in the food industries and profit margins of food processing industries have been given. The ramifications are complex. The investor must be on guard to watch the effect on profit margins of government legislation in this field.

INDUSTRIAL INTEGRATION. The analysis of profit margins requires also the consideration of industrial integration policies. In many industries there are corporations that have acquired varying degrees of control of the stages of production and distribution. Some companies own the raw material in the ground, the fabrication and finishing processes needed for conversion into the finished product, and also the distribution outlets. Other companies purchase raw materials or semifinished products and convert them into more finished products.

In such industries as nonferrous metals, iron and steel, pulp and paper, rayon, chemical products, and oil, differences in corporate policies are widespread. The ownership of natural resources requires a heavy plant overhead. In depression, a small volume of business reduces profit margins, frequently to a point where operating losses result. In times of expansion, the ownership of such resources widens profit margins. In addition to the overhead costs, which do not rise much in periods of good business and advancing prices, there is also the fact that existing natural resources have probably been procured at costs below replacement prices. Since

rising prices tend to reflect replacement costs, integrated producers realize higher profit margins. Theoretical economists probably would describe this as a form of economic rent.

The forces compelling the expansion of integration are powerful and are increasing in strength. For an ever increasing number of raw materials, public policy has pronounced in favor of higher prices. Furthermore, the nonintegrated producer normally takes the initiative in a buyer's market in reducing selling prices. This occasionally leads to price wars which impair profit margins, in such industries as paper board, paper containers, steel, cotton textiles and book paper. Integration tends to minimize such price wars.

Perhaps the most important force leading toward integration, however, is the increased profit margins that accrue from such a policy in a seller's market—in a period of business expansion. At such times the supply of raw materials is scarce, in relation to demand. This is particularly so in those commodities that are not grown annually, such as ferrous and nonferrous metals, potash, phosphate, crude oil, natural gas, and sulphur. In the "boomlet" of the late 1930's, two of the major nonintegrated, nonferrous companies, General Cable and Revere Copper & Brass, were obliged to decline substantial tonnages of business at the very time when the major integrated companies—Anaconda, Phelps-Dodge, and Kennecott, controlling 80 per cent of the producing capacity and 50 per cent of the fabricating capacity—were able to serve all comers.[5]

In expansion, accordingly, the integrated enjoy major advantages over the nonintegrated companies. They can obtain an adequate supply of raw materials. Their variable costs (against a background of capacity operation) and a large proportion of their fixed costs are likely to be lower than the selling price for raw materials that must be paid by nonintegrated producers. Furthermore, integration permits the assembly under one management of a number of operations performed previously by several managements. Integration makes possible a closer coordination of manufacturing operations, reduces delays, and permits closer quality control. Under these conditions, accordingly, integration produces better profit margins. These advantages apply, however, only to plants that operate at reasonable percentages of capacity.

There has been a strong movement toward integration in recent years. When raw materials can be efficiently produced on a mass basis, managements in many industries have concluded that raw material ownership is a wise policy. In kraft, paper board, and paper containers, oil refining, rayon pulp, and automobiles, for ex-

[5] *New York Herald Tribune,* April 7, 1937.

ample, many companies, often with funds raised through the issue of securities, have acquired such raw materials as timber or oil reserves, or have built plants to manufacture parts formerly bought from others. In such industries as cotton and rayon, integration has taken the form of the acquisition of weaving and finishing plants. Most of these programs in the 1940's were successful, and these successes have stimulated further integration. The higher profit margins of these integrated units in these years were due largely to the favorable conditions in which they operated. War and postwar prosperity, increased sales and capacity operations, lowered unit costs and widened profit margins.

In periods of declining prices, these results may not be realized. In periods of oversupply, price cutting impairs profit margins of integrated companies, for nonintegrated units buy raw materials and unfinished products below cost. In the kraft paper container and paper board industry, integration has increased, and the integrated units control a larger percentage of plant capacity than in the prewar period. It remains to be seen whether control of so much of the output of these industries by a few concerns will remove the price cutting in depression years that reduced profit margins in years gone by. The investor cannot safely assume that such is the case, and he must, therefore, view with skepticism the performance of the high profit margins reported in the war and postwar periods.

One is tempted to observe that, as a general rule, the major companies in each industry, those whose securities enjoy an investment rating, are the integrated enterprises. Many industries could be cited to support this statement. There are, of course, industries in which integration is difficult to achieve. There are still others in which integration has not proved satisfactory, such as cane sugar refining.

In other industries, furthermore, major companies have followed opposite policies. For example, International Shoe prepares most of the raw materials, including the tanning of its hides, while others follow an opposite policy. In oil, differences in policy are also widespread. Standard Oil of New Jersey owns a much larger percentage of its crude oil needs than Socony Vacuum. Tidewater Associated, Standard Oil of Indiana, and Atlantic Refining buy a considerable portion of their crude. In the postwar years, as a matter of fact, the nonintegrated crude oil companies owning no refineries had higher profit margins and recorded greater expansions in profits than the integrated enterprises. They were not required, for example, to absorb the losses from repeated obsolescence of refinery equipment. Similar differences exist among the smaller companies. Standard

Oil of Ohio, for example, owns only a small proportion, while the Continental Oil produces more crude than it needs. In chemicals similar differences appear. Dow Chemical is extensively integrated. In the post-World War II years, this enabled the company to reduce unit costs for raw materials and supplies, thereby enabling it to improve its profit margin. DuPont and Union Carbide & Carbon are not extensively integrated, and their profit margins are also good.

There is, thus, no uniform integration policy among well-managed companies, and the investor, consequently, cannot draw clear relationships between the policy of integration and nonintegration, on the one hand, and the investment attractiveness of the securities of the companies, on the other. One general consideration, however, can be suggested. The rise of profit margins in prosperity should be considered in the light of a drop in depression. Whether the profit in the good period balances the loss in the poor period is an open question. Many generalities may be expressed on this point, but no accurate conclusions can be drawn.

Raw Material Costs and Product Prices. In many industries, in which raw material costs constitute a large proportion of total costs, profit margins depend largely upon the spread between raw material costs and selling prices of the finished products. In such industries as sugar, ice cream, bread, refined petroleum, asphalt roofing, cigarettes, soap, cotton textiles, chewing gum, and corn refining, raw material costs range from 40 per cent to 80 per cent of total costs. The spread increases in an inflationary period. In the refined sugar industry, for example, the margin in pre-World War II years was about nine-tenths of one cent. Under the OPA ceiling prices, it rose to 1.37 cents, while in 1949, under the influence of high raw-sugar prices and keen competition among refiners, it dropped to less than 1.09 cents.

In the oil business, the profit of the refiner, particularly the nonintegrated concern, flows largely from the spread between the cost of crude and the selling prices of refined products, such as gasoline, kerosene, heating oil and fuel oil. A rise in the price of crude not accompanied by a rise in the price of refined products, or a price drop in refined unaccompanied by a corresponding move in crude, exerts a squeeze on the refiner. Even with a heavy volume of business, profits may decline. Because of such a reduced margin in 1949 some of the smaller, nonintegrated refineries closed down.

In cotton textiles, profits depend largely upon the margin between the price of cotton and of cloth. In the 1920's and 1930's, when the industry was unprofitable, the mill margin between the price of

cotton and of unfinished cloth (average of 17 constructions) varied between 10 and 16 cents a yard, with a low of 9.43 cents in 1931. By 1949, it had increased to a high of more than 33 cents.[6] This expansion in mill margins was paralleled by rising earnings and security prices. Earnings of the industry were low in the booming 1920's, were further depressed in the 1930's, and rose rapidly in the 1940's. By the spring of 1952, these margins had dropped sharply on some cloths by more than 50 per cent, as compared with those prevailing in the previous year.

In corn-products refining, to take another illustration, there is normally an inverse correlation between the price of corn and corporate profits. This relationship is revealed by a comparison between the price of corn and the earnings of Corn Products Refining, a major company in the industry. In 1938, a year of poor business, the price of corn dropped, while the profit of the company rose. Low prices between 1938 and 1941 were accompanied by rising profits. Higher prices between 1942 and 1945 were paralleled by lower profits. This relationship was distorted in 1947 and 1948 because of a shortage of sweetenings.

Investors in industries in which raw material costs are so important familiarize themselves with the factors that determine the size of the spread. In these industries, the size of the spread is usually more important than sales volume in the determination of profit margins. In a period of changing prices, a lag between the declining cost of raw material and relatively rigid selling prices is likely to widen the spread and increase profit margins. In a stable industry, such as dairy products or sugar, for example, the increase might be capitalized by the investor into higher stock prices. If the spread is wider than normal, competition will, in the course of time, reduce the margin to normal proportions. The temporary increase in earnings is later eliminated and the investor who bought the stock on the basis of the capitalized value of a nonrecurring increase in profit margins will have made a serious error.

Under other conditions, a lag might occur between the rise in the price of the raw material and a relatively rigid selling price. This occurred at various times in the postwar period, for example, in coffee and in soft drinks. The reduced spread between raw material costs and selling prices led to a decline in earnings and dividends of

[6] These margins are not strictly comparable. "During the war period, many cotton mills changed their operations in compliance with government wartime regulations, in accord with technological improvements and for various other reasons." United States Department of Agriculture, Production and Marketing Administration, Cotton Branch, Mimeographed, *Price of Cotton and Raw Cotton*, 1948-1949.

such companies as Standard Brands and Pepsi-Cola. In the boom years of the 1940's and in 1950 and 1951, the price of soft drinks did not advance in line with rising costs. Coca-Cola in 1952 still sold at a nickel. The thin spread between raw material costs and selling prices restrained the advance in earnings of the Coca-Cola Company, the premier investment stock of the industry. The cessation of rapid expansion in earnings was probably the major cause of the prolonged decline in the price of its stock from 190 to slightly more than 100 between 1946 and 1951, at a time when market prices were advancing.

The meat packing industry in 1948 and 1949 was the victim of a set of influences that sharply reduced profit margins. Increased wages and higher prices for livestock could not, because of consumer resistance, be balanced by higher selling prices. Profit margins in 1948 dropped more than half as compared with 1947. Earnings declined, and Armour passed its common and preferred dividends. The price of its preferred stock dropped more than 50 per cent.

Labor Costs.—In other industries, labor, rather than raw material, costs are the most important determinants of profit margins. There is competition between low labor cost and high labor cost industries. The differences between the ratio of unit costs to total costs arise in most cases out of fundamental physical factors. One industry may have a ratio of labor costs to total costs, say, of 65 per cent, while another of only 15 per cent. A 10 per cent rise in labor costs will increase total costs of the former industry by 6½ per cent and of the latter by 1½ per cent.

Labor costs have advanced steadily in the last fifteen years. In a competitive market, the industry with lower labor costs has an advantage, and its margin of profit (other things remaining unchanged) is higher than its competitors. In transportation, for example, there is competition between pipelines, with low labor costs, and the railroads, with high labor costs, for the movement of heat and energy in the crude oil and refined petroleum traffic.

Indirectly, railroads also compete with natural gas pipelines, for natural gas and coal are competitors in both the fuel and energy market. With the increase in wages, the cost both of producing and of transporting coal has advanced rapidly. Similar costs for natural gas have increased to a much smaller degree. The lower price of natural gas has been an important factor in the dynamic growth of the industry in the post-World War II years. In the competition for the movement of oil, the pipelines also have an advantage over the railroads. Railroad rates for movement in tank cars approximate

17 mills per ton-mile, and for pipelines, about four mills. These labor cost advantages explain, in part, why the natural gas and the pipeline industries were able to realize good profit margins at the very time when the railroads and coal industries were reporting low margins.

Another industry in which investors have done poorly in inflationary periods is gold mining. Here, labor costs are also high. A sharp rise in such costs, combined with the fixed selling price of gold because of government monetary and fiscal policy, depresses earnings. The wages of Homestake Mining, one of the country's largest gold mining companies, for example, represents about 60 per cent of total costs.

Another comparison can be made between the chemical industry and other lines with which chemical products compete. The percentage of labor to total costs in the chemical industry is low, probably averaging between 15 and 25 per cent, and constitutes one reason for high profit margins, though there are others. Other nonchemical industries, such as lumber, competing with plastics, and molasses-based ethyl alcohol, competing with synthetic ethanol, for example, have high labor costs.

High labor costs also helped in the 1940's to impair profit margins and to reduce profits of Western Union Telegraph. The price of its 5 per cent bonds declined from 108¼ in 1945 to a low of 86⅜ in 1948, while the price of its stock moved from 56 to a low of 13. The management moved quickly to recover its former earning power. By 1950, it had completed a mechanization and cost-control program, which reduced operating costs by $7.3 million. The prices of the company's securities, meanwhile, returned to higher levels, though they did not reach the prices that prevailed prior to the rise in labor costs. American Telephone & Telegraph has also been adversely affected by the rise in labor costs. Its percentage of payrolls to revenues advanced from 36.5 per cent in 1940 to a high of 51.9 per cent in 1947. Mechanization of operations, especially of operator dialing, reduced the payroll-revenue ratio in 1950 to 45.1 per cent. This is still a high figure. Meanwhile, revenues also increased, rising from $1.17 billion in 1940 to $3.26 billion in 1949. The reduction in the profit margin, due primarily to rising labor costs, has disturbed the forward march of its profits and reduced the market price of its stock.

A factor contributing in part to the reduced profit margins of the commercial banks in the 1940's was the high ratio of labor costs. From 40 to 50 per cent of the operating expenses of a bank are represented by wages and salaries, and in 1950 for all insured com-

mercial banks, the percentage was slightly less than 50 per cent. There are, of course, wide variations between large banks and small banks and between banks in different regions of the country.

Capital Costs.—The steep decline in interest rates has increased the advantages of those industries that use much capital and relatively little labor or raw materials. Interest charges, unlike the latter, remain low during the life of a plant; creditors, unlike wage earners, are unable to strike for higher wages. In an inflation era, this advantage increases as wages and material costs of competitive industries rise. Thus, in the rising-price years of the 1940's, natural gas and natural gas pipelines grew rapidly in competition with coal and railroad transportation.

The prosperity of the chemical industry can also be attributed in a major degree to high capital costs. In plants manufacturing nitrogen, ethanol, chlorine, chemicals from a petroleum base (petrochemicals), or from a coal base (coal tar chemicals), gasoline from natural gas, tonnage low-purity oxygen from petroleum or natural gas, for example, capital costs range from 40 per cent to 70 per cent of total costs. In depression, capital costs cannot be substantially reduced, and profit margins shrink.

Profit Margins and Replacement Demand.—The trends of profit margins are also associated with the extent to which goods have a replacement market. Many industries sell equipment, particularly in capital goods lines, that have a long physical life. By a careful program of maintenance, a machine can be used for many years, and within an existing technology, accordingly, replacement orders are few. In a year in which demand is heavy, profit margins rise sharply, while in a year in which demand is light, profit margins are slim. Fluctuating profit margins and earnings thus appear in such industries as railroad and street railway equipment, heavy electrical equipment, Diesel and steam engines, road building machinery, hydraulic presses, forging equipment, machine tools, and numerous others.

If a machine is of such a character, however, that many parts must be used for repair and replacement of worn out sections, sales are likely to be more regular. The profit margin in good years is not likely to expand rapidly, but due to the sales of parts for replacement, the volume will not drop as rapidly and profit margins will be more stable in periods of poor business. Many other machines, typewriters for example, have short physical lives and their replacement sales are likely to be important. In the truck manufacturing industry, spare-parts business frequently constitutes the margin between profit and loss. In 1949, declared the president of the Dia-

mond T Motor Car Company, one of the smaller units in that industry, his company "would have been in the red but for spare parts." [7]

Diversity of sales and stability of demand, due to the increasing volume of sales for replacement purposes, have featured the earning power of numerous automotive accessory companies, such as Electric Auto-Lite, Borg-Warner, Briggs Manufacturing, Bendix Aviation, and the rubber and rubber tire companies. In the latter industry, United States Rubber has developed a relatively stable replacement business through the sale of tires to the mail order companies and to dealers on a cost, plus a per cent profit markup, basis. Profit margins, therefore, do not rise so rapidly when prices advance, and do not fall as rapidly when prices decline. This arrangement gives the company some protection from the undesirable effects of price wars.

The business machine industry is the beneficiary of a large flow of orders for replacement accessories and supplies. Such companies as Addressograph-Multigraph and International Business Machines have partially, because of this factor, been able to realize relatively high profit margins. The latter has also benefited from its rental revenues. The company leases most of its machines, and in 1949, rental receipts from the leasing of its electrical punched-card equipment approximated 75 per cent of its total gross. The profit margins from this business are higher than those realized from sales of new equipment. This is perhaps the most important factor in explaining its higher margins—the highest in the business machine industry.

Companies in other industries also benefit from rental or service fees. Otis Elevator, United States Shoe Machinery, Ex-Cello, and Burroughs Adding Machines are illustrations. Not only is the profit margin higher on business of this kind, but the earnings are more stable. A clear cut example of this is afforded by the post-World War II record of Ex-Cello Corporation. This company makes machine tools and aircraft parts—products for war and defense purposes. It also manufactures and leases fiber milk container and ice cream carton packaging machinery. In 1945 due to sales of goods for war purposes, its sales surpassed $55 million. In 1950, sales declined to somewhat more than $27 million. Its net income, however, rose about 70 per cent from $2.1 million to $3.5 million. To a considerable degree, this rise in profits accompanying a drop in sales can be attributed to the income from leased machines, which advanced from $1.04 million in 1945 to $8.05 million in 1950.

[7] *The New York Times,* December 14, 1951.

Low and High Profit Margin Industries

Each industry has a long-term profit margin, which is not a fixed percentage of a changing sales volume. Rather, it is a percentage that moves within the limits of an upper and lower range. The profit margin of an industry may be higher or lower than an industrial group of which the industry is a part. Cotton, woolen, and rayon are parts of the textile group; and meat packing, fruit and vegetable canning, and flour milling are part of the food industry. The profit margins of each section of the textile and of the food industry vary widely.

Fluctuation Is Common.—The normal profit margin of an industry, furthermore, is subject to numerous changes. A high profit margin industry, in the course of time, may become a low profit margin industry. An industry in the face of a rapid expansion in sales may thus lose a part of its former earning power. The Air Reduction Company is a notable example in the compressed gas industry. This company, for many years, has been one of the leading manufacturers of high purity oxygen and of acetylene. Its stock sold at high prices in relation to earnings. It was an investment-grade company in an expanding industry.

In the post-World War II period Air Reduction's sales increased, and early in 1949, the management informed the stockholders that the preceding year had set a new peacetime sales record. This happy news, however, was accompanied by a decline in earnings and dividends. Though dollar sales in the postwar years tripled those in the prewar period, the income available for the stockholders declined. The business of the company, to use the language of the management in its 1947 Stockholders' Report, had "changed from a comparatively low volume of sales at necessarily high profit margins to a large volume business developed by means of lower price margins." The extra dividend of a dollar a share that the company had paid from 1940 to 1946 was dropped, and the price of the stock between 1946 and 1950 declined about 60 per cent.

This transformation in the profit margin of Air Reduction was difficult to judge. In the midst of the decline in the price of the stock correctly reflecting this change, many conflicting interpretations were presented by professional investment analysts. Few of these proved to be a correct explanation of the fundamental causes at work.

Complex Modifying Forces.—The forces that modify trends in profit margins are complex. They are difficult to locate, and before

they become public knowledge, they are incorporated into the higher or lower profit margins and into the market prices of securities.

In a competitive economy, management exerts every effort to produce a seller's market, thereby avoiding the ultimate penalty of completely unrestricted competition—the sale of goods and services at or below cost. In a seller's market, a relative shortage of goods in comparison with demand affords the seller the opportunity to dispose of his wares at prices determined in accordance with his desires to realize satisfactory profits. Over a short period, in the presence of acute shortages, competition among the buyers may produce high prices and high profit margins. The demand for oil and nonferrous metals in 1947 and 1948, and again in 1950 and 1951 are notable illustrations.

Strange as it may seem, the control of the supply of a good or a service by one or a small number of companies may, under such conditions, keep prices down and reduce profits. In aluminum and nickel in the 1947-48 period, a precipitate price rise would have incurred public condemnation of the management of the few dominant concerns in these industries. In the oil industry, the efforts by a leading company, Standard Oil of New Jersey, to restrain a price rise was defeated by the competitive rivalries of the many buyers whose demands could not be met by that single company. Under such conditions the profit margins of the dominant, low-cost industries whose securities have investment ratings may rise rapidly. This theoretical expectation became a fact in both oil and nonferrous industries in 1950 and 1951.

In the chemical industry, the profit margin normally is high. This industry usually realizes a margin ranging from 15 to 25 per cent, though there are, of course, fluctuations both above and below this range. Profit margins of chemical companies in 1950, according to one study, averaged 26.8 per cent and, in 1949, 19.6 per cent.[8] The printing ink industry, on the other hand, which is chemical in character, normally operates at a low profit margin. In distribution industries, the metropolitan department stores normally report profit margins of between 4 and about 8 or 9 per cent; whereas the companies selling on the basis of "price appeal," among them Sears, Roebuck and Montgomery Ward, normally realize a margin somewhat higher, from 7 to approximately 10 per cent. Extraordinary fluctuations in demand for capital goods produce erratic profit margin trends. Deficits in years of low demand are followed by high margins in good years. In cement, for example, in the first half of the 1930's, deficits were reported, while in the early 1940's,

[8] Statement of Jeremy C. Jenks, in *Analysts Journal*, 2d Quarter, 1951, p. 126.

profit margins ranged from 10 to 25 per cent. The margins of the steel companies normally fluctuate at lower levels, while in the farm equipment industry, they tend to move between 10 and 20 per cent, in good years.

Profit Margins and New Products.—In many industries, research brings forth a succession of new products and processes. The industry and the company that first bring out a new product enjoy a partial exemption from the rigors of competition. During such a period, profit margins are high, but competition soon follows and margins are reduced. Such industries as drug manufacturing, synthetic organic chemicals, and business machines are among the leaders in the promotion of new products.

The activities of the chemical industry may be inferred from the fact that 40 per cent of the sales of chemical companies in 1949 were of products that had not even been developed in 1935.[9] In drug manufacturing, Abbott Laboratories has for more than twenty years introduced new products in its specialized field. In 1949, about 85 per cent of its 800 products had been developed within the preceding fifteen years.[10] Its profit margin rose from about 21 per cent in 1936 to a high of 36 per cent ten years later. In the same industry, Sharp & Dohme in 1946 secured about 60 per cent of its sales from new products introduced since 1935. Merck and Pfizer disclose similar characteristics.

In 1950, nevertheless, price reductions reduced profit margins on some products. To maintain profits, declared the Pfizer president early that year, the only solution was "to make new and exclusive specialties."[11] Though margins were lower than in 1946 (47 per cent), they remained acceptable in 1950, at 31 per cent.

In the 1920's, high profit margins were realized by some food processing companies engaged in the manufacture of well-advertised specialty products, among them Jello, pectin, breakfast cereals, dessert preparations, and chocolate and cocoa products. A number of these smaller concerns were later merged into the Standard Brands and the General Foods corporations. Of the latter's high profit products, Jello had an 80 per cent *gross* profit margin, while for the company as a whole, the margin was 57 per cent. Shortly after their organization in the late 1920's both companies, under the spur of competition and the broadening of their scope of operations, were transformed from low-volume, high-profit margin businesses to high-volume and low-profit margin enterprises.

[9] From *The Lamp*, publication of Standard Oil of New Jersey, June, 1951, p. 4.
[10] Argus Research, March 14, 1949.
[11] *Wall Street Journal*, March 15, 1950.

The profitableness of the policy of bringing out new products by making heavy research expenditures justifies the observation of Lammot du Pont in the depression year of 1932, "It is more important to keep up our research than to pay dividends."

It is not to be inferred that every new company bringing out an addition to its line is assured of a high profit margin. A distinction must be drawn between a product entirely new and one new only to a particular company. Entirely new products are usually the result of research expenditures, and are sold in a market in which, temporarily, there is little or no competition. During this period, before competition develops, the price can be adjusted to give the company good profit margins.

There are many companies, however, which add products already sold by other companies. In this way they diversify their activities and may also succeed in correcting a decline in earnings due to a lessening in demand for their existing products. Companies like American Brake Shoe, Briggs Manufacturing, American Locomotive, Yale & Towne, American Steel Foundries, Pullman, among many others, can be placed in this category. This policy may or may not increase profit margins, but though profit margins may not be high, the company's position may be strengthened. New products with an expanding demand may replace existing lines with a declining demand.

The introduction of new products usually involves heavy outlays for research, purchase of new equipment, and the training of technical and merchandising personnel. The perfection of a product to a point at which a market is made is, at best, a slow process and frequently may be long and expensive. Indeed, in some cases, a product may finally prove unacceptable to the public. For some years, for example, the American Machine & Foundry has been working on an automatic pin spotter for bowling alleys. To finance its research and capital expenditures, the company in 1946 sold a fair-sized issue of preferred stock, and in the following year it sold some real estate to an insurance company. It then leased the property just sold, thereby securing added working capital. By 1952, expenditures on this new product had not produced profits. The profit margin of the company had not benefited and the price of its stock had declined.

In rubber and tires, the leading enterprises have endeavored to add to their lines to increase, at least in part, narrowing profit margins. Though in 1950 approximately 70 per cent of rubber consumption was still used for tires, this percentage was declining. Investors in 1951 looked forward to an increase in profit margins because of these outside activities.

Profit Margins and Quality of Natural Resources.—In the mining industry, the richness of the ore is important in the determination of profit margins. In a given market and at a given cost and selling-price level, the profits of a company in copper, zinc, lead, nickel, tin, or iron ore is based partly upon the metallic content of its ore. The quality of ore is not uniform in character, and the extraction of high-grade ore may produce a high profit margin, while the extraction of low-quality ore may produce a lower margin. The extraction of high quality may thus produce a profit margin that is not permanent. Unless the investor is familiar with this factor, he may pay a price for a security out of proportion to its normal earnings.

Such a change in the quality of ore extracted characterizes the development of many mining properties. International Nickel, for example, the world's largest nickel company, in the 1930's mined a relatively high-grade ore, which also produces copper, platinum, and other metals. In 1936, the production per ton of ore amounted to about 33 pounds for nickel and 65 pounds for copper. In 1948 and 1949, the yields dropped to about 21 to 22 pounds each for nickel and for copper. Despite rising prices for copper, nickel, and platinum, the company's operating profit per ton of ore declined from $12.30 a ton in 1936 to a low of $5.12 a ton in 1944. In 1949, the profit was $6.07.

In inflationary periods, companies are likely to exploit lower-grade ores, thereby reducing profit margins. By using low-grade ore, the life of a mine can also be prolonged. In periods of deflationary prices, the richer ores can be exploited, thus increasing profits. In this way, management can to some degree stabilize reported profits in a cyclically irregular industry.

A somewhat similar phenomenon occurs in the oil industry. The earlier output of the new wells occurs without the use of pumps. The unit cost in extracting oil is relatively low. Later, as the subsurface pressure diminishes and pumps are installed, unit costs rise.

Profit Margins and Unit Productivity.—Perhaps the most socially beneficial factor associated with rising profit margins is the increase in productivity per unit of raw material, capital, and labor. To a considerable degree, the rise in the standard of living and in the volume of goods and services at the disposal of each man, woman, and child is based upon the volume of output per person in a given unit of time. Statistically, this is frequently expressed in the production per man-hour. An industry and a company that can produce more per man-hour has, to this extent, an advantage over a competi-

tor. It is able to share the increasing output with its customers, wage earners, and stockholders. A company within an industry that has a superior productivity possesses similar advantages over other companies within that industry.

Almost every American industry increases its productivity over a period of time, and it is difficult to place a limit upon the future increase in the efficiency of industrial output. Success is based largely upon the development of technologically superior tools and machines. As previously noted, every machine tends to improve until it produces at a minimum cost. This, however, does not tell the entire story, for new machines and tools can be produced that make the existing machines obsolete. The approaching maturity of American industry, about which so much was heard in the 1930's, was based in part upon the assumption of a standardized and definitive technology. Such an assumption belies the dynamic element in American industry. Profound changes occur in technology, and these changes contribute to a reduction in unit costs and in selling prices.

One industry, in comparison with others, is able to utilize technological improvements more efficiently and extensively. An industry with a high ratio of labor costs to total costs, such as coal mining, railroads, street railways, or the service-type department store, have, within an existing technological pattern, only a small margin for the reduction of costs. Until a technological improvement is developed that can reduce man-hours, reduction in unit costs will be insubstantial. Other industries, such as chemicals, hydroelectricity, pipe lines, and cigarettes, are largely mechanized. They use much capital and little labor. Capital is sold at low prices, indeed at the lowest prices in history, while labor is available only at the highest prices in history. In industries susceptible to additional mechanization, further reduction in unit costs, with some part of the savings going to the securityholders, can be anticipated.

The ability to finance the installation of expensive improvements with cost-reducing potentialities is one of the powerful advantages over their competitors of companies with ample financial resources and good credit standing. This is well illustrated by postwar developments in the biscuit industry. In the World War II years, a considerable number of small companies increased their sales and earnings, and their stocks rose to high levels. In the postwar years, new ovens, so-called band ovens, were developed, which reduced labor costs per 100 pounds of crackers from close to $3.00 to about $1.80. Most of the smaller concerns could not afford to install the new machines. Major companies used a considerable part of their

earnings and depreciation accruals to finance extensive modernization programs in an effort to maintain and, perhaps, to restore declining profit margins. In 1951, for the first nine months, for example, National Biscuit Company increased its sales 12 per cent over the corresponding period for 1950. Its profits, however, declined 25 per cent. In its efforts to stop the erosion of profit margins, the company in 1951 was reaching the end of a $60 million expansion and improvement program begun some years before. A new Chicago plant, according to its vice president, "will be the nearest thing to an automatic plant in the industry." This program helped the company to maintain its dividends. Most of its smaller competitors did poorly; their dividends were not maintained, and their stocks in 1952 sold at small fractions of their high war and postwar prices.

Other factors affecting profit margins are discussed at other points. They include price cutting wars, selling prices imposed by public regulatory authorities in the railroad, airline, and the local public utility industries, and the relationships between costs, volume, and selling prices.

QUESTIONS AND PROBLEMS

1. The profit margin, as a percentage of a pretax profit to sales of General Foods Corporation, ranged between 13 per cent and 16 per cent from 1939 to 1936. Between 1945 and 1952, the profit margin ranged between 8 per cent and 9 per cent. It is argued that this impairment in profit margins clouds the future of the company and threatens the continuance of an earning power sufficient to maintain its common stock on an investment basis.

   In this industry (packaged foods), price markups are figured on the basis of dollars and cents added to each physical unit sold. How would this last-mentioned fact affect the validity of the judgment that the reduction in percentage profit margins shows that this company is losing its earning power?

2. In a period of rising prices (other things remaining the same), what ratio for measuring profit margins (of the two discussed in the chapter) most realistically reflects profits earned in the business? Explain.

3. Assume that over the next five years there will be a 25 per cent increase in wage rates of unskilled labor, long-term interest rates will decline to 2 per cent, and wholesale prices will advance 5 per cent. Which company in the following group combinations will be most favorably affected, and which one will be most adversely affected?
   a) F. W. Woolworth and Socony-Vacuum Oil
   b) May Department Stores and McGraw-Hill Book Co.

c) Western Union Telegraph and Houston Oil of Texas (crude oil and natural gas)

d) New York, New Haven, and Hartford Railroad and Mississippi River Fuel Co. (natural gas pipe line)

e) Safeway Stores and Pennsylvania Water and Power Co. (hydroelectricity)

4. What effect since 1935 have federal and state laws and regulations exerted upon profit margins of the following industries: cane sugar, corn products refining, retail fluid milk distribution, crude oil?
5. How have Government laws and regulations affected the profit margins of commercial banks?
6. Explain some of the factors that produce high and low profit margin industries.

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Chapter 13

BREAK-EVEN POINT

In addition to the factors bearing on profit margins discussed in the previous chapter, still another merits the attention of the investor. Fluctuations in sales volume are particularly important, and they will now be considered.

Minimum Expense to Begin to Produce.—Every plant, every machine, every store, big or little, retail or wholesale, every governmental bureau or commission, every village or township, city or state, requires a minimum expense to establish and maintain a skeleton organization. Whether the bill is met out of taxes or from the sale of goods or services, this expenditure must be incurred before any goods are sold or any public services rendered. The minimum expense covers rent on a leased property or taxes on an owned property, and insurance and maintenance expenditures essential to normal comfort and decent habitation. With the increase in size of the organization and plant and in the complexity of mechanical equipment, the scale of minimum expenditures rises.

Nature of Fixed Expenses

A high, fixed carrying charge characterizes industries that require an expensive plant to perform services or to produce goods, such as transportation, utilities, and steel. In the hearings before the T.N.E.C. in 1938, United States Steel explained that, in that year, the cost of being ready to produce a ton of steel was $183 million per year. In 1948, this minimum cost was estimated at $260 million.

In consumer industries, particularly in the service appeal, metropolitan department stores, the fixed expense is increased by promotion and advertising expenditures and by the installation of conveniences that competition requires—rapidly moving elevators, escalators, air conditioning, richly furnished reception rooms and other paraphernalia characteristic of modern, streamlined consumer appeal. Motion picture production and exhibition require heavy fixed expenses in studio overhead, theater operating, and distribution costs.

The Break-Even Point.—These minimum expenses—fixed in dollars—increase with the decline in the value of the dollar. In the inflation years after 1939, rising costs increased all those expenses necessary to maintain a machine, a plant, and an organization in a position *ready to produce,* regardless of the volume of production. With a given scale of selling prices and costs, a minimum volume of production is necessary to meet these fixed expenses and also the out-of-pocket costs of this volume of goods produced and sold. This output, expressed in a percentage of the capacity of the machine, plant, or organization, is known as the "break-even" point. The fixed expenses and the out-of-pocket costs—variable costs, as they are generally known—must be covered out of the operations of the business. The variable costs of goods sold are largely the payrolls and the costs of materials and supplies. The latter vary with the volume of sales, while the payroll costs vary only in part with sales. That part of the payroll necessary to defray most of the maintenance expense on both plant and machinery and to pay the salaries of engineering, accounting, legal, and other professional services, together with the cost of administrative and executive personnel, are largely fixed in dollars. They must be met regardless, to a large extent, of the volume of business done. In addition, there are the depreciation and other noncash expenditures. Pension and social benefit costs must also be met in good times and bad; they are heavy and constantly increasing.

Effect on Profits.—All these fixed expenses must be paid out of the difference between the costs and selling prices of a minimum number of sales units. These provide the funds to cover the fixed costs and the variable costs to produce the units. Not until such a sales volume is achieved can any profits be realized; not until then are the fixed expenses met out of the sales of the enterprise. Thereafter, that is to say, after the break-even point is reached, profits increase. Thereafter, only the variable expenses grow as sales volume mounts. In those industries in which fixed expenses are high, the rise in profits from sales beyond the break-even point can be extremely rapid.

In some industries indeed, fixed expenses are so high that it is frequently more economical to continue to produce in the face of heavy sales decline. This phenomenon, for example, characterizes both the aluminum and magnesium industries. The background in the latter industry is well described by the president of the Dow Chemical, the leading manufacturer of magnesium: "Magnesium production is peculiar," he informed a Senate committee, "in that if

a cell be started into operation it cannot be easily closed down without the feed in the cell freezing—that is, hardening—which may mean rebuilding a considerable part of the cell before operations can again be begun. Therefore it may be cheaper to let a cell run on, in the hope that the output can be disposed of, than to shut down and take a certain loss." [1]

Nature of the Industry.—To some extent, the volume of fixed costs of a particular organization are determined by the nature of the industry. A hydroelectric plant has higher fixed costs than a railroad or a canning factory. And a pipe line or a railroad carries a greater burden of such costs than a cigarette plant or a variety chain. Companies in a given industry can, nevertheless, adopt different policies with respect to the volume of fixed costs they want to assume. A company with lower fixed charges has a lower break-even point. If sales volume does not expand, such a company prospers relative to another with a higher ratio of such charges and a correspondingly higher break-even point. But with a dynamic sales expansion, the latter company probably has a greater opportunity to expand its sales, and as it does so beyond its higher break-even point, its profits will mount rapidly.

An example can be taken from the airlines industry. In the post-World War II era, American and Eastern followed different policies. American made a heavy investment in modern equipment and in the establishment of expensive sales offices in many cities. The heavy depreciation costs on the equipment and the rent and personnel costs of the city offices raised fixed costs, while the interest on the large debt incurred to buy some of the equipment increased those charges still further. Eastern did not buy so much equipment and did not establish so many elaborate city offices. Hence, in 1948 the fixed costs per 1,000 seat-miles for American were $19.50, and for the Eastern, only $11.90. The former, in that year, needed a load factor of 62 per cent to break even, while the latter needed only 50 per cent. Eastern, accordingly, in the 1947-48 years of low traffic, reported profits, while the American had losses. Note, however: the variable costs of American were lower than Eastern's (78 cents per revenue plane-mile against 81½ cents), hence, once the break-even point was passed, profits (difference between revenues and variable costs) expanded more rapidly for American than for Eastern.[2]

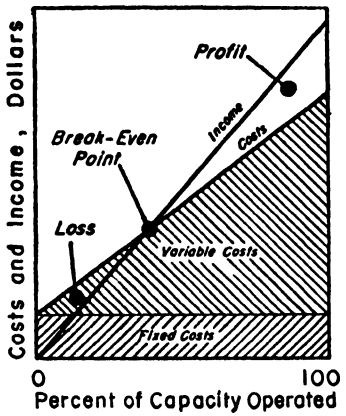
[1] Willard H. Dow. A Statement entitled *"Dow and Magnesium"* filed with the Special Committee of the United States Senate Investigating the National Defense Program, March 6, 1944, p. 16.

[2] Figures for the American and Eastern airlines are taken from Airline Industry Investigation, Hearings before Committee on Interstate and Foreign Commerce, Senate, 81st Congress, 1st Session, pp. 889-90.

A simple break-even point chart is reproduced in Figure 4. Observe how, at a low percentage of plant capacity, the fixed costs exceed income; the plant operates at a loss. It breaks even at a higher percentage. Thereafter, income exceeds costs and profits rise.

FIGURE 4

Simple Break-Even Point Chart



Source: *Chemical Engineering*, February, 1949, p. 110.

Volume Profits in Prosperity

The economies of large-scale production cannot benefit a corporation and its securityholders until the break-even point is passed, and no plant, regardless of size or efficiency, can produce profits until the break-even point is reached. In a period of rapidly rising sales, production in excess of the break-even point may generate substantial profits, even in the presence of inefficiency.

Measuring Capacity.—The capacity in some industries, such as cement, electricity, aluminum, for example, are relatively easy to measure. Under some conditions, however, operations may be carried on substantially beyond the 100 per cent limit as normally measured. With the use of stand-by (technologically obsolescent and high-cost) machinery and the inefficient use of labor on a three-shift basis, it is possible to increase operations beyond maximum capacity.

Operation Above Capacity. The electric light and power industry during World War II achieved a noteworthy record in this regard, as did the steel industry in 1951. Though production under these conditions may be inefficient and costs high, profits may be

large. At such times, demand is insistent and is in excess of existing plant capacities. Good profits and operating inefficiencies may then go hand in hand. The fixed expenses representing anywhere, say, from 50 to 75 per cent of unit costs, have already been covered. The variable costs incurred to turn out the additional output beyond the break-even point represent a relatively small proportion of total unit costs. A congested plant, inefficiently operated, thus realizes attractive profits. Volume and nonperformance profits emerge.

In the war period, 1941-45, elaborate statistical computations revealed unprecedented increases in revenue ton-miles handled per railroad employee. Railroad profits mounted to record levels. They came, however, from operation of the plant at a level substantially beyond the break-even point. They reflected, largely, the intense utilization of facilities at relatively rigid selling prices and on the basis of relatively slight rises in costs. A similar experience was recorded by the bituminous coal industry. Between 1939 and 1946, this industry increased its wages and profits. These results were attributed by responsible authority to continuous operation, rather than to any improvement in machine efficiency or to labor productivity.[3]

Nonrecurring Profits.—Profits from volume operation at levels far in excess of break-even points frequently are nonrecurring. They represent windfalls, and investors cannot always look forward to their annual recurrence. The nature of the demand must be carefully examined. The heavy volume of street railway and railroad passenger traffic between 1942 and 1945 increased sales and profits. The strong demand reflected gasoline rationing and wartime movements of men in the armed forces. These were temporary factors and disappeared soon after the termination of the war. Thereafter, the secular decline in street railway and railroad traffic reappeared, passenger traffic dwindled, volume dropped below the break-even point, and profits fell. Wartime, temporary sales and profit increases took place also in department stores, distilled spirits, motion pictures, and marine transportation.

No statistical technique or mathematical formula can isolate these profits *accurately* from normal, regularly recurring profits. Investors, nevertheless, express a rough and ready, even though arbitrary, judgment in their refusal to pay the same price for these profits as they do for normal performance profits.

[3] Donald R. G. Cowan, *Capital Equipment, Coal's Foremost Economic Need.* Washington, D. C.: National Coal Association, 1948, p. 15.

Fluctuating Profits and Rapid Sales Changes.—In the dynamic American economy, shortage of plant facilities is soon relieved by the installation of new capacity. In the course of time as supplies increase, the percentage of plant operations declines. Large sales volume can no longer be relied upon to produce profits. As the use of capacity drops close to the break-even point, the adverse effects of existing inefficiencies are revealed. Volume performance no longer produces profits and the management turns to cost-cutting efficiencies, to the use of technologically superior machinery, and to those other policies calculated to reduce costs of doing a dollar's worth of business.

These problems were inflicted upon the managements of a number of industries whose war-profit bubbles burst, in the 1947-48 period, by relatively small declines in sales. Such industries as motion pictures, woolen textiles, confectionery, airline and rail transportation, drug chains, leather, canning, and the metropolitan department stores are illustrations. In the face of small declines in gross and, frequently, of slight increases, substantial declines in profits were experienced.

Table 24 indicates, for a representative list of companies, the sweeping rise and fall in profits in the war and postwar period, 1942-48. Observe the effects of the postwar expansions upon the earnings of Pepsi-Cola and American Airlines. A slight sales expansion in the former (between 1946 and 1948) and a substantial one in the latter (between 1945 and 1948) plus expansions in the plant capacity of both, were accompanied by spectacular declines in profits. Note how a small sales increase in face of rising costs of Gimbel Brothers from 1946 to 1948 accompanied a 34 per cent drop in profits; and how a 14 per cent reduction in sales of 20th Century Fox in the same period accompanied a 45 per cent decline in profits. Profit deterioration reflected, not only sales drops, but also sharp rises in operating costs, particularly for United States Lines.

Of the industries embraced in this tabulation, airline transportation is growing rapidly. Hence, in the 1950-52 period, sales expanded at a rate greater than the national economy and also of the common-carrier transportation business. The previous expansion in plant capacity had, meanwhile, increased overhead costs. These costs, however, did not expand with rising sales. In 1949-51, the break-even point on a large-capacity plane, like the DC-6 B, approximated a 60 per cent load factor. Hence, most of the revenue between that level and about 85 per cent, a load factor usual in times of peak travel, is profit. (In 1945 the passenger load factor reached 88.1 per cent.) This combination of a low break-even point on so many

TABLE 24

RISE AND FALL OF SALES AND PROFITS OF TYPICAL COMPANIES, SHOWING HOW SMALL CHANGE IN SALES PRODUCES STEEP CHANGE IN PROFITS, 1942-48

(In millions of dollars)

	1942		1945		1946		1948	
Name of Company	Sales	Profit	Sales	Profit	Sales	Profit	Sales	Profit
Pepsicola	$ 38,590	$ 6,274	$ 43,140	$ 5,152	$ 45,078	$ 6,266	$ 46,627	$ 3,152
20th Century Fox	67,345	10,609	178,211	12,746	190,323	22,619	163,395	12,509
American Air Lines	26,982	3,851	47,416	4,399	68,083	d) 0.375	89,285	d) 2,893
New York Central	593,666	49,082	654,363	24,412	616,784	d) 10,449	779,860	14,727
Gimbel Brothers	137,643	3,347	230,094	5,749	293,352	13,418	307,289	8,878
United States Lines	15,866	0.751	8,146	2,079	40,202	7,630	90,219	3,422

of the latest model planes and rapid sales expansion made possible the substantial advance in profits in the 1949-51 period.

The effect of changes in rate of operations upon profit margins is clearly seen in a standardized industry. Cement can serve as an illustration. Between 1937 and 1942, with the industry operating between 45 per cent and 50 per cent of capacity, major companies had a profit margin of about 25 per cent. In 1942, due to high industrial building and airfield expansion, sales expanded and profit margins rose to 30 per cent. In 1944, plant operations fell to less than 38 per cent, and profit margins dipped to about 10 per cent.

From that point on until 1949, industry output and profit margins rose together. In that year, although the industry operated at 83 per cent of capacity, profit margins approximated those of 1941, when it operated at only 66 per cent.[4] A more rapid rise in costs than selling prices explains the lag. In 1951, the industry worked close to capacity. Then, sales increases produced no further economies. From this point forward, accordingly, increases in material and labor costs were usually accompanied by increases in selling prices, for otherwise profit margins would have declined.

Solutions to Decline in Sales.—A drop in sales volume of modest proportions need not necessarily lead to reduced profits. A drop in capacity operations from 100 per cent, say, to 90 per cent, with a break-even point at 85 per cent, can be associated with a rise in prices or a reduction in costs.

PRICE INCREASES. An increase in selling prices as a solution to this vexing problem is, to a considerable extent, beyond the control of the management. Stiff price resistance, competition with lower-cost and lower-price industries, refusal of other companies in the same industries to agree—these and numerous other reasons militate against the general use of this device.

The regulated airline transportation industry in the period of its financial distress, following its prolonged boom that terminated in the summer of 1946, hesitated long and mightily before adopting a price-raising policy. It proved to be an error, and the contrary policy of reducing prices adopted in 1948-49 proved to be the wiser. In the department store industry, the gross profit margin, that is, the difference between the cost of goods and the retail selling prices, did not substantially increase after World War II.

The railroads endeavored to solve their problems by increases in freight and passenger rates and the street railways by increases in

[4] Percentages of plant capacity taken from Kidder, Peabody & Co. pamphlet *Cement Stocks*, 1951.

passenger fares. Even the public authorities owning and operating streetcar enterprises in New York, Detroit, and Chicago, for example, were forced in the postwar years to raise selling prices. In those cases, it is clear that they were not activated by profits, but by the sheer necessity of securing revenues to cover their rising costs of operation.

In still other industries, particularly those benefiting by an unusually rapid expansion in volume and with heavy fixed and low variable costs, rising costs are absorbed by increased sales, with the price level rising slightly or, in some cases, dropping sharply. The prices of many new drugs, penicillin and streptomycin, for example, declined precipitately in the postwar years. As already explained, the tendency in growing and prosperous industries is in the direction of lower selling prices in relation to general price levels.

Cost Reductions. Most industries normally look to a reduction in cost as their major salvation from impending trouble, as and when sales resistance develops. Cost reductions, as a means of steadying profits in the midst of a decline in sales, are, nevertheless, difficult to effect in a relatively short period. Numerous inefficiencies and extravagances can be eliminated. Accounting paper work can be reduced, inefficient labor discharged, multifloor operations replaced by single floor, and the like. Reduction in inventories may be helpful. To carry an inventory for a year requires costs from 10 to 25 per cent of its value. Incentive payments, with low fixed salaries and increases based on profits, are helpful in reducing break-even points. Most savings, however, can be realized through the use of technologically efficient machinery. The installation of such machines and their adaptation to the existing plant layout requires considerable time.

Such a cost reduction program, if introduced under favoring conditions and before the development of any serious slump in sales, may achieve substantial results. In the post-World War II years, most of the expanding and some of the declining industries modernized their plants, and extensive operating savings were accomplished. Improved hydraulic presses and machine tools, materials-handling machinery, Diesel engines, high-pressure boilers, continuous assembly lines, low purity oxygen made on a mass production basis are only a few of the succession of new devices produced under the combined impact of scientific activity and business enterprise operating in the traditional American pattern of a search for profits in a free economy. Improved mechanisms increase the productivity of labor: each worker produces more units per hour. Upon a given

wage and price schedule, variable costs decline, although fixed costs to take care of the machines, increase slightly. The break-even point drops.

Significance of Break-Even Point

Serious declines in earnings in a number of industries, with relatively slight sales declines, has highlighted the significance of the break-even point. The inflation spiral has raised the break-even point to dangerous levels. While companies in many industries are transforming record sales into record earnings, the managers, and with them the careful investors, remain fearful of the corrosive effect upon profits of a small decline in volume. Well-managed companies, which in the 1930's could make ends meet at 60 per cent of capacity, required 80 to 85 per cent in the 1940's. In the metropolitan department store industry, for example, a financial officer observed in 1948 that a sales reduction of 10 or 15 per cent would put the industry in an uncomfortable profit position; a reduction of 20 per cent, with the current level of expenses, would enable it to break even; while a sales decline of more than 25 per cent, even with a curtailment of expenses, would produce a net loss. The dollar break-even point in 1948 for the department store industry was about that of prewar years.[5] The persistent rise in the department store expenses in the later post-war years has tended to increase the break-even point. This trend continued in the face of a substantial sales expansion.

A survey made by a financial official of a company in another industry in the same year revealed that 38 per cent of a group of companies could make both ends meet with 60 per cent of capacity, as compared with 58 per cent that could break even at this level in prewar days. Only 13 per cent of the companies analyzed could break even at 40 per cent capacity.[6]

In the prosperous chemical industry the median break-even point of a group of about 200 companies was less than 50 per cent in 1940, and almost 80 per cent in 1948.[7]

In the hotel industry, the break-even point is also high. In addition to the interest charges that most hotels incur, the business has a rigid operating cost structure, and a slow turnover of sales to plant investment. Capacity operations in the war and postwar period pro-

[5] Hugo Kuechenmeister, Comptroller of the Ed. Schuster & Co., Milwaukee, Wisconsin, in a paper entitled, *The Challenge of Rising Expenses,* 1948.

[6] Myron W. Kreuger, Treasurer, Raymond Concrete Pile Co., as reported in *The New York Times,* September 26, 1948.

[7] R. S. Aries, "Break-Even Points Threaten," *Chemical Engineering,* February, 1949.

duced high profits, and the prices of its depressed bonds soared. Many properties were rescued from insolvency. In the postwar years, however, the industry looked upon the approach to the break-even point with concern, if not with consternation. Before the war 65 per cent of the rooms had to be rented in order to break even. In 1948, the percentage had risen to about 83 or 84 per cent. In October of that year, the occupancy rate had declined to 86.4 per cent as compared with 94 per cent in the war years.[8] In 1950, the percentage of rented rooms required to break even was probably below 80 per cent.

Generally speaking, break-even points in many industries in 1949 were so high that many managements, to quote an informed observer, "occasionally wake up in a cold sweat wondering what a 10 or 20 per cent drop in volume would do to profit-and-loss statements."[9] Break-even points in 1951 were, on the whole, about the same as in 1949.

Determination of Break-Even Point.—Though the importance of the break-even point is readily appreciated, it is rare that management of a large manufacturing enterprise knows what that point is. It is like the stock or the bond market. There is general agreement on the price *trend*, but there is disagreement on the degree to which prices will move in one direction before a reversal sets in. It is general knowledge that the break-even point has increased. What it is for a given company, however, amidst profound changes in costs and prices, is a baffling problem, but over the years and under varying hypotheses, break-even points for individual companies may be estimated.[10]

A careful analyst was surprised to discover that in the chemical industry most managements neither know exactly the company's break-even point, nor understand its meaning.[11] This phenomenon should not be surprising. An analyst can reach conclusions based on observed tendencies, but no management can be sure that rules based on past conditions can work in the future under other conditions. When unskilled wages were low, for example, the break-even point for the Western Union was low. The steep rise in wages for unskilled labor in recent years pushed the break-even point to higher levels.

[8] Statement of J. H. Adams, president of American Hotel Association.

[9] J. L. Singleton, Allis-Chalmers Manufacturing Co., paper for the American Management Association, March 18-19, 1948.

[10] This has been done in elaborate detail in Walter Rautenstrauch and Raymond Villers, *The Economics of Industrial Management* (New York: Funk & Wagnalls Co., 1949), p. 130 ff.

[11] R. S. Aries, *op. cit.*, p. 110.

The problem is so complex that, even in such a relatively standardized business as steel, the chairman of National Steel declared flatly in the summer of 1949 that he did not know what the break-even point was, and that "nobody knows until he gets there." [12] Another steel company official was asked in the spring of 1951 about the break-even point in that industry. "I believe," he replied, "[it] cannot be answered in this day. Let me give you an example," he continued. "Two months ago, at the end of the year [1950], we estimated our scrap inventories, and the values on our books were under discussion. Six weeks later the price of scrap soared $18. . . . I am sorry but I have not heard that anybody has tried to estimate just what the break-even point would be for the industry. In my own company, I think some of our people would like to know that, but it won't hold still." [13]

Increasing Importance of Break-Even Point.—Though the break-even point has always been important in the determination of profit margins, its importance has been increased by reason of the emergence of new forces and the intensification of old forces over the past fifteen years. An increasing percentage of operating expenses, as defined in the principles of orthodox accounting, have become fixed or semifixed in character. Wages are now fixed over long periods (one year, three years, or longer) by contract with trade unions. Minimum wages are determined by statute, both state and federal. The very installation of cost-reducing machines to offset higher labor costs has contributed to the increasing rigidity of an increasing proportion of operating expenses. And what is even more potentially vulnerable to the maintenance of profit margins in a period characterized by slight declines in sales is the decline in labor productivity.

Throughout American industrial history, rises in output per man-hour have made possible increasing production, reduction in selling prices, and expansion in profits. Without doubt the installation of efficient machinery has been one of the chief reasons, and in the opinion of many, the major reason for this trinity of successes. But from 1945 to 1949, an expenditure of approximately $30 billion for new plant and equipment was not followed by any significant increase in labor productivity. Though opinions may differ on the causes of this disturbing development, the facts are clear. If management

[12] *Wall Street Journal*, July 18, 1949.

[13] Philip J. Sandmaier, of Republic Steel, in *Analysts Journal*, 2d Quarter, 1951, p. 103.

finds it difficult to reduce unit costs substantially through improved technology, the significance of the break-even point is manifestly increased. In the presence of a small decline in sales and a rigid cost plateau, either selling prices must rise or corporate earnings drop. The significance of this development to the investors is too obvious to require any elaborate stressing of the point.

From 1946 to 1949, a rapid, almost breath-taking rise in the cost of labor, materials, and supplies superimposed a disturbing factor upon the existing structure. These rising costs were carried over into the important field of services, increasing the burden of taxes, insurance, and salaries to many technical and skilled specialists necessary to conduct a modern business organization. Amid the rushing sales increase in many industries, these rapidly rising costs were absorbed, and many companies with high break-even points, nevertheless, reported record-breaking profits.

The decline in business in the first half of 1949 afforded investors the first postwar test of the effect of high break-even points. On the whole, earnings were well maintained. Another test in the first six months of 1952 did not turn out so well. The earnings of many companies in the consumers goods industries were drastically slashed, accompanied by a number of dividend reductions and omissions. The earnings of some highly leveraged companies in the presence of a relatively small decline in sales—Celanese Corporation, for example—were reduced to nominal proportions. Further tests will be watched by investors with interest and concern.

Though postwar profits in dollars were high, the margin of profit as a percentage of each sales dollar, and as a return on net worth, was generally lower than in the prewar period. The high postwar profits merit critical examination. Higher sales may conceal unsupportably high costs.

Conclusion.—Both businessmen and investors are, therefore, confronted with a vital problem. The cost-rising impact of abnormally high break-even points have, since 1940, been absorbed by rising sales. All previous experience teaches the lesson that a decline in sales from a high plateau, no matter how prolonged in time, is inevitable. With so many rigidities introduced into the cost structure, the question arises as to the normality of the existing level of record earnings. With a high break-even point of 80 to 85 per cent in so many industries, reaching almost 90 per cent in a small number, the risk of a rapid profit decline must be placed fairly high. The eventual solution of this problem cannot be safely anticipated.

QUESTIONS AND PROBLEMS

1. Explain why the investor follows the movement of the break-even point of the corporation whose securities he owns.
2. Under what conditions may operating inefficiencies accompany increasing profits?
3. Why has the importance of the break-even point in the determination of profit margins and profits available for dividends increased over the past 15 years?
4. Contrast the relative importance of the break-even point in the following groups of companies:
   a) F. W. Woolworth and Gimbel Brothers
   b) National Dairy Products and United States Steel
   c) Atchison, Topeka, and Santa Fe Railroad and American Tobacco

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Chapter 14

PUBLICLY REGULATED INDUSTRIES

The securities of the railroads and of the public utilities have long been placed in a special category and set aside from the securities of other, privately owned enterprises, which are described as industrial securities. Separate manuals of information, separate classifications of stock and bond prices, special financial ratios—all these and numerous other features are made available in convenient and comparable form to investors in railroad and public utility securities.

This abundance of information is due in part to the fact that these industries have for many years been regulated by public authority. Federal, state, and municipal agencies have insisted upon the publication of a voluminous mass of data, which have been examined by many keen minds and converted into form for investment study.

Abundant information, as well as other factors, have given disproportionate significance to the securities of these two industries. Fundamentally, however, these and other industries are affected by similar economic forces. "The utility must meet the needs of the consumers," declared an executive of a metropolitan utility in 1949, "must pay current high prices for materials and wages, overcome the risks of competition emanating from unregulated products, charge rates fixed by public authority, and fight successfully against the cancer of obsolescence." [1] The business of transportation and of public utility services is vital to the public welfare, but no more so than many other industries such as coal, meat packing, milk, bread, biscuits, nonferrous metals, iron, and steel. Most industries are essential to the public interest and are interdependent in character. No individual industry can long survive the poor functioning of another.

Major Differences Between Regulated and Nonregulated Industries

The essential difference between the railroad and the public utility industries, on the one hand, and industrials, on the other, arises from

[1] James F. Oates, Jr., Chairman, Peoples Gas, Light, and Coke Co., statement at annual meeting of stockholders, April 7, 1949. Pamphlet of the company.

the extent to which the former is subjected to public regulation. Selling prices for their services are controlled by law to a much greater degree than for industrials. With minor exceptions, the industries included in the latter group sell products at prices established by the play of supply and demand factors. Publicly regulated industries sell their services at prices that reflect the policies enunciated by federal and state legislators and administered by federal and state agencies.

This is not to assert that the prices of goods and services of the industries in the industrial group are not affected by public regulation. In many sections of the food industries, for example, price support by federal agencies tends to interfere with the functioning of supply and demand forces. State authorities frequently determine the price of milk to the farmer and to the consumer, and to that extent, the milk distribution industry partakes of the nature of a public utility.

Subject to some exceptions, then, the investor in the securities of the nonrail and nonpublic utility industries can look forward to the development of earning power freed from the price-determining regulations of public agencies. Investors in railroads and public utility industries, on the other hand, must give far-reaching and often primary consideration to policies of the regulatory authorities.

A broad distinction must be drawn between the railroads and the local public utilities. An overwhelming percentage of the former's business is conducted across state boundary lines. The industry is, therefore, regulated for constitutional reasons by the federal government. Although commissions with authority to supervise the railroad industry exist in many states, the activities of the federal body dominate the nature of the regulatory structure. Over the years, much of the business that moves intrastate has become subject to federal regulation. The public utility business, on the other hand, is controlled largely by state regulation. To this generalization there are again exceptions. Natural gas pipe lines, some divisions of the electric light and power industry, and some electric systems with interstate transmission lines are regulated by federal agencies.

Difference Between Railroad and Public Utilities.—The railroad industry, furthermore, reflects to a much greater degree the existence of intraindustrial competition than do the public utility industries. With rare exceptions, the water, telephone, gas, electric, and street railway companies possess a local territorial monopoly. The monopoly is assured by a franchise, which gives a private com-

pany the right to use public property and to sell a service in a particular territory. Long experience has taught both public and private interests the lesson that duplication in the use of public property for the purpose of rendering a public utility service is uneconomical. Duplicate street car tracks, water mains, telephone wires, electric transmission lines and distribution systems impose a burden of high costs upon the public. The high costs tend to increase selling prices to a greater degree than competition would reduce them by virtue of the increase in efficiency and the theoretical reduction in the profit margin.

In some cities, Cleveland for example, competition prevails in electricity; and in other cities, San Francisco and Philadelphia for instance, competition in the past existed in street railways and telephones respectively. These, however, are the exceptions. Normally, the local service is rendered exclusively either by a privately owned company or, to an increasing degree in recent years, by public authority. Regulatory agencies can, therefore, guide the adjustment of selling prices for public utility services with little concern to the competition of one corporation against another in a particular utility service.

In the railroad industry, however, intraindustrial competition is widespread. Each railroad, it is true, serves some local territory exclusively, and normally, much of a railroad's earnings comes from local traffic. The Pennsylvania, for example, serves, with little competition, southern Pennsylvania between Philadelphia and Pittsburgh; the Atchison, Topeka and Santa Fe, southern Kansas and many regions in Texas, Arizona and New Mexico; the Southern Pacific central and southern California; the Chesapeake and Ohio, Virginia; and the Norfolk and Western, a number of communities in Virginia and West Virginia. A substantial part of the railroad business, however, moves to major market areas and from major points of production where railroad competition is aggressive. Although some portion of the business is controlled by the railroads by virtue of their access to originating or terminating shippers, other parts are constantly sought after by railroad traffic salesmen. Although concessions in selling prices are illegal, competition in the form of business affiliations and a superior quality of service is as strong as ever.

In addition to direct competition between two or more roads, there is also important market competition. Competitive products from different areas served by different railroads compete in a common market. Coal from Virginia and West Virginia competes with coal from Ohio, Illinois, and Indiana. Lumber from California,

Arizona, and the southeast compete in common markets. A large percentage of the output of American industry competes in this same territorial fashion. Rates and services between two or more roads must, therefore, be adjusted so as to facilitate the movement of business from all sections of the country. Otherwise, a particular railroad would lose its share of the business and the communities served would lose in population, wealth, and income. Out of this competitive background grow many important railroad problems.

VALUATION AND FAIR RETURN. In both the railroad and utility industries, the public regulatory authorities, as a result of long experience in statutory law and judicial interpretation, have evolved standards of price determination. A climactic event in this experience was the decision of the United States Supreme Court in 1898 in Smyth *vs.* Ames.[2] In this case, the court declared categorically that a public utility or railroad was entitled to "a fair return upon the value of that which it employs for the public convenience." The court declared, furthermore, that in determining the fair value of the property the regulatory authority must consider the original cost, the present value, the amount and market value of its securities, its earning capacity, and other relevant considerations. The court furnished no guide to the principles that determine a fair return. Though the decision thus set up ambiguous standards, it did, nevertheless, lay down a useful rule that was generally followed until 1944, when a Supreme Court decision reversed previous standards.

The law on the valuation of property of publicly regulated industries must be separately considered for the railroads and for the local utilities. Theoretically, the selling prices of the services of both must be such as to afford the opportunity to realize a fair return upon some base. A rate base must be determined, in theory, for all publicly regulated industries. Due, however, to the competitive differences already described, the task of determining a valuation for a utility is different from that for a railroad. A local utility serves a community normally with no intraindustrial competition.

Once the rate base of its property has been ascertained and a rate of return calculated, the utility can charge a selling price designed to enable it to earn its operating expenses plus the statutory return. The return may be excessively high or excessively low judged by competitive standards, but no competition within the industry normally prevails. A local utility can, therefore, change its selling prices in accordance with the orders of a public body without encountering competition from a lower cost company in the same industry.

[2] Smyth *vs.* Ames, 169 U. S. 466, 547.

Rates may be substantially higher in one city than another, with little or no harm to the high-cost, high selling-price company. Costs of producing electricity in New England, for example, are higher than in other sections of the country. Rates, reflecting these costs, are also higher. In Boston, costs and rates are higher than in some other New England cities, due to some extent to the age of some of the generating units of the Boston property, some of which were installed at various times between 1904 and 1942. In New York City, the costs of producing electricity are higher than in Philadelphia and Chicago.

In Pennsylvania, the Pennsylvania Power and Light Company, prior to its 1948-51 expansion program, had an obsolescent plant. Less than 10 per cent of its generating plant capacity had been installed since 1928. Its coal consumption per kilowatt-hour was exceptionally high. In fact, a new plant operating in 1951 uses about half as much coal per kilowatt-hour as some of the older units. For many years, Pennsylvania Power and Light's residential electrical rates were relatively high, and no substantial rate reductions were made in the first half of the 1940's, when other companies were making such reductions. Lack of competition by low-cost companies made it unnecessary for this company to reduce rates.

Lower-cost and more efficient companies in different areas do not and cannot compete with each other. Whether the industry is expanding or declining, furthermore, an increase in rates for local utility services can stimulate no new competitors. Each local utility has a separate rate base. Upon this base, a utility is permitted to earn a return. An abundance of conflicting commission and court interpretations have characterized the efforts to determine a rate base and a fair return, and no general rule to guide the investor can be garnered from these decisions.

Many factors bearing on the rates of return have been noted by the judicial and regulatory authorities: the return must be sufficiently high to attract investors' funds, the relative risks of a utility must be contrasted with the risks in other industries, the trend of money rates must be weighed. Other considerations have been suggested. Similar lines of reasoning produce different rates of return by different public service commissions. Little of investment interest would be accomplished by an analysis of these decisions. Though no rule of universal application is available, it remains, nevertheless, that the investor must familiarize himself with the rate base of and the rate of return to the utility to which he has committed his funds.

In Massachusetts, a unique pattern of regulation prevails. A fair return is described as one sufficiently high to attract new capital,

preferably through the issue of common stock. The return is designed to make possible payment of such dividends as to enable companies to sell stock at par. The rate base would thus appear to be the stock and surplus. The Massachusetts rule is not followed in other states.

The principles for the determination of rate bases, generally, were built up in the half century following the Supreme Court Rule laid down in 1898, and for purposes of investment analysis, it is not essential to review in detail the lengthy experience in courts and commissions that followed that Supreme Court doctrine. Exhaustive efforts were made to determine precisely the nature of the original cost and present value. It was found particularly difficult to ascertain present value, and the suggestion made in Smyth *vs.* Ames to use market prices of the securities as one measure was soon rejected. Indeed, this irrelevant standard was scarcely considered even by the Court itself.

To establish the reasonableness of utility rates, evidence bearing upon the market value of securities that reflect existing rates involves circular reasoning. For many years the Supreme Court considered another device to measure present value: the "cost of reproduction" was designed to reflect either the cost of reproducing the existing property or of a property providing the same service at current prices, or at some average of prices over a number of years preceding the date of valuation. The Supreme Court did not at any time construe reproduction cost in such a way as to make it mean present value; nor did the Court indicate the relative weight to be given to the cost of reproduction or to other elements in the determination of the rate base.

Difficulties also attended the efforts to use original cost. Particularly, problems were raised about the definition of the term. Did it refer to the cost of the property to existing company, or to the investment made by the original securityholders? The latter base was sometimes designated as "aboriginal" cost. Frequently, owing to the absence of adequate records, it was impossible to determine original cost. Another facet of cost as the foundation for rate-making was set forth by United States Supreme Court Justice Brandeis in a concurring opinion in a case involving the Southwestern Bell Telephone Company.[3] This was the concept of prudent investment, adopted by a number of state commissions: from original cost, there should be deducted any expenditures that were imprudently made.

[3] State ex rel. Southwestern Bell Telephone Company *vs.* Public Service Commission, 262 U. S. 276 (1923).

HOPE NATURAL GAS DOCTRINE. The Supreme Court, in a significant reversal of opinion in 1944, gave the regulatory authorities great latitude in determining the rate base. In a decision handed down in that year, the Court declared that:

> Rates which enable the company to operate successfully, to maintain its financial integrity, to attract capital, and to compensate its investors for the risks assumed certainly cannot be condemned as invalid, even though they might produce only a meager return on the so-called "fair value" rate base. It is the result reached not the method employed which is controlling.... If the total effect of the rate order cannot be said to be unjust and unreasonable, judicial inquiry under the Act is at an end....
>
> From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock.... By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.[4]

Under this decision each commission is at liberty to determine a rate base in accordance with either the original cost or the present value, or through some modification of these methods. In Ohio, the law requires the commission to use the cost of reproduction method; New York and Washington follow the original cost; Georgia considers all elements; and Massachusetts, though it follows prudent investment, interprets that term in its own unique fashion. The District of Columbia's commission in 1948 instituted still another novel idea, known as the Modified Sliding Scale Rate Plan. The electric utility company can earn 5.5 per cent on its rate base, plus one half of the earnings above that rate. The other half is placed in a fund, and if its earnings fall below 5.5 per cent, the deficiency is made up from the fund.

The Federal Power Commission, in its 1948 annual report, presented a table showing the methods followed by the states, territories, and the District of Columbia in determining the rate bases for electric and gas utilities. This is reproduced in Table 25.

Some states, Delaware and Florida, for example, are not included in this table, for commissions in these areas have no control over the rates of gas and electric utilities. In these states, and also in Texas for electrical utilities, rates are worked out directly with

[4] Federal Power Commission *vs.* Hope Natural Gas Company, 320 U. S. 602,603 (1944).

TABLE 25

METHOD OF RATE BASE DETERMINATION GENERALLY APPLIED, ELECTRIC AND GAS UTILITIES

(Statement reflects method given greatest weight or preference as a standard for measuring fair value and is not necessarily the method universally applied.)

STATE OR TERRITORY	METHOD APPLIED
Alabama	Prudent investment
Arizona	Prudent investment
Arkansas	Prudent investment
California	Reasonable historical cost *
Colorado	–
Connecticut	–
District of Columbia	Original cost
Georgia	All elements considered
Idaho	Original cost
Illinois	–
Indiana	–
Kansas	Fair value
Kentucky	–
Louisiana	Prudent investment
Maine	–
Maryland	Fair value 1923 plus net additions †
Massachusetts	Prudent investment
Michigan	Original cost
Missouri	Original cost
Montana	Fair value
Nevada	Prudent investment
New Hampshire	All elements considered
New Jersey	All elements considered
New Mexico	Original cost adjusted ‡
New York	Original cost
North Carolina	All elements considered
North Dakota	Prudent investment §
Ohio	Reproduction cost §
Oklahoma	Original cost
Oregon	Original cost
Pennsylvania	Fair value
Rhode Island	–
South Carolina	Fair value
Tennessee	Prudent investment
Texas	–
Utah	Prudent investment ‖
Vermont	–
Virginia	Fair value
Washington	Original cost
West Virginia	All elements considered
Wisconsin	Fair value
Wyoming	–
Hawaii	Prudent investment
Puerto Rico	Prudent investment ¶

* Land at present market value.
† Applied in rate case decided Dec. 30, 1946.
‡ 5 to 10 per cent is added for reproduction value.
§ Prescribed by statute.
‖ Commission regulation of gas utilities only.
¶ Original cost or reasonable historical cost.

municipalities. In Texas under the Home Rule Act, utilities in many jurisdictions receive generous treatment and are permitted better returns than in many other states. The table does not and cannot disclose all the facets of regulatory activities in each state. The various interpretations of original cost, for example, are not shown, and the method used in Connecticut is not noted. There, the commission, effective in 1941, ordered gas and electrical utilities to set up their accounts on the basis of the original cost to the person first devoting it to the public service. Despite this pronouncement, however, as late as 1951, no official rate base had been set up for the Connecticut Light and Power Company—one of the state's major utilities.

The table, furthermore, lists Michigan as an original cost area. In 1950, however, the state's commission, responding, it declared, to the views of the legislature and the state's Supreme Court, determined a "fair value" for the property of the Consumers Power Company. Michigan can, therefore, be considered a "fair value" state. Wisconsin, on the other hand, listed in the table as a "fair value" state, became in 1952 an "original cost" state. In that year, the commission declared in favor of an investment cost rate base as most efficient and convenient.

Each commission also selects its own rate of return, the method of deducting accrued depreciation, and the amount of working capital to be included in the rate base. The investor, therefore, must investigate the law and its judicial interpretation in each state. Under the Hope Natural Gas doctrine, the federal courts will not interfere unless the rates are confiscatory. And what may be confiscatory is a twilight zone problem. Commissions and companies have differed in the past, and will continue to differ in the future over the meaning of that term. A rate structure, reasonable in the opinion of a commission, might well be confiscatory in the opinion of the company. The courts, of course, resolve the issue.

Once a rate base and a rate of return has been ascertained, the maximum earning power of the utility can be computed. The utility can earn no more than the amount equal to the percentage rate of return multiplied by the rate base. If in any year it earns more, it keeps the excess, and if it earns less, it bears the loss. Such surplus or deficits, however, create the basis for subsequent rate changes.

RATE BASE IN RAILROAD INDUSTRY. The assignment of a separate rate base for each company is not practicable for the railroad industry. In view of the competition within the industry, it is impossible for one railroad to move business at higher prices than those

which prevail on another. The regulatory authority, the Interstate Commerce Commission, cannot build a rate structure, for instance, upon an individual valuation of the Norfolk and Western, the Virginian, or the Chesapeake and Ohio railways, which compete for traffic in the bituminous coal fields of Virginia and West Virginia. Obviously, a lower rate structure on any one of these roads would drive the business away from the other two. This was recognized by Congress in the Transportation Act of 1920, in laying down a definite rule of rate-making. "In the exercise of its power to prescribe just and reasonable rates," the law declared, "the Commission shall initiate, modify, establish or adjust such rates so that carriers . . . will, under honest, efficient and economical management and reasonable expenditures for maintenance of way, structure and equipment, earn an aggregate annual net railroad operating income equal, as nearly as may be, to a fair return upon the aggregate value of the railway property to such carriers held for and used in the service of transportation." The Commission in carrying out the legislative mandate divided railroad properties into separate geographical groups and prescribed rates so as to produce a fair return on the aggregate value of all the properties in each group.

This method of regulating railroad rates introduces an investment feature unique among the publicly regulated industries. A rate structure that produces earnings large enough to realize a reasonable return upon the aggregate value of all properties in one group may give one road a greater and another a smaller return. If the latter's return on the value of its own property is less than "fair," it cannot ask the Commission for a higher rate. Accordingly, within the pattern of a given rate structure, there may emerge financially strong and financially weak roads; some roads that earn a satisfactory return and some which do not. In the eastern district—the area north of the Potomac and east of a line drawn through Pittsburgh, Wheeling, and Buffalo, and south of New England, for example—the New York Central is weak and the Reading strong. The former, acting alone, cannot, however, raise its rates to improve its financial status. Competitive forces, recognized in the rate-making structure, make this remedy ineffective.

Investors, accordingly, are still confronted with a problem that has characterized the railroad industry throughout the greater part of its history. A rate structure, sufficiently fair for all the roads in a given rate-making district, may be sufficient for a particular road. The financially weak roads, furthermore, may change from time to time. The New York, Chicago and St. Louis, for instance, weak for many years in eastern territory, is now a strong road, while the

powerful Pennsylvania, for many years the symbol of financial solidity in the railroad family, is now a weak road. The New York, Chicago and St. Louis, like the Erie, operates largely outside of the busy metropolitan terminal areas, and it does not, accordingly, have expensive terminal services. Labor costs of the Pennsylvania and the New York Central, which do serve such terminals, are excessive, and until many terminal operations are mechanized and labor costs reduced, it might turn out that these roads will remain, relatively speaking, "weak sisters."

Profit margins, dollar profits, and payments to investors of publicly regulated industries respond, within the pattern of regulation, to economic forces that characterize all industries. Railroads and some utilities, such as street railways, are declining, and their relative selling prices are advancing. They report reduced earnings and reduced dividends. Others, like electricity and natural gas are expanding, and their relative selling prices are declining. They report increased earnings and increased dividends.

Public Regulation and Pioneering Utilities

Extensive public regulation of utilities, furthermore, has not seriously disturbed the normal speculative fluctuations characteristic of pioneering industries. The dynamic expansions in the early stages of growth, accompanied by errors of judgment in interpreting the expansion possibilities over short periods and the resulting financial losses, have characterized, for example, the airline industry. This industry started from scratch in the 1930's, and entered upon a career of rapid expansion in the 1940's. It repeated the same errors that featured the unregulated railroad, street railway, and electric light and power industries in their early expansion days.

A few companies in the airline industry avoided the creation of heavy debts. Eastern Airlines in the middle and late 1940's provided an analogy to the New York Central of the late 1860's and 1870's. Eastern Airlines reported better financial results than its competitors in the later period, just as the New York Central had a similar success in the earlier period. To the extent that the public agencies exerted any influence in guiding the expansion of the airline industry, a standard of judgment was reflected, about in line with that displayed by ordinary human beings, who guide the fortunes of an expanding industry.

It is, of course, arguable on theoretical grounds that a publicly regulated industry cannot realize the sort of profits reported by some of the dynamic nonregulated industries, such as Ford Motor, General

Motors, and du Pont. Emphasis, however, must be laid on the thought that investors normally do not participate in the earlier stages of industrial expansion. Even though extraordinary profits are reported for individual companies, the normal trend of profits in the pioneering stages of an industry is on the downward side. The *secular* trend of earnings of the expanding or declining public utility and nonpublic utility industry alike is not substantially different. There is, however, one distinction with regard to selling prices. In the local utility industries—street railway, gas, telephone, water, and electricity—the nature of the franchise contract precludes, in most cases, the possibility of price cutting wars. Intraindustrial price rivalry in these industries is virtually absent; and there is no competitive factor that compels price reductions to a point below unit costs or to a point below the level at which some semblance of reasonable profits emerge. In railroads, the I.C.C. has the authority to regulate minimum, as well as maximum, rates thus preventing the rate cutting wars which, for so many years, characterized that industry.

In the interstate utilities, such as natural gas pipe lines, airlines, and railroads, however, intraindustrial competition prevails over wide areas. In expanding industries, the former two, the dynamic forces of expansion compel public agency approval of competition. In airline transportation, a certificate of public convenience and necessity is granted by the Civil Aeronautics Board for the establishment of the new routes. By giving this agency power over competition, Congress "clearly intended to avoid the duplication of transportation facilities and services, the wasteful competitive practices, such as the opening of nonproductive routes, and other uneconomic results which characterized the development of other modes of transportation prior to the time of their governmental regulation." [5] The board shared the industry's optimism in the post-World War II period, and the forces of dynamic expansion defeated this congressional objective. A member of the regulatory agency declared in 1949 that the permits to operate competitive routes were granted at a time when:

> ...passenger travel promised to increase almost indefinitely and freight traffic, a new field, was to add tremendously to potential air-line traffic.
>
> Opportunities for growth, according to the statements and briefs of the carriers and others, including the Government, were only exceeded by the opportunities for profit. It is not surprising that much of this optimism became a part of the record in new route cases before the

[5] Duluth–Twin Cities Operation, I Civil Aeronautics Authority, 573, 1940.

> Board (i.e., Civil Aeronautics Board) and that the Board, necessarily confined to that record, found full justification for the institution of additional competition.[6]

The Board accordingly granted certificates leading to duplicate routes and services.

What the railroad industry accomplished in its nineteenth century expansion without public regulation, the airlines accomplished in the 1940's with the help of such regulation. A president of one of the leading airlines in 1949 registered the same complaints as did railroad men in the 1880's and 1890's: ". . . too much competition will thin the traffic to the point that no carrier can earn a living. When that point is reached, competition has become wasteful and should be discouraged. And we have reached that point already in many areas of the air transport map." [7] Financially weak and strong airline companies have emerged, and as in the unregulated railroad industry of the 1880's, the latter dominate the industry.

The postwar years have been featured by a rapid expansion of the natural gas pipe line industry. The chairman of the S.E.C., in November, 1948, referred to this program as one "in the most romantic trend of American enterprise." In this industry, also, certificates are granted in accordance with pressing needs. Competition prevails and duplication is increasing. Financial structures are crowded with debts, and investors use care in distinguishing the good from the bad.

Secular versus Short-Time Earnings.—While the *secular* trend of earnings in the public utility industries is thus determined by the same economic forces that prevail in the industrials, the *short-run* trend is disturbed and warped by varying regulatory influences. Lags between the movement of underlying economic forces and their recognition by regulatory agencies may, over short periods, lead to violent fluctuations of utility profits in one direction or another. Between 1922 and 1929, for example, a stabilized level of commodity prices, combined with a rapid expansion in demand, afforded the electric light and power industry the opportunity to increase its profits substantially. In support of this, a number of Supreme Court decisions compelled the regulating agencies to give adequate consideration to reproduction costs at current prices.

In the 1930's, the threat of mandatory dissolution of the holding companies, subsequently realized in legislative enactments, combined

[6] Airline Industry Investigation, Hearings before Committee on Interstate and Foreign Commerce, Senate, 81st Congress, 1st Session, p. 53, 1949.
[7] *Ibid.*, p. 744.

with other forces to produce reductions in earnings and in the financial structures of holding and of operating utility companies. Probably the market prices of the securities were more seriously affected than the earnings. In the future, with regulatory tools sharpened by the revolutionary pronouncement in 1944 of the Supreme Court in the Hope Natural Gas case, there are likely to be lags between the increased costs of coal, wages, and supplies and the rise in selling prices. A typical lag occurred in 1951. In the face of an expansion in plant capacity and an increase in rates, the rate of return on net electric account by the summer of that year declined to about 6 per cent, after having held rather steadily for a number of years at about 6.6 per cent. Indeed, after applying the higher corporate tax rate of 52 per cent for an entire year (instead of a part of the 1951 year to which the higher tax was applicable), the rate of return was probably closer to 5¾ per cent.

These temporary lags are of serious concern to the investor and are particularly important in the equity market. A short-run decline in earnings may depress stock prices and tend to interfere with the efforts of conservative managements to maintain well-balanced financial structures. If, however, the utility industry is expanding, the selling prices are usually relatively low. A price increase does not, therefore, lead to reduced sales, as it does in a declining industry, such as railroads and street railways. A rate increase of the magnitude necessary to bring the electric utility's rate of return to the higher level prevailing before 1951, for example, would still leave rates below a reasonable level suggested by the rise in commodity prices since 1940.

The earnings of utilities and of nonutilities alike are determined by demand, relative changes in costs and selling prices, and by the character of the management of individual companies. Within this pattern, the long-term profit trends of the publicly regulated industries are warped from time to time by legislation and by regulatory agencies. It is important, nevertheless, that the investor stress the primary importance of the economic forces that normally determine secular earnings trends. Commission approval of increased passenger fares for a street railway company, for example, cannot usually improve earnings in that declining industry.

In the railroad industry, subject to loose federal regulation from 1887 to 1906, but which has been more stringent since that time, regulatory supervision did not seriously modify the favorable earnings trend that fundamental forces suggested. Between 1906 and 1920, the I.C.C. was clothed with an increasing number of powers, almost entirely negative in character. It was considered that the

industry was excessively profitable. The railroads were prohibited from charging unreasonable and discriminatory rates. They were forbidden to give rebates. They were allowed to charge only reasonable rates. Then in 1910 the existing rate structure was frozen and every proposed rate change was subject to suspension. During this prolonged period from 1887 to 1920, earnings and financial values responded to the secular rise in demand. Well-managed companies continued to report good earnings and dividends, characteristic of an expanding industry.

The Transportation Act of 1920 was based upon a new philosophy. It sought to preserve the industry's earning power in order to assure to the country adequate transportation service at reasonable rates. This favorable legislative decree stimulated investment confidence in the industry. The railroads found an excellent market for their securities and were thus able in the post-World War I period to re-equip and modernize their properties. It appeared that the Commission, acting under the congressional mandate, would permit earnings of between 5.5 and 6 per cent of the value of the property, and, thereafter, to stabilize the earnings at that level. In the decade of prosperity following the enactment of the law, the industry, however, lost its expansive power, and decline replaced growth; the increase in ton-mile traffic, characteristic of almost a century of growth, was reversed for the first time. The investor who bought securities in response to a favorable regulatory policy and an unfavorable set of economic fundamentals committed a cardinal investment error. The heavy burden of fixed charges, due in part to the investment boom of the 1920's, and the decline of traffic in the 1930's produced the greatest volume of investment losses in the history of the industry.

Effect of Regulation on Financial Structures.—While public regulation has not significantly disturbed the *trend* of profits in the regulated industries, it has exerted an influence on financial structures. The railroad and the public utilities have borrowed more than the nonregulated industries, a practice that is, to a considerable degree, the effect of the utility concept. On the one hand, the industry is *apparently* a legally protected monopoly. Since competition is eliminated, it follows that its earning power cannot be assailed by competitive influences. The investor, hence, is led to conclude that the industry has an established earning power freed of competitive attack. Frequently, the investor's mental attitude goes so far as to conclude that, in some mysterious fashion, the public agency "guarantees" a return to the investor.

On the other hand, this return is restricted. In return for a monopoly, the utility industry can earn only a limited sum, normally measured by a fair return on the cost or value of the property. A dynamic industry, utility or nonutility, is compelled to expand its property in order to provide adequate service; capital must be attracted for investment in plant facilities. With the minimum earning power made possible through a local monopoly, and with restrictions placed upon a rapid increase in earnings, regardless of the anticipated expansion in demand, the utility industry is both stimulated and compelled to resort to the bond market. It is stimulated by demands from conservative investors willing to lend funds to an industry whose earning power is protected by an intraindustrial monopoly; it is compelled to do so by reason of the absence of those extraordinary profits that might prevail in the absence of public regulation, profits that are so generally used to finance corporate needs.

Regulated industries, therefore, are likely to borrow extensively. Normally the railroad, telephone, street railway, electric light and power, water, or gas company has a relatively large debt. There are few—very few—companies in the regulated industries that have been able to prosper without the issue of bonds. Only rarely can they parallel the financial records of successful industrial enterprises that have few or no bonds outstanding. It follows, as a matter of course, that the less conservative managements in the utility industries have resorted to large bond issues.

Heavy borrowing by these industries is due only in part to their regulated status. In the long period of railroad growth preceding the days of comprehensive public regulation, the railroad industry had already established noteworthy precedents. As early as 1857, railroads were embarrassed by their inability to meet the interest and principal on their outstanding bonds, and in the 1870's, a rich crop of defaults set up a pattern that has been followed by a substantial segment of the industry ever since. The experience with these defaults involving financial reorganizations, receiverships, and bankruptcies has produced a formidable array of financial knowledge that has filled many pages of textbooks on corporation finance and investments and has required the services of a multitude of legal, accounting, and miscellaneous experts. This experience has also led to the emergence of an intricate and misleading terminology in the field of corporate bonds. This conglomerate assortment of mortgage liens in the railroad, and in some of the other regulated industries, have few counterparts in American industry. It is probable that this terminology will soon outlive its necessity, even in the publicly regulated industries.

It is significant that the adverse effects arising from an excessive debt structure in a declining industry have not been retarded by public regulation. The powers given to the I.C.C. in 1920 to regulate the issue of securities did not prevent excessive borrowing; nor did state regulation save the declining street railway companies from the baneful effects of improvident financing.

Public regulation, it must be concluded, has exerted an unfavorable effect in increasing corporate debts. It has lent an air of presumed stability and security of principal that does not necessarily, by virtue of the publicly regulated character of railroads and utilities, actually exist. Regulation does not lift those industries out of the economic and investment pattern set by the forces of competitive obsolescence. It is questionable whether public regulation increases the favorable trend of earnings of an expanding industry, while on the other hand, it is clear that it does not alter the unfavorable earnings trend in a declining industry.

In the prosperous electric light and power industry some commissions have accepted as an optimum standard a financial structure approaching a 50 per cent debt and 50 per cent stock ratio. Such a relationship can well be carried by that industry and other prosperous lines, such as natural gas and telephone. A company so capitalized in a profitable industry can maintain its finances and the investment value of its securities reasonably well in a period of depression; better than another company in the same industry with a debt structure of 75 or 80 per cent. The same ratio, however, cannot be safely used in the declining street railway industry.

Other Phases of Railroad and Utility Securities.—Numerous other facets of the utility and railroad industries are involved in the study of their securities. Operating efficiencies, volume of business in relationship to plant capacities, the expansion of capacities, the level of selling prices, the relationships between maintenance, depreciation, and fixed charges to gross revenue and net income, among many others, require the attention of the investor. These problems, however, are no different in the regulated than in the nonregulated industries. The railroad business has its ton-miles; the electric light and power its kilowatt hours; the gas industry its thousands of cubic feet; the textile industry its spindle hours; the sugar industry its bags of sugar; and the chemical industry its wide assortment of pounds, tons, and other complicated measurements. Investment analysis gains little by efforts to distinguish the publicly regulated industries from others on the score of any unique method of analysis. From the investor's point of view, public regulation in the railroad

and utility industries introduces differences in the methods of determining selling prices. It also minimizes intraindustrial competition and affects the nature of the financial structure. In other respects, the analysis of the investment value of their securities proceeds along the same lines as those that characterize the securities of other industries.

These other phases are examined in various chapters in this volume.

QUESTIONS AND PROBLEMS

1. On what constitutional principles can a rate structure of a utility or a railroad be held confiscatory?
2. The New York, Susquehanna & Western Railroad, operating in Pennsylvania and New York, was in bankruptcy throughout the 1940's. Its bonds sold at nominal prices. Though general business conditions were prosperous, the railroad was unable to realize a return upon its rate base. Why did not this road apply to the Interstate Commerce Commission for an increase of rates?
3. Under favoring conditions of expanding demand, explain why a railroad can earn more profits for the common stockholder by "trading on the equity" than can a street railway or a power and light company.
4. The I.C.C. states that 5.5 per cent is a fair return upon a railroad's rate base. The Chesapeake and Ohio Railroad has, for a number of years, earned more than 7 per cent on its railroad operations. Explain why the Commission does not reduce the rates on this road. Under what conditions can the Commission reduce the rates of this railroad?
5. A public utility is earning 7 per cent upon its rate base, which the company and the Commission both agree is fair. The company, however, is in bankruptcy. Can this be possible? Explain.

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Chapter 15

MANAGEMENT

Complexity of the Managerial Problem.—The policies examined in the previous chapters are applied by corporate officers and directors, who are the management and who are responsible for financial success. Successful management as an investment factor is perhaps the most complex and baffling in the field of investment values. No general rule of universal application can be prescribed. Corporate policies that succeed for one firm fail for another. A program of specialization in one product or diversification into many may serve equally as a basis for managerial success or failure. Some companies have for many years prospered by exploiting the sale of one product, while other equally successful enterprises credit their success to the development of many. In distribution and merchandising, Federated Department and May Department stores have been successful in selling goods in all price ranges, primarily on a service basis, while Sears, Roebuck and Montgomery Ward have also been successful in selling goods mainly on a price appeal basis. In manufacturing and extractive industries, some concerns have succeeded by fully integrating, others by partially integrating, and still others by not integrating at all. Examples of such varying policies abound in a large variety of industries.

Furthermore, a given corporate policy that will succeed at one time might fail at another. Corporations, which have long continued to expand, suddenly find that this policy is no longer profitable. It is doubtless true that ample reasons may be adduced to explain the phenomena in each particular case, though it is improbable that any particular explanation is sufficiently comprehensive to embrace all or even a majority of the recorded cases.

The great expansions of the New York Central and the Pennsylvania railroads in the 1860's and 1870's were followed by equally successful expansions in succeeding decades. The further growth of these two systems in the third decade of the twentieth century, however, proved to be ill-fated and was responsible, in part at least, for the financial disasters of the following decade. The continuous

growth of numerous leading concerns in such industries as lumber, woolen, cotton, silk, and leather, for example, proved to be profitable prior to the 1920's and unprofitable thereafter. Successful merchandising policies that were enthusiastically received in investment circles at one time were bitterly condemned at another. The amazing real estate operations of Childs & Company in the glamorous 1920's were replaced by devastating losses in the gloomy 1930's, and the management, which had been considered highly successful, was indiscriminately blamed for the losses inflicted upon its creditors and stockholders only a few years later.

Successful management cannot thus be identified with any one or even a relatively few corporate policies. Many intangible factors are involved, and much in the field of managerial judgment lies beyond the possibilities of reasoned analysis. Hidden sources of personal genius are frequently responsible for notable results, just as they are in literary, artistic, legal, and scientific activities. Managerial successes flow from different qualities. Tact, sales ability, and ability to effect economies and to handle labor or government problems may be a deciding factor. The qualities leading to managerial successes change with the times. Hard-boiled labor policies successfully followed by Frick and Carnegie in the nineteenth century, for example, are now hopelessly out of date.

The investor looks forward to the purchase of securities of a well-managed company, and normally a well-managed company is one that has realized profits, paid dividends, and maintained its financial strength over a long period, including one or more business depressions. Though the investor may not be interested in locating the reasons for managerial success as long as it continues to enrich him, he is, nevertheless, driven to the necessity of locating the cause, if he is to avoid those losses that may follow the disappearance of that successful management.

Success in Financial Groups

It is, therefore, necessary to endeavor to present at least some generalizations that, though they may not be scientific in their explanation of managerial success or failure, will, nevertheless, be of helpful guidance. One generalization emerges from the record of experience. A corporation or group of corporations may be successful over many years, while another company or group in the same industry may be unsuccessful. Sometimes the underlying reason is deeply rooted in corporate history. Fundamental mistakes, usually financial in character, so affect the strength of the company as to

make its rehabilitation difficult. The long history of the railroad industry affords many instructive case studies. The group of Gould railroads produced heavy losses to bond and stockholders. Such properties as the Missouri Pacific, International Great Northern, Denver & Rio Grande, Wabash, and Erie have, within the period from 1875 to 1935, gone from one court to another. Default, capital readjustment, corporate reorganization, scaling of interest charges, and assessments on equity securities have characterized these railroads.

The Vanderbilt roads, on the other hand, at least to 1930, had been almost uniformly successful. Prior to the 1930's, such roads as the New York Central, Michigan Central, Pittsburgh and Lake Erie, Lake Shore and Michigan Southern, and Chicago and Northwestern had never passed their interest and some of them, prior to 1931, had recorded continuous dividend records for half a century.

In electrical equipment, General Electric has enjoyed a long and successful career. After a short financial embarrassment at its very inception, the company has had no financial reverses. Its leading competitor, Westinghouse Electric, encountered two reversals before its affairs were placed on a sound earnings basis. In the chemical field, du Pont has long had an excellent record for superior management. A corporation with du Pont management, other things being equal, is presumed to be on the road to financial success. The company is a leader in heavy chemicals, plastics, cellophane, rayon and nylon; the latter, a product that has all but displaced the well-established silk textile, hallowed by many centuries of use. The du Pont Company also owns a substantial block of General Motors.

Du Pont's acquisition of General Motors stock in 1920 proved to be one of the outstanding investments in the decade of the 1920's. Late in 1928, the du Pont interests secured a substantial block of United States Rubber stock. This enterprise then had a heavy bonded debt, an inadequate research department, and an overweighted, obsolete inventory. Reserves for the adjustment of property values were set up and many high-cost factories closed. By 1937, the company was described as probably the outstanding example of efficiency in the rubber industry, in regard to manufacturing, distribution, and inventory and credit control. Compared with annual losses from 1929 to 1934, inclusive, the company reported substantial profits in 1935 and 1936. Since then its earnings have increased, and in the post-World War II period, it shared the rising fortunes of other members of the rubber and tire industry. Its credit standing was revealed by its ability to sell bonds in 1946 and 1947 on a yield basis of about 3 per cent.

In synthetic building materials, investors have long followed the leadership of Sewell L. Avery. United States Gypsum under his management has built up a creditable record of continuous payments on preferred and common stock, and the company in accordance with the best traditions of an expanding industry has, for many years, had no funded debt. His elevation in the 1930's to the presidency of Montgomery Ward was followed by an increase in sales, net income, and dividends paid.

There are many individual leaders in business whom the investor follows, confident of financial success. These leaders may be bankers: such as Charles Hayden Stone, the Lehman brothers, James Stillman, and J. P. Morgan, though men of this type have, in recent years, lost much of their influence and prestige. Sometimes they are businessmen connected with a successful individual enterprise, such as James J. Hill, Thomas J. Watson, Julius Rosenwald, Walter Chrysler, Marshall Field, E. H. Harriman, and John D. Rockefeller. Again they may be men whose activities embrace a considerable group of companies within a given industry or closely allied industries. Sidney Z. Mitchell, Andrew Mellon, the du Ponts, and Charles M. Schwab are among those leaders of numerous corporations who succeeded for many years in enlisting the confidence of investors.

Success Usually in Expanding Industries.—It is significant to record that these leaders were successful only when they sponsored companies in expanding industries. This leads to the instructive conclusion that the successful (that is to say, the profitable and dividend-paying) management normally prevails in the destinies of companies operating within an expanding industry. It does not follow that every company in an expanding industry is a success, but negatively, it does follow that such successes normally do not exist within a declining, unprofitable industry. A business leader who scores success in a declining industry, usually in the early stages of such a decline, is soon overwhelmed with failures and heavy losses. Such a tragedy involved the careers of the Van Sweringens in the railroad industry, and many other important, though less publicized, notables in the declining industries of the 1920's and 1930's.

MANAGEMENT IN EARLY STAGES OF EXPANSION. Though managerial ability reaches its greatest rewards in the expanding industries, investors recognize that heavy losses frequently characterize the growth of such industries. The earliest stage in the growth of an industry, paradoxical as it may seem, is characterized by both heavy profits and heavy losses. Despite many successes in early pioneering,

the presumption is strong against the probabilities of investment profit. Normally, the rapid increase in sales in the early stages of an expanding industry is accompanied by investment losses, though frequently there are also spectacular profits. (See Chapter 4.)

Qualities of Successful Managements.—In the midst of the competitive struggles in the pioneering stage, some of the managements emerge as victors. Most of the successes come in periods following price disturbances, destructive of reasonable profits even to the low-cost companies. There are some exceptions, notably automobiles, the publicly regulated local utilities, and some industries selling such price-fixed articles as vaseline, Coca Cola, and chewing gum.

The successful candidates possess outstanding advantages over the vanquished. These, however, are not discernible until the conflict is almost over. The managerial skills that enable a small group of companies to succeed where a much larger number fail cannot often be correctly outlined even in retrospect. One may describe managerial virtues solely in terms of ability to reduce costs, to introduce the principles of scientific management, to improve labor relations, to enter into affiliations of the kind necessary to secure a greater share of the market, to avoid labor conflicts, or to expand soundly and to finance prudently. Frequently, many of those qualities may be possessed by those who lose in the competitive conflicts in the pioneering stages. In the middle 1920's. Hudson Motor, for example, though outstanding for efficiency and low cost, never succeeded in elevating its securities to an investment status. Pierce Arrow was credited with an excellent management and a superior product; yet its properties were liquidated in the 1930's. Auburn Motor, among its other advantages, had the active support of a distinguished financial leader in Frank A. Vanderlip of the National City Bank of New York, yet this company too, disappeared. One of the two outstanding successes in automobile industry in the 1920's was the Chrysler Corporation, the successor of the almost defunct Maxwell Motor Car. Walter Chrysler turned out to be a business genius, but this was not and could not have been known to investors interested in automobile securities before his demonstrated success in that industry.

Or, take an example from the airline business in the 1940's. Eddie Rickenbacker then had and still had in 1952 an enviable position as executive of Eastern Airlines. He hesitated while his competitors marched boldly onward, and his company gloried in profits while the others told a doleful tale of losses. (See page 229.)

The business conquerors in the competitive struggles of the pioneering stage of an industry are usually men with bold imagination, capable of conceiving a broad strategy of growth and expansion. They have the will for power, the drive for leadership, and the urge for expansion. They are not necessarily the best financiers, the best cost-cutters, nor the best administrators. It is of much more than passing interest to observe the frequent criticism directed against the "poor" management of successful companies. As they emerge from the pioneer stage, they may be extravagant, they may have more personnel than required, their labor productivity may be low. These tactical defects will later be remedied, but the successful management in the pioneering stage must have conceived a sound strategy, and that strategy is usually expressed in the ability to capture a reasonably large share of a growing market. They expand either by increasing their own productive capacities or by acquiring their competitors'. In many cases they do both. There thus emerges a United States Steel, a General Motors or a Chrysler, a National Biscuit, a Corn Products Refining, a Procter & Gamble or a Colgate-Palmolive-Peet.

Major Differences Between Stages of Growth

The major distinguishing feature of the pioneering stage in which slight investment opportunity is available, as against the seasoned investment stage, lies largely in the reduction of the number of competitors in the latter. This is not to say that competition disappears or even that it is reduced. It may, in fact, be strengthened. The form of business rivalry, however, changes radically. Because relatively few units are in control of the market, it follows, though not without many exceptions, that managements are more alert to the necessity for protecting existing earning power. The race for competitive success is transformed from price cutting into the arena of new products, the development of business affiliations, and the performance of better service. When this stage is reached, selling prices are reduced in accordance with the rising volume and reduced unit costs. If the technology of the industry has been well standardized and if, accordingly, substantial reductions in unit costs through new inventions cannot materialize, then selling prices are likely to decline slowly. It is under these conditions that the phenomenon of "sticky" prices—prices that are inelastic in relationship to rising and falling volume and to the general price level—become so important. It may, again, be noticed that this phenomenon applies equally to regulated and unregulated industries.

The emergence of a limited number of corporations in a given industry does not insure their investment success. But it does mean that the choice of securities available to the investor within that industry is limited to the few survivors. Before one or more of these can become outstanding successes, before their securities can become available for investment consideration, they must establish a strong financial position. Paradoxical though it may seem, their very success in their expansion program may have weakened their finances. Indeed, some of the most significant corporate failures have been due to the effort to preempt an excessive proportion of the available business in an expanding industry too soon. Excessive expansion may build up an overhead that cannot immediately be absorbed from the rise in sales, even though that overhead may be essential to the continuation of the business.

Corporate expansion is usually carried out in prosperity, when investor confidence is then high. In the early stages of a boom, moreover, money rates are low. An increase in rates in the later stages of the business cycle neither seriously impairs the company's ability to sell securities nor the investor's desire to purchase them. The organization and expansion of the dominant companies in an industry normally occur in a relatively few years of cyclical business expansion.

A wave of industrial promotions took place in the late 1890's and in the early years of the twentieth century. Another cycle, embracing industrials and the electric light and power industry, took place in the 1920's, and still another for the industrials in the 1940's. In most cases, the financial stamina of the dominant companies later had to be tested. The securities of the United States Steel shortly after its formation early in 1901 fell to relatively low price levels. American Ice, Diamond Match, Westinghouse Electric, Bethlehem Steel, Amalgamated Copper (predecessor of Anaconda Copper), Norfolk and Western—these and many others whose securities are now of investment value did not immediately establish themselves on a sound financial footing. Dividends were passed or reduced, losses were taken, and investors kept their fingers crossed, waiting with hope or fear for success or failure.

When an industry once leaves its pioneering stage, when relatively few concerns succeed in acquiring control of the industry, a different kind of managerial talent is the key to success. The management then must be able to reduce costs, to improve quality, to increase the standard of service, and to enhance labor productivity. Functional specialists become more important, though they do not replace the sound judgment and the ripe wisdom of the nonspecialist mind.

Above all this, however, the management must establish and maintain a strong financial position. Reduction or elimination of debt, an ample supply of cash or of such assets as government bonds or other quickly marketable securities, and a minimum of current liabilities constitute the ideal. This cannot be done overnight. Even the genius of Rockefeller could not overcome the necessity of borrowing heavily, early in his career, to attain a position of industrial dominance. Thereafter, Standard Oil's debts were reduced, and cash and working capital were raised to desirable levels. A supply of cash and an avoidance of heavy debts enable a company to attract more capital in a boom and to protect its security ratings in a depression. It is not forced to reduce the standard of maintenance, to eliminate research, to sell its goods at unattractive levels because of cash pressures, nor to engage generally in unsound financial and business policies merely to pay unearned interest or to replenish a gravely endangered working capital.

Varying Successful Policies.—After an industry completes its pioneering stage and only a few companies survive, investment consideration of the securities of these companies is in order. It is then that the conventional measures of corporate advantages can be applied. Differential advantages, superior financial structures, conservative accounting methods may then be utilized as guides to investment safety. Broad differences in managerial policies emerge, and there is no set of rules to guide the investor in determining whether one policy or another is likely to succeed. Indeed, frequently exactly opposite policies will succeed.

An illustration of the successful pursuit of varying policies is furnished by the retail food distribution companies. Self-service food chains featuring low-cost and low-priced service have swept the country. American Stores, Safeway, Great Atlantic & Pacific Tea, and Kroger Grocery represent the leaders in this business whose securities have achieved investment merit.

Jewel Tea (another food chain) has been successful in following an unique merchandising policy of its own. This concern has increased its sales through the use of a combination of stores and truck routes. In its retail stores in the Chicago area, it has been able, through careful research and close analysis of consumer patterns, to increase its sales per square foot of store space. The company employs trained personnel known as "advance salesmen" to obtain new customers by house to house contact. These advance salesmen neither deliver merchandise nor collect money. They offer pre-

miums, usually household equipment. The customer pays for the premium from future purchases. A 5-cent credit, for example, is given with the purchase of two pounds of the company's coffee, and a 25-cent credit is given with the purchase of Jewel Tea vitamins, which retail for one dollar. The management believes that a salary plus commission basis and the premiums to the housewife are powerful incentives in the promotion of increased sales.

Similar differences prevail in other fields. Though theoretically there are broad distinctions to be drawn between companies that have modernized and those that have not, between those that have mechanized their operations and those that have not, between those within a given industry that have and have not adopted research organizations as a settled policy, it must be recalled that such broad differences between successful companies, whose securities are suitable for investment, are not usual. Modernization, research, and cost reductions are essential for competitive survival. The successful companies in expanding industries *eventually* adopt these progressive policies.

MANAGERIAL ERRORS. In every industry there develop, nevertheless, high-cost and relatively inefficient concerns which lose out in the competitive race. A managerial policy, sound under one set of conditions, may become unsound under another set. A personnel, vigorous and progressive in the beginning, may stagnate for any number of reasons: the perpetuation of family control, accumulation of obsolete or obsolescent plant and machinery, an abnormally rapid expansion in plant and capacity, high-priced labor and materials. Here the investment analyst has no guidance from set rules. Eternal vigilance, insistent observation, and continuous and careful inquiry are the price of investment safety. They are necessary to enable the investor to locate managerial errors.

The number and variety of managerial errors that can be made are almost infinite. They are as widespread in large as in smaller companies and are just as likely to disturb the earnings of the dominant concern whose securities have investment standing as they are of the small and struggling fledglings. Perhaps the most difficult problem of management comes from a slavish adherence to a long-continued, successful policy. The most dramatic illustration is the refusal of Henry Ford in the middle 1920's to change his one-model, standardized automobile (his "tin Lizzie"). "Customers can have any color they want so long as it is black" was the statement accredited to the Ford management. The public taste changed rapidly

in those prosperous years, and adherence to this policy damaged the fortunes of Ford Motor.

A similar, ill-fated insistence upon a set policy characterized Standard Brands, a large, packaged food company. That enterprise was formed in 1929 as a merger of a number of successful food companies, including Chase & Sanborn and Fleischmann's Yeast. The latter was the largest producer of yeast, which contributed more than any other one product to the consolidated company's sales and earnings.

The yeast business was profitable to the predecessor Fleischmann company. For instance, in 1925, the last year under independent operation, the company realized a profit margin of 31 per cent of its net sales. Such a margin invited competition, but the company, for some years, did little in the way of price reductions to discourage new competition. The repeal of prohibition in 1933 led to a reduction in the demand for yeast used formerly for "home brew," and a reduction in home baking led to reductions in the profit margin, since packaged yeast sold at a better price than that sold in bulk to bakers. The management of this enterprise did little to diversify its business. Its profit margin and earnings declined and in the late 1930's a new management took over.

Investors must be forever on the alert to avoid the danger of a formerly successful management that, as time goes on, begins to live on its past. Such a management loses its aggressiveness and is inclined to assume that its customers will continue to buy, because they have always bought from the same source. A particularly acute danger may arise from managements whose sales for many years have been based upon a trademark reputation. The Cluett-Peabody Company (maker of Arrow shirts) is an illustration. In 1923 and 1926, at a time when national income was rising, new competition was aggressively exploiting the market. The company's earnings dropped sharply in 1923 and 1924 and, from then on, did not increase.

Another illustration of this inflexibility of management is afforded by the Marshall Field department store. Marshall Field, early in the growth of his store in the 1870's, believed that the wholesale division was the core of his business, and between 1910 and 1920, this branch enjoyed prosperity. The country's rapid urbanization, the increase in the speed of travel, and the growth of retail chains with accompanying increase in mass retail buying from manufacturers, however, reduced the profits of the wholesale line in the 1920's. The Field management, nevertheless, continued the whole-

sale trade. Then followed a drastic managerial reorganization, and the new management eliminated a large part of this business.[1]

An instructive lesson in comparative managerial policies is afforded by the contrast of this Field policy with the bold imaginative course pursued by Julius Rosenwald of Sears, Roebuck. Both the wholesale business of Marshall Field and the mail-order trade of Sears, Roebuck were adversely affected by the same forces. While Field's management stood firm and persisted in the losing venture, Rosenwald expanded into the retail department store field. That policy even though initiated in a period of high prices, proved to be the company's salvation. In the 20 years following, Sears, Roebuck prospered to a point that has enabled it to retain a position of premier leadership in retail merchandising. The policy has also been gratifying to its stockholders.

In more recent years, other illustrations of managerial stagnation have appeared. Parke-Davis, whose securities have long had a good investment rating and whose stock has long produced a relatively low return, displayed a slow increase in sales and earnings from 1936 to 1947. In relation to national income and to the dynamic rise of such competitors as Sharpe and Dohme, Pfizer, Abbott Laboratories, and Merck, Parke-Davis lagged seriously. In these years of revolutionary developments in the drug industry, this company did little prior to 1947 in replacing its older products with more modern items.

Illustrations of good and bad managements abound. Though they are normal aspects of corporate life and essential ingredients of investment analysis, they cannot be helpfully and conveniently classified. Unusual ability approaching genius may at any time (usually unexpected) break out in the affairs of a particular corporation, but such genius cannot be anticipated nor relied upon before its appearance. A Chrysler, a Rosenwald, a Harriman are in the nature of a windfall to the investor. Such persons have earned billions of dollars for stockholders and bondholders.

Even the appearance of able leadership will not, under all conditions, establish and sustain financial strength and earning power. The investor in the field of management must assay the difficult task of judging the ability of a management, successful as it may have been, in the light of changing conditions; for, as has already been seen, a quality of management successful in expansion may be unsuccessful in contraction. Or, a management successful in rehabilitation may be unsuccessful in administration and operation.

[1] John W. Tebbel, *The Marshall Fields, a Study in Wealth* (New York: E. P. Dutton & Co., Inc., 1947), pp. 145-47.

A management successful in a rising inventory market may be a failure in a declining market.

Debt and Liquidity.—Perhaps one rule for investor guidance is that of freedom from debt or the maintenance of a small debt. Such a rule is particularly important in a period of rapid expansion in plant capacity. Regardless of the ultimate merits of a given program, an immediate danger to the existing stockholders comes from the financing of a program through the excessive use of borrowed funds. Even a small debt sometimes results in the transfer of control from stockholders who had large sums invested in a business to creditors who had only a small commitment. If, however, the expansion program is financed by the sale of stock or out of earnings, control can rarely be captured by outsiders. Pending the increase in demand to a point that will utilize increased capacity, dividends may be passed and the earnings used to finance company needs. The extensive debt increases, in the post-World War II years, by corporations that had not previously borrowed should, therefore, be viewed as a dangerous policy. Fortunately, most of the dominant companies whose securities have an investment rating, have financed their needs largely out of earnings and partly out of the proceeds of stock issues. Liquidity, involving the possession of an ample supply of cash, is an important instrument that enables the dominant companies to retain and improve their competitive position.

Managerial ability must eventually be tested by success in increasing earnings and dividends and in preserving financial strength. Investors in judging such ability must necessarily look to the long records in these fields, for such records lead to investor confidence and create a tradition. An investor many years ago asked his Philadelphia banker, Anthony J. Drexel, about the Pennsylvania Railroad. He received the following advice: "Pennsylvania Railroad bonds are good. Pennsylvania stock is good. Pennsylvania Railroad is capitalized integrity." [2] Excellent advice. Even more excellent would be the following: Now that capitalized integrity has been overcome by superior forces, sell your securities. And among the superior forces, the transformation of the industry from growth to decline is primary. An able management must, if it can, shift to an expanding industry. If the industry is such that it cannot shift, then the investor must do the shifting.

[2] *Wall Street Journal*, January 29, 1925.

QUESTIONS AND PROBLEMS

1. A banker suggests that the management of department store A has been uniformly successful by concentrating its business in the downtown business section of city B. Hence, its securities are desirable investments. Discuss the validity of this claim from the standpoint of management as an investment factor.
2. You are told that the management of Company A in the prosperous ethical drug industry is highly efficient, that its production and administration costs are low, and that, therefore, its securities are good investments. Would you accept this conclusion as a sole test of management ability? What further question would you raise with regard to the caliber of the management from the investor's point of view?
3. In the television industry, a limited number of major concerns do most of the business. There are, however, more than 50 smaller concerns. There remains a large potential market to assure future growth of the industry. In this stage of the growth of this industry, how would you look upon management as a factor in the analysis preceding the purchase of securities?
4. Compare the relative managerial successes of Sears, Roebuck and Marshall Field.
5. Explain the importance of liquidity and small debts in managerial policy.

READINGS

See Chapter 16.

Chapter 16

EXPANSION AND MANAGERIAL CHANGES

Necessity of Expansion

In a dynamic economy characterized by rapid rise in demand and by many growing industries, the expansion of plant capacity is indispensable. The expansion, however, is not regular from year to year. In the early stages of the growth, demand expands steadily even in depression years. But in the later stages, the expansion in demand dwindles. And in depression, expanding industries in durable goods may operate at exceptionally low levels, as for example, aluminum, nickel, Diesel engines, and high-alloy steels in the depression of the 1930's.

These declines, as tragic as they appear to be in years of poor business, are temporary. As business recovers, the demand for the products and services of an expanding industry increase at a pace exceeding that of industrial production. In periods of expansion, sales and profits rise, and a point is soon reached at which the industry is confronted with a hard choice. To meet the ever-pressing impact of demand upon a limited capacity, the industry is compelled to invest large sums in plant facilities and machinery; in the opening of coal mines; in the drilling of oil wells; in the construction of new pipe lines; and so on, in an almost infinite variety of forms. The demand for such expansion, furthermore, normally arises when high prices prevail. Theoretically, the plant expansion should take place in a period of depression, when the costs of wages, materials, and supplies are lower.

Businessmen, however, being just average human beings, are not prophets. They are naturally reluctant to carry out expansion programs in a period of depression, when business is quiet and profits are low or nonexistent. They rarely plan to spend funds at a time when current expenses are barely covered by revenues. Some business geniuses have, nevertheless, expanded at such times. Harriman, Carnegie, Frick and Rockefeller are some of the notable illustrations.

Large-Scale Plant Expansion.—It is difficult, furthermore, to measure the relationship between the growing demand for the goods and services of an industry and the size of the plant additions required to meet the demand. Additions to plant capacity cannot be made on an installment basis. They can neither be built nor financed economically in driblets. In order to secure optimum unit costs, it is indispensable that relatively large plants be added. In each industry and in the pattern of an existing technology, there is a minimum-sized plant, requiring a minimum investment. To build a plant or to provide machinery for this plant on a scale lower than this standard requires would increase unit costs and make the plant uneconomical for competitive purposes. For example, a metropolitan steam-generating plant capable of efficient operation may have a capacity of about 50,000 kilowatts. It would promote high costs and render a public disservice to build a succession of 10 plants, each with a capacity of 5,000 kilowatts. The management frequently has no choice. It must necessarily be bold and imaginative. It must build a larger plant even though for some period of time only a small fraction of its capacity is likely to be utilized. Furthermore, competition usually compels an industry to expand its plant, even though business judgment might dictate otherwise.

Raw Material and Extractive Industries.—Plant expansion in the raw material and extractive industries raise difficult problems. New oil wells and metal ore mines cannot be located, explored, and tested in such a way as to coincide with the rising trend of demand. No existing technology can suddenly call forth such raw materials or natural resources at the command of any human agency. Machinery, land, and labor cannot suddenly be united to locate a new coal or iron ore mine. It is essential that continuous plans for the increase in capacity in these industries be adopted and that the heavy investments required to locate and exploit such reserves be made, regardless, to a large degree, of current changes in demand. The risk of unproductive investment must be assumed.

In oil and natural gas, for example, a search for new wells, spurred on as it is from time to time by high profit margins and rising trends of demand, goes on almost continuously. It follows that heavy increases in capacity may occur in periods of slow demand and that supplies at such times may exceed demand. Large reserves, even though they are underground, represent additions to supply and thus serve to depress selling prices. A sudden and marked expansion in the supply in such industries, even though it nearly always turns out to be of great public benefit, may inflict heavy penalties

upon the investor, even in a dynamic industry. The development of the East Texas oil field in the early 1930's reduced profit margins for a decade and contributed largely to the subsequent rash of price-cutting wars. Or, to use another illustration, the rich Mesabi iron ore discoveries in the early and middle 1890's brought a sharp break in the prices of titles to the ore, though in the following boom years they served as the foundation for a munificent rise in capital values. Short-term losses were followed by long-term gains.

Increase in reserves, furthermore, may be so substantial as to lead to perennial price-cutting wars over a prolonged period. Perhaps the bituminous coal industry is the most notable example. Its earning power, except during the two world war periods, was almost continuously disturbed by price wars. Even in the first two decades of the century in the face of a secular increase in demand, the dividend paying power of the leading enterprises were restricted. Pittsburgh Coal, a major company in the industry, organized and financed by the same Mellon group that guided the fortunes of Gulf Oil and Aluminum, produced an unenviable dividend record from the time of its formation in 1906 to the war-sponsored expansion of demand in the middle 1940's.

In an expanding industry, the increased capacity is, in the course of time, effectively utilized by a rising trend in demand; for example, copper, tin, aluminum, nickel, lead, iron, oil, and gas. Generally, the well-managed, low-cost companies in these industries are able to dispose of their wares at favorable prices. Favorable prices are those that realize reasonable profit margins and returns on invested capital sufficiently satisfactory to attract the volume of funds necessary to maintain the industry in good financial health.

Each industry has a peculiar growth problem of its own. The experience of one industry is not a model for another. Even the limit set by per capita consumption is not necessarily a definitive test. Discussion in the 1920's centered about the thought that the radio market would be saturated when each home was furnished with a radio. Experience disclosed the possibility that each home might prove a buyer for several radios. It is also difficult to set limits upon the widening of a market due to obsolescence: the development of new products, and changes in style and artistic proportions. In the presence of such conflicting forces, it is not surprising that overexpansion, with its attendant dangers of heavy losses, so often plagues the onward march of expanding industries. The industries cannot save themselves by refusing to expand, or by expanding just a little at a time. The growing industry, whether or not it be publicly regulated, must make long-range programs.

Empirical Guides for Plant Expansion.—In the face of these complexities, the investor turns to rules of thumb based on experience. Upon the basis of a stable selling price, a company with a reasonably long history generates a certain sales volume in relationship to each additional dollar of plant investment. (See Chapter 9.)

Profits and Losses from Expansion.—While the value to the consumer of plant expansion is favorable, numerous risks and heavy losses intersperse the path of profits to the investor. Investment profits of expansion are great indeed. The increase in profits arising from expansion is a marked feature of the American system of private ownership. General Motors and Chrysler, Libbey-Owens-Ford and Owens-Illinois Glass, Gulf Oil and Standard Oil, Abbott Laboratories and Merck, among hundreds of others, in a great variety of American industries, afford eloquent testimony on the profits of business expansion. Except for the threat of their division with the tax collector, potential profits appear to be as promising in the future as they have been in the romantic past.

The path from plant expansion through higher sales to greater profits is not, however, a smooth one. Corporations normally expand in prosperity, when a strong demand and an abundant supply of capital provide a suitable environment. Every period of expansion in American industry has been followed by a period of contraction. Despite this long experience, neither businessmen nor investors (nor in recent years, Government officials) are able to adjust expansion programs in accord with cyclical fluctuations. Expansion is accomplished when prices and wages are high and business is good. Plant additions create increases in fixed costs and, although profitable under conditions of rising sales, produce losses in years of declining sales. As sales decline, the output of the overexpanded plant is produced under conditions of rising costs; the fixed expenses are spread over fewer units of output; and the expenses per unit of output rise. Some dramatic losses in American business have developed from an expansion in plant capacity in excess of the expansion in demand. Some writers even theorize that overexpansion is a primary cause of depressions.

Whatever the truth of these theories may be (slight, in the opinion of this writer), it is the doleful fact that overexpanded companies suffer heavy losses in periods of declining demand, following in the wake of plant expansion. There is scarcely an industry that, in its career, has escaped such a penalty for its readiness either to serve the public with additional facilities or to secure a position of competitive advantage over its competitors.

In some industries, a few concerns secure a dominant position and later, in accordance with normal expectations, succeed in setting a pattern of expansion more closely in accord with the trend of demand. In others, however, repeated increases in expansion produce excessive plant capacities with the normal result of unprofitable price cutting. Lumber, paper board, and paper containers, intracoastal and intercoastal shipping, and bituminous coal are among the industries that over many years have repeatedly produced surpluses in plant capacity. Expanding markets in many industries, except in wartime, are thus frequently served in a background of excess capacity. The pressure of this capacity keeps prices down to a point sometimes not much above unit costs. Profits in such industries are low and dividends scarce.

Losses because of temporary overexpansion are risks that neither the industry nor the investor can avoid. The temporary saturation point of an expanding market is even more difficult to judge than the point at which the market is permanently saturated, and where the declining *secular* trend begins. It is questionable whether these temporary overexpansions can be called errors of judgment. Plant expansion is a normal phase in the evolution of a growing industry. The industry in order to grow must expand.

An excessively rapid expansion, though appearing unwise only a short time after its completion, may, nevertheless, in spite of subsequent losses, prove to be sounder than a static, nonexpansion policy. A defensive, passive policy, directed toward stabilization, has many disadvantages. The company incurs the risk of losing a share of a rapidly expanding market. In the face of technological progress, it may find itself burdened with an obsolescent, high-cost plant.

In some industries, investors find managements of both types in a period of expansion. In the 1945-52 era, Sears, Roebuck and Montgomery Ward, the two leading concerns in the price appeal, retail chain store industry, followed opposite policies. The latter refrained from expansion, while the former added many stores, increased its inventory, and even discounted its receivables to get cash to expand its business. Sears' sales increased by a wide margin over those of Montgomery Ward. In 1951, they were 2.4 times as large as the other's, as compared with only 1.7 times in 1946. Montgomery Ward on the other hand, early in 1952 despite its lower sales volume, had more cash and Government securities than Sears, Roebuck. Sears, prior to 1952, also realized more profits. That Montgomery Ward will secure balancing benefits in depression is an open question.

Managerial Policies and Changes

Investors in the 1946-52 period of transformation in the fortunes of the airlines had also to assay the relative merits of the management of Eastern and other airline companies. In the years of industry retrenchment (1946 to 1948), Eastern was the only carrier among the Big Four that earned a profit. TWA, American, and United reported losses. While the other companies incurred heavy debts and diluted their common stocks, Eastern did neither. It financed the acquisition of its fleet by a moderate-size bank loan.

These differences in financial policy grew out of differences in expansion policies. While other companies invested heavily in new facilities in preparation for an expected heavy increase in business, Eastern pursued a less ambitious program. It prepared for a slower upswing, bought fewer planes, and concentrated more of its attention on the husbanding of its finances and the careful cultivation of economies. Across the desk of its president, wrote one observer in the summer of 1948, "pass accounts of every expense item above a certain undisclosed but low minimum. He knows intimately the salaries and capacities of practically everyone in the company in any position of responsibility. Weeding out dead-wood manpower is one of the ways he trims costs." [1]

Eastern's management more correctly interpreted the realities of the postwar period. The final story has not, however, been told, for the correctness of a short-term program does not necessarily insure the soundness of a long-term program. In years of rapid advance in traffic, even a temporary shortage of equipment might prove a serious handicap. Investors must study these relative advantages and disadvantages in the background of the changing economics of an expanding industry.

Another aspect of managerial ability in the field of expansion was revealed in the financing of the airline industry. There are many decisions the success of which is based on wise timing. A desirable corporate property may be acquired under one set of market conditions and not under another. Investor confidence in the future may produce high security prices, and lack of such confidence, low prices. The transformation of a market from one to another, moreover, may be a matter of days. C. R. Smith, president of American Airlines, succeeded in the summer of 1946, before the break in security markets, in selling $40 million of bonds and an equal amount of preferred stock at exceptionally high prices, perhaps the largest piece of

[1] *Wall Street Journal,* August 19, 1948.

financing in the industry's history. Smith said the program could not have been carried through a month later. "These things require timing, sometimes quick action," he declared.[2]

Between the extremes of a reckless expansion policy and of a "safe" and do-nothing policy is a golden mean. As in other avenues of human activity, the golden mean represents an ideal, and though it is frequently approached, in practice it is rarely realized. Any number of combinations of human judgment are applied in the determination of varying corporate policies of expansion. Of all the risks that the investor assumes from the adoption of a mistaken policy of corporate expansion, the most dangerous probably arises from one carried out by an expanding industry in its last stages of growth. The careful, sophisticated investor, with his advantage of a more thorough understanding of industrial and competitive forces, is frequently in a better position than management to understand the risks involved. The expansion in the World War I and postwar periods of the cotton, coal, woolen, and leather industries reflected the forces of expanding demand over many years. The programs were approved and completed, however, in a period prior to and almost current with the beginning of a long period of declining demand. The burden of costs in such cases is usually washed out in subsequent financial reverses, in the passing of dividends, and in the reorganization of capital structures.

Continuity of Management.—Sound management is thus an important advantage of one company over another in a given industry. If a corporation is unable to pay dividends, it is logical to assume that the owners will change the management. This does not always, nor even often, follow. The management may long perpetuate itself, even though, judged by its record of profits and dividends, it is not successful.

If a large stock interest is held by members of the board, by officials, or by others close to the company, it is difficult to oust the management. The proxy machinery gives the officials control. Stockholders for the most part either sign the proxies they receive or ignore them. The stock owned by or allied with the management, therefore, exercises more power than its relative amount would indicate.

In men's furnishings, for example, Robert Reis & Co., Inc., for many years prior to the World War II boom, had paid no dividends on its preferred and common stocks. Even in the prosperous 1920's, large arrearages had accumulated on the first and second preferred

[2] *The New York Times,* May 13, 1949.

stocks, many of which the management owned. Despite a ten-year period with no dividends paid, the management was not changed. In department stores, Gimbel Brothers' expansion policy in the 1920's, though producing large increases in sales, yielded no common dividends. Indeed, the depression and the recovery period of the 1930's was characterized by the elimination of preferred dividends. A substantial part of the stock was held by the Gimbel family, who participated actively in the company's management. Not until the World War II boom did the company succeed in placing its common stock on a dividend basis.

Other illustrations of a long continued management in the face of a prolonged failure to pay dividends abound in the declining industries. Wilson in meat packing and New York Central and Baltimore & Ohio, among others, in the railroad industry illustrate what appears to be, on the face of things, an extraordinary managerial phenomenon. The same directors of Armour & Co., a major meat packer, have been re-elected "over and over and over," without solving the company's financial troubles, complained a stockholder at the company's 1950 annual meeting.[3]

Paradoxical though it may appear to be, the investor is probably close to the truth in refusing to make rapid managerial shifts because of the inability of management in a declining industry to earn and to pay dividends. Management is helpless in overcoming those influences that have plumped an expanding industry into chronic depression, and the failure of a management should not always be ascribed to the mistakes of officers and directors. These men are usually helpless in the grip of forces beyond their control. In periods of rising labor and material costs with high breakeven points, even a relatively slight decline in demand frequently exerts destructive effects upon profits.

Modernization under such conditions is, more than ever, essential. This is the way to reduce expenses and to pave the way for reduction in selling prices. Modern equipment, however, requires new money, and money is difficult to raise. In periods of prosperity characterized by rising profits, a substantial part of the capital funds is normally realized by the use of earnings and depreciation allowances. One of the most dangerous phenomena of the prosperity of the 1940's was, for many industries, the small amount of capital available from earnings for modernization and expansion. Many major industries have, after adequate deductions for inventory losses and depreciation on the basis of replacement costs, insufficient profits to

[3] *The New York Times*, February 18, 1950.

build up reserves to carry them through ensuing years of business and earnings readjustments.

Changes in Early Stages of Decline.—This complacency of investors in the face of losses does not apply to the declining industry at the beginning of its decline. At that time, hope for the industry is strong. The financially sound and well-managed corporations have, as yet, encountered no serious reversals, and their ability to pay interest has not been impaired. A slight reduction in sales may, indeed, lead to an increase in the margin of safety for fixed charges. This happened in the railroad industry in the 1920's. The rapid increase in national production brought only a small increase in ton-miles. The increase in operating efficiency, due largely to capital improvements, raised net income to record levels. The emergency of the most fundamental form of financial decline, that of a relative decrease in demand, went hand in hand with an increase in earnings available for interest and dividends.

This, of course, is not a universal rule. The early stages of decline may be characterized by rapid demoralization in earnings. Perhaps the outstanding example of this is the street railway industry in the second decade of the century. Within less than a five-year period, the securities of leading metropolitan street railways, long considered excellent investments, became unattractive speculations. In that brief period, many companies were precipitated into receivership, others were abandoned, and still others were on the road to abandonment.

If the early stage of industrial decline occurs in a period of inventory losses and of declines in national income, the transition from prosperity to a low level of permanent earning power may be dramatic. Major companies in the declining industry may, in a matter of months, lose a surplus accumulated over many years. Investors suddenly realize that securities considered high-grade investments for many years have suddenly lost most of their value.

Whether industrial transition from prosperity to decay in its early stages is short and sharp or prolonged and gradual, hope for improved earnings frequently creates a basis for managerial changes. Such changes, it is expected, will enable a company to regain its former earning power. Numerous managerial changes took place in the 1920's and 1930's in the declining industries. These changes, even in the booming 1920's, did little to arrest declines in earnings. Successive changes in management in such properties as American Woolen, Botany Consolidated, Chicago, Milwaukee & St. Paul, Denver and Rio Grande, Amalgamated Leather, Long-Bell Lumber,

Kansas City Public Service, St. Louis Public Service, and Philadelphia & Reading Coal & Iron, for example, did little, prior to the war-engendered boom of the middle 1940's, to restore earnings and improve finances. Even the rise in war earnings of most of these and other similar properties in declining industries accomplished little in re-establishing the impaired investment quality of their securities.

Administrative Errors.—Problems of managerial changes in the expanding industries are different. Here, a corporation is favored by an increase in sales. The solvency of a corporation in a profitable industry may, nevertheless, be seriously impaired by poor management. In such an industry, the failure to record profits and to pay dividends is normally charged to managerial blunders. The failure of an automobile, a synthetic chemical, an ethical drug, or a packaged food company to pay dividends at a time when its major competitors are prosperous implies a managerial defect. Under such circumstances, investors are likely to change corporate management with the hope that good results will follow.

Able personnel can introduce new policies that will stop losses and place the company on a profitable basis. A notable illustration of corporate losses in a profitable industry, arising from ordinary administrative waste and the failure to practice ordinary economics, is furnished by the Paramount Publix Co. (now Paramount Pictures), a leader in the motion picture industry. The management that assumed control of this company in November, 1931, under the leadership of John D. Hertz, who was elected chairman of the finance committee, made drastic reductions in expenses. In the twelve months that followed, operating expenses were reduced from $133 million to $110 million. Rentals and theater leases were cut by $5.9 million. Insurance premiums were reduced from 25 to 35 per cent, and telephone and telegraph charges by 50 per cent. The following interesting comments were made by Mr. Hertz in his testimony before the S.E.C.:

> I found that our telephone and telegraph charges had cost $800,000 in 1931 and that a great portion of that was for telephoning to Hollywood. I found that the wire was open two, three, four hours at a time. Well, that intrigued me very much. So I made a telephone search and I took 100 and some odd telephones out of the Broadway Building that weren't necessary. I took telephones out of every theater in America that the company owned that weren't necessary. I instituted a system whereby everybody who used a long distance phone had to make out a voucher and state the purpose. I put a girl in charge of the telegraphs,

both incoming and outgoing, to check the number of words, and I cut the $800,000 to $400,000 in 1932.[4]

The displaced management committed other mistakes, such as the disbursement of approximately $10 million in cash in the repurchase of its own common stock. After this house cleaning, the company went through reorganization.

Another instructive illustration is afforded by the Capital Airlines, one of the smaller airline companies. In 1947, the company was literally bankrupt; its board of directors was torn asunder. For instance, there was friction within it to the point that "some of the members would not speak to each other, there was interdepartmental feuding, politics, intrigue, . . ." [5] A change in management was made.

Managerial shifts in 1950 and 1952 in the affairs of Kingan & Co., a meat packer with an annual sales volume of more than $200 million, was featured by charges that a management with a long tenure had failed to establish a research program, had pursued improper purchasing methods, and had neglected to maintain a policy of sanitary control, which in turn led to the condemnation of much of the company's products by sanitary officials. Over a thirty-year period, the company had paid only 30 cents a share in dividends.[6]

Mistakes in the administrative operations of a business frequently create dramatic situations. They involve colorful personalities and often lead to bitter proxy contests. Among companies with an investment standing for their securities, such administrative errors of a magnitude sufficient to cause heavy losses in a profitable industry are, nevertheless, not very frequent.

Overexpansion and Mistaken Policies.—Far more serious are the reversals in fortune of a prosperous corporation from mistaken financial or ill-timed expansion policies. Dangers from overexpansion are grave, but the dangers of underexpansion are equally serious. (See pages 283-84.)

Recovery of Earnings by New Management.—There is no rule for the determination of the extent to which a new management can recover lost earnings. Sometimes the recovery is rapid, sometimes

[4] Securities and Exchange Commission, Report on the Study and Investigation of the Work, Activities, Personnel and Functions of Protective and Reorganization Committees, Part 2, p. 82, 1937.

[5] Airline Industry Investigation, Hearings before Committee on Interstate and Foreign Commerce, U. S. Senate, 31st Congress, 1st session, 1949, p. 709-10, testimony J. H. Carmichael, President, Capital Airlines.

[6] See *Wall Street Journal*, February 20, 1952, for details on this managerial controversy.

slow. Much depends upon the speed with which demand increases and upon the extent to which the industry as a whole has expanded its capacity. Overexpansion takes place in both the declining and the expanding industry. In declining industries, overexpansion is a tragedy. In the boom of the 1940's, major companies in some of these industries increased their earnings. In the 1948-49 period, and again in 1952, they were among the earliest to suffer from the return of a buyer's market. In the 1920's and 1930's, they had the benefit of changing managements, but the continuation of overexpansion and the secular decline in demand proved too difficult a combination to overcome.

A change in management in an expanding industry can, however, overcome many handicaps. Numerous companies whose losses were heavy in plant, inventory, and receivables in the 1918-20 inflation-deflation, or in the sharp 1929-32 break, or in both, have since recovered. Goodyear Tire & Rubber, United States Rubber, Montgomery Ward, International Paper, Worthington Pump & Machinery, and Cities Service, are notable illustrations. With favorable trend of demand, an able personnel can cut costs, enlarge sales, realize profits, and attract new capital. The payment of debts and the increase in working capital give a well-managed company in an expanding industry the opportunity to diversify, to engage in research work, to find new uses for existing products, to devise new products, and to adopt those policies necessary to reduce prices and increase sales.

Excessive Conservatism.—A management may also be unduly conservative. Just as unduly aggressive managements may incur losses from insufficient emphasis on the preservation of cash, or from the lack of maintenance of adequate working capital, so unduly defensive managements may make mistakes by excessive emphasis on financial prudence. Many such illustrations of unwise managerial caution may be cited from recent industrial history. In the depression of the 1930's, Nash-Kelvinator built up an enviable financial position by a policy of careful husbanding of its resources. Other competitors were more aggressive in the expenditure of funds for promotion and advertising. In the following years of prosperity, the more aggressive companies such as General Motors and Chrysler, were more successful. Though Nash-Kelvinator was not financially embarrassed, it lost out in competition.

Curtiss-Wright, to cite another illustration, came through the World War II boom with a large supply of working capital, but with little business. By late 1948, its airplane division had no prime

contract for military aircraft.[7] A new management was installed in 1948, in the hope that the company's liquid assets could be used to increase sales and profits.

Change in Policy.—A prudent policy directed toward the preservation of liquidity may become passive in character. In the course of time, a management may find itself saddled with an obsolescent plant and with surplus capacity; inefficiencies not immediately recognized may develop. New management, equipped with professional help, may accomplish wonders, particularly in a prosperous period. Many such managements, since the dark days of the early 1930's, have filled many pages of investment and financial history.

After 1929, the management of Burroughs Adding Machine, for example, expanded little. It did little research, and introduced few new products. In 1946 with the election of a new president, this static policy was discarded and new ones adopted. The company standardized its line of products, reducing the number of general-purpose machines from nearly 600 to less than 100 and its adding machines from 119 prewar models to 19 comprehensive units. The management introduced an incentive program that leveled out sales costs. An expansion program enabled the company, by the end of 1948, to increase its production in physical units by about 50 per cent over the 1941 level. The company also introduced various improvements, including the enlargement of its power plant and the extension of its conveyor system. Satisfying increases in man-hour output followed. Research work, particularly in electronics, was greatly expanded.

By the end of 1947, the first full year of the new management's regime, sales advanced to new highs—about 50 per cent higher than for 1946 or 100 per cent higher than the average, prewar volume. Its profit margin for 1947 doubled as compared with 1946, and its per share earnings more than trebled.[8]

By 1951, Burroughs had introduced a number of new products, including an accounting machine, reported to be more versatile than any of the products of its competitors.

Another significant managerial switch in the affairs of a major concern in a basic industry took place in 1946. In that year, a new president of the American Radiator and Standard Sanitary Corporation was appointed. The extensive changes introduced by the new executive suggest to an investor the variety of losses that may de-

[7] *Aviation Week*, February 7, 1949, p. 13.

[8] These details were taken for the most part from a study of the company by the Argus Research Corp., July 6, 1948.

velop from a static managerial policy. A considerable number of products, sold for many years at a loss or without a profit, were either eliminated, or were given price increases. The old management, furthermore, had sold domestic boilers, but had not sold the thermostatic controls. Other companies were the beneficiaries of the rapid sales increase of these products. A line of thermostatic controls was introduced, and by 1950, the company's distributors were pushing sales in all parts of the country.

The company had done little in adapting its standard lines of kitchen sinks and wash tubs to the demands for modern kitchens and the remodeling of old ones. A relatively small company, the Mullins Manufacturing, a producer of stampings, sold at low profit margins, had retrieved, through a change in management, its declining fortunes by its entrance into the pressed-steel kitchen equipment line. The new management of the American Radiator and Standard Sanitary had, by 1951, decided to offer a complete "kitchen package," as it had for many years offered a complete "bathroom." In the rapidly expanding air-conditioning business, the company had made component parts for other manufacturers, but it had not sold its own type directly to the public. By 1951, the management had decided to advertise its own air-conditioning equipment.

These and other policies, inaugurated by the new management to reduce costs and increase sales, substantially increased profit margins. In 1945 and 1946, the pretax margin amounted to 9.0 and 7.9 per cent, respectively. By 1950, the margin had more than doubled to 18.5 per cent.[9]

An even more spectacular shift in corporate policy was made in consequence of a managerial change in the affairs of one of the old investment "blue chips." (A stock described as a "blue chip" is one of high investment quality, it sells at a high price, and affords the investor a low return.) The dynamic growth that had characterized the growth of the Air Reduction Company in the 1920's and 1930's had been replaced by stagnation in the 1940's. A new management was installed early in 1948, and an early step was the abandonment of a number of high-cost plants. This was followed by a program of heavy capital expenditures in new plants to make possible reduction in costs and the diversification of the company's activities in new fields. As compared with net fixed assets of about $45 million in 1949, capital expenditures of $36 million were planned for the three years 1950-52. New liquid oxygen plants to make oxygen at

[9] The discussion of the company is based on a research report prepared by Laurence M. Marks & Co., New York.

lower costs replaced the old higher-cost plants. An expensive calcium carbide plant, scheduled to be finished in 1952, was expected to reduce production costs of that product.

The management also developed new welding equipment of a character so revolutionary as to make possible the delivery to the Navy of the first all-welded aluminum ship. Other products were added, so that oxygen, which for many years was the company's major product, constituted only a small proportion of its sales in 1952. The new management utilized its engineering force and a large supply of capital, which, owing to the company's good credit standing, could be raised quickly and at low cost to enlarge the product base, to reduce costs and to widen profit margins. Investors who paid high prices for the stock in the 1940's were, in 1952, eyeing anxiously the profit outcome of the ambitious and expensive program initiated by the new management. At that time, the stock was still selling at about half of its market price of 1946, and slightly more than one-third of the price it attained in 1937.

Strategy Versus Tactics.—It is essential to recognize that managerial tactics (as distinguished from broad lines of policy, best described as managerial *strategy*), i.e., the use of improved technologies and of technical skills in production and distribution, can be purchased in a normally plentiful market. Thus, the failure of a management to take full advantage of existing knowledge and skills can, if the company is well financed, be readily overcome. A new management, favored with a minimum of debt and an abundant supply of cash, can secure the professional and scientific help needed in almost all fields of business activity. Except in pioneer industries, an interchangeability of technical skills usually prevails. It is not accurate to say that there is at all times abundant talent, but there is usually a supply sufficient to warrant the conclusion that a well-financed company can obtain the services it needs.

Well-balanced judgment, sometimes by leading stockholders, sometimes by an able chairman of a finance or an executive committee, or at times by a leader in the financial or industrial community lays the foundation for the pattern within which the new management carries out its policies. The late nineteenth and early twentieth century leadership of J. P. Morgan, an industrial outsider and an investment banker, for example, laid out the broad pattern within which the reorganized railroads, the newly established General Electric Company, and United States Steel later rode to managerial success. The broad business strategy that brought Sears, Roebuck into the expanding, decentralized, retail price-appeal industry reflected the

unique business imagination of Julius Rosenwald, serving in the enviable capacity of controlling stockholder and executive manager.

The relative importance of broad-gauge managerial talent as compared with the possession of technical skills is further evidenced by the success of managements in numerous lines of enterprise. The career of Sewell L. Avery has already been noted.

Floyd B. Odlum is another case in point. Odlum is head of the Atlas Corporation, a closed-end investment company. (See Chapter 28 for discussion of closed-end investment companies.) In behalf of that company, he has taken over a succession of unsuccessful corporations in a variety of industries, introduced new policies, engaged professionally skilled assistants, and re-established lost earning power. Odlum usually sells out the investment company's holdings of the rehabilitated company. Thus, he acquired control of Radio-Keith-Orpheum in 1941. Under his control, the Company's affairs prospered and, in 1948, he sold control at a profit.

Conclusion of Managerial Changes.—In reaching a conclusion on the efficacy of managerial changes, it may be observed that such changes in a declining industry, particularly in its latter stages of decay, can usually accomplish little. Even this statement is subject to serious challenge. A war or other factor leading to sudden expansion in demand may produce a transient prosperity. When the scarcities are alleviated and when demand and the long-term surplus in capacity return to normal, however, the secular decline in the profits of the industry is usually resumed.

It is probable, on the other hand, that a managerial change in a corporation engaged in an expanding industry can, under favorable conditions, accomplish much. Again, there is no rule that will enable an investor to anticipate with reasonable certainty the success of the new management. Change does not necessarily mean progress; it means movement, and the movement may just as readily be backward as forward. The suggestions made of managerial changes are designed only to be suggestive, and as a basis for analysis, they may be of help in the solution of the problems arising out of such changes.

QUESTIONS AND PROBLEMS

1. The steel industry in the post-World War II years expanded its plant capacity on a major scale. Many investors feared that the industry in 1951 was overexpanded, i.e., that the capacity to produce steel exceeded demand under normal conditions. At that time, United States Steel undertook the building of a substantial addition to its capacity in

southeastern Pennsylvania, near the Delaware River. For this action, the management was criticized in some investment quarters. Comment on the broad economic arguments pro and con of an expansion policy under these conditions.

2. In 1951-52, a substantial decline in demand for rayon goods developed, the first major decline since the early 1930's. One of the dominant companies, Celanese Corporation, reduced its quarterly dividend in May, 1952, from 75 cents to 50 cents. This company, nevertheless, continued to expand its plant capacity on a substantial scale. As a common stockholder, what questions would you raise concerning the wisdom of the expansion program of this management? Would you hold your stock, sell it, or buy some more at the materially lower prices to which the stock, because of lower earnings and lower dividends, had fallen.
3. Explain why many managements, particularly in declining industries, are not changed, even though the companies fail to pay any dividends for many years.
4. Show how excessive conservatism in management may constitute a managerial blunder.
5. What instructive managerial lesson may be drawn from the discussion of the Air Reduction Company in this chapter?

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PART IV

Public Securities

Chapter 17

UNITED STATES GOVERNMENT SECURITIES

United States Government securities are the country's prime investments; they lead the pack. They are supported by the Government's power to tax the income and resources of the American people. A sound and expanding economy provides the Government with the opportunity to secure funds to meet all of its expenses, including principal and interest on its debt. A stagnant, and even worse, a declining social economy might impair the strength of the Government debt. Such a possibility raises questions beyond the scope of this discussion. A dynamic economy is assumed; this means increases in population, in per capita productivity, in national product, in national wealth, and in national income. These are the resources that can be taxed to give the Government the revenue to meet its obligations to the investors.

Increase in Government Debt.—Since 1930, the Government debt has soared beyond all previous records. The national income has also expanded, but the debt and its interest has expanded more rapidly. In 1917 when the country entered World War I, the debt was 3 per cent of national income, in 1930, 22 per cent, and early in 1946 when the debt reached the all-time high, the ratio was about 180 per cent.

Interest, as a percentage of national income, has also increased. In 1865, the ratio was about 2.6 per cent, in 1920 it dropped to slightly less than 0.2 per cent, but in the first half of 1946 it rose to a high of 3.5 per cent. In relation to national income, interest has, however, advanced less rapidly than debt for two reasons: interest rates have declined to record low levels and national income has increased to record high levels.

The Debt as Asset and Liability.—This national debt is a heavy liability on the American people, but it is also a valuable asset. Each person's dollar in commercial banks and savings banks, in life and property insurance, in social security, pension retirement and trust funds is, to a considerable degree, invested in Government bonds.

To each person as a taxpayer, the debt is a liability; to that same person as a holder of cash, the owner of a life and property insurance policy, a call upon some fund for social security or pension payments, the debt is an asset. An idea of the extent to which the welfare of the people is based on the integrity of the debt is suggested by Table 26 showing the ownership of Government securities, as of December 31, 1951.

TABLE 26

OWNERSHIP OF GOVERNMENT SECURITIES, DIRECT AND FULLY GUARANTEED, DECEMBER 31, 1951
(In billions of dollars)

United States Government agencies and trust funds	$ 42.3
Federal Reserve Banks	23.8
Commercial banks	61.4
Mutual savings banks	9.8
Insurance companies	16.3
Other corporations	20.8
State and local governments	9.5
Individuals	64.6
Miscellaneous investors	11.0 *
Total debt	$259 5

* Includes savings and loan associations, dealers and brokers, foreign accounts, corporate pension funds, and nonprofit institutions.
Source: *Treasury Bulletin.*

Consider the status of the banks. They hold cash balances of their depositors. On December 31, 1951, the commercial and savings banks owned $71.2 billion of Government securities. On the same date, they had deposits of $164.8 billion. About 43 per cent of the banks' deposits were thus invested in Government bonds. Life insurance companies invest a smaller, though significant, proportion of their assets in Government obligations. A wide variety of state and local governmental funds to finance workmen's compensation, public employee retirement, and other projects are also invested largely in Government bonds. More than 16 per cent of the total Government debt ($42.3 billion of bonds) protects millions of beneficiaries, present and prospective, of the Federal Old Age and Survivors Insurance Trust Fund, the Unemployment Trust Fund, the National Service Life Insurance Fund, and a number of others. An increasing percentage of the national payroll is being placed in pension funds, which are invested largely in Government bonds. Most Americans, thus *indirect* holders, are also individually *direct* owners (estimated at 85 million) of such securities.

The money, the savings, the life insurance protection, the security against old age, unemployment, and other vicissitudes of life are, therefore, dependent upon the value of Government bonds in varying degrees. Their safety for investment purposes is assumed.

Debt Management

There are, however, many facets of Government bonds that do not involve safety of principal. Particularly important is the debt management policy of the Treasury. That branch of the Government determines when required funds will be raised through the sale of long-term or short-term debt, or of marketable or nonmarketable obligations; whether commercial banks should be permitted to buy particular issues; whether or not securities should be acceptable for the payment of taxes. It decides the kind of obligation, its maturity and interest rate, whether bonds should be called prior to maturity, and the kind of refunding program, if any.

Though the final decision rests with the Treasury, close consultation with the Federal Reserve system and with representatives of major classes of investors is, nevertheless, essential. When Government issues fail to find a permanent resting place in the portfolios of investors, individual or institutional, the Federal Reserve, Government agencies, or Government trust funds must buy the offerings. Investors may buy new issues as and when offered by the Treasury, and then sell old ones to raise the cash. To avoid failures of Treasury offerings of Government bonds and to maintain a stable market for such securities, the Federal Reserve has thought it essential to buy them. The particular requirements of commercial banks must also be respected.

The trend of corporate income taxes may also influence some phases of debt management. The increase in corporate taxes in 1950 and 1951 has so reduced the net return on intermediate and long-term government bonds that commercial banks and other investors find it increasingly profitable to invest some of their funds in state and municipal issues, which are exempt from the payment of income taxes. Other companies, also partly because of tax considerations, buy preferred stocks. (See Chapter 25.)

Kinds of Government Securities.—The terminology descriptive of Government securities is based largely on maturity differences. An obligation of from 90 to about 145 days is a bill; one with a maturity of from 7 to 12 months is a Certificate of Indebtedness; one with a maturity from one to five years is a note; one with a maturity from five to ten years is an intermediate bond; while one with a maturity of longer than ten years is a long-term bond.

There are also differences in marketability. Many are fully marketable and can at any time be bought and sold in the open market. Others, so-called restricted bonds, are also fully marketable, but they

cannot be held by the commercial banks. These bonds, after a period of years, however, may usually be bought by the banks; they then become "eligible." Others like the E, H, J, and K, described on pages 300-3, and the 2¾ per cent bonds of 1980, described on pages 297-98, have severely limited marketability.

Interest Rates Versus Inflation.—The major problem in debt management, at least in the 1940's and in the opening years of the 1950's, was inflation. An expansion in the supply of money increases the demand for goods and services. Subject to numerous qualifications, an increase in the supply of money in excess of an increase in the supply of goods contributes to a greater demand for goods. There are more bids for goods and fewer offerings. It is, therefore, desirable to manage the public debt in a period of relative scarcity of goods in such a way as to avoid an increase in the supply of money. If current income can be channeled into Government bonds, then others will not be able to use this income to bid against the Government for, it is assumed, a limited supply of goods and services. This is particularly important in war or when heavy expenditures are being made to prepare for war. The most effective way to accomplish this purpose is to levy taxes, but this is frequently impracticable and, it seems, politically impossible. If Government securities, however, are bought by the individual saver, the same purpose is accomplished: purchasing power is transferred to the Government. It is necessary, of course, that the investor hold the security during the period in which the relative shortage of goods and services prevails. He should not, directly or indirectly, sell it to a commercial bank or to a Federal Reserve bank. Such a sale increases the supply of money and adds to existing purchasing power.

To increase the sale of bonds to the savers, a desirable method sanctioned by many years of experience is an increase in interest rates. To increase rates, however, means an increase in Government expenditures. Primarily to avoid this undesirable consequence, the monetary authorities for most of the time between 1933 and 1951 took measures to depress interest rates. The most important was the sale of Government bonds to the commercial banks. The bank purchase of securities resulted in an increase of deposits. The deposits were credited to the Government, and the Government, by spending these deposits, increased the supply of money in the hands of the public.

The banks, in order to maintain a liquid position, do not buy too many long-term bonds. To satisfy bank needs (and for other purposes as well) the Treasury creates short-term or intermediate-

term issues. These carry a lower rate of interest than do the long-term Government obligations, particularly in a period of low money rates. There is here a conflict of interests. The sale of short-term Government securities at low interest rates reduces the interest burden. If, however, these securities are bought largely by the commercial banks, the supply of money is increased and the forces of inflation stimulated. The resultant increase in prices constitutes a burden on the Government budget.

It is true that the policy reduces interest rates, but it also increases the prices that the Government pays for goods and services. The increase in Government expenses due to rising prices probably exceeds the interest savings incurred by the sale of short-term securities. Longer-term bonds (10 to 25 years) carrying higher interest rates could be sold to the individual saver or to the popular savings institutions: the savings bank, the life insurance company, the savings and loan association, and the commercial bank for its time deposits (though many bankers make no distinction between time and demand deposits, and accordingly believe that both should be invested in the shorter maturities).

The Treasury, however, since 1933 has followed the policy of keeping interest rates low. To make this policy most effective, it has sold large issues of short maturities, i.e., less than five years. Indeed, since the Victory Loan of December, 1945 (and until the summer of 1952), the Treasury sold no *marketable* long-term bonds. By the summer of 1951, as a result of this policy, approximately 64 per cent of the public debt had a maturity of nine years or less. At the end of 1941, before the wartime expansion in the national debt, the corresponding figure (excluding the savings bonds) was approximately 48½ per cent. Part of this difference reflects merely the passage of time, since many of the bonds that, in the earlier period, had a distant maturity, were of the short-term variety in the later.

Rise of Short-Term Yields, 1946-51. Another significant phase of debt management, within the general pattern of the use of short-term maturities, is the postwar rise of interest rates on such securities, combined with the seeming insistence on the 2½ per cent yield on long-term bonds. The price of the 2½ per cent bonds due 1972 did indeed drop below face. In the fall of 1951, and again in the summer of 1952, they sold below 97.

In financing its heavy refunding program in 1951 and 1952, the Treasury sold no long-term bonds. In fact, it devised a new style Treasury bill to meet the needs of corporate investors. The customary maturity of 90 to 92 days was replaced by one of 144 days. The

bill, furthermore, was made acceptable in payment of taxes. These new bills competed with the conventional 90 day Treasury bills. When these new bills were offered in October, 1951, the existing shorter bills yielded about 1.61 per cent. So great was the demand for the new bills with the attractive feature for payment of taxes that they were sold on a 1.55 per cent yield basis. Later in the year, the Treasury sold new bills on successive occasions at higher and higher returns, culminating in December with a yield of 1.865 per cent, the highest return on bills recorded up to that time since 1933. A few days after their issue, the price dropped and the yield rose to 1.92 per cent. By the summer of 1952 the yield advanced further to 2 per cent.

Paradoxically enough, most of these bills, due to the attractive yield, were bought by the commercial banks. The banks sold them later to nonbank investors. This new type of bill was fashioned by the Treasury to meet a growing nonbank demand. The postwar rise in corporate taxes from 38 to 52 per cent, combined with a peacetime excess profits tax, substantially increased corporate tax liabilities. Accordingly, heavy tax liabilities accrue in the first quarter installment due on March 15. The maturities of the new-type bills are so arranged that they become due on or about that date. Corporations, hence, can realize a satisfactory pretax return on the funds set aside to pay their taxes.

This increase in nonbank bill holdings in 1951 was, moreover, a continuation of a trend that had been going on for some time. While on May 31, 1947, bill holdings of nonbank and nongovernment agency investors aggregated slightly in excess of $400 million, or less than 3 per cent of the total, in August of 1951, the amount increased to $10.2 billion, or 68 per cent of the total. In the first half of 1947, the wartime yield pattern still prevailed, and bills returned only ⅜ of one per cent. This return was unattractive to investors, and so the Federal Reserve had to buy the bulk of the outstanding issues. Early in that year, accordingly, the Federal Reserve held about 90 per cent of the $17 billion of bills then outstanding.

Although the Treasury in 1951 thus succeeded in selling a heavy volume of Treasury securities on a noninflationary basis, the problem of noninflationary Government financing still remained. Treasury bills, as well as the longer-term certificates of indebtedness, will have to be refunded in a relatively short period. Indeed in 1952 one-year certificates were sold on a 2 per cent basis, compared with only a seven-eighths per cent return in 1947. At maturity, one can never be certain of conditions that might or might not enable the Treasury to sell additional securities to pay off existing securities in

such a way as to attract existing savings, instead of resorting to the creation of new money.

Federal Reserve System.—The difficulty of managing the debt so as to discourage the growth of inflationary forces increases when Government securities are bought by the Federal Reserve System. When commercial banks or nonbank investors sell Government securities, there must be buyers ready and able to absorb the offerings. A market must be found for Government bonds, just as one must be found for other goods and services.

In the postwar years, the refusal of the Treasury Department to increase interest rates on long-term bonds led a growing number of investors to sell Government securities. Between 1947 and 1951, many nonbank investors, particularly life insurance carriers, sold long-term Government bonds in order to finance the purchase of higher-yielding corporate bonds and mortgages. In 1950-52, commercial banks needed funds to meet the increasing demands for business loans, many of which were made for defense purposes. In these months the increase in bank loans reached record proportions. To raise cash, the banks also sold Government obligations.

In the 1947-50 period when selling of Government bonds was persistent, substantial amounts were bought by the Federal Reserve System. More favorable yields on alternative investments than those afforded by the 2½ per cent return on long-term bonds reduced the investor-demand for Government securities. The Federal Reserve purchase of Government securities is, from the monetary standpoint, a powerful lever for the creation of inflationary forces. (See Chapter 20, p. 354.)

In the last quarter of 1950 and in the first quarter of 1951, the selling of long-term bonds to the Federal Reserve assumed large proportions. In addition, a refunding program in December 1950 was not successful, and the Treasury had to redeem in cash about $3.5 billion of bonds. The Treasury was thus forced to use its cash surplus to place funds in the hands of private investors, while the Federal Reserve was forced to exchange Government securities for high-pressure, inflationary dollars.

In March, 1951, the Treasury finally recognized the impossibility of maintaining intact the market value of its 2½ per cent bonds at 100. An understanding was reached with the Federal Reserve whereby the pegged price of 100 was withdrawn. The Treasury, soon thereafter, carried out a unique conversion arrangement designed to relieve the market from the pressure of the sale of long-term marketable bonds. About $13.5 billion of the 2½ per cent bonds

were exchanged for a new kind of long-term bond. It carried an interest rate of 2¾ per cent and was nonmarketable. Due in 1980, it could be called in 1975. To protect investors who needed liquidity, the bonds were made convertible into five year 1½ per cent notes. An additional offering of these bonds was made in the spring of 1952. Another novelty in the latter issue was the offer to sell the bonds on the basis of one-quarter in cash, and the remainder by exchange, par for par, for any of the four restricted, longest-term bonds.

The withdrawal of the peg in March, 1951, led to large-scale selling of Government bonds by investors. The market, indeed, for some weeks, became disorderly, and at times, it was difficult to secure bids. The Federal Reserve then became again, as it had been so often before, an unwilling buyer.

Commercial Banks.—Some aspects of Treasury policy relating to commercial banks merit consideration. The Treasury has a choice of selling bonds to the banks or to others. To reduce the amount of bank-held Government obligations, and thus to retard inflationary forces, the Treasury creates securities that, for some years, the banks are not permitted to buy. These are known as noneligible, or restricted. Securities that banks can buy are known as "bank-eligibles."

Treasury policy in the management of the debt exerts a significant effect on bank earnings. A large percentage of bank-owned Government securities is necessarily held in the form of short maturities. In the absence of a strong demand for bank loans, bank earning power is based largely on the returns from Government securities. The low returns from business loans contributed substantially to poor bank earnings and low prices of bank stocks, particularly for a number of years prior to fall of 1947, when the depressed short-term rates were first permitted to rise.

Commercial banks are close students of Treasury debt management policy and of Government bond price movements. In the early and middle 1940's, there was a reasonably adequate supply of longer-term bonds eligible for the banks. The banks could then sell the short-terms, at pegged prices, to the Federal Reserve Banks and buy the longer- and higher-yielding obligations. This bank policy was a major factor behind the price rise of the intermediate and longer-term issues, which culminated in April, 1946. The shrinkage in supply of bank-eligible bonds in the longer maturities by 1950 and 1951 narrowed this avenue of increasing returns from Government securi-

ties. In October, 1950, for example, in the maturities beyond ten years, only a small amount (about $4 billion) were available. Except for a partially tax-exempt issue, the only long-term bond at that time consisted of the 2½ per cent obligation, maturing on September 15, 1972, and callable in 1967. These bonds, eligible for bank investment, sold in December, 1950, at 103¾. This maturity was then the only bank-eligible Government issue that yielded 2 per cent and more. It was, for that reason, popular with the banks.

By buying long-term bonds at a premium, the banks assume a risk. The shorter-term eligibles do not command as high a premium as the longer terms. Though the yield of the former is lower, the chances of price declines are less than on the longer maturities. The risks inherent in the purchase of the long-term bonds at a premium were reflected in a price break in 1951. The withdrawal of the Federal Reserve peg and the rise in short-term rates was accompanied by a decline in price of the long-term, bank-eligible bonds to less than 97 in December, 1951.

Banks are also close observers of Federal Reserve policy. Buying and selling of Government securities may induce price movements contrary to those expected by the banks. In 1940 and 1941, many banks at first only reluctantly bought long-term Treasury bonds. They believed that, as in all other war periods, interest rates would rise and prices of long-term bonds would fall. They were mistaken, for the Federal Reserve, in cooperation with the Treasury, succeeded in maintaining the structure of interest rates. Later in the war period, their hesitation disappeared, and they bought the long-terms with confidence. They relied upon the maintenance of the wartime yield curve, which called for a 2½ per cent return on the long-term bonds. The prices of these bonds rose to high levels, reaching a peak in 1946.

Again, in the first half of 1949, a decline in the demand for business loans led to the belief that idle bank funds would be invested in Government bonds. Their prices would rise. The Federal Reserve, late in 1948, had allowed short-term yields to advance, and the yields of the longer maturities had also increased. Prices of Government bonds, therefore, seemed reasonable. Conservative investment opinion suggested the purchase of intermediate and longer maturities.[1] In the summer and fall of 1949, bond prices rose; many bankers were skeptical and did not buy until peak prices were reached late in the year. In 1950, however, the Federal Reserve sold bonds and the prices of the longer maturities again declined.

[1] See, for example, *Moody's Bond Survey,* January 10, 1949, p. 679.

Aspects of Debt Management.—There are still other fascinating aspects of debt management. Significant differences of opinion prevail, for example, in regard to the price movements of bank-eligible bonds, as and when the supply is substantially increased in the years following 1952. Considerable ingenuity is exercised in devising new species of securities to finance renewed deficits in line with enlarged defense programs, without unduly stimulating inflationary forces. The future corporate tax structure presents another fascinating study upon which the imaginative mind can dwell. With the increase of corporate taxes, it is possible that corporations may have less retained earnings with which to finance their expansion and improvement programs. It might, therefore, be necessary to sell more bonds and preferred stocks. The higher returns on such securities might curtail the market for long-term Government securities, and this would exert further pressure on the long-term, 2½ per cent interest rate.

Individual Investors

The sale of Government bonds to large numbers of individuals raises problems not associated with bank investment. Experience in World War I suggested the danger of selling marketable bonds with daily quotations to the low-income groups. In May, 1920, the Second Liberty 4¼ per cent bonds that were sold at 100 dropped to 81.10, and in 1931 a 3 per cent bond declined to 82⅛ within four months after it was sold by the Treasury, though a decade later it sold at 113. Such heavy paper losses discourage the purchase of bonds.

The Treasury, accordingly, devised a new type of bond to meet the needs of individual savers. The bond was made nontransferable and the holder permitted to exchange it for cash only by redemption with the Treasury. This type of bond was first offered in 1935, though a nonmarketable, redeemable note was offered in World War I years.

The E Bond.—One of these bonds, Series E, used until 1952, was designed to induce savers to hold their bonds until they mature, and the inducement was a return of 2.9 per cent. There were, it is true, some bonds held in various Government funds that yielded more than 2.9 per cent. More than $3 billion of bonds in the Civil Service Retirement Fund had and still have a 4 per cent rate; more than $7 billion in the National Service Life Insurance Fund paid and still pay 3 per cent, and a number of other issues in other funds also pay high interest rates. Except for these special issues, no Government

bond between 1935 and 1952 could have been bought to yield as much as 2.9 per cent. To secure this return, however, the holder had to retain the bond for the full, ten-year term until maturity. At that time he secured his interest in one lump sum. Thus, he bought a bond for $75, and in ten years, he received $100. If he redeemed it before maturity, he received an amount which was more than the purchase price, but the excess amounted to less than an annual return of 2.9 per cent.

Suppose the holder bought a $100 face value E Bond, paying $75 for it. In 2½ years, he redeemed the bond. He got $77, and his yield was 1.06 per cent per year. Prior to March, 1951, he could have done better had he bought a 2½ per cent, long-term, marketable bond. He could have sold it at face value or better 2½ years later. Thereby, he would have secured an annual yield of 2½ per cent. The Treasury did not, indeed, agree to buy the bond from the holder at its face value. Between 1942 and March, 1951, however, the Federal Reserve system bought the bonds at face or better. Investors in marketable Government bonds who, prior to March, 1951, sold before maturity thus received better treatment than those who redeemed the nonmarketable E bonds more than one and one-half years prior to maturity. The holder of an E bond had to hold it for eight and one-half years before he could, by redemption, obtain a return of 2½ per cent.

Before 1951, a return of 2.9 per cent was the highest obtainable on high-quality corporate bonds of a ten year maturity. The highest-grade private corporate bonds yielded less. In December, 1950, for example, Dow Chemical 2.35 per cent bonds due 1961 yielded 2.33 per cent. Railroad equipment obligations with ten year maturities returned, in 1950, considerably less than 2.9 per cent. The return on E bonds was also higher than on most savings bank deposits and savings and loan association shares. It must be emphasized that 2.9 per cent could be obtained only if the E bond were held for the full term of the bond: ten years.

Disadvantages of E Bonds. In 1951, however, especially after the decline of Government bond prices below par, interest rates rose. Meanwhile, redemption of E bonds prior to their maturity tended increasingly to exceed sales of new bonds. It was feared that maturing bonds would be exchanged for cash, and the proceeds spent. The supply of purchasing power would increase, and the forces of inflation strengthened. The federal debt would thereby be "monetized" unless, of course, the bonds were paid out of taxes, or new bonds sold to investors, other than the commercial banks.

These possible alternatives raised complicated problems, and it was recognized that the retention of the maturing bonds or the exchange for new bonds would be highly desirable. To promote the success of such a policy, an interest rate higher than 2.9 per cent would obviously be a desirable step. By 1952, savings banks and savings and loan associations increased the rate of interest paid to investors, while the return on high-grade corporate bonds also advanced. Furthermore, since the price of the 2½ per cent Government bonds dropped below 100, their yield to the investor increased. Holders of E bonds also became more conscious of the intimate connection between rising living costs and the value of an investment with a fixed dollar return. The interest on the bond was attractive, but the volume of goods and services exchangeable for the principal and interest had declined sharply in the years between the purchase of the bond and its maturity. The idea was, therefore, advanced that, in addition to interest, a cost of living bonus be paid to the bond holder. As living costs rose, the bondholder would receive additional dollars beyond his fixed interest dollars. This would appear to be another, though not a novel, inflation-accelerating machine. The method is already employed in numerous wage contracts.

THE NEW E BOND. The Treasury, however, rejected the scheme. In 1952, the Treasury responded to rising interest rates and to lagging sales of E bonds by offering a modified E bond. By shortening its life from 10 years to 9 years and 8 months, the new E bond if held to maturity yields 3 per cent. Like the old E bond, the new one is sold at 75 per cent of its face value, and is paid at 100 per cent at maturity. To make the new bond more attractive, it yields higher returns than the old one, when redeemed before maturity. For example, the old bond paid .99 per cent if it were held 2 years, whereas the new version pays 2.10 per cent. The old bond, if cashed after five years, returned 1.79 per cent, the new one 2.52 per cent.

The Treasury, in 1952, also brought out a companion to the new E bond, known as series H. It has the same maturity, and is sold only to individuals, but in minimum denominations of $500. It pays 3 per cent interest. Its novelty is the mailing of interest checks semiannually in increasing amounts. On a basis of compound interest, the yield ranges from 0.80 per cent after six months to 3 per cent if held to maturity.

J and K Bonds.—The E bonds are designed to attract the small investor. Hence, only $20,000 of the new E's maturity value can be bought by any one person in any one year. These terms are not suitable to wealthier investors who desire to buy savings (nonmarketable)

bonds. To satisfy their requirements, two other series were devised —the F and G bonds, replaced in 1952 by the J and K's. The J, like the old F, is the appreciation type; that is, it is bought at a discount below its face value and is paid off at face value at maturity. It yields 2.76 per cent, if held the full 12 years to maturity. The K, like the replaced G bond, is sold at face value, and it also yields 2.76 per cent to maturity. Both have a term of twelve years instead of ten. On both bonds, if redeemed prior to maturity, the yield is lower than if held to maturity. These bonds meet the needs of some of the larger investors, and for this reason the return is lower than on the E's and H's. The latter type of bonds is sold to individuals exclusively, but the J and K's may be bought also by institutions, except by commercial banks.

Conclusion.—Government bonds thus affect virtually everyone. The value of money; the integrity of life insurance, pensions, and social security funds; and the stability of educational establishments are to a large extent based on the strength of those bonds. Fundamentally, the investment value of all other securities grows out of the basic soundness of Government securities. Indeed, the welfare of the nation is closely associated with the welfare of the investors in Government bonds.

QUESTIONS AND PROBLEMS

1. Explain the source of investment strength of Government securities.
2. Show how the Government debt is both a liability and an asset to the American people.
3. Explain how Treasury policy promotes or retards inflation.
4. Between 1946 and 1952 the percentage of the United States Government debt held by savings banks, commercial banks, individuals, and life insurance companies decreased. What classes of investors bought the bonds that these investors sold? What developments in the national economy might lead to increased ownership by the commercial banks? by life insurance companies and savings banks?
5. Do commercial banks buy more of the short maturities or the long maturities of United States Government securities? Explain.
6. It is argued that, even though interest rates on mortgages and on high-grade corporate bonds are rising, the Treasury should not pay higher rates on United States Government securities. This policy would only increase the interest account in the Treasury budget. Explain under what conditions this point of view can be rightly criticized.

7. Suppose you are convinced that money rates will decline over the next few years. You are considering an investment for $1,000 of cash you have in the bank. You have finally decided to buy either the new series E bonds or a bond of the Standard Oil of New Jersey maturing in 12 years and yielding 3⅝ per cent. What would be your choice and why? What additional data bearing on the provisions of the Standard Oil of New Jersey bond indenture would you need to enable you to reach a well-considered conclusion?

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Chapter 18

STATE AND MUNICIPAL GOVERNMENT BONDS

Importance of State and Municipal Debts.—Next to the national Government, the state and city governments constitute the largest single industry in the country. In addition to the governments of the 48 states, there are more than 155,000 political units consisting of counties, towns, organized townships, incorporated places usually called cities, school districts, and other special districts.[1] A distinction should be made between cities, counties, and towns, on one hand, and districts, on the other. The former exercise general political power, while the districts discharge a specific responsibility. They can levy taxes and create debts only to aid them to perform this task.

Revenues and expenditures of these political units, again aside from the national Government, exceed those of any other single industry. Their debts are surpassed only by the Government and by real estate mortgages. In the past half century, state and municipal debts have rapidly increased. Changes in technology and in the general acceptance of new communal and social responsibilities have been the major factors. Between 1902 and 1912, the total state and local debt increased from $2,195,000,000 to $4,498,000,000, and on a per capita basis, from $28 to $46.[2]

The dollar increase should of course be judged in the light of the rise in commodity prices. During the same period, there was also a rapid rise in the assessed values and in the dollar income of the American people. It is, therefore, probable that, in relationship to property values, per capita wealth, and per capita income, the volume of state and municipal bonds declined. In the post-World War II period, however, both state and municipal debts again increased. A broad sampling of the Bureau of Census disclosed a rise in state debts between 1946 and 1951 (June 30 in each year) of 126 per cent, and

[1] A special study as of 1942 of all types of government units is found in the *Municipal Year Book, 1951* (Chicago: International City Managers' Association, 1951), p. 15.

[2] From United States Bureau of the Census, *Governmental Debt in 1950, Governmental Finances in the United States: 1950, No. 1,* December, 1950, table, p. 5.

in municipal debts, of 35 per cent. On a per capita basis, the rise in state and municipal debts combined was from $113 to $157. Since the 1932 figure was also $157, the debt cannot be considered excessive, particularly in view of the expansion in the per capita national income from $335 in 1932 to $1,520 in 1950. In this latter year, these public debts were about 10 per cent of national income, as compared with 47 per cent in the earlier year.

The postwar increase in state and municipal debt is, nevertheless, significant. It promises, moreover, to advance rapidly in the future. The rise in population; the movement from the farm to the city; the rising standards of elementary, secondary, and higher education; the increase in the number of passenger automobiles and trucks on the highways; the development of the congested metropolitan areas; and the increasing expenditures for such social improvements as unemployment and old age insurance all increase the scale of public expenditures. It has been estimated that the cost of construction of 450,000 school rooms needed during the 1950's will exceed $9 billion, while still another estimate made by an officer of the United States Office of Education anticipates in the 1950-58 period a necessary expenditure of $13.5 billion to provide a minimum of 500,000 classrooms.

In highway transportation, a 1949 survey disclosed that to bring all roads and streets eligible for federal aid to adequate standards in 43 states, more than $20 billion of construction work would be required. The country's needs in water, sewage, and sanitation, call for expenditures of additional hundreds of millions. To remove paralyzing traffic congestion in large city central areas will require additional billions. Bus and railway terminals, parking areas, and rapid transit systems will be needed. Additional billions will be spent for improved housing, such as the elimination of slum areas and the provision of adequate facilities for the lower and middle income groups. Beside these primary necessities, state and local governments must finance soil conservation programs, school lunches, agricultural extension services, and health and welfare services.

Part of these expenditures will be financed out of current tax revenue and part by the sale of services on a business basis through the issue of revenue bonds. A substantial proportion will, however, be provided through the sale of bonds based on tax-secured credit. Unlike business borrowers, these funds cannot be raised through the sale of stock or from earnings not paid in dividends. States and cities have no stock. Neither do they have, with but few exceptions, surplus earnings. A state or city with a continuing surplus, except

under wartime conditions when labor and material are not available to build public facilities, is an anomaly. What a political unit receives in revenues, it pays out currently in expenditures. There are numerous theories designed to explain the nature of public capital outlays that should be financed by bonds. Whatever the ideal arrangement may be, it is safe to presume that a substantial rise in the public debt will parallel the capital improvements considered so essential to public health, convenience, and safety.

Legal Status of State and Municipal Bonds

State and municipal bonds have an interesting legal status. The 48 state governments, with respect to the creation and repayment of debts, are sovereign. They have absolute power in this field, untrammeled by federal governmental interference. The Tenth Amendment in concise language states simply that, "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively or to the people." Since the Constitution gives the federal Government no power over state debts, that power is exercised by the states. To make the state's authority even more specific the Eleventh Amendment protects the state from a suit either in law or equity "by citizens of another State, or by citizens or subjects of any foreign State." Though the amendment protects the state against *any* suits, it was adopted primarily to protect the states against suits for debt.

All the other political units, cities, townships, and districts, are not sovereign. They must obey state laws. There are legal remedies to oblige unwilling debtors to comply with their debt contracts.

Legally, therefore, investors in state bonds are in a weak position. Without the consent of their debtors, creditors are helpless to require debtors to meet their just obligations. Historically speaking, the technically weak legal position of the bondholders has twice produced investment troubles. In the decade after the Panic of 1837, a number of states (Mississippi, Arkansas, and Florida) repudiated either the whole or a portion of their liabilities, while a number of other states defaulted. Repudiation is the absolute refusal to honor one's debts, while default is the inability to pay, coupled with the desire to pay when and as resources become available. In the late 1870's and early 1880's, after the end of the reconstruction period in the Old South, eight states repudiated; also, Minnesota repudiated. In the depression period of the 1930's, there was some slight difficulty about the payment of bonds by Arkansas. There is no need here to

go into the circumstances that attended these defaults and repudiations. It need only be said that, despite their weak legal position, state bonds have an exceptionally high credit rating.

Legally, the bonds of the political subdivisions are in a stronger position than those of the states themselves. A city, township, or special district that does not discharge its obligations can be brought into court. Upon application of the creditors, the court issues a writ of mandamus to increase taxes. It seems legally simple for a bondholder thus to get relief. The court merely orders a tax-collecting authority to increase the tax levy in an amount sufficient to raise the funds to pay the interest and principal. But in practice the procedure is not so simple. The economic and financial inability of a community to pay its obligations is the result of deepseated economic causes, which cannot be removed by court order. In the depression of the 1930's, mandamus was piled upon mandamus, particularly in Florida where many municipal defaults occurred. The investor who errs in misappraising the economics of a community and of a government rarely finds adequate compensation in a legal remedy.

Errors of mere procedure in the loan transaction or failure to comply with specific constitutional, statutory, or charter requirements may, furthermore, make a municipal bond invalid for technical reasons. For example, one federal court held that the proceeds of water revenue bonds issued by Corpus Christi in 1927-29 were used for improvements and not to build extensions. Hence, the bonds were invalid. There have been instances in which innocent parties have lost their money as the result of such technical invalidities.

Some states have taken steps to protect investors against such losses. Georgia, Texas, and Kansas, for example, have enacted legislation to validate new bond issues by administrative or judicial procedures. Municipal bondholders almost universally employ counsel to make certain that bonds have been legally issued. It is customary to accompany a new municipal issue with the opinion of counsel. The municipal bond attorney makes a thorough investigation of constitutions, statutes, charters, and judicial precedents, and then expresses his opinion that the bond has been issued in accordance with all legal requirements. The opinion, though unqualified, is not a guarantee.

Between the states on the one hand and the cities, townships, and special districts on the other, are the counties. Unlike the former group, which are corporations created under state law, counties are administrative and judicial instruments of the states. County officers, however, are not appointed by the state. Indeed, such officers are normally advocates of larger powers for local political units.

They are, that is to say, advocates of local home rule. Most of the counties levy taxes and issue bonds. The governmental and administrative techniques of many counties are antiquated. Responsibility is widely diffused among many elected and appointed officers, and among boards. Their financial procedures often are inadequate, judged by modern standards. In the depression of the 1930's, many counties defaulted on their obligations, and the states frequently took control of their finances. There are many sections, however, particularly in the rural regions, where the county still performs important services. There are also counties in metropolitan areas that have taken over many responsibilities formerly performed by the states.

It is, therefore, difficult to lay down any general rules applicable to county credit. Indeed, that generalization applies to all forms of public credit with the exception of bonds of the United States Government. Cities, counties, townships, school districts, and a complicated variety of special districts have varying local governments. They have different tax bases, different methods of assessing property values, different sources of revenue. They operate under different tax and debt limitations imposed by the state governments. Like private business corporations, they are managed by men of varying degrees of ability. Some governments operate productive enterprises: water, electric light and power plants, bridges and tunnels, through turnpikes and local highways, airports, and marine terminals. The income and wealth respond in varying degrees to different economic and geographical influences. In these respects, the investment value of their securities must be analyzed like the local public utilities—gas, water, and electricity industries. A thorough knowledge of *local* industrial, agricultural, commercial, and general economic conditions is essential to an understanding of the bonds of cities, townships, counties, and districts.

Kinds of Bonds.—State and municipal bonds are debenture contracts. They are generally secured by no mortgage or collateral liens. Their value rests in the ability of the borrowing unit to levy taxes from a community that has sufficient wealth and income to provide funds for the payment of principal and interest. In form, the ideal bond is one in which the full faith and credit of the state or municipality is pledged for the security of the bonds, accompanied by the power to levy taxes without limitation as to rate or amount. States and cities, like private corporations, issue both long- and short-term securities. Short-term obligations are known as notes, and long-term obligations as bonds. There are numerous special types of short-term obligations. Municipalities frequently issue warrants—obliga-

tions not payable upon demand but only out of specified revenues. Bond anticipation notes, revenue anticipation notes, tax anticipation notes, and budget notes are also used. New York provides another financial species known as capital notes. These are used to finance capital improvements the costs of which are low enough to allow the borrower to pay, in not more than two annual instalments, without undue burden on the taxpayers.

The increase in short-term debts is as perilous to public as it is to private borrowers. The financial difficulties into which numerous private borrowers fell in the 1930's, because of heavy floating debts, was paralleled in the field of public finance. Many bond defaults were due in part to heavy short-term loans. A protection against this danger is provided by the city charter of Baltimore, which prohibits the creation of floating debt and requires that budget appropriations be reduced as income falls below expectations. An annual deficit must be liquidated in the following year.

A form of bond that finds no parallel in the field of private finance is the special assessment bond. This obligation is used to finance local property improvements. The bonds may be paid directly to contractors, or the cash proceeds of the bonds may be so paid. There are many variations of this kind of bond, and some ingenious language has been devised to draw distinctions between one class and another. One type is in substance a full faith and credit bond. If assessments on the property owners are insufficient to meet interest and principal, the bond becomes an obligation of the municipality. Such a bond, for example, was issued in 1950 by the Baltimore County Metropolitan District. The proceeds of this issue were used for water main, sewerage, and drainage projects. Payments to the investor are made primarily from assessments on property improvements. If these are not sufficient, taxes are levied upon all property within the district, and if both sources are inadequate, taxes will be levied upon all taxable property within Baltimore County, without limitation on rate or amount.

Other types of assessment bonds must be paid exclusively from the proceeds of assessments against property owners, or in some other way short of a general tax levy. Such a bond is illustrated by the limited special assessment bond issued in large amounts in Illinois in the 1920's. The assessments were placed upon the local property benefited. They were, however, obligations only of special assessment districts, and general taxes could not be imposed to meet the just claims of the bondholders. A particularly unfortunate record of such bonds is afforded by the special improvement district bonds of numerous communities in Montana. In 1947, about $1,522,000 of

such bonds out of $3,400,000 outstanding were in default and "apparently uncollectible." [3]

There are still other variations of assessment bonds, and the investor must examine each contract to determine its ultimate security. Assessment bonds that are not based upon the full credit and taxing power are not well received by careful investors. This opinion is reflected, for example, by a law of the State of New York that only bonds based upon the full credit and taxing power of the city can be bought for savings banks and trust funds. Assessment bonds provide higher yields than the full faith and credit bonds. For example, a special improvement district bond in a Montana community in 1948 carried an interest payment of 5½ per cent, about double the interest rate on its full faith and credit bonds.[4]

Sinking Fund and Serial Bonds.—The choice between a term bond secured by a sinking fund and a bond issued serially is more important for public than for private borrowers. Under a sinking fund arrangement, the borrower sets up a fund gradually over the life of a bond to "sink" or to pay it off in whole or in part prior to its maturity. Under a serial plan, the borrower at the time of issue creates bonds of different maturities. Five per cent of a new issue may mature in one year, another 5 per cent in two years, and so on, with the last 5 per cent maturing in the twentieth year.

Experience has disclosed many deficiencies of the sinking fund method of financing for public borrowers. Public borrowers normally do not report a surplus. They have relatively small funds available from current revenues to reinvest in the property, and in periods of declining revenues, they are not as likely to reduce expenses as are private borrowers. They are, therefore, inclined to borrow from sinking funds.

Heavy loans made from sinking funds have featured the history of many cities, for example, New York and Philadelphia. In some cases, such intramural transactions have assumed the aspects of local political scandals. In one county in Tennessee, the whole of the sinking fund was lent on real estate mortgages, and in another, it was advanced to a sinking fund commissioner who lost the funds through unwise investment. In West Virginia, to cite another illustration, the defaults of counties in some cases arose from diversion, improper investment, or dissipation of sinking funds. In New Jersey, there were so many violations of sinking fund contracts by local borrowers that corrective legislation in the form of the New Jersey Sinking Fund Act was enacted in 1917.

[3] *Daily Bond Buyer,* March 25, 1948.
[4] *Ibid.*

Furthermore, the accounting for sinking funds of public borrowers has become complicated. Uniform amounts are not set aside annually, and from time to time, assignments of surplus revenues or of some percentage of revenues are made. Many localities are not equipped to handle the intricate computations that are made necessary.

In more recent years, serial financing has replaced the sinking fund method in an increasing number of jurisdictions. In addition to the factors mentioned above, there is the element of lower interest cost to the borrower, since debt reductions for serial bonds generally provide for greater annual principal payments than for sinking fund bonds.

Serial bonds have still another advantage. There is a growing demand for municipal bonds from different classes of investors. Each class requires different maturities to suit its needs. Commercial banks need bonds of short maturities, and trust funds and insurance companies require bonds of longer maturities. A serial issue can be so arranged as to meet the needs of both types of borrowers. Investment bankers, in order to widen the market, have thus thrown their weight in favor of the serial method. As early as 1931, the Municipal Securities Committee of the Investment Bankers Association of America suggested that "the unsatisfactory result of the sinking fund method of retiring bonds in many communities has brought about a marked preference for the serial method of retirement."

As an aside and as a commentary on the complexity of public financing, a note may be added on the bonds issued by Philadelphia in 1941 and 1942. Though these bonds mature serially, payments are made out of a continuing fund. Hence, these bonds have the characteristics of both sinking fund and serial bonds.

Analyses

There are industrial, geographical, racial, social and institutional diversities among American cities. The population of some areas is relatively stable, in some it is declining, and in others expanding. (See Chapter 2.) Increasing population, however, does not ensure rising wealth and income. Usually, there is a positive correlation, but there are so many exceptions that the rule cannot be safely used.

Economic Analysis.—There are some cities whose economic life is highly cyclical. The prosperity of Detroit is based upon activity in the automobile industry, and of Fort Worth, Texas, upon

the handling of a relatively few raw materials. In Ohio, Middletown's prosperity is based largely upon the operation of one concern, Armco Steel, while the economic welfare of Midland, Michigan, is closely associated with the activities of Dow Chemical. Philadelphia and Chicago, on the other hand, have a wide diversity of productive industries, while New York City has an even wider assortment of service industries.

The welfare of other communities is intimately associated with the prosperity of a few basic industries. The financial reverses of Fall River, Massachusetts, in the depression of the 1930's cannot be disassociated from the collapse of its cotton textile industries. Many cities in Pennsylvania have been adversely affected by the decline in the fortunes of the anthracite industry. Many small communities have suffered because of exhaustion of some natural resource such as lumber, coal, oil, or copper.

The investor in municipal bonds, therefore, must be a student of basic industrial trends. He should not commit himself to a town whose industries are of declining importance in the national economy. On the other hand, he must use sound judgment in measuring and interpreting the capital expenditures and the debt structure of a city favored by numerous expanding industries.

A striking phenomenon is the growth of the metropolitan district. This is a general area in which, as defined by the United States Bureau of the Census, there is located in an urban area at least one city with a population of 50,000 or more, and other civil divisions with a population of at least 150 per square mile. The principal concentrations of population are called the central cities and the other incorporated political units are the suburbs. These heavy population aggregates create many financial problems; among the most important is the heavy cost of providing capital improvements to make life livable in the central areas.

The population is now tending to move away from the central cities to the suburbs. In the 1940's, for example, the population of the latter (based on a survey of 21 representative cities with population from 5,000 to 500,000 made by the International City Manager's Associations) increased 34.9 per cent, as compared with only 13 per cent for the central cities. Hence, those central cities have relatively less taxpaying ability and higher per capita costs for essential public services—social services, education, sanitation, relief of traffic congestion, and so forth.

Financial Analysis.—The financial analysis of state and municipal bonds revolves largely around debt and tax problems. Numerous

ratios and lines of analysis used in private bonds do not apply to public bonds. Since there are no stocks to be considered, there is no equity ratio and no need to study working capital or net quick assets. Municipalties rarely have surplus funds invested in cash or marketable securities. Nor do they have inventories. Their receivables are confined largely to delinquent tax bills.

Another significant difference between private and public securities is sufficiently important to merit consideration. Private corporations publish information that is comparable and, subject to numerous qualifications, can be readily interpreted. For some industries: railroads, electricity, gas, telephone, automobiles, and steel, among others, there is available industry-wide information. The investor can compare the figures as a whole. It is difficult, and frequently impossible, to make such a comparison in the field of public securities. Budgets are bulky and complex documents. In more recent years, however, an increasing number of larger cities have issued simple and clear annual reports, but few municipalities do so. Those of the smaller communities and many of the larger ones are still inadequate. The investor has little grist for his analysis mill.

Debt Limitations

Political subdivisions of the states are free in *no* state to create debts or to levy taxes without restraint. Almost all states have imposed debt limits upon local governments, either by constitution or by statute. In a majority of states, the limitation on the creation of local debts is based upon a percentage of the assessed valuation of the property. The limits range widely from 1 per cent to 20 per cent, though the most common limits are probably between 2 per cent and 7 per cent. There is, furthermore, no uniformity among the methods for the calculation of assessed values. It may include real property alone or real plus personal property. It may be based upon a valuation for one year or upon an average for several years.

Many of the state governments also impose a limitation upon their own borrowing power. Some states forbid the creation of debts except for certain specified purposes, though many of these restrictions have in recent years been removed. In North Carolina, for example, the Constitution adopted shortly after the Civil War prohibited (unless the bonds sold at par and except for certain emergencies) the creation of a state debt unless at the same time a special tax was levied to pay interest. This was changed in 1924 to give the state power to incur debt up to 7½ per cent of the assessed value of the taxable property. Another change was made in 1936, limiting

the creation of new debts to an amount not exceeding two-thirds of that amount by which its debt was reduced in the preceding two years, except by a public referendum. Other interesting changes were made by Texas and Pennsylvania. There is no uniformity and no general rules can be suggested.

Issues Despite Limitations.—The rigid nature of state restrictions upon local debts has led to the use of devices to increase the debt in the face of those restrictions. The idea was conceived, for example, that a debt incurred to provide a project that could earn sufficient to pay interest and to repay principal should not be included in the debt structure. Such a debt is called self-sustaining or self-liquidating. Bonds to finance a water plant are normally so described. Bonds issued for other projects, such as electric light, gas, bridge, or street railways are also frequently included. The difference between the entire debt, known as the gross debt, and the self-sustaining debt is called the net-tax-supported debt. If the revenues of a project are sufficient to pay operating expenses and also bond interest and principal, legal assumptions merge with financial and economic realities. The self-sustaining debt is no burden on the taxpayer. In many cases, however, economic realities do not square with legal assumptions.

A notable illustration is afforded by the default in the bonds of Asbury Park, New Jersey, a popular seashore resort. Though the gross debt in the 1920's exceeded the debt limit, the net debt limit was not exceeded because of the legal interpretation that beach improvement bonds were self-sustaining. In fact, the beaches were not profitable and, in 1934, the city defaulted on its interest.

The city of New York in the post-World War II period has operated close to its legal limit. Numerous expensive capital improvements could not be made because of the lack of sufficient debt-incurring power. To make it possible for the city to issue bonds to finance such improvements, the state legislature in 1949 excluded from the New York City debt limit $150 million of bonds to be issued for hospitals. It is questionable whether hospitals can be operated on a business basis to create revenues sufficient to pay operating expenses plus bond service charges. Effective 1952, the legislature also excluded from the debt limit $500 million of bonds for building new rapid transit lines in New York City. Such a measure would permit the financing of more capital improvements through the issue of municipal bonds. The city of Philadelphia in 1945 performed a similar financial operation when it established a sewer tax, thus making sewer bonds self-sustaining. The bonds were thereby ex-

cluded from the debt limit, and the city could, therefore, sell more bonds to finance its capital improvement program.

Gross debts are also larger than net debts by reason of sinking funds. In Philadelphia (city and school district combined), for example, in 1952, the sinking funds were 11 per cent of its gross debt. Some cities on the other hand have few or no sinking funds.

Another complexity in the comparative analysis of net debts arises when water department bonds are not deducted from gross debts. Cities in Oklahoma afford an instructive illustration. Though the total tax for current expenses is limited, there is no such limit on taxes to pay bond interest and principal. The cities, therefore, use the property tax to service their debts, and devote their income from water and other public enterprises to general municipal purposes. To compare the debts of Oklahoma cities with the net debts of cities in other states, the investor deducts the self-sustaining bonds of the former.

Perhaps the most popular way of borrowing in the presence of debt limitations is the creation of additional districts. Hence, many political units tax the same property. Chicago is a classical performer in this activity. The direct gross debt of the city in 1950 amounted to 1.34 per cent of assessed value, but the combined debt of all the districts approximated 4.18 per cent of the base. So general has this practice become and so important are its implications that some technical language has been devised to facilitate analysis of the problems. Debts of the smaller political units are known as underlying, those of the larger areas as overlapping, and those of units with about the same boundaries, as coterminous. To retard the creation of duplicate debts against a given property value, some states have fixed overall limits. In New York, however, there is no such limitation. Hence, a debt limit of 7 per cent operating against each political unit may mean, say, a 25 per cent debt against the value of property in a geographical area.

Still another chink in the protective wall of debt limitations has, in the past, been made by special assessment bonds. In the 1920's and early 1930's in such states as Ohio, Florida, and New Jersey, these bonds, although frequently contingent obligations of a municipality, were not included in debt limitations.

Debt Ratios.—These conditions bearing on the volume and measurement of the debt must be weighed in applying various ratios expressive of the debt burden resting upon a community. Perhaps the most generally used ratios in investment circles are debt to the assessed values and per capita debt. A lower debt, all things con-

sidered, is of course, preferable to a higher one. In interpreting the former ratio, care must be taken to define assessed value. Almost all states take the valuations for one year, and some unfortunate experiences have arisen in consequence of this practice. In prosperity, valuations can be raised and the debt thereby increased. Extravagance in expenditures and inflation in the debt structure have thus been encouraged. In New Jersey since 1916, municipal debts have been limited for any single year to 7 per cent of the average assessed value of real property in the preceding five years.

There are other complexities arising from the use of assessed values as a basis for measuring the net debt burden. Some real property that contributes little or nothing to tax revenues may be included in assessed values. In Chicago, personal property, on which delinquencies are high, is included in assessments. In Wisconsin, on the other hand, personal property tax revenues are productive. In a number of states, special property, such as money and credits, which pay a low tax, are included in the tax base. The analysis is further complicated by the different percentages of assessed value to true market value used in different states and in different communities. In Philadelphia the assessed value is presumed to equal market values, while in the suburbs of that city assessed values are much below market values. In Florida, municipalities' assessments have changed rapidly. They were inflated in the 1920's and deflated in the 1930's. In Illinois in 1947, there was a sharp expansion in assessments. Because of the enactment of a law requiring the assessment of property at 100 per cent of true value, the valuation of property in 20 Illinois cities in that year was boosted by 47 per cent. In the late 1940's in most cities, assessed values were, in fact, increased. Between 1945 and 1949, the assessed values in 248 cities were increased 26.5 per cent. Such sharp advances tend to cause tax delinquencies in depression, but in prosperity, they tend to inflate municipal debts.

Assessed value, it must be recognized, is a concept created by the tax collector. Seldom does it bear a direct relationship to the market value. It is an arbitrary value, used as a base for taxation purposes. Even when a 100 per cent true value basis is used, there is necessarily no equivalence between assessed and market values.

Another widely used index to measure and compare the financial strength of municipalities and states is the per capita debt outstanding. Comparisons enable the investor to identify cities with unusually high and unusually low debt ratios. Among the major cities, the debt of Philadelphia is on the high side. To the debt of the city of Philadelphia must be added that of the school district. The gross

overall per capita debt in 1952 was $274. Deducting sinking funds, the net per capita debt, however, was only $242. The City of San Francisco, on the other hand, reported at the end of the June 30, 1951, fiscal year, a net debt, including street railway bonds, of $130 per capita. A particularly high net debt is reported by the Washington Suburban Sanitary District. The over-all per capita debt in 1949 exceeded $323. It is argued, by those who look upon this high debt with full confidence in its integrity, that the value of homes in this community are about 100 per cent greater than the national urban average, and that the rentals are about 50 per cent higher than the average. The district, therefore, might "reasonably be considered depression-proof." [5]

On the high side of the county debts is that of Westchester County, New York. Its per capita debt and also its debt in relation to assessed property value is high. It is contended, however, that the community has a greater than average capacity to pay and that the population has means far above the average. The county has also an excellent tax collection system, by which municipalities must turn over to the county, in full and annually, their proportionate share of the county's tax levy. As a result, unbalanced budgets are rare. In Newark, New Jersey, a high debt is not supported by such favorable factors. The danger of the debt is intensified by the exodus of many residents to the suburbs. Large, substandard residential, commercial, and industrial properties are not capable of meeting their tax obligations. During the 1930's and 1940's tax delinquencies were high.

The movement of population from the center of a large city to the suburbs is, of course, a general phenomenon, but it carries grave danger to the integrity of the municipal debt structure, for with the net reduction in wealth and in property capable of supporting a reasonable tax load, the expenditures of the cities cannot be substantially reduced. The per capita cost of rendering municipal services, such as street lighting, street repairs, sewers, water, education, police and fire protection, increases as the population declines.

This discussion reveals the statistical inadequacy of the use of the per capita debt and ratio of debt to assessed value as a *sole* means of comparing municipal debt burdens. It must be supplemented by ratios of the debt to the wealth of the community and the ratio of the debt to income. Though none of these ratios is definitive, all must be considered in assessing the adequacy of municipal debt burdens. All of these ratios, furthermore, must be judged in the

[5] *Barron's National Business and Financial Weekly,* October 31, 1949, p. 20.

light of the great change in the 1930's and 1940's of the nature of state and municipal taxes.

Taxes.—Principal and interest of the bonds of states and municipalities are paid largely from taxes, and these governments cannot follow a policy of continuous deficit financing. The penalty of a succession of deficits is a loss of credit and an inability to borrow funds to finance capital programs that cannot be currently financed.

The general property tax has for many years been the major source of revenue for states and their political subdivisions. In recent years, many states have reduced or eliminated this tax. For cities, counties, and other political units, however, the property tax, though decreasing in relative importance, is still the major source of public revenue. Tax rates are reported for purposes of comparison on the basis of $1,000 of assessed valuation. The same problems already examined in connection with debts apply to tax rates. Assessed property values are reported on varying bases, and separate tax levies are made on the same property by different tax-levying units—cities, counties and districts. To measure relative tax burdens, adjusted tax rates are computed. These show what the tax rates would be if the ratio of assessed to true values were 100 per cent for all political units compared. Such a computation is made annually for 300 cities by the Bureau of Governmental Research of Detroit. Analysis of comparative tax rates is important for those municipalities whose revenue is derived largely from property taxes. Municipal expenditures cannot be easily controlled, and on the whole, subject to the major exception of the depression years in the 1930's, they have been steadily rising. These expenditures, plus debt charges, are paid largely from taxes. The real security of the bondholders is the right to levy taxes in unlimited amounts.

Tax Limitations. In many jurisdictions, however, limitations are imposed on the amount of tax levies. A maximum tax rate, such as 2 per cent of the assessed value of the property, may be used. In some jurisdictions, however, tax revenues for one year are limited to a given per cent of the property tax collections of the preceding year. Tax limitation clauses have a long history. Ohio and Alabama, for example, have long used this device. Additional states, including West Virginia and Michigan, adopted constitutional tax limitation amendments in the depression years of the 1930's.

From the standpoint of the bondholder, these provisions are not to be recommended. Theoretically, they are sound. They are designed to limit expenditures by limiting the revenues from which such expenditures can be made. If the assessed values are substan-

tially below market values, they are not usually dangerous. Dallas and Houston, for example, operate under tax limitation clauses. In these cities, however, the basis of assessment for tax purposes is substantially below 100 per cent of market value. It is thus possible that additional revenues can be secured by raising assessed values. While this device may work well in prosperity, it is questionable whether it is possible to raise assessments in emergencies.

A serious impairment in municipal credit may, indeed, accompany tax limitation clauses. In Michigan, for example, following the tax limitation introduced in 1932, a virtual cessation of capital improvements ensued and cities could pay for such improvements only through the device of special assessments. After an experience of 16 years, the 15-mill tax rate limitation in its application to cities was removed. The judicial approval of the constitutionality of this enactment was hailed by the consultant of the state's Municipal Finance Commission as restoring the much-prized, unlimited tax label on Michigan city bonds.

Rigid tax limitation clauses have not had the favorable expenditure-restraining effects expected of them. Floating debts created to meet increased current expenses are later refunded, revenue bonds are issued to relieve restricted borrowing power, attempts are made to pledge indirect revenues. When expenses were reduced in the depression because of the inability to secure adequate tax revenues, drastic measures were adopted. The closing of public schools in Cincinnati, Dayton, and Toledo and the cessation of relief expenditures in Cleveland and Toledo in the 1930's are illustrations. Nor did the tax limitation clause avoid defaults in these years of financial stress. In Ohio, a leading tax limitation area, defaults occurred in Toledo, Akron, and Youngstown.

Tax limitations that exempt debt service are, of course, not especially harmful. Oklahoma, New York, Pennsylvania, and Indiana limit the amount of taxes that can be levied for operating expenses, but not for debt service.

Importance of Property Taxes. For states and, to a lesser degree, for other public borrowers, the relative importance of the property tax has diminished. The rapid increase in state expenditures in the last two generations has been financed to an everincreasing degree through the use of numerous nonproperty taxes. Gasoline taxes established their depression-resistant qualities in the 1930's. By the summer of 1951, 31 states had adopted sales tax levies. In the postwar years, gasoline sales and tobacco taxes produced record yields. In 1915, approximately 58 per cent of state revenues, exclud-

ing grants-in-aid, came from the general property tax. In 1950 the percentage was less than 4 per cent.

Property tax limitations as applied to states have, accordingly, only slight importance for investors. Cities, on the other hand, still derive a substantial, though a diminishing proportion, of their revenue from property taxes. Between 1915 and 1944, for example, the percentage of property taxes to general revenue, excluding grants-in-aid, for the country's major cities, increased from 62.0 per cent to 78.8 per cent. By 1950, however, a Government study for 474 cities disclosed that property taxes contributed only 52.6 per cent of total revenues.[6]

In New York City, where a property tax limitation of 2 per cent on the five-year average full valuation of taxable real estate prevails, only 44 per cent of the city's budget in 1952 came from real estate taxes, as compared with 75 per cent in 1929. It is interesting to observe, also, that in Alabama, where a tax limitation has long been in effect, the city of Birmingham's property tax, including the city's share of state and county taxes levied on property located within the city in 1951, accounted for only 38.4 per cent of its revenues.

NONPROPERTY TAXES. This trend toward nonproperty tax revenue is in the right direction. Personal property and intangible wealth represent a rising proportion of national income. Many of these taxes,—bridge tolls, parking meter receipts, gasoline taxes, and truck and passenger car license fees—are virtually selling prices for services rendered to the consumer. These taxes, furthermore, are collected in driblets as compared with real estate taxes. They are, therefore, not so likely to encounter tax payer resistance.

The most recent form of taxes collected at the city level is the income tax. When first introduced, such a tax usually encounters stiff opposition, but later, it is likely to be generally accepted. In 1947, Pennsylvania took advance ground by passing a law authorizing local governments to levy taxes that the state can levy. By the end of 1949, more than 700 local governments had levied almost 1,000 different taxes under this law. The State of New York in 1947 also enacted similar legislation, though less comprehensive than Pennsylvania's. It authorized counties, with the exception of the one in which New York City is located, to levy taxes on restaurant meals and drinks, on admissions to amusement places, and on passenger and commercial vehicles, with the exception of farm trucks. Cities of 100,000 to 1,000,000 population were permitted to levy

[6] Bureau of the Census, U. S. Department of Commerce, *City Government Finances in 1950* (*City Finances, 1950 No. 2*), 1951, Table 2.

taxes on business and professional receipts and on hotel occupancies. A special tax allowance for New York City was also prescribed. The national trend is strong in the direction of imposing nonproperty taxes, and it is probably correct to say that "municipalities have only scratched the surface in the way of new taxes. . . ." [7]

The analysis of state taxes in relationship to state revenues has in recent years been further complicated by the federal grants-in-aid. These are payments made by the national government largely to state, and to a lesser degree, to local governments for the support of specific activities administered by state and local governmental units. Data are available on the grants made by the federal Government since 1902. The amount contributed in that year was slight, approximately $3 million, and in 1948, the grants approximated $1.4 billion. Federal help to state highway building programs has been extended by the federal Government in everincreasing amounts since 1920. These grants are matched dollar for dollar by state and local contributions.

The substantial increase in federal grants of all kinds in recent years dates from the passage in 1935 of the Social Security Act. To carry out the programs authorized by that Act, the federal Government in 1948 made grants amounting to $573 million for old-age assistance and $141 million for aid to dependent children. More than 50 per cent of the total federal grants in that year were made for these two purposes.

The states, in turn, make substantial grants to the local governments. In 1949, state aid paid to local governments approximated over $3.5 billion, or $24.42 per capita. Of this amount, approximately half was used for schools.[8] Such state aid is on the increase.

The aid assumes various forms. Highway revenues are apportioned among the cities, as are revenues from miscellaneous state taxes and general funds. New York makes lump sum appropriations for local assistance. It also reimburses local units for a major part of their expenditures for welfare services. Frequently, funds collected for the improvement of state highways are diverted to help local governments. In some states, such as Tennessee, approximately half of the receipts of the county elementary schools are provided from state funds.

Pressure from cities to force states to grant additional aid is severe and is increasing. This is particularly true in the field of

[7] F. C. Peitzsch, "New Sources of Municipal Revenue in 1947," *Municipal Year Book, 1948* (Chicago: International City Managers' Association, 1948), p. 176.

[8] U. S. Bureau of the Census, *Revenue and Expenditure of Selected States in 1950, State Finance, 1950, No. 3,* February, 1951.

education. In some jurisdictions, the philosophy is developing that it is wise for the state to administer functions generally considered local in character. This includes welfare and public health.

Usefulness of Old Ratios

These new methods of raising revenues have impaired the usefulness of many ratios long used by the investor in municipal and state bonds. The debt per capita must now be compared with varying amounts of aid received by localities from states and from the federal Government, and also by the state governments from the federal Government. The ratio of property tax collections to total tax revenues was long used as an index to municipal solvency, but has lost most of its former significance.

The ratio of debt service (interest plus the debt paid off in a particular year) to revenue from all sources is now highly useful. There is no fixed relationship between debt service and total revenues. A borrowing unit, by retiring a substantial part of its debt, inflates the ratio. A higher ratio due to this factor is a favorable, rather than an unfavorable, item to the investor. A reduction in interest charges, due to declines in money rates, may reduce the ratio of debt service to revenue.

Such a reduction, however, may actually mask an increase in debt. In Philadelphia, for example, in the early 1930's, the annual debt service approximated $30 million out of a total expense of $75 million, a ratio of 40 per cent. In 1950, the debt service advanced slightly to $31 million, while total expenses moved ahead to nearly $124 million, thereby reducing the ratio to about 25 per cent. The interest portion of the debt costs declined from a peak of $24 million in 1934 to about $17.7 million in 1950. This reduction was due largely to a decline in interest rates. Four to 5½ per cent bonds were refunded by bonds carrying coupons between 2 and 3¼ per cent. The city in 1949 and 1950 actually increased its debt by almost 20 per cent. Due in part, however, to low interest rates, the ratio of debt service to total revenue is not likely to rise soon to the level of the 1930's, even though the total debt might considerably exceed that level.

Philadelphia's ratio of debt service to current revenues in 1950 was, nevertheless, substantially higher than that in Baltimore, for example, where the ratio was only 10½ per cent. In this case, the statistics of debt per capita and of debt in relationship to the assessed value of taxable real estate are in favor of Baltimore against Philadelphia. These differences probably explain the lower yields that,

for many years, have prevailed on Baltimore's bonds as compared with Philadelphia's. In May, 1952, for example, the 1¾ per cent bonds of the former, due in 1977, yielded 1.80 per cent, while the latter's 2 per cent bonds, due in 1977, yielded 2.10 per cent. A similar discrepancy characterized the prices of the shorter maturities. The Baltimore 1½ per cent bonds of 1958 gave the investor a yield of 1.30 per cent, while the 1¾ per cent bonds of Philadelphia, due also in 1958, yielded 1.55 per cent.

Though there is no ratio universally applicable, there is well-grounded, conservative opinion that debt service should not exceed 25 per cent of the annual budget, with debt retirement equaling 5 per cent of the principal.

Municipal Vs. Private Bonds

There is at all times a major factor supporting the investment safety of state and municipal bonds not prevalent in private bonds. A loss incurred by a private borrower is absorbed by its security-holders, including both stockholders and bondholders. With rare exceptions, through subsidies and subventions, for example, the loss is not assumed by others. Losses incurred by state and municipal borrowers, conversely, are frequently absorbed by citizens other than bondholders. Managerial mistakes, errors in city planning, excessive creations of debt, and occasionally, downright dishonesty by public officials may create losses that are not necessarily harmful to the bondholders. As long as there is a taxable income, sufficient public revenue can be collected in higher taxes to absorb public losses.

Record of State and Municipal Bonds.—State and municipal bonds, next to national Government bonds, have proved to be the safest investment. Even in the dreary depression years of the 1930's, only one state incurred a default, and that was temporary. The number of municipal defaults were less than 2 per cent of all municipalities. Approximately 30 cities with population in excess of 50,000 defaulted in that period. The default in the 1930's by Arkansas led to no permanent investor loss, and since then that state has achieved a good credit standing. In relationship to wealth, national income, personal disposable income, gross national product, and per capita income, the debts and the debt service charges of the states are low. The flood of unproductive state bonus bonds has somewhat increased the debt, but not dangerously so. Hence, state bonds for many years have had, and continue to have, excellent credit ratings.

Among the political subdivisions of the state, however, there are wide differences. It is probable that public, like private, borrowers may build up an inflated debt structure in a boom. It is essential that investors follow the trend of relative debt burdens and the trend of tax revenues from which such debt burdens are liquidated. Municipal debts are rising, and expensive capital improvements are financed almost entirely by bonds. Because they are, nevertheless, an essential part of community living standards, neither the improvements nor the accompanying debts can be avoided. The investor, therefore, must be on guard. He is operating, moreover, in a changing environment in which new forms of taxes and grants-in-aid from states and the federal Government are likely to exert an influence on the safety of their bonds. These new influences, on the whole, promise to be favorable to the credit status of state and municipal bonds.

QUESTIONS AND PROBLEMS

1. Explain the legal distinction between state bonds and municipal bonds.
2. A security salesman informs you that the bond of City A is a better investment than the bond of City B because the debt of A is only 6 per cent of the assessed value of the taxable property, as compared with a list of other comparable cities whose debts average 10 per cent of the same base. What questions would you raise with the salesman to ascertain the truth about the relative merits of these bonds?
3. Why is it important to determine the legality of a municipal bond?
4. "Validity" is more important for a municipal than for a state bond. Justify the truthfulness of this statement.
5. Compare the legal remedies available to a municipal bondholder, as compared to a holder of a state bond.
6. Why are municipal bonds issued on the serial plan more popular with many investment institutions, especially commercial banks, than the term bonds issued on a sinking fund plan?
7. In 1952, more than $1.5 million of municipal bonds of Pennsylvania anthracite communities held by an educational retirement fund were not paying their interest. What lesson does this teach in regard to the kind of economic analysis that should be made prior to the purchase of municipal bonds?
8. Explain what is meant by self-sustaining or self-liquidating debt. Under what conditions is such a debt concept sound?

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Chapter 19

REVENUE BONDS

Rising Volume of Revenue Bonds.—The rising standard of living and the number and scope of public services discharged by the states and municipalities have tended to make state and municipal debt and tax limitations largely obsolete. For political and other reasons, it has been impossible to increase taxes in amounts sufficient to defray the necessary costs, and in some states, tax limitation provisions have effectively barred the use of this source in any case. Legal borrowing margins have been substantially reduced in post-World War II years, as compared with prewar years, and in many jurisdictions, existing margins are inadequate to provide for the increased volume of bonds necessary to finance essential capital programs. Many municipalities found themselves in the late 1940's in the same position that confronted the railroads a half century ago. Railroad mortgages issued in connection with corporate reorganizations of the middle and late 1890's imposed rigid restrictions on the issue of new bonds. The record expansion of business in succeeding years made it difficult for many roads to finance their capital improvement programs. Some of the companies issued stock, while others found a solution in the creation of junior or collateral trust mortgages or both.

For a number of years, particularly in the 1930's, many different methods were used to avoid statutory and constitutional debt limits. A municipal plant was leased with the option to purchase at a nominal price at the end of the lease. Conditional sales contracts were also executed. These two methods have long been used by the railroads in financing the purchase of equipment and have met contrasting responses from the courts. They were upheld in some jurisdictions and rejected in others.[1]

There is another important reason for the popularity of the revenue bond. Many public projects of vital importance operate across

[1] L. L. Durisch, "Municipal Debt Limits and the Financing of Publicly Owned Utilities," *National Municipal Review* (New York, 1931), xx, 460-65, discusses some of these problems.

political boundaries. A governmental corporation, known as an Authority, with power to own and operate a property regardless of varying political jurisdictions is the solution. Thus the Delaware River Joint Commission operates the Camden-Philadelphia Bridge and the Port of New York Authority operates bridges and tunnels connecting New York and New Jersey.

Many schemes for avoiding debt limitations proved to be palliatives and were not generally adopted. The revenue bond, however, as a means of avoiding debt and tax limitations, has been successful. Principal and interest of the revenue bond, unlike those of the municipal bond, are paid from the revenue of the public enterprise, not from general taxes. A definition of a revenue bond approved by the Investment Bankers Association of America is as follows:

> An obligation of one or more states or political subdivisions or agencies thereof, payable exclusively from the revenues of one or more specific income producing properties or systems (which income is derived in whole or in part from the sale of services and not supported by any form of special tax or real estate lien of an involuntary nature) for the acquisition, construction, or improvement of which the obligation was issued, and similar obligations issued to refund same. A state or any one of its divisions, owning and operating a property on the basis of a specific charge for a specific service rendered is engaged in business, though the business is not designed to pay dividends.

The revenue-secured, contrasted with the tax-secured, obligation was first issued in this country in 1897 in the form of a $350,000 Spokane, Washington, 6 per cent water revenue bond. The City of Tacoma, Washington, was the first to issue electric revenue bonds, which were sold in 1910. Seattle followed with another electric issue in 1917. Many municipalities by that time had issued water revenue bonds. A strong stimulus to the creation of revenue bonds was provided in 1925 by an ingenious legislative arrangement devised jointly by the legislatures of the states of New Jersey and New York. Some years before, these two states had created the Port of New York Authority to facilitate the unified operation of the Port of New York. Because of existing political boundaries, unified port operations could be achieved by neither state.

Revenue Bond Borrowers.—The Authority is a governmental corporation organized to own and operate a public project as a self-supporting enterprise. Its revenue must be adequate to pay all operating expenses, as well as interest and principal on borrowed funds. The creation of the Port Authority of New York demonstrated the

usefulness of an authority where political units did not harmonize with commercial and business realities.

Experience after the creation of the New York Port Authority in 1921 revealed that state action was needed to build up a credit basis for the Authority and thus to enable it to secure the capital necessary to function. In 1925, the states of New York and New Jersey agreed to lend not in excess of 25 per cent of the cost of building two bridges. The Port Authority was authorized to issue bonds for the remainder with a prior claim on earnings. Equity capital was thus provided in the same way in which the United States Government, through the Pacific Railroad Acts of 1862 and 1864, aided the Union Pacific and the Central Pacific by a loan of Government bonds to build the first of the nation's transcontinental railroads. Just as federal Government action enabled the railroads to sell bonds, so the two states many years later made it possible for the Port Authority to sell its bonds.

Revenue bond financing had been increasing slowly in pre-World War II years. Various forces operated to increase rapidly the total volume in the postwar years. Between 1944 and 1949, the percentage of revenue bonds to the total of state and municipal bonds issued *annually* increased from 5.8 per cent to approximately 20 per cent.[2] Since these figures include only issues of $500,000 or more sold at public sale, they probably underestimate the importance of revenue bonds. On June 30, 1951, more than $4.2 billion of revenue bonds were outstanding, equal to 15½ per cent of the total debt of states and local governments.[3]

Revenue bonds are issued either by states or municipalities, or by specially created corporations—Authorities. Until the 1930's, most of the revenue bonds, with the exception of the Port Authority of New York, were issued by municipalities. In more recent years beginning with the power and light properties in the mid-1930's, the number of bonds created by Authorities have rapidly increased. In 1930, Oregon authorized the creation of public utility districts with no regard to local political boundaries; they were authorized to develop and sell electric energy generated from water power. In the same year, Nebraska approved a law to permit municipalities to organize power districts to operate electric light and power plants and to pay for them by pledging future earnings. In later years, Authorities were set up in such cities as Chicago and Cleveland for the purchase and operation of transit properties.

[2] *Daily Bond Buyer,* December 5, 1949.

[3] U. S. Bureau of the Census, *Governmental Debt in 1951, Governmental Finances in the United States: 1951, No. 1* (December, 1951), p. 2.

The most comprehensive measures for the setting up of separate Authorities have, however, been taken in Pennsylvania. In that state, a law passed in 1935 and later amended authorized any municipality acting singly or jointly with others to organize an Authority through the adoption of a resolution or an ordinance. When an Authority complies with a number of formalities, the Secretary of the Commonwealth is directed to issue a Certificate of Incorporation.

The life of the Authority is limited to 50 years, and the corporation is managed by a board of at least five members. A significant statement of the purposes for which an Authority can be incorporated appears in the law. This list gives a forecast of the future and of probably the increasingly important role that revenue bonds will have in the growth of the civic and business life of the country. The Authority, either as lessor or lessee, can engage in projects of the following character: buildings, including public schools, devoted wholly or partially to public uses for revenue producing purposes; transportation and marketing terminals, bridges, tunnels, flood control projects, highways, traffic distribution centers, parking facilities, and airports, parks and recreation, sewers and sewage treatment works; steam heating plants and distribution systems; incinerator plants, waterworks, swimming pools, playgrounds, hospitals, lakes, low head dams, motor buses for public use within a municipality, and subways. These projects, operated by Authorities, however, are "not to unnecessarily burden or interfere with existing business by the establishment of competitive enterprises. . . ." Only the future can disclose the extent to which revenue bonds issued for such a variety of purposes will compete with private business.

Purposes for Revenue Bonds.—The major projects for which revenue bonds are likely to be issued in the future are for highways and bridges to facilitate the movement of the everincreasing number of trucks and passenger automobiles, and for the public acquisition of privately owned electric light and power plants. The bridge and the tunnel are two projects that have been highly profitable. The record of the Delaware River Joint Commission operating the Philadelphia-Camden Bridge, the Port Authority of New York operating vehicular crossings in the New York metropolitan area, the Louisville bridge, and the Lake Washington bridge at Seattle are eloquent testimonials of the profitableness of these ventures.

Of the bonds issued by the Delaware River Joint Commission in 1933 about 45 per cent had been paid by June, 1952. The bonds still outstanding sold at that time on a yield basis of 1.5 per cent. The

Port Authority of New York issued bonds in 1926 on a yield basis of 4.5 per cent, and in June, 1952, its bonds of approximately the same maturity sold on a yield basis of 1.6 per cent. The difference in yield does not, however, reflect exclusively a corresponding rise in quality. In the later period, the general level of interest rates was substantially lower than in the earlier one. Of the bonds issued by the New York Port Authority, a large proportion had, by 1951, been paid from earnings. A substantial fund had been established, and in the inflationary 1940's, the selling prices for its services did not increase. During the war, it was feared that gasoline rationing might so reduce automobile traffic as to impair seriously the earning power of such projects. Despite a scattering of minor defaults, the bridge and tunnel bonds came through these trying years with flying colors.

Even more important than the bridges and tunnels, although catering to the same trend of demand, are the highways. The modern highway suitable for efficient automobile and truck movements is an indispensable part of the modern standard of living. Both local and modern through-highways are essential. Many of the through-routes, like the early railroad routes, are extemporized combinations of highways, originally built to serve local purposes, and are not suited to the expeditious movement of goods and passengers. Furthermore, many of the highways, both local and through, were built on physical standards not suited to conditions that developed some years after their original construction. An increasing percentage of such roads has been physically exhausted and require replacement. Various studies indicated in 1951 that $5 billion annually for the succeeding 10 to 15 years would be needed "to bring the nation's road and street system to acceptable standards for safe, convenient, and economical motor transportation. . . ." [4]

Experience indicates that a sound financial method of providing highways is through the construction of toll roads, or turnpikes, as they are sometimes called. The success of the Pennsylvania Turnpike has attracted strong investment interest to turnpike bonds. Pennsylvania set up a Turnpike Commission in 1937. A highway system, completed in 1940 in that state on the basis of a stable toll, had by 1950 more than quadrupled its annual gross revenue and more than quintupled its net after the deduction of operating and maintenance expenses. Many other states are setting up turnpike authorities for the purpose of building and operating turnpikes.

[4] Wilfred Owen and Charles L. Dearing, *Toll Roads* (Washington, D. C.: Brookings Institution, 1951), p. 28.

In 1950, a further boost to this type of financing was given by an agreement of 52 private institutions, including insurance companies and savings banks, to lend up to $220 million to finance the building of a turnpike in New Jersey. (In the fall of 1951, an additional $35 million of bonds were sold.) Three and one-quarter per cent bonds, with interest exempt from all state taxes and from federal income taxes, constituted an attractive investment. At the same time, according to authoritative sources, about $770 million of projected highway expenditures were pending, and most of these projects were toll highways to be financed by revenue bonds. By 1952, this estimate had been substantially increased. The turnpikes for which tolls are charged are mostly express traffic highways. The construction and operation of local roads are normally financed by gasoline and license taxes and, to a lesser extent, by the use of state credit.

Another field in which revenue bond financing has been increasing is in the sewer and sewage disposal plant facilities. Pollution of water supply has become a serious potential in many communities. Heavy capital investments are necessary to make adequate provision for the disposal of sewage waste. There are statements that, in New York City alone, adequate sewage disposal facilities will cost about $400 million. Many communities have financed sewers or disposal plants through revenue bonds. Among the larger cities, Detroit has long had sewer revenue bonds. The rents are based on water usage and are incorporated in water bills. Another large revenue bond is the obligation of the Hampton Roads Sanitation District Commission in Virginia. The Commission can, after two months' delinquency, shut off the water supply. This field of revenue financing has not been fully exploited, in part because of the absence of standards with regard to the legal methods of enforcing the collection of sewer charges and the jurisdiction of a municipality to force consumer connections with sewer facilities.

Another area in which revenue financing appears to have a strong potential growth is in airport facilities. In 1946, the Federal Airport Act authorized a Federal appropriation of $500 million, to be matched by states and municipalities, to finance a seven-year program of airport construction. Prior to that time, more than 70 per cent of the capital expenses for civil airports had been met by the federal Government. In many parts of the country, airports are thus being financed to a considerable degree by the Government. In the New York port area, however, the Port Authority has leased the LaGuardia and the International Airports in New York City, and the Newark Airport in New Jersey. At the time of this acquisition, about $120 million had been invested in these airports by city, state, and federal

agencies. The Port Authority agrees to make a capital outlay over a seven year period of $140 million, though the amount might increase to $260 million, depending upon the rate at which air traffic develops. It is proposed to raise this fund through the issue of revenue bonds. In general, however, airport revenue bonds are not attractive for investment. Air terminals have not yet been placed on a self-supporting basis.

Water plants are partly financed by revenue bonds and partly by tax-secured obligations. Since the properties earn sufficient to pay the principal and interest on the bonds, they have frequently been judicially approved as self-liquidating, and the bonds have been deducted from the city's debt. A typical issue of this kind are the water revenue certificates of Chicago.

The acquisition of privately owned electric light and power plants has produced a large supply of good investment quality revenue bonds. These plants under private operation had an excellent record of earnings, the interest charges were earned by satisfactory margins, and the properties were in good physical condition. Unlike new turnpikes, bridges, and airports, the earnings of electric plants are not a matter of conjecture. They usually have a record of earnings, and their securities are well seasoned. They have shown their ability to earn and pay returns to securityholders in both good and bad times. In the face of these favorable records, growing pressure for public ownership has led to the sale of many private properties, and to their purchase by public authorities. In Nebraska, for example, publicly owned power districts have bought out power plants, formerly privately owned. The interest on the revenue bonds of the Consumers Public Power District, Consolidated Eastern System, since 1942, the first full year of system operation, has been earned from three to four times over.

Distinguishing Revenue from Tax-Secured Bonds

Revenue bonds and tax-secured municipal obligations cannot always be clearly distinguished. Some revenue bonds are payable from a combination of taxes and revenues. No generally used terminology has yet been devised to cover these bonds, though the term "double barreled" has been used. The State of Washington, for example, issued $70 million War Veterans' Compensation bonds in 1950. Though they are direct obligations of the state, interest and principal are paid solely from a bond retirement fund into which the state is required to pay the proceeds of cigarette taxes. Though the bonds are not secured by a pledge of the state's general credit, they

are, nevertheless, valid state obligations. Though the bonds are payable from cigarette taxes, the legislature can provide "additional means for raising money for the payment of interest and principal of said bonds, and this act shall not be deemed to provide an exclusive method for such payment. The power given to the Legislature by this section is permissive and shall not be construed to constitute a pledge of the general credit of the State of Washington." [5]

A clearer case of double-security is afforded by the Golden Gate Bridge and Highway District bonds issued in 1928, in the amount of $35 million, to finance the Golden Gate Bridge. In addition to the toll revenues, the bonds were secured by the power of the district to collect ad valorem taxes for the payment of principal and interest upon all property, "without limitation of rate or amount." More restrictive are the road bonds of West Virginia. Although they are paid from automobile and gasoline taxes, the state can, if these levies are insufficient, levy a limited property tax. Connecticut, in 1949, to cite one other illustration, authorized municipalities to pay for the acquisition or construction of sewerage systems by bonds, with the security of their general credit, the pledge of sewerage revenues, benefit assessments, or by a combination of any of these.

Probably the most complicated twilight zone case is afforded, however, by the State Public School Building Authority of Pennsylvania. Under a law passed in 1947, school buildings can be constructed by an Authority and revenue bonds issued to finance the cost. The buildings are then leased to a school district for a rent sufficient to pay the interest and principal of the Authority's bonds. Many school districts have issued bonds to the full limit permitted by the state constitution. By leasing school buildings from Authorities and by paying rents from tax revenues and state appropriations, school districts are able to obtain the use of the buildings without violating debt limitations. The supreme court of the state sustained the constitutionality of this arrangement on the ground that the school building was a self-liquidating project. The project, in the opinion of the court, was "one wherein the revenues received [by the lessor] are sufficient to pay the bonded debt and interest charges over a period of time. The source of the receipt is not important." [6] In form, the bond of the Authority is a revenue bond; it is payable only from the rent received for the lease of its school building. In substance, it is a municipal, tax-secured bond; the payments made to the bondholder, both interest and principal, are ultimately derived from tax revenues.

[5] From prospectus of Kuhn, Loeb & Co., January 1, 1950.
[6] Greenhalgh *vs.* Woolworth, 361 Pa. p. 543.

A similarly confusing problem in which the shadow becomes the substance is posed in the bonds of the General State Authority of the Commonwealth of Pennsylvania. The law authorizes the Authority to acquire, construct, and equip a variety of projects to be leased to the state. Though the Authority cannot pledge the state's credit or taxing power and though the bonds are not state obligations, they are secured by the pledge of the rents payable by the state from current revenues. The lease rentals are assigned by the Authority to a fiscal agent. The state, furthermore, is obliged to pay rents in amounts sufficient to amortize the cost of projects within the term of the lease. The funds raised by the sale of the General State Authority bonds are used to finance the building of a wide variety of projects, including state hospitals, forest and flood control, lake and swimming pool projects, and state police barracks. Bonds of the State Highway Bridge Authority of Pennsylvania are also secured by the payment of rents by the state to the Authority. In both cases, though the revenue bonds are nominally secured by rental payments, they are in reality obligations of the Commonwealth of Pennsylvania.

Another unique situation from a somewhat different point of view is provided by the bonds issued by federal and local housing Authorities. Only part of the funds needed to pay interest and principal are secured from the revenue of a project, the balance comes from Government subsidies. Regardless of their form, subsidies can not, of course, be classified as revenues.

A puzzling problem in terminology is posed by a small county bond from Florida. The bond, issued to defray the cost of a county office building, is not secured by the general taxing power. Neither is the bond to be paid from the revenues of the building. The funds to pay principal and interest come rather from the county's shares of the state racing tax and from the excess fees of county officers.

Legal Aspects.—In the analysis of legal and economic aspects, only the simon-pure revenue bonds will be considered. When revenues, either directly or indirectly, are obtained from taxes, the strength of the bond is dependent upon the flow of public revenue. Since revenue bonds are supported by the margin between the income and the expenses of the borrower, it is essential that the property be efficiently operated and that legal provisions channel the flow of revenue from the Authority in such a way as to protect the bondholder. Efficient operation is a matter of good management and will be discussed hereafter. Legal protections are incorporated in a contract in the form either of a mortgage or an indenture. Essen-

tially, they are similar to those executed between private borrowers and investors.

There are, however, some unique features that require separate consideration. Only a few states authorize the issuance of mortgage revenue bonds. Ohio requires a mortgage to be given as security to finance the acquisition, construction, or extension of municipally owned utilities. Cleveland has issued mortgage revenue bonds for the acquisition and improvement of water and heat, light and power, and transit properties. In 1950, it had approximately $39 million of such bonds. In Michigan, to take another state, the Supreme Court in 1948 sustained the right of municipalities to issue mortgage revenue bonds.

The most significant provision in the borrower-lender contract, applicable to revenue and not to municipal bonds, requires the borrower to increase prices for services rendered in amounts sufficient to meet all its obligations. This is a minimum provision. If the economics of the project are sound, then this obligation sets up a strong security for the bonds. The requirement is mandatory, and whether it be waterworks, sewerage, irrigation, electric power and light, street railway or any other project, a deficiency in revenues must be met by an increase in prices. There is no passing of responsibility to a city, state, or federal regulatory agency.

Unlike a private enterprise, the publicly owned plant need not present a case to justify a rise in rates. Its obligation to the investor is single, exclusive, and legally mandatory. Within the pattern of a project in an expanding industry, in which the public needs the service and must pay for it, this contractual obligation makes a revenue bond attractive for investment, as far as any purely legal proviso can do so. It cannot, however, be concluded that this provision insures the bond's safety. Referring to the bonds of the Chicago Transit Authority, the general manager bluntly asserted in 1948, "Interest and principal payments on their bonds must be paid. That's the law. There is no element of chance or doubt about it." [7] It may be the law; there may, however, be a conflict between law and economics. Sales resistance might destroy the income-producing ability of an excessively high fare. Diversion of passengers to competitive transportation media have ample precedent.

There are many other provisions of the contract that are important, but they are similar to those found in private mortgages. The proceeds of the bonds must be segregated and disbursed only on order of the trustees or some other designated body. Provision must

[7] *Daily Bond Buyer,* April 20, 1948.

be made to insure the completion of a proposed construction. Arrangements are made for the issue of additional bonds, and these are limited, usually, upon the basis of the earnings available for debt service. The margin of earnings in relationship to debt service is based upon the character of the issue. The margin is small for a stable water project and greater for a street railway. It would be narrow for an Authority with a well-established earning power, such as the Port Authority of New York, and would be wider for an unseasoned turnpike with no established record of earnings.

The investor's legal remedies in the event of default have not been tested by experience. The provisions are not standardized, and only a general statement can safely be made. The investor can bring an action of mandamus to oblige the borrowing unit to carry out its agreements and, also, to require the appointment by the court of a receiver to operate the plant. The Municipal Authority Act of Pennsylvania outlines, in some detail, the remedies available to the bondholders. Upon default, the holders of 25 per cent of the principal of the outstanding bonds may appoint a trustee. This trustee, or the one under the bond contract, can, upon written request of the holders of a specified majority of the bonds, bring an action in mandamus or sue upon the bonds; he may require the Authority to account, as though he were the trustee of an express trust for the bondholders; he may enjoin acts either unlawful or in violation of the bondholders' rights, or he may declare all the bonds due and payable. The law further declares that the trustee shall have the right to ask a court to appoint a receiver, who then can operate the property in the same way as the Authority could. The receiver, however, cannot dispose of any of the Authority's assets. Under this law it appears that the bondholders receive only slight protection. In effect, they look to the receiver to do those things that the Authority failed to do. It is clear that considerable experience will be required to define the legal rights of the holders of revenue bonds in the event of default.

Concept of Expansion and Decline.—The issuer of a revenue bond is a business organization and the quality of its debt obligations must, accordingly, be measured by those standards that normally apply to such borrowers. The project may be part of an expanding or a declining industry. There is, fundamentally, no difference between the kind of analysis necessary to determine the prosperity of an industry in the field of revenue bonds and in some private business enterprise. Publicly operated plants in electric power and light, turnpikes, bridges, and tunnels have done well, and their revenues have steadily increased. Subject to some disturbances during the war, the

coverage for debt service has expanded, and the larger part of their debt, in some cases the entire debt, has been liquidated out of earnings.

Other publicly owned projects are part of a declining industry. The leading illustration is the street railway. The record of revenue bonds in this industry is not, however, sufficiently clear to enable the investor to formulate a definitive judgment. In Detroit, the transit system has been publicly operated since 1922. Revenue bonds were payable from the system's revenues. By 1950, the transit revenue bonds had either been retired or refunded into tax-secured bonds of Detroit. In the postwar years between 1945 and 1950 (except for 1947) the system operated at a deficit, despite fare increases. In Chicago, a newly authorized Transit Authority took over the transit facilities of the Chicago Railways Company in 1948, and like private companies in the industry, was obliged soon thereafter to raise fares. Power and light, highway, bridge, and tunnel properties have, throughout the 1940's and in the face of a general rise in prices, prospered with a stable selling price. After the peak of the war and postwar boom in 1948, the earning power of the transit industry, both privately and publicly owned, declined. Testimony of the regard by investors for transit revenue bonds, as compared with tunnel and bridge bonds, for example, is afforded by the difference in yield. In May, 1952, for example, the yield on the Chicago Transit Authority bonds, maturing in 12 years, was 4 per cent, as compared with the yield on the New York Port Authority's bonds of the same maturity of only 1.65 per cent.

Local Economic Geography.—Except perhaps for some of the turnpike issues, the investment quality of revenue bonds must be judged against a background of local economic geography. There are expanding and declining communities, just as there are expanding and declining industries. There are (as noted in the previous chapter) regional population changes. While some cities in the Southwest and on the western coast have increased rapidly in population, income, and wealth, other cities have exhibited opposite tendencies. The investor in the water bonds issued by the Passaic (New Jersey) Valley Water Commission, for example, must not overlook the specialized character of the industrial development of that community. For many years, that area produced largely silk and woolen fabrics. For the last quarter of a century, however, these industries have lost ground.

Other communities are cyclical in character. They may depend for their prosperity on lumber, coal, steel, or nonferrous metals.

The decade of prosperity that these industries enjoyed in the 1940's may produce an earnings coverage for revenue bonds of local projects that might prove to be temporary. A careful investor in revenue bonds cannot overlook the economics of the industries that produce a substantial percentage of the income and wealth of the community served by the publicly operated facilities.

Management.—Excellent management of publicly owned facilities is just as essential as in private business. It is even more difficult in this field than in private business, however, to set up standards of good management. The operating and managerial staffs of the publicly owned projects must be free from political influence—that is an irreducible minimum. The executives can be recruited from the ranks of those who have had successful careers in private business, although this is not, in all cases, essential, for there are high types of public servants who have spent their entire careers in the public service. The best test of managerial ability is the record of past successes. A successful project has an advantage over one newly created, and generally the revenue bonds of well-established projects sell at lower yields than do those of new ones. Although good management, accordingly, is essential, the standards to measure it, except on the basis of past records, are elusive.

Financial Analysis

The analysis of the financial statements of publicly owned projects are generally similar to those of private business enterprises. There are, however, some differences. Public enterprises have no stockholders. They, therefore, do not have the "cushion" of risk-bearers to absorb losses. This is particularly important with new projects that have neither reserves nor funds, except those derived from the sale of bonds. As already noted above, New York and New Jersey supplied the Port Authority of New York with funds prior to its offering of bonds in 1925.

The absence of equity capital is made up in four ways. First, the schedule of selling prices and maturities provides the borrower with funds to pay interest charges and to reduce debt rapidly. Second, funds built up out of earnings are established to provide additional protection for servicing the bonds. Third, federal, state, or city funds may be provided. Fourth, part of the cost of expansion of a project may be raised from revenues.

1. Schedule of Selling Prices and Maturities.—Most revenue projects are financed serially. A definite schedule of maturities is

set up of bonds that mature annually or semiannually. The yield on the early maturities is normally low. Such short-term obligations are in demand by commercial banks and other classes of investors who are willing to pay a high price for short-term contracts. As the bonds are paid off, interest charges decline. Hence, the earnings coverage for the remaining bonds of a project with stable or rising earnings increases.

Many revenue bonds, especially those of projects whose earnings are likely to fluctuate, such as toll bridges and turnpikes, are term bonds with strong sinking funds. These bonds are callable. As money rates decline or the investment quality of the bonds increases, or both, the bonds can be redeemed and refunded at lower interest rates. Both the serial and the callable-sinking fund term bonds are issued for a term of years less than the expected economic life of the project. Perhaps a maturity of 40 years is an extreme limit; most revenue bonds have considerably shorter maturities.

Reductions in the volume of revenue bonds have been notable. The Authority owning the bridge over the Ohio River at Louisville has paid off its debt, and the facility is operated toll free. Debt reduction by the Delaware River Bridge Joint Commission and by the New York Port Authority have been noted previously. Reduction of the debt against a property with a given earning power provides a cushion of protection for the remaining debt.

2. **Funds for Protection.**—The New York Port Authority provides an outstanding illustration of the setting up of funds out of earnings. The Authority operates as a continuing agency, with the responsibility of improving the entire port. It began its program with the construction of bridges. It later took over, from another public agency, the operation of two tunnels. This it followed with the construction of a bus terminal, and in 1950, it laid plans for the improvement of bus facilities and the operation of airport terminals. As it expanded its scope of operations, it enlarged and improved its financial structure. The Authority recognized as early as 1931 that its various projects were likely to generate a varying earning power and that it would, therefore, be advisable to unify the consolidated earning power from all of its projects. In 1931, the Port Authority, therefore, set up a general reserve fund. Surplus revenues from all its facilities were pooled and accumulated in this fund in an amount equal to one-tenth of the par value of the outstanding bonds.

A law authorized the pledging of the general reserve fund as security for all of its bonds then existing or thereafter to be issued. The general and refunding bonds are, therefore, secured by a first

lien on the net revenues of all projects financed by these bonds. Furthermore, each class of bonds issued to finance specific projects must maintain its own special reserve fund into which is payable the net revenues of the projects over and above those necessary to maintain the general reserve fund at its statutory amount. The general reserve fund, however, protects all the bonds, and this fund, in turn, receives the surplus revenues, up to the statutory maximum requirements, of all the projects.

The Port Authority, like many manufacturing enterprises, is thus a multiproduct business. Within the geographical limits of the New York Port, it can engage in such different activities as are legally authorized. The bonds issued to finance each project are secured by all its revenues, and the full faith and credit of the Authority are pledged for their payment. While air terminal, marine terminal and general and refunding bonds, for example, have their own special reserve funds, they are also secured by the general reserve fund. New and unseasoned enterprises of the Port Authority could, therefore, operate at a deficit, and this deficit could be met out of the net revenues of either the other facilities of its class, or all facilities as pooled in the general reserve fund.

Numerous other funds are set up in revenue bond contracts. Some provide for debt service for a given number of years; others finance renewals and replacements not usually payable as current operating expenses. Funds are used to redeem bonds, to finance betterments, or to increase or replenish working capital. By these means in the years after the revenue bonds are issued, an equity is built up for the investor's protection.

3. Government Aids.—Contributions by federal and state agencies occasionally provide cushions for the protection of bonds. As of 1951, the New York Port Authority, for example, had received contributions from such sources in the amount of $14,949,000. Of the $14.5 million invested in the Hampton Roads sewage disposal plant, completed in 1948, to take another example, $6.5 million was raised by revenue bonds. The balance represents in part $8 million of construction work of the Federal Works Agency, acquired by the Sanitary Commission for $2,750,000. Payments to the Government are subordinate to the revenue bonds.

4. Revenues Finance Expansion.—The fourth method of providing a cushion of protection for bondholders is illustrated by the financial policy of the Department of Water and Power of Los Angeles. That agency finances its construction expenditures one-half from the sale of revenue bonds and one-half from revenues.

Comparisons with Private Enterprises.—Another interesting deviation from the financial statements of private enterprises is that, for some such projects as bridges and turnpikes, there are no deductions from operating expenses for depreciation. The revenue available for the bonds is computed by subtracting from gross revenues the direct operation and maintenance expenses and allowances for administrative overhead. The balance is the amount required for interest, sinking fund payments and serial bond retirements, and for reserves. The bonds are issued on a schedule of payment within the economic life of the property, and at the end of that period, there are no bonds outstanding. The bondholders have no equity in the property. Under these conditions, depreciation allowances are sometimes thought not necessary. Hence, the earnings available for debt service are computed on a cash basis. Frequently, bonds are retired more rapidly than depreciation accrues, thereby increasing the equity in the property of the outstanding bonds.

In other revenue projects, however, depreciation expenditures are deducted. On an electric power project, for example, the plant consists of many parts that must be replaced. There is no difference here between a publicly and a privately owned plant; depreciation charges are just as vital in the one as in the other. Inadequate depreciation in a privately owned business may starve the physical plant through the payment of unearned dividends or interest. A publicly owned plant may be equally starved by devoting funds to other municipal purposes, or to the politically desirable ideal of reducing taxes.

In the calculation of ratios that show the margin of coverage for the outstanding bonds, there is also a significant difference between public and private plants. The margin of safety of a bond of a private corporation is usually computed on the basis of a relationship between the earnings available for interest and the amount of interest. In the public plant, the earnings are normally compared with interest plus the amount of bonds retired. The sum of these two is known as debt service. In comparing the margins for revenue bonds and for those of private corporations, it is essential to convert the debt service ratio of a public property into the usual margin of safety normally used to measure the coverage of the private bond.

The margin of service coverage for a revenue bond must also be judged in the light of the borrower's price policy. Rates may be adjusted in such a way as to furnish a public service at the lowest possible cost. A small coverage of debt service and a low surplus may, therefore, be no sign of danger. Bonds of power, gas, and water plants may show low coverage, lower than desired in corporate utility securities, and yet the bond may be sound.

One further fact that has stimulated the issue of revenue bonds is the exemption enjoyed by bondholders from the payment of income taxes. Such exemption was affirmed by the United States Supreme Court in 1945.

QUESTIONS AND PROBLEMS

1. Explain investment problems in the field of revenue bonds, in the pattern of the concept of expanding and declining industries.
2. What is meant by "double security" in revenue bonds?
3. In the financing of private corporations, investors who buy bonds usually insist that an ample cash investment be made by the stockholders. This amount is said to be a "cushion" to protect the creditors. How can such a cushion be provided to protect investors in revenue bonds?
4. Explain the legal remedies available to the holders of revenue bonds.
5. Explain the financial devices by which the Port Authority of New York finances its capital requirements.

READINGS

There is no satisfactory comprehensive discussion in book form on recent tendencies in the field of revenue bonds. There are a number of older books, which are listed here:

FOWLER, JOHN F. *Revenue Bonds* New York: Harper & Bros., 1938.
KNAPPEN, LAURENCE S. *Revenue Bonds and the Investor.* New York: Prentice-Hall, Inc., 1939.

PART V

Money and Markets

Chapter 20

YIELDS AND INTEREST RATES

Interest Rate for Different Securities.—The prices of securities of all industries, expanding and declining, profitable and unprofitable, are affected by the movement of interest rates. The interest rate is the price paid by the borrower for the use of the funds of the investor. The borrower usually, though not always, returns the funds to the investor. There are some bonds that have no maturity date. Such, for example, are the consolidated bonds of the British Government. These, however, are the exceptions to the rule. The funds received from noncallable preferred and from common stockholders are, however, not payable by contract. The corporation issuing such preferred stock is not allowed, except by subsequent agreement with the stockholders, to pay off the stock, though it can buy the stock in the open market. Preferred stocks issued in recent years, however, usually contain provisions which permit the issuer, at its option, to call the stocks, often at a premium, in excess of par value. Common stocks have no maturity date, and are normally never retired. From time to time, particularly in declining markets, however, corporations buy their own common and preferred shares on the open market. Later, these shares are cancelled, though for various reasons, they may be reissued.

At any given time, the price of a security reflects many influences. These include not only the interest rate, but also risk, marketability, and other factors. The relative importance of interest rates as a price-determining factor varies with the form of the security. Some securities are more responsive to changes in interest rates than others. Common stocks paying no dividends are least responsive, while high-grade long-term bonds with a minimum of risk are most responsive. Such bonds are sometimes known as money bonds, and their market prices reflect largely changes in current rates for money. Between 1860 and 1915, some railroad bonds were included in this class. They were bonds that earned their fixed charges by large margins, and were outstanding in small amounts. The first mortgage bonds, the so-called underlying bonds, of the

Pennsylvania and of the New York Central railroads, for example, were outstanding illustrations. Since the end of World War I, the obligations of the United States Government, in the minds of most investors, have been the highest-grade bonds. Their prices, accordingly, respond almost entirely to the movement of interest rates. There are no changes in the risk (to principal) factor that affect their price. In the World War II and postwar years until 1951, the price-pegging operations of the Federal Reserve System introduced a novel and uncertain factor. The investor was not sure of the extent to which a price peg could protect him against fluctuations in interest rates. Until 1942, prices of United States Government securities were affected by the tax exemption feature. Since that time the investor has paid federal taxes on the income received from newly-issued Government bonds.

Yields

The return realized by the investor on a bond, in most cases, is not the same as the interest paid by the borrower. Only if the borrower sells the bond at its face value and the investor buys it at that price and holds it until maturity is the interest rate paid by the borrower equal to the interest return received by the investor.

The federal Government normally sells its long-term obligations at face value. Private borrowers, however, frequently sell bonds at prices below their face values, and occasionally at prices above. Shortly after they are issued they fluctuate in price. An investor thus buys bonds at a price higher or lower than the face value. In the former case, the bond is said to sell at a premium and, in the latter, at a discount. The investor who buys a bond at a discount from par receives his interest, usually every six months, and receives at maturity an additional amount, representing the difference between the price he paid for the bond and its face value. The purchaser of a bond at a premium similarly receives his interest. At maturity, however, he receives a smaller amount, equal to the difference between the cost price and the face value.

Yield to Maturity.—Since a bond usually sells at a price different from its face value, there emerges a distinction between the *coupon return, current return,* and the *yield to maturity.* The coupon return is the interest paid by the borrower to the investor. A bond with a face value of $1,000 pays 3 per cent interest. The annual coupon return is, therefore, $30 per year. The coupons are attached to the bond, but some bonds do not have them. They are registered in the

name of the owner, and the interest is paid by check. The current return is computed by dividing the interest received from the company by the price the investor pays. Since bonds usually have a face value of $1,000, the calculation of current return is in terms of a percentage of that amount. A 4 per cent bond selling at 90, accordingly, costs the investor $900. He receives each year interest from the company of $40. This amount divided by $900, equals 4.44 per cent, which is known as the current return. The investor's return, however, is actually higher than 4.44 per cent, for at maturity of the bond, the company pays him not the $900 he invested, but rather, the face value, or, $1,000.

Similarly, if he bought the bond at 105, he also receives $40 in interest per year on his investment of $1,050. His current return is, therefore, $40 divided by $1,050, or 3.81 per cent. His yield, however, is less than this, since at maturity the company returns to him $1,000 instead of the $1,050 which he invested. In a bond bought at a discount, the yield to maturity is, therefore, higher than the current return, and in a bond bought at a premium, it is less.

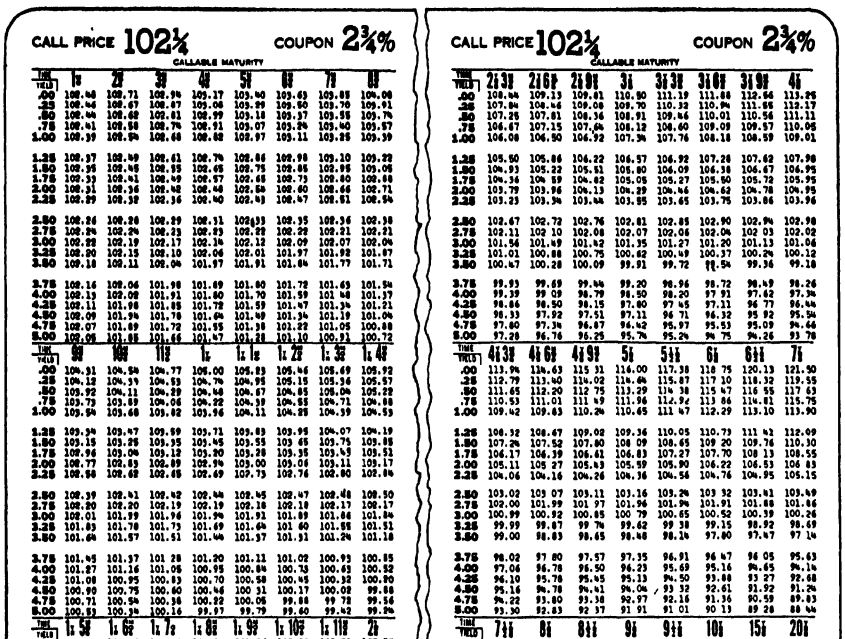
Bond Tables.—The yield to maturity is computed in standard bond tables. These enable the investor to locate quickly the yield to maturity when the price, coupon interest rate, and maturity are given. They also enable him to ascertain the price at which a bond with a given interest rate and maturity should sell to give a desired yield. Bond table calculations assume that interest and principal will be paid when due, and that the investor will hold the bond until maturity. A sample table from a bond yield book is reproduced in Table 27.

Government and other high-grade bonds sell at prices primarily reflecting interest rates. Suppose $1,000 is invested in a 25 year 4 per cent bond. The bond is bought at face value and, therefore, yields 4 per cent. Three years later, interest rates decline to 3 per cent. New investors, satisfied with a 3 per cent return, offer to pay $1,160.20, which is 3 per cent annually on this amount with the premium paid out of the interest. The risk of principal is unchanged. The bond has the same quality three years later as before. Only the interest rate has changed.

The prices of long-term securities are affected by changes in interest rates to a greater degree than short-term. Suppose that the price of a 25-year 2½ per cent bond is 100. The yield is, therefore, 2½ per cent. Interest rates rise to 3 per cent, and the 25-year bond drops to 91.25. A two-year bond in such an event drops only to 99.04.

TABLE 27

FACSIMILE PAGES FROM BOND YIELD BOOK



CALL PRICE 102½ COUPON 2¾%

CALLABLE MATURITY

YIELD	1s	2s	3s	4s	5s	6s	7s	8s
.00	108.48	108.71	108.94	109.17	109.40	109.63	109.86	110.08
.25	108.44	108.67	108.87	109.08	109.29	109.50	109.70	109.91
.50	108.44	108.62	108.81	108.99	109.18	109.37	109.55	109.74
.75	108.41	108.58	108.74	108.91	109.07	109.24	109.40	109.57
1.00	108.39	108.54	108.68	108.82	108.97	109.11	109.25	109.39
1.25	108.37	108.49	108.61	108.74	108.86	108.98	109.10	109.22
1.50	108.35	108.46	108.55	108.66	108.75	108.86	108.96	109.06
1.75	108.33	108.41	108.49	108.57	108.65	108.73	108.80	108.88
2.00	108.31	108.36	108.42	108.48	108.54	108.60	108.66	108.71
2.25	108.29	108.32	108.36	108.40	108.43	108.47	108.51	108.54
2.50	108.26	108.28	108.29	108.31	108.33	108.35	108.36	108.38
2.75	108.24	108.24	108.23	108.23	108.22	108.22	108.21	108.21
3.00	108.22	108.19	108.17	108.14	108.12	108.09	108.07	108.04
3.25	108.20	108.15	108.10	108.06	108.01	107.97	107.92	107.87
3.50	108.18	108.11	108.04	107.97	107.91	107.84	107.77	107.71
3.75	108.16	108.06	107.98	107.89	107.80	107.72	107.63	107.54
4.00	108.13	108.02	107.91	107.80	107.70	107.59	107.48	107.37
4.25	108.11	107.98	107.85	107.72	107.59	107.47	107.34	107.21
4.50	108.09	107.94	107.78	107.64	107.49	107.34	107.19	107.04
4.75	108.07	107.89	107.72	107.55	107.39	107.22	107.05	106.88
5.00	108.05	107.85	107.66	107.47	107.28	107.10	106.91	106.72

YIELD	9s	10s	11s	1s	1s 1s	1s 2s	1s 3s	1s 4s
.00	110.31	110.54	110.77	106.00	106.23	106.46	106.69	106.92
.25	110.12	110.33	110.53	105.78	105.98	106.19	106.39	106.59
.50	109.92	110.11	110.29	105.56	105.74	105.92	106.10	106.28
.75	109.73	109.89	110.06	105.34	105.50	105.66	105.82	105.98
1.00	109.54	109.68	109.82	105.12	105.26	105.40	105.54	105.68
1.25	109.34	109.47	109.59	104.91	105.03	105.15	105.27	105.39
1.50	109.15	109.26	109.35	104.69	104.79	104.89	104.99	105.09
1.75	108.96	109.04	109.12	104.48	104.56	104.64	104.72	104.80
2.00	108.77	108.83	108.89	104.27	104.33	104.39	104.45	104.51
2.25	108.58	108.62	108.66	104.06	104.10	104.14	104.18	104.22
2.50	108.39	108.41	108.42	103.85	103.87	103.89	103.91	103.93
2.75	108.20	108.20	108.19	103.64	103.64	103.64	103.64	103.64
3.00	108.01	107.99	107.96	103.43	103.41	103.39	103.37	103.35
3.25	107.83	107.78	107.73	103.23	103.18	103.14	103.10	103.06
3.50	107.64	107.57	107.51	103.02	102.96	102.90	102.84	102.78
3.75	107.45	107.37	107.28	102.81	102.73	102.65	102.57	102.49
4.00	107.27	107.16	107.05	102.61	102.51	102.41	102.31	102.21
4.25	107.08	106.95	106.83	102.41	102.29	102.17	102.05	101.93
4.50	106.90	106.74	106.60	102.21	102.07	101.93	101.79	101.65
4.75	106.72	106.53	106.38	102.01	101.85	101.69	101.53	101.37
5.00	106.53	106.32	106.11	101.81	101.63	101.45	101.27	101.09

YIELD	1s 5s	1s 6s	1s 7s	1s 8s	1s 9s	1s 10s	1s 11s	2s
.00	106.15	106.38	106.60	106.83	107.06	107.29	107.52	107.75
.25	105.78	105.98	106.19	106.40	106.60	106.81	107.02	107.22
.50	105.41	105.59	105.78	105.96	106.15	106.33	106.51	106.70
.75	105.04	105.20	105.37	105.53	105.69	105.85	106.02	106.18
1.00	104.67	104.82	104.96	105.10	105.24	105.38	105.52	105.66
1.25	104.31	104.43	104.56	104.67	104.79	104.91	105.03	105.15
1.50	103.95	104.05	104.15	104.24	104.34	104.44	104.54	104.64
1.75	103.59	103.67	103.74	103.82	103.90	103.97	104.05	104.13
2.00	103.23	103.29	103.34	103.40	103.45	103.51	103.57	103.63
2.25	102.87	102.91	102.94	102.98	103.01	103.06	103.09	103.12
2.50	102.52	102.53	102.55	102.56	102.58	102.59	102.61	102.63
2.75	102.16	102.16	102.15	102.15	102.14	102.14	102.13	102.13
3.00	101.81	101.79	101.76	101.74	101.71	101.69	101.66	101.64
3.25	101.46	101.42	101.37	101.33	101.28	101.24	101.19	101.15
3.50	101.11	101.05	100.98	100.92	100.85	100.79	100.72	100.66
3.75	100.77	100.68	100.60	100.51	100.43	100.34	100.26	100.18
4.00	100.42	100.32	100.21	100.11	100.00	99.90	99.80	99.70
4.25	100.08	99.95	99.83	99.71	99.58	99.46	99.34	99.22
4.50	99.73	99.59	99.45	99.31	99.16	99.02	98.88	98.74
4.75	99.39	99.23	99.07	98.91	98.75	98.59	98.43	98.26
5.00	99.05	98.88	98.69	98.51	98.33	98.16	97.98	97.81

340

CALL PRICE 102½ COUPON 2¾%

CALLABLE MATURITY

YIELD	2s 3s	2s 6s	2s 9s	3s	3s 3s	3s 6s	3s 9s	4s
.00	108.54	109.13	109.01	110.80	111.19	111.88	112.56	113.25
.25	107.84	108.44	109.08	109.70	110.32	110.94	111.66	112.17
.50	107.25	107.81	108.36	108.91	109.46	110.01	110.56	111.11
.75	106.67	107.15	107.64	108.12	108.60	109.08	109.57	110.06
1.00	106.08	106.50	106.92	107.34	107.76	108.18	108.59	109.01
1.25	105.50	105.86	106.22	106.57	106.92	107.28	107.62	107.98
1.50	104.93	105.22	105.51	105.80	106.09	106.38	106.67	106.95
1.75	104.36	104.59	104.82	105.05	105.27	105.50	105.72	105.95
2.00	103.79	103.96	104.13	104.29	104.46	104.62	104.78	104.95
2.25	103.23	103.34	103.44	103.55	103.65	103.75	103.86	103.96
2.50	102.67	102.72	102.76	102.81	102.85	102.90	102.94	102.98
2.75	102.11	102.10	102.08	102.07	102.06	102.04	102.03	102.02
3.00	101.56	101.48	101.42	101.35	101.27	101.20	101.13	101.06
3.25	101.01	100.88	100.75	100.62	100.49	100.37	100.24	100.12
3.50	100.47	100.28	100.09	99.91	99.72	99.54	99.36	99.18
3.75	99.93	99.69	99.44	99.20	98.96	98.72	98.49	98.26
4.00	99.39	99.09	98.79	98.50	98.20	97.91	97.62	97.34
4.25	98.86	98.50	98.15	97.80	97.45	97.11	96 77	96.44
4.50	98.33	97.92	97.51	97.11	96 71	96.32	95 92	95.54
4.75	97.80	97.34	96.87	96.42	95 97	95.53	95.09	94.64
5.00	97.28	96.76	96.25	95.74	95.24	94 75	94.26	93 78

YIELD	4s 3s	4s 6s	4s 9s	5s	5s 3s	6s	6s 3s	7s
.00	113.94	114.63	115 31	116.00	117.38	118 75	120.13	121.50
.25	112.79	113.40	114.02	114.64	115.87	117 10	118.32	119.55
.50	111.65	112.20	112 75	113.29	114 38	115 47	116 55	117 63
.75	110.53	111.01	111 49	111.96	112.94	113 86	114.81	115.75
1.00	109.42	109.83	110.24	110.65	111 47	112.29	113.10	113.90
1.25	108.32	108.67	109.02	109.36	110.05	110.73	111 42	112.09
1.50	107.24	107.52	107.80	108 09	108.65	109 20	109.76	110.30
1.75	106.17	106.39	106.61	106.83	107.27	107.70	108 13	108.55
2.00	105.11	105 27	105.43	105.59	105.90	106.22	106.53	106 83
2.25	104.06	104.16	104.26	104.36	104.56	104.76	104.95	105.15
2.50	103.02	103 07	103.11	103.16	103.24	103 32	103.41	103.49
2.75	102.00	101.99	101 97	101.96	101.94	101.91	101.88	101.86
3.00	100.99	100.92	100.85	100 79	100.65	100.52	100.39	100.26
3.25	99.99	99.87	99 74	99.62	99 38	99.15	98.92	98.69
3.50	99.00	98.83	98.65	98.48	98.14	97.80	97.47	97 14
3.75	98.02	97 80	97.57	97.35	96.91	96 47	96 05	95.63
4.00	97.06	96.78	96.50	96.23	95.69	95.16	94.65	94.14
4.25	96.10	95.78	95.45	95.13	94.50	93.88	93 27	92.68
4.50	95.16	94.78	94.41	94.04	93 32	92.61	91.92	91.24
4.75	94.22	93.80	93.38	92.97	92.16	91.36	90.59	89.83
5.00	93.30	92.83	92 37	91 91	91 01	90 13	89 28	88 44

YIELD	7s 3s	8s	8s 3s	9s	9s 3s	10s	15s	20s
.00	122.88	124 25	125 63	127.00	128.38	129.75	143.50	157.25
.25	120.77	121.99	123 22	124 43	125.65	126 87	138.95	150 88
.50	118.71	119.79	120.86	121.93	123 00	124.06	134.56	144 81
.75	116 69	117.62	118.55	119 48	120.40	121 32	130.33	139 02
1.00	114.70	115.50	116.29	117.08	117.87	118.65	126.26	133.49
1.25	112.76	113.42	114 08	114.74	115.40	116.05	122.32	128.22
1.50	110.85	111 39	111.92	112 45	112.98	113.51	118 53	123.20
1.75	108.97	109 39	109.81	110 22	110.62	111 03	114 88	118 40
2.00	107 14	107 44	107.74	108.03	108 32	108.61	111 35	113 82
2.25	105 34	105 52	105.71	105 89	106.07	106.25	107.94	109 46
2.50	103.57	103.65	103.73	103.80	103.88	103 95	104.66	105.28
2.75	101 83	101.81	101 78	101 76	101.74	101 71	101.48	101.30
3.00	100.13	100 01	99.88	99 76	99 64	99.52	98.34	97 50
3.25	98.46	98 24	98 02	97 81	97 60	97 38	95.49	93 87
3.50	96 82	96 51	96.20	95.90	95 60	95 31	92 84	90.40
3.75	95.22	94 81	94.42	94.03	93.65	93.28	89 90	87.09
4.00	93.64	93.15	92.67	92.21	91 75	91.29	87 24	83 92
4.25	92.09	91 52	90 97	90.42	89.88	89 36	84 69	80.90
4.50	90.58	89 93	89.29	88 67	88 07	87.47	82.21	78.00
4.75	89.09	88.36	87 66	86.97	86 29	85 63	79 83	75.24
5.00	87 62	86 83	86 05	85 30	84.56	83.84	77 53	72 60

341

Source: *Callable Maturity Bond Values Tables* (2d ed., Boston: Financial Publishing Co., 1946), pp. 340-41. (By permission of the publisher.)

The investor in bonds is usually interested in the yield to maturity. Common and preferred stocks, however, have no maturity date. Investors, therefore, emphasize the current income return on these securities.

Yield Spreads Based on Risks.—The income or yield realized on a security, aside from taxation benefits, reflects *primarily* differences in risk. Bonds normally return less than preferred and common stocks of a given corporation. Even to this broad statement, there are exceptions. Some common stocks, for example, sell at prices

that reflect future expectations, as well as past benefits. Well-managed companies in profitable industries normally report increasing returns from year to year, especially in prosperity. The return on some of these common stocks may, therefore, be lower than on the highest-grade bonds. Corning Glass, Owens-Corning Fiberglas, Dow Chemical, Monsanto Chemical, and International Business Machines, for example, yield less at times than long-term United States Government bonds.

Tax exemptions also disturb the relationship between investment returns and relative risks. Hence, municipal bonds, though no safer than the bonds of the United States Government, return lower yields because of tax exemption privileges. A bond or preferred stock convertible into common stock may, under some circumstances, yield less than another bond or preferred stock of better quality, but not convertible. (See Chapter 8.) Callable securities similarly may afford yields not related entirely to risks and interest rates. Table 28 shows how yields on securities increase with increasing risks from

TABLE 28

YIELD ON BONDS AND STOCKS COMPARED—1941; 1945; 1946; 1947; 1949; 1950; March, 1952

Year	Average Yield on U. S. Govt. Bonds, Averaging 15 Years or More *	Corporate Aaa Bonds Moody's **	Preferred Stocks Moody's (10 industrial high grades)	Common Stocks Moody's 200
1941	Tax exemption impairs comparison	2.79	4.00	6.25
1945	2.37	2.62	3.66	4.19
1946	2.19	2.53	3.50	3.97
1947	2.25	2.61	3.75	5.13
1949	2.31	2.58	3.84	6.63
1950	2.32	2.66	3.50	6.57
March, 1952	2.74	2.95 (Jan., 1952)	3.74	5.49

* Yields on U. S. Government Bonds from *Treasury Bulletin*, March, 1952, p. 46.
** For discussion of *Moody's*, see Chapter 24, "Investment Services," pp. 450-52.

bonds to preferred and common stocks. The relationships disclosed in this table for these years are the usual ones. Occasionally in extreme depression or boom years, the risk-yield inverse correlation does not hold and bonds return more than stocks.

Yield Spreads and Bond Maturities.—In addition to risk, there are other factors that produce yield differentials between various classes of securities. One significant factor is the maturity of a

bond. The relationship between interest rates of different maturities has varied within wide ranges in the course of American financial history. When interest rates were high, short-term rates rose above long-term, and when rates were low, long-term rates exceeded short-term. In the severe financial crises characterizing the transition from prosperity to depression, interest rates zoomed upward, and short-term rates advanced to fantastic levels. The panics of 1873, of 1893, and of 1907 are apt illustrations. In those years, rates advanced to more than 100 per cent.

In relatively stable years unaccompanied by panic disturbances, the relation between long and short maturities changes. In the 1920's, for example, a decline in long-term rates, beginning in 1923, was not accompanied by equal changes in short-term rates. On the other hand, between 1920 and 1923, movements in yields of short- and long-term government securities moved along parallel lines. In the summer of 1927, a sharp upward movement of short-term rates was followed in the spring of 1928 by a further moderate rise of long-term rates. Since 1932, and to 1952, the decline in interest yields was characterized by the emergence of an abnormally wide differential between lower short-term and higher long-term rates. So persistent was this movement that many believed it to be normal. By the fall of 1952 the differential had greatly narrowed.

This relationship of short-term to long-term rates is known as the "structure of interest rates," while the "level of rates" usually embraces the average of rates on bonds of all maturities. In order to eliminate those factors extraneous to risk differences, such as callable, convertible, tax exempt, and marketability features, a concept of basic yield has been devised. The basic yield is the yield of the highest grade of bonds in any class. At any particular time, a definite "curve" of interest rates by maturities can be traced. This can be shown on a chart as a yield curve, which may be defined as a plotting of yields by maturities. A line drawn through the plotted yields rises from the short maturities to those of the longer ones, while the curve tends to flatten out with the long-term bonds. Figure 5 shows the yield pattern of Treasury securities with successive maturities at different dates in 1946, 1948, and 1949.

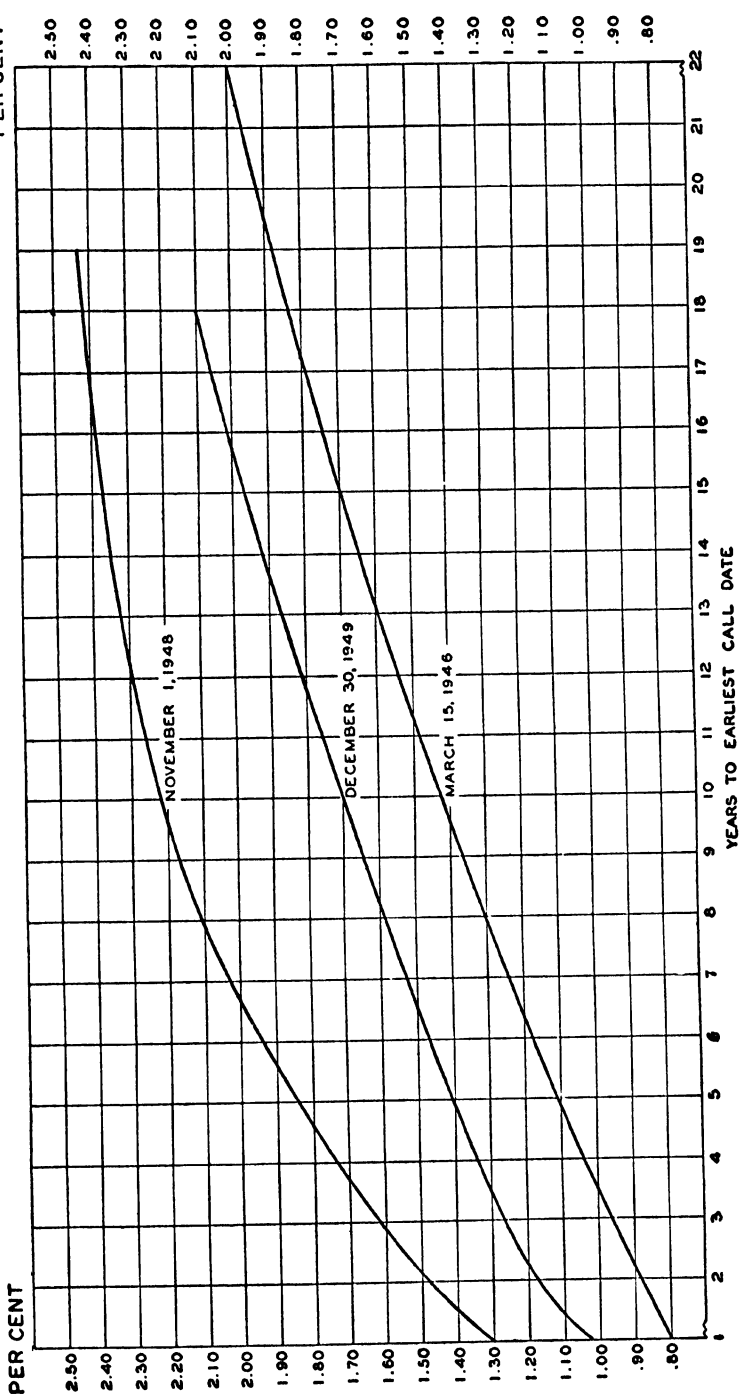
This relationship of maturities was set in a definite pattern in the war years. In March, 1942, the Federal Reserve in cooperation with the Treasury decided that the market for Government securities "should be maintained on about the then existing curve of rates." [1] In April of that year, the Federal Reserve Banks agreed to buy

[1] Board of Federal Reserve Governors, *Annual Report*, 1942, p. 104.

FIGURE 5

Yield Patterns of Fully Taxable Bank-Eligible Treasury Bonds

THREE DATES IN 1946, 1948, 1949



Treasury bills at a discount of 0.38 per cent, and in August, it offered sellers the option to rebuy them at the same price. Treasury bills were then the same as money; they could be converted into cash at any time without loss. And in the same year, the Treasury decided to stabilize the rate of the one-year certificates of indebtedness at 0.88 per cent. The long-term marketable bonds were offered on a 2.5 per cent basis.

On the bases of experience and the lessons of financial history, many believed that such low rates, in an era of rising prices and in a war economy, could not be maintained. This belief proved to be incorrect. The Treasury and the Federal Reserve were ready with a powerful assembly of weapons to plug up any holes that appeared in the wall set up to protect the low interest rate structure. The Federal Reserve bought large amounts of Government securities, thus supplying commercial banks with adequate reserves. When the liabilities of the Federal Reserve Banks became uncomfortably excessive, Congress obliged by reducing gold reserves required to be held against such liabilities. To slow up the increased use of bank credit, the Government made direct loans to business and laid down restrictions on the creation of loans for real estate and consumer credit purposes. Yields were held, and the yield curve from ⅜ of 1 per cent to 2.5 per cent became known as the wartime yield curve.

To maintain the 2.5 per cent long-term rate, the Federal Reserve agreed to buy these bonds, as well as those of shorter maturities, at least at their face value. Investors were thus assured, as long as this practice continued, that they could sell these securities to the Federal Reserve Banks at their face values, and even at higher pegged prices. The prospect of loss arising from declines in prices due to an increase in money rates was removed. Investors, especially commercial banks, were encouraged to sell their bills and certificates, yielding relatively low returns, and to buy bonds, yielding relatively high returns.

There was, for a number of years, however, no body of investors to whom all of the low-yielding, short-term obligations could be sold. Large amounts of Treasury bills were, therefore, bought by the Federal Reserve Banks. The funds created in payment for the bills were deposited with the Federal Reserve Banks, thereby becoming the reserves of the commercial banks. These reserves permitted the latter to create deposits (under the reserve percentages in effect in 1952) in proportion of about four dollars to every one dollar of additional reserves. Thus, the economy's monetary supply was increased. To retard this inflationary process, the Federal Reserve, in the sum-

mer of 1947, began a policy of strengthening short-term money rates. More than four years later, in December, 1951, the yields on certificates of indebtedness of a year's maturity had increased to 1.85 per cent, on 90-day bills to about 1.80 per cent, and on bonds, due in 1972, and eligible for bank investment, to 2.70 per cent. In March, 1951, meanwhile, the Federal Reserve's price support of long-term bonds at their face value came to a timely end, and the price of those bonds fell below par. The Federal Reserve, of course, can continue to buy bonds below their face value.

This summary sketch of the yields on short- and long-term securities between 1942 and 1951 suggests two major investment considerations. First, the iron pattern of low interest rates erected to accommodate the federal treasury in the war years was eliminated in 1951. The rise in short-term interest rates had, by 1951, been far more rapid than for the longer obligations. Hence, the spread between long- and short-term obligations was greatly narrowed. Early in 1945, for example, the yield spread between one-year certificates and bank-eligible, 2.5 per cent Government bonds of 1972 was 1.65 per cent. By December, 1951, it had declined to about 0.95 per cent. The yield curve flattened out on the side of short-term rates, and the ascent from lower short-term to higher long-term rates was smoother. The short-term rate thus resumed more of its historical position as a sensitive indicator of fluctuations in the supply of and in the demand for money. Investors concerned with liquidity, as are commercial banks, are not likely to be sorely tempted, as they were under the wartime yield curve, to buy excessive amounts of long-term bonds. The prize, in the form of higher yields, was no longer worth the risk.

Regarding the second major investment consideration, postwar experience with longer and shorter maturities of high-grade bonds, because of changing money rates under conditions prescribed by Governmental authorities, disclosed complex problems to the careful investor. Panic buying and selling of Government bonds produced, at times, the very opposite of the "orderly" market that the Federal Reserve promised to provide. Late in December, 1947, a reduction of the Federal Reserve buying price for long-term bonds was followed by a flood of investor selling. Fears were entertained of the elimination of the Federal Reserve's bid. In the summer of 1949, money rates, because of supply and demand factors, declined and bond prices rose. Banks and other investors stormed into the market to buy the long-term bonds that they had sold about 18 months before.

In 1950-1951 many investors made another mistake. (See Chapter 17.) Throughout that year and into early 1951, confidence in the 2.5 per cent pattern abounded. Most of the investment services advised investors to maintain their normal maturity distributions and not to invest excessively in short-term securities. The Secretary of the Treasury added to the chorus of optimism on long-term bond prices by declaring in January, 1951, that the 2.5 per cent rate would be continued, that it was "fair and equitable," and that it was "an integral part of the financial structure of our country." Some six weeks later, in March, the 2.5 per cent yield at market prices disappeared. Government bond prices dropped below par, and investors who bought long-term bonds in search of a small gain in income were faced with capital losses, if, that is to say, they decided to sell their bonds.

Government and High-Grade Corporate Bonds.—Changes in basic yields on Government bonds affect in varying degrees the yields on other securities. High-grade corporate bonds will first be considered. There is no set relationship true at all times between the yields on Treasuries and on high-grade corporates, though the latter normally afford higher returns than Treasury bonds. Trustees and other investors may believe they are not responsible for losses incurred in the purchase of Government bonds. Above all, there is the judgment among many that investment in even the best grades of corporate bonds are likely to lead to some losses. The shocking experience of the 1930's in the field of high-grade railroad bonds, for example, will not soon be forgotten. Memory of the losses in real-estate bonds also lingers.

In the postwar years, long-term Government bonds, ineligible for purchase by commercial banks, yielded on the average from 25 to 40 basis points (a basis point is 0.01 per cent) less than high grade corporate bonds. In June and July, 1951, however, the spread widened substantially to almost 60 basis points. Circumstances then were unusual. Investment institutions, especially life insurance companies, then had heavy commitments to buy mortgages. These arrangements had been made many months before. Hence the supply of funds for investment in new issues of high-grade bonds was reduced, and in order to attract new funds, yields had to be raised. Only a short time before, in April of the same year, the spread was only 18 points. It was difficult then to understand the reason for such a narrow spread. Investors usually bid up the price of existing corporate issues because of the scarcity of new issues. In April, 1951, however, new issues were plentiful. Shortly thereafter the

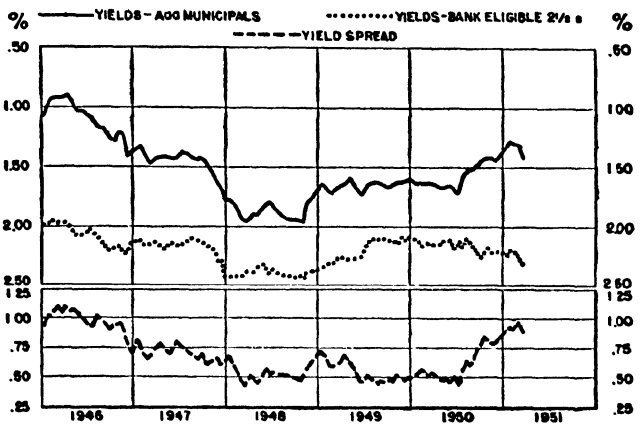
spread suddenly increased sharply, and a higher return reflected the increased supply of high-grade corporate issues.[2]

Government and Municipal Bonds.—An interesting divergence between yields on municipal, corporate, and fully taxable Treasury bonds arises from the tax exemption feature attached to municipal bonds. To a corporation paying a 50 per cent tax, for example, a tax-exempt return of 2 per cent on a municipal bond is equivalent to a 4 per cent return on a corporate or Treasury bond, subject to the tax. To an individual investor, the discrepancy is even more marked. Under the 1950 Revenue Act, a 2 per cent tax-exempt yield to an investor who is not filing a joint return, and who has a net taxable income of $50,000 to $60,000, is equivalent to a return of 8 per cent on a taxable bond. Since there are neither bonds nor stocks of investment quality that command this return, investors in this income bracket normally invest in tax-exempt bonds, unless of course, they select stocks for capital appreciation.

FIGURE 6

Aaa Municipals vs. Longest Eligible Treasury Bonds

YIELDS AND SPREAD—BIWEEKLY



Source: Moody's Investors Service.

Figure 6 discloses the yield differentials between 1946 and the spring of 1951 for municipal bonds, and the longest Treasury 2.5 per cent bonds that can be bought by the banks. Because of the demand from the banks, these bonds afford the lowest yields on long-term Treasuries. The spread was widest in the early period

[2] High grade corporate bonds are those rated Aaa by *Moody's Investors Service*. For discussion of ratings of bonds, see Chapter 24, "Investment Services," pp. 450-55.

and continued to decline, subject to minor interruptions, until late 1948. Thereafter, the spread again increased. After the spring of 1949, the spread narrowed, and by the summer of 1950, the yield spread almost equaled the record postwar low of 1948. Late in 1950 and early in 1951, the spread again widened almost to the high level attained early in 1946. High personal and corporate taxes included in the Revenue Act of 1950 led to renewed demand for municipal bonds. Higher prices and lower yields followed. The deflationary credit policy of the Federal Reserve in late 1950 and 1951, meanwhile, reduced prices and increased yields on Treasury securities.

To commercial banks, particularly in the large cities, which are large buyers of municipal bonds, the yield spreads frequently turn out to be of considerable importance. In 1947, for example, municipal bond prices were high and yields were low—substantially lower than on bank-eligible Treasuries. Investors who misjudged the municipal bond market at that time suffered a loss, and in some cases, the loss was particularly heavy. Commonwealth of Pennsylvania 1⅜ per cent bonds, for example, were sold in 1947 at 100. Less than a year later, the 1974 and 1976 maturities declined in price to 87.

Interesting yield spreads can also be traced among municipal bonds and high-grade corporate bonds and long-term Treasuries ineligible for bank purchase. Since yields on the latter are higher than on bank-eligible Treasuries, yield spreads are correspondingly wider.

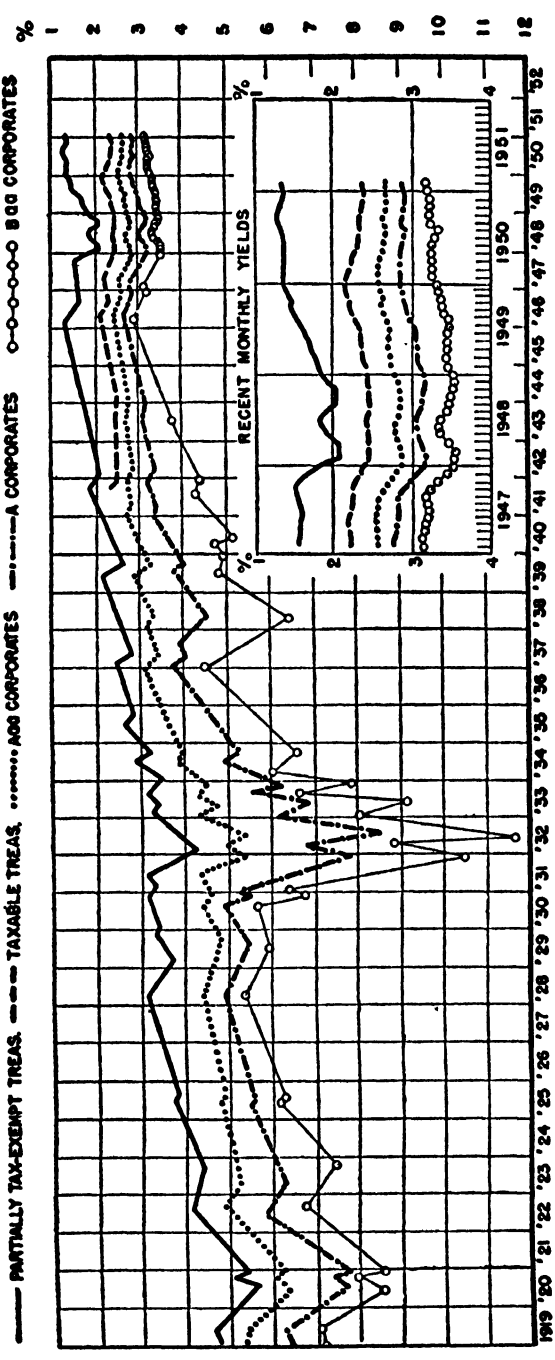
High- and Medium-Grade Bonds.—Another significant yield differential is between high-grade and poorer-grade bonds. Difficult pricing problems emerge at different stages in the business cycle. At the beginning of a cyclical expansion, yields on bonds of low investment quality are substantially higher than on high-grade bonds. In the previous depression, the poor-quality bonds showed up badly. Some passed their interest, and others paid interest, not earned, while still others financed interest payments by undermaintenance, or by using depreciation appropriations. As earnings rise, their quality seems to improve. On the basis of current earnings they look good. As the yield on the higher-grade bonds declines, the investor in search for higher yields is tempted to purchase the lower grade bonds.

A study made by one of the investment services reveals that, in the 25-year period between 1919 and 1944, the quarterly yields for the medium-grade group averaged 121 basis points more than the quarterly yields for the higher grades. The greatest difference was

FIGURE 7

Treasury Bond Yields Compared with Corporate Bond Yields

PRINCIPAL MOVEMENTS, 1919-50



Source: Moody's Investors Service.

383 basis points in the second quarter of 1932 (a depression), and the least was 58 in the fourth quarter of 1927 (a boom).[3] Another study of the bond market in the booming 1920's, between 1923 and 1928, reveals a decrease in the spread between the yields on the first- and second-grade bonds from 2.30 per cent in August, 1923, to 0.86 per cent in March, 1928.[4]

A comprehensive picture of the movement of yields on bonds of different investment grades over a number of business cycles is presented in Figure 7. This shows for the 1919-50 period the yields on Treasury bonds (partially tax-exempt prior to 1942, and fully taxable thereafter), and on three different, investment-quality grades of corporate bonds.

Note the wide differences in yields between bonds by investment grades in the depression years of 1920-21, and the even wider, really extraordinary, differences in the depression year of 1932. The yield differentials narrow between 1921 and 1929, and again between 1932 and 1937. In the poor business year of 1938, the spread widens sharply. Between 1938 and 1951 the spread narrowed to probably the smallest proportions ever recorded.

The search for high yields from bonds of poorer grades is sometimes profitable and at other times not so profitable. Most of the electric power and light bonds, of both holding and operating companies, bought in the late 1930's at steep discounts from their face value, for example, were called before maturity at substantial premiums. A long list of such bonds may be compiled. Table 29 is representative of them.

The investor thus realized high yields and good capital appreciation from the purchase, in some years in this period, of medium and lower grade power and light bonds. The industry was expanding and the earnings were good. The collapse of some poorly-financed holding companies, combined with the passage of the Public Utility Holding Company Act in 1935 with its mandate for the dissolution of holding companies, created an adverse market background. Many investors, gripped by a sense of hopelessness and despair, sold their securities in a weak market. Many bonds sold at prices far below their value based on earnings, past and prospective. Investors who bought these low-grade bonds benefitted handsomely.

Those, on the other hand, who bought second-grade railroad bonds had a varied experience. By 1936, many low grades had risen to high prices. The yield spreads between these bonds and

[3] Moody's *Bond Survey*, January 17, 1944.
[4] Charles C. Abbott, *The New York Bond Market, 1920-1930* (Cambridge, Mass.: Harvard University Press, 1937), p. 148.

TABLE 29

1934-39 PRICES OF A REPRESENTATIVE LIST OF ELECTRIC POWER AND LIGHT, HOLDING AND OPERATING COMPANY BONDS, CALLED AT PREMIUMS BETWEEN 1941 AND 1947

Name of Bond	Range of Prices 1934-39	
	High	Low
American Power and Light 6s, 2016	106⅞	40½
Continental Gas and Electric 5s, 1958	98⅞	36½
Delaware Electric Power, 5½s, 1959	107⅛	65
El Paso Electric 5s, 1950	105⅛	64
Florida Power & Light, 1st, 5s, 1954	104¾	53½
New Orleans Public Service General 1st 5s, 1952	106½	41½
Minnesota Power and Light, 5s, 1955	107	64½
Puget Sound Power and Light, 1st 5½s, 1949	99¼	41¾
Delaware Power & Light 4½s, 1969	112½	94
New England Power Association, 5½s, 1954	100½	54
Virginia Public Service 1st 6s, 1952	103½	61
Oklahoma Power & Water, 1st 5s, 1948	104¾	44

high-grade bonds had narrowed. The period of business adversity beginning in the fall of 1937 was accompanied by a spectacular decline in prices of low-grade railroad bonds. In the 1941-45 war boom, their prices rose, while the return of competitive influences in the 1947-49 period produced a break in prices. Table 30 illustrates the volatility in the price career of these obligations.

Those who bought in 1935 and 1936 and sold out in the 1937-40 period accepted heavy losses for the most part. Those who bought at high prices in 1936, held their bonds manfully throughout the war years, and sold them close to the top of the market in 1946 took a small loss or a slight gain. Those who bought at the low prices of 1938 to 1940 and sold out between 1944 and 1946 realized handsome capital gains. Those who bought at 1936 high prices and who held their bonds throughout the war and the postwar period were faced in 1948 and 1949, for the most part, with capital losses. In the 1950-52 period, the "cold war" economy led to renewed rises in railroad bond prices.

Careful financial analysis, a study of the quality of management, and the recognition as either permanent or nonrecurring of the rising earnings of companies with relatively poor credit status can be of help to the investor. There is, of course, no rule that can unerringly lead to a sound conclusion. Well-balanced judgment, broad experience, and a recognition of existing risks are essential in deciding whether the higher yields on the lower-grade bonds over-balance the

TABLE 30

PRICES OF REPRESENTATIVE LOW-GRADE RAILROAD BONDS, 1935-36, 1937-40, 1941-46, 1947-49

(High and low prices)

Name of Bond	1935-36		1937-40		1941-46		1947-49	
	High	Low	High	Low	High	Low	High	Low
New York Central Refunding and Improvement 4½s, 2016	96¼	43	96¼	38	98¾	41	82¾	52
Missouri, Kansas & Texas 1st Mortgage 4s, 1990	97	50½	96¾	19	101	24⅛	95¼	66½
Southern Railway Development & General 6s, 1956	101⅜	35½	105¼	26	123¼	78	116¼	95⅜
Southern Pacific, 4½s, 1981	95¾	56	97⅝	30	110½	39¾	100	74⅞
Atlantic Coast Line Unified 4½s, 1964	100	71¾	99⅞	41	118½	56	111¼	93½
Illinois Central 4¾s, 1966	86	42½	80	32	97⅜	33¼	84⅝	67¼

probability of capital losses. Early in the postwar II period, the spread between medium-grade and high-grade bonds had already contracted. There was relatively little yield advantage in the purchase of low-grade bonds when compared, theoretically, with the risk of their subsequent price decline. Good business conditions since then have even further narrowed the spread.

Callable and Convertible Provisions.—Another phase of yield differentials arises from callable and convertible provisions of senior securities. Returns to the investor from noncallable bonds or preferred stocks fluctuate in accordance with changes in money rates. Thus, for example, in the period of declining money rates in the 1940's, such noncallable preferred stocks as American Can, International Harvester, American Tobacco, Liggett & Myers, and National Lead, rose to price levels where they returned between 3.5 and 4 per cent.

Callable stocks and bonds, however, did not duplicate this price trend. When interest rates decline, corporations tend to call their bonds and preferred stocks and replace them with securities carrying lower interest and dividend rates. A 5 per cent preferred stock callable at $110 (par value $100), for example, may sell as high, say, as $113. At that price, the investor receives a return of slightly over 4.4 per cent at a time when securities with comparable investment characteristics are returning, say, only 4 per cent. There is a prospect, however, that the security may be called at $110. In that case, the investor may lose $30 out of each $1,130 invested. He refuses, therefore, to pay much more than the callable price. The callable stock or bond may, therefore, continue to yield more than other securities of substantially similar investment quality.

Many investors, through the media of callable bonds and preferred stocks, have been able to secure additional returns for many years. Others, however, have lost part of the principal through the sudden call of senior securities purchased at prices above the call. The writer is familiar with a revealing incident that illustrates the point. Late in 1934, an elderly lady with limited funds solicited information from an investment banking house about a suitable investment. She was referred to a young assistant. He recommended a high-grade stock, General Electric Special, then selling at 12½. A few months later, this stock was called at 11. The investor lost almost 10 per cent of her capital through the purchase of a high-grade security. On the other hand, the 7 per cent preferred stock of International Nickel, callable at 120, has been outstanding for many years, and between 1936 and 1951, the price ranged from 109 to 148.

Bonds and preferred stocks convertible into common stocks may also disturb the adjustment of market prices to changes in interest rates. The senior security may be convertible into common stock under conditions that would make its price respond to a rise in earnings. Increasing interest rates would thus be accompanied by an increase, not a decrease, in the price of senior securities.

It is possible, therefore, that convertible securities may serve as a hedge against a decline in prices of bonds and preferred stocks arising from an advance in interest rates. At that time, earnings may be increasing; hence, the price of a common stock might advance at the very time when interest rates are rising. An increase in the price of the common stock may thus be accompanied by a rise in the price of the convertible securities.

Bonds and Common Stocks.—The difference in yields between high-grade bonds and high-grade common stocks is, in some respects, the most important phase of the subject of yield spreads. The search for higher yields in recent years of low interest rates has driven investors in increasing numbers toward the purchase of stocks. Common stocks normally yield higher returns than bonds. At the top of a business boom when stock buyers have visions of an investor's utopia, stock yields may decline below bond yields. Also, in a depression, the same thing may happen. At that time, especially in its acute phase, a decline in bond prices may run parallel with a reduction in or elimination of dividends. The spread in yields in the 1920-51 period between high-grade corporate bonds and common stocks is shown in Table 31. Only in 1928, 1929, and 1933 was there a yield differential in favor of bonds; in 1933 the differential was nominal.

Unusually low stock yields have been realized a number of times since 1900. One study, based upon the yield of 200 stocks and a composite yield of high-grade bonds, discloses that, at three separate times since 1900, stock yields were 3 per cent, and on two occasions, they approached the 3 per cent level. It was also observed that, at six periods, the 200 stocks yielded less than the high-grade bonds.[5]

The yield spreads in favor of bonds as against stocks in prosperity and depression is, however, relatively slight. But the spread in favor of stocks in a period of rising business is substantial. Since 1940, as Table 31 reveals, stocks have given investors unprecedently high yields. In 1947, common stocks returned investors almost twice as much as bonds; in 1948, 1949 and 1950 considerably more

[5] John Kalb in, *Trusts and Estates,* June, 1946, p. 586.

TABLE 31

BOND AND STOCK YIELDS, 1920-52

Year	Moody's AAA Corporate Bonds	Moody's Annual Average 200 Common Stocks *	Yield on Common Stocks as a Percentage of Yield on Bonds
1920	6.12%	6.21%	101%
1921	5.97	6.48	109
1922	5.10	5.56	109
1923	5.12	5.57	109
1924	5 00	5.70	114
1925	4 88	4 99	102
1926	4 73	5 01	106
1927	4.57	4.65	102
1928	4.55	3 87	85
1929	4.73	3.41	72
1930	4.55	4 54	100
1931	4.58	6.17	135
1932	5.01	7.36	147
1933	4.49	4.42	98
1934	4.00	4.11	103
1935	3 60	4 06	113
1936	3.24	3 50	108
1937	3.26	4.77	146
1938	3.19	4.38	137
1939	3.01	4.15	138
1940	2.84	5.31	187
1941	2.77	6.25	226
1942	2.83	6.67	236
1943	2.73	4.89	179
1944	2.72	4.81	177
1945	2.62	4.19	160
1946	2.53	3.97	157
1947	2.61	5.13	197
1948	2 82	5.78	205
1949	2.66	6.63	240
1950	2.62	6.27	235
March, 1952	2.95	5.49	186

* The yields for the years 1920-28 (inclusive) are taken from Cowles' *Common Stock Indexes* as Moody's *Index* was not computed prior to 1929.

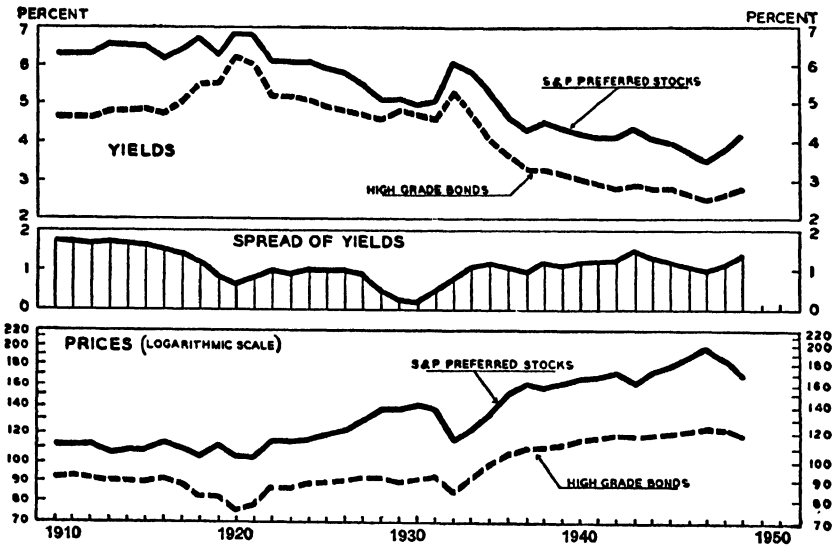
than twice as much. In March, 1952, despite the rise in stock prices and the expansion in bond yields, stocks still afforded investors almost twice as much as bonds. Over a long period, experience discloses a more satisfactory investor return from high-grade common stocks than from high-grade bonds. (See Chapter 23, pp. 409-10.)

High-Grade Bonds and Preferred Stocks.—Another interesting spread is in the field of high-grade preferred stocks. Though many preferred stocks are of poor quality, there are many others whose dividend records are unblemished. They have paid their dividends regularly since they were issued, and they stand in high regard in the investment community. The financial strength of the issuers and the earnings available for the payment of dividends are both so satisfactory that these stocks move largely in line with the money market. These preferred stocks, in fact, have a better record than many high-grade bonds, particularly in the railroad industry. The yields on these preferred stocks, nevertheless, exceed those on high-grade bonds. In the 1940's, the spread was wider than in the previous two

FIGURE 8

High-Grade Preferred Stocks and High-Grade Bonds

YIELDS AND PRICES, 1910-50



Source: A 1950 report of the Trust Investment Study Committee, Trust Division, New York State Bankers Association, p. 89. S. & P. refers to Standard & Poor's Corp.

decades. Though there was a decrease in preferred stock yields, bond yields dropped even more sharply. Figure 8 compares the yields on high grade bonds and on high grade preferred stocks. It will be observed that the spread was less in the post-World War I, than in the 1910-15, period. In these last-mentioned years, however, the stocks were not as seasoned investment-wise; they had not shown the outstanding dividend record that they had achieved by the 1940's.

Premium and Discount Bonds.—It is unique to be able to get something for nothing, or at least for very little, in the investment world. That, nevertheless, appears to be the case in one sector of the high-grade bond market. There are many long-term municipal bonds that are not callable. Some of these were issued years ago at a time when interest rates were relatively high and bear high interest coupons. In the low money markets of the past twenty years, these bonds sold at premiums. As between two bonds of the same borrower, with the same maturity and differing from each other in no respect except for the coupon rate, the yields on the high coupon premium bonds are higher than on the low coupon discount bonds. In May, 1952, for example, the 1¾ per cent bonds of the City of New York, due in 1971, sold on a 2.10 per cent yield basis; while the 4½ per cent bonds with the same maturity sold on a 2.60 per cent basis. On a shorter maturity, that of 1959, the 1¾ per cent bonds of the same borrower, sold on a 1.65 per cent basis, while the 4 per cents with the same maturity sold on a 1.80 per cent basis. The higher yields thus realized on premium bonds are not accidental market quirks. Such differences are of long standing and apply indifferently to city, county, district and state, as well as to corporate bonds.

There are a number of reasons for this discrepancy, none, however, reflecting any particular credit upon investor wisdom. A bond bought at a discount advances in price towards maturity, while one bought at a premium declines. Some investors feel, accordingly, that they have a profit in the former and a loss in the latter. There is of course no validity in this distinction. The investor receives a return on the price paid for the bond. If he pays a premium, he receives the same return on the face value as on the premium. The premium of course is returned to the investor out of the interest payments. Since municipal bonds are generally sold on a yield, and not on a price basis, this discrimination against premium bonds is particularly curious. The investor, that is to say, buys the bond not at such and such a price, but on such and such a yield basis. He realizes income on his entire investment.

There is one technical barrier, nevertheless, to the purchase of premium bonds, and this also is of no particular credit to investor thinking. There are some accounting problems on such bonds. The buyer must write off (amortize) the premium from the interest coupon. For trust accounts, that is a procedure frequently difficult to explain to beneficiaries. Furthermore, many trustees do not want to be bothered with the additional bookkeeping. And there are other reasons for the disinclination of some trustees to buy premium bonds.

Interest Rates—Causes of Changes

Changes in interest rates that so vitally affect security prices have been examined by many writers. They have made repeated efforts to explain the causes of such changes. The investor, nevertheless, can turn to no accepted opinion on this subject. Highly theoretical controversies bedevil these writers, for there are conflicts between subjective and objective monetary theories, between subjective and objective nonmonetary theories, and between nonmonetary and monetary theories.[6] One writer observes, emphasizing the division of opinion between the nonmonetary and monetary theorists, that ". . . one side must be right and the other wrong, even if the rightness or wrongness may ultimately turn out not to be absolute, but only relative to particular problems." [7] The investor, therefore, can gain little wisdom in utilizing the teachings of the monetary theorists.

Bond Cycles.—Whatever may be the causes of changes in interest rates, it is an established fact that profound changes lasting over many years have taken place. The succession of changes in the trend of interest rates are frequently referred to as bond cycles. A study of changes in the United States since 1856 reveals a decline in interest rates between 1856 and 1864, a rise from that year to 1873, a decline to a low in 1899, a rise from that year to 1920, and a subsequent decline that terminated in the spring of 1946.[8] One tendency is clear; the rate of interest has been declining. The cyclical peaks are lower than previous peaks, and the most recent drop to new lows is unprecedented. There are a number of reasons for this phenomenon, aside from government policy in favor of lower money rates, such as the increasing supply of fixed capital in many well-established industries and the steady growth of institutions that conserve the existing flow of savings.

Adjustment of Policy to Rate Changes.—Fluctuations in interest rates can be observed with due perspective over the course of years. The investor finds great difficulty, however, in adjusting his program to changing interest rates. Neither downward nor upward trends in past bond cycles have given the investor clear signals of forthcoming changes. The most recent drop in interest rates,

[6] This summary of the controversies among the economists is taken from an article by Harold H. Somers, "Monetary Policy and Theory of Interest," *Quarterly Journal of Economics,* May, 1944, p. 489.

[7] John R. Hicks, *Value and Capital* (New York: Oxford University Press, 1939), p. 153.

[8] See Frederick R. Macaulay, *Some Theoretical Problems Suggested by the Movements of Interest Rates, Bond Yields and Stock Prices in the United States Since 1856,* National Bureau of Economic Research, 1938, for a study of bond cycles.

beginning in 1920, for example, has puzzled many investors. By the 1930's, the decline had already led many investors to refrain from the purchase of long-term, high-grade bonds. Indeed, investors who were selling low-grade bonds near the top of the boom in 1936 and 1937 and were buying high-grade bonds were criticized. One writer, for example, observed:

> Experience indicates that many banks which have disposed of second-grade . . . bonds prematurely, have plunged headlong into long maturities of highest rating bonds under the delusion of conservatism. [To sacrifice second grades and to buy the highest grade long-term bonds] was about the worst kind of bond management, for it provided a solid base for future bond troubles.[9]

Many managers of institutional portfolios, in response to their belief that bond yields had reached a low point and would soon rise, sold their long-term bonds to await a decline in price. A decline in the fall of 1937 was temporary, and was followed by a sweeping price rise.

The belief in the inevitability of the prospective rise in bond yields was widespread in the late 1930's and in the early 1940's. This judgment, for example, was reflected in a volume published in 1940. "At the present time," observed the authors, "the pure rate of interest in the United States is very low. The nearest comparable rates were those as far back as 1897. Undoubtedly the weight of market opinion is that the pure rate of interest will rise." [10]

Another difficult investment decision was made late in 1947 and early in 1948. Inflationary forces seemed to be all powerful. Loans of commercial banks were rising as were demands for long-term capital. Banks and life insurance companies were selling government bonds in order to invest the proceeds in private channels. Heavy liquidation had reduced the price of long-term Treasury bonds. Banks that had bought bonds at premiums, sold them at prices involving losses. The Federal Reserve pegged prices in order to prevent further depreciation.

In the fall of 1948, opinion was widespread that the demand for investment funds was still rising. High interest rates appeared to be reasonably certain. In August, the president of the Federal Reserve Bank of New York stated that an increase in the rate on one-year United States Treasury Certificates from 1¼ per cent to 1½ per cent might be necessary. Institutional investors sold high-grade

[9] *Wall Street Journal*, July 29, 1936.

[10] George H. Evans, Jr., with G. E. Barnett, *Principles of Investment* (Boston: Houghton Mifflin Co., 1940), p. 46.

bonds in the belief that money rates would rise. Chase National Bank of New York reported a loss on the sale of securities in that year. The loss "resulted primarily from the sale of long-term bonds, principally municipal obligations which the bank had bought during the preceding years in the course of its business as an underwriter and dealer in those securities." [11] Again appearances proved deceptive. Indeed, as subsequent hindsight revealed, the liquidation of business loans had already initiated a declining trend in the demand for money at the very time when the supply of money was increasing.

By the summer of 1949, interest rates were again falling, and the price of Government bonds was again advancing. Many experienced institutional investors discovered they had made a mistake in previous months in selling Government bonds. In 1950 and 1951, however, interest rates resumed their rise. Investors, accordingly, find it difficult to adopt and pursue a clear-cut policy.

Changes in Supply of and Demand for Money.—Investors try to measure and perhaps anticipate changes in interest rates by tracing changes in the supply of and in the demand for money. By the supply of money is meant the demand deposits in the banks and the currency in circulation outside of the banks. Assuming no change in demand from Government, consumers, and business, and no change in the velocity of circulation, an increase in supply is expected to be followed by a decline in interest rates.

The investor is thus able to measure changes in the supply of money available for investment. Elaborate statistical information on money supply is available. Detailed figures are published showing the trend of demand deposits, time deposits, government deposits, and of currency in circulation, and also of personal, corporate, and institutional savings.

Demand for funds is more difficult to trace. Businessmen's needs for expansion and replacement, mortgage credit for new and existing structures, consumers' credit requirements, government and net export requirements can be measured only as they take place or soon thereafter. Estimates for future needs are, however, made by many agencies, private and public.

Government Monetary and Fiscal Policy.—The investor who desires to adjust his investment policy to changing money rates must, among other things, become a student of Government monetary and fiscal policy. The supply of Government bonds comes largely from a policy of deficit financing. Once Government bonds are issued

[11] *Annual Report*, Chase National Bank of New York, 1948, p. 4.

both to bank and nonbank investors, the Federal Reserve can increase or decrease the supply of money by buying or selling such bonds. By buying bonds, it increases the supply of Federal Reserve credit, and by selling, it decreases the supply. And in the banking system, these checks, when deposited by the banks with the Federal Reserve Banks, become the basic money of the economy. In fact, it was once stated (by the then chairman of the Federal Reserve System) that through these sales and purchases of bonds, known as open market operations, the Federal Reserve had "virtually unlimited means of supplying the money market with additional reserves."

This summary discussion of interest rates gives some idea of the complexity of the problems involved. The decline in interest rates over the past quarter century has developed numerous novel problems. Some institutions, unhindered by legal restrictions, are being driven by low interest rates into common stocks. The low return on high-grade bonds increases the pressure to legalize the purchase of stocks by other conservative institutions, such as trustees, savings banks, and life insurance companies. This occurs at the very time when high income taxes reduce the purchasing power of wealthy individuals who, for many years, served as the largest market for stocks. And, curiously enough, the strongest rise in the bond market occurred at the very time when many feared inflation.

Interest Rates and Stock Prices.—Prices of dividend-paying common stocks, like bonds, are determined in part by interest rates. A stock, for example, pays a $4 dividend and earns $8 a share. It may be assumed that this dividend will be indefinitely continued. If the interest rate is 5 per cent, the stock will sell at $80 per share. If the rate of interest declines to 2 per cent, the stock will sell at $200. The adjustment of market price to interest rates is, of course, not automatic. The adjustment is made irregularly over a number of years and with many unaccountable market shifts and variations. There is also authority for the judgment that the value of dividend-paying stocks is the present worth of their dividends.[12] This may be a good definition; it is certainly no explanation. Nor do all dividend-paying stocks react to changing interest rates in the same way and to the same degree. Dividends are normally paid from earnings, and market values revolve largely around earnings—past, present, and anticipated. To understand the forces underlying market prices of common stocks, it is, therefore, necessary also to learn how such prices adjust themselves to the changing flows of earnings.

[12] John B. Williams, *Theory of Investment Value* (Cambridge, Mass.: Harvard University Press, 1938).

Once earnings are determined and dividends are paid, the rate of interest becomes an important long-term determinant of common stock market prices. Market prices also reflect corporate earnings, and it is to an elucidation of these relationships that the next chapter is devoted.

QUESTIONS AND PROBLEMS

1. Why is it usually necessary to compute yields to maturity on bonds and not on mortgages?
2. Why should the current return on a bond be different from its yield to maturity?
3. A change in interest rates exerts a greater effect on the price of bonds with a *longer* or *shorter* maturity. Note which is correct, and why.
4. What do you understand to be the meaning of the "structure of interest rates"?
5. Why do changes in the basic yield on Government bonds influence the yield on other bonds?
6. Discuss the influence that the tax situation exerts upon yield spreads between different kinds of bonds.
7. What effect does the business cycle have upon the yield differential between high- and medium-grade bonds?
8. Compare the result obtained from purchases of medium- or lower-grade utility bonds with that of second-grade railroad bonds between 1941 and 1951.
9. What influence do callable and convertible provisions included in bond contracts have upon yield differentials?
10. Why should there be difference in yields between high-grade bonds and high-grade common stocks? Under what conditions is it likely that high-grade common stocks will yield less than high-grade bonds?
11. Why should the investor, in laying out his investment program, follow closely the Treasury monetary and fiscal policy?

READINGS

DURAND, DAVID, and WINN, WILLIS J. *Basic Yields of Bonds, 1926-1947.* New York: National Bureau of Economic Research, 1947.

MACAULAY, FREDERICK R. *Some Theoretical Problems Suggested by the Movements of Interest Rates, Bond Yields and Stock Prices in the United States Since 1856.* New York: National Bureau of Economic Research, 1938.

Moody's Bond Survey, published weekly by Moody's Investors Service, New York, presents discussion of yield differentials between various classes of securities, accompanied frequently by charts.

Chapter 21

PRICE-EARNINGS RATIOS: INDUSTRY

Changes in earnings available for high-grade bonds and preferred stocks exert relatively little effect on prices. Their prices are determined largely by the movement of interest rates. The prices of dividend paying, investment-quality common stocks are also affected by interest rates. The prices of these stocks, however, are the outcome *primarily* of the flow of earnings—past, present and expected. The rate of interest is only one of numerous factors affecting common stock prices. The poorer grades of stock, and of bonds as well, are unaffected, for the most part, by the movement of interest rates. The price paid for a security is a more important decision to make for the stockholder than for the bondholder. (Except when otherwise stated in this chapter, stock refers to common stock and dividend to one on a common stock.) The buyer of a high-grade bond, as long as the bond maintains its quality, need watch only the interest rate; the stockbuyer must guard against many pitfalls. The purchase of the highest investment-quality stock, even though the stock maintains its quality, may lead to heavy losses. High-quality stocks normally sell at high prices, and any one of many factors, or a combination of them, may produce a substantial break in prices.

Pricing Problem

Indeed, the pricing problem is the vital difference between the bond buying and the stockbuying decision. The bond investor is satisfied that the borrower's earnings cover interest charges by an adequate margin. Higher earnings available for interest on a high-grade bond exert only a slight, even nominal effect on its price. Higher earnings available for dividend payments are, on the other hand, the very life-blood of stock prices. Higher earnings mean more dividends and advancing stock prices. There is, however, no exact relationship between these two variables. Frequently, especially over short periods, they move in opposite directions. There is, furthermore, no normal correspondence between the percentage of

increase in earnings per share and the percentage of increase in market price per share.

What price earnings? is, therefore, a problem that never escapes the stock-buying investor. Every good and every service has a value that is expressed in a market price. There is no commodity or service that is worth any price, for though the minimum price is zero, the maximum price is not the sky nor anywhere near it. There are definite limits beyond which the price of a security, like the price of any other good or service, cannot go.

"Riskless" Bonds.—In every environment, conditioned by social, economic, and political institutions, some investments are looked upon as "riskless," or almost so. These securities maintain their investment quality, regardless of changes in general business, in particular industries, or of individual corporate managements. Such securities, for a number of generations, have been and still are United States Government bonds. But the historical fact that no losses have actually been encountered does not establish the riskless character of an investment.

The market value reflects the investor's belief in the relative absence or presence of risk. Many public and private bonds, that have sold at steep discounts from face value have, within relatively short periods, been paid at maturity or redeemed at 100 per cent or more of face value. The bonds and preferred stocks of public utility holding companies that sold at such steep discounts, in the mid-1930's and the early 1940's, were largely redeemed by the late 1940's. That fact, however, did not place these securities in the riskless category. For a generation or more before the depression of the 1930's, municipal bonds of the large cities were considered to be investments with little risk. This opinion received a shock in the depression years when the bonds of New York, Philadelphia, Chicago, and Detroit, among others, dropped to sharply lower levels, reflecting a degree of risk that was not envisaged in the pre-Depression era. The expectations of those risks have now largely vanished, and municipal bonds are again selling on a low yield basis.

Contractual or Conditional Securities.—In considering the forces that determine market prices, a broad distinction emerges between contractual and conditional securities. The former group include all forms of debt and, also, preferred stocks; in the latter group are common stocks. The investor in contractual securities measures his risks in terms of the borrower's or issuer's ability to pay fixed dollar amounts. If there is a safe margin in earnings and the investor believes that the borrower or issuer can under all conditions

fulfill the contract, the price of the security in the absence of a change in money rates, *usually* remains relatively stable. As the risk increases, the yield rises. Conversely, if the risk decreases, the yield does not necessarily decline. A point is reached at which the market price fully reflects the absence of risks within the pattern set by existing money rates. The price of long-term, 2½ per cent Government bonds, for example, mirrors the ability of the Government in the mind of the investor to meet its obligations, provided current money rates continue.

The market price of high-grade bonds and preferred stocks (aside from the influence of money rates) responds to the degree to which increases in risk, in the judgment of investors, become sufficiently serious to threaten the payment of principal, interest, or dividends. The price usually, though not always, becomes an approximate reflector of increasing risks; a preferred stock or a bond can under such conditions drop to a point where the yield in a 3 per cent money market may amount to 10 per cent or more. There are bonds that pay interest for decades, and yet sell at high yields. Take, for example, some of the country's major railroads that have a long record of uninterrupted interest payments. The bonds of such roads as the New York Central, Southern, Southern Pacific, and Illinois Central sold at prices to yield 10 per cent and more throughout the 1930's and in the early 1940's. In the subsequent war and postwar years, some were paid at maturity; others were bought by the borrowing corporations in the open market; still others were redeemed at callable prices in excess of their face value; while some by 1952, had advanced in price so that they returned the investor only about 3½ per cent. These price changes reflect the opinion of investors concerning the increase or decrease of risk.

Bonds and preferred stocks that sell at prices indicating exceptionally high yields are classed as speculative securities. Investors in these securities are, in reality, risk bearers.

Common Stocks.—The investors in common stocks, however, are the genuine risk bearers in the system of capitalism and free enterprise. Profits, like the ripples in a brook, are forever changing. Common stockbuyers are entitled to no contractual return. They receive only a participation in profits, and even then, only if such profits are declared in dividends. Nobody knows what future profits will be. Though everybody guesses, neither the management nor the stockholders, nor the public and private forecasters, soothsayers, or astrologers know the answer. There is a never-ending difference of opinion about future profits.

Even after profits emerge, there is a running battle of judgments over their relative significance. Some investors believe that the profits of a particular year are normal and will continue, while others believe that they are abnormal and will soon largely, if not entirely, disappear.

EARNINGS AND STOCK PRICES. There are also differences in judgment over the *degree* to which earnings affect the market prices of common stocks. It is correct to say that the trend of earnings and dividends influence market prices. It is not correct to say, however, that any standardized relationship between earnings, dividends, and market prices enables the investor to determine the price of a stock. In fact, the price determination problem is highly complicated. The business cycle, the movement of money rates, interindustrial and intraindustrial forces, changes in taxation, the existence of a war or peace economy, the confidence or lack of confidence in the forces affecting future profits, and something novel in world relations—a cold-war economy, all these and other factors must be focused in the market place in the form of a decision to buy or sell a stock at a given time. This is a problem that might well challenge the wisdom of Solomon himself, and yet it is one that almost continually faces the equity investor.

It must be stressed that it is not proposed to explain market prices of common stocks, nor to examine market trends. It is assumed that the underlying determinant of stock prices is earning power. Out of earnings flow dividends or corporate reinvestments in the property that increase future dividends. The inquiry is directed toward ascertaining the relationship between the earnings available for each share of stock and the market value of each share. Is there any normal relationship between these two factors? Is there a given multiple that prevails under one set of conditions and not under another? Does this multiple vary with industries and with companies within an industry? Is the multiple the same for an industry over a period of time or does it vary for that industry with changes in conditions? Is the multiple always the same for a given company or does it vary over time?

Price-Earnings Ratios in Boom and Depression

One would expect the ratio between the price per share and the earnings per share (for convenience this ratio will hereafter be called the price-earnings ratio) to be highest in a period of prosperity. At that time earnings are high and investors are expecting further in-

creases. Investors would, accordingly, be expected to pay a high price for every dollar's worth of earnings.

That reasoning is not borne out by experience. Strange as it may seem, price-earnings ratios are highest in a depression when earnings are low and hope for the future is slight. At such time stocks sell at exceptionally low prices. Earnings drop and, in many industries, especially in the capital goods categories, the good earnings of the boom years are transformed into deficits. Under these conditions the science of statistics is inclined to play havoc with normal relationships. In 1921, corporations, as a whole, operated at a deficit. In 1931 and 1932, again many major concerns reported deficits. What should be the price of such investment stocks as International Nickel, United States Steel, General Motors and General Electric, whose earnings in 1931 and in 1932 dropped to nominal levels, and in some cases, to deficits?

Aside from earnings, corporations have current assets and other valuable properties that have a value even to the most pessimistic mind. Such values, and particularly the current assets per share, sometimes tend to set a floor below which market prices are not likely to drop substantially. Under some conditions, however, prices may fall below net current assets. In the face of probable commodity price declines and business failures, for example, investors may look with suspicion upon the integrity of the working capital account.

In both depression and prosperity years, individual stocks may, over short periods, sell at excessively high price-earnings ratios, at ratios higher than other stocks of the industry, and higher than any previous ratio of their own. Investors are usually familiar with the reasons for the temporary decline in earnings and continue to pay a price for the stock, based on the company's normal earnings. At end of 1945, for example, Atlantic Refining stock sold at 116 times the year's earnings. Due to nonrecurring circumstances, earnings were abnormally low. Investors ignored these low earnings and bought the stocks at prices reflecting more normal earnings.

Dow-Jones Industrial Stocks.—To measure the relationships between earnings and prices of stocks for the market as a whole is a forbidding task. Various statistical services have, however, provided data that make it possible to show such relationships in a reasonably satisfactory manner. One widely used is prepared by the Dow-Jones Company. (See Chapter 23, p. 417.) Of the three groups published by this organization, the most representative is the industrial. In recent years, its representative character for purposes of reflecting market trends has been challenged. These stocks, it is contended,

are the "blue chips" and their prices do not move like those of the majority of stocks. Dow-Jones Industrial Stocks, however, are of good investment quality. Tin containers, nonferrous metals, chemical, telephone, automobile manufacturing, cigarettes, corn products refining, photographic equipment, electrical equipment, packaged foods, steel, farm equipment, rubber, synthetic building materials, motion pictures, distilling, soap, price appeal chain stores, oil refining, variety chains, and aircraft manufacturing are the industries included. Perhaps some question may be raised about the stability and earnings trend of the distilling industry, in view of its short life since repeal of the Prohibition Amendment in 1933. And of course, there are doubts about the expansive nature of the movie industry.

The per share annual earnings of the Dow-Jones Industrial Stocks and their prices present, therefore, a reasonably representative picture of the price-earnings ratio of investment-grade stocks. In the depression year of 1931, they earned $4.09 per share, and at the year's end, they sold at $77.90 per share, thus producing a price-earnings ratio of 19. In 1932, the lowest depression year, they reported a deficit of 51 cents per share, although dividends (payable out of surplus) amounted to $4.62 per share. At the year's end, they sold at $76.19. In the boom year of 1929, these same stocks earned $19.94 a share, while the stocks sold at the end of the year at $248.48 per share, thus producing a price-earnings ratio of 12.4. Even at the top of the market on September 3, 1929, the price-earnings ratio on the basis of comparison with the 1929 per share earnings was less than 20.

Stock Market Price Patterns. In the recovery from a depression, a rise in stock prices anticipates an increase in earnings. Thereafter, a prolonged pattern of price-earnings relationships is woven into the fabric of a continually changing market. Every stock market pattern, in its detailed movements, in its range and duration, is different from every other. Numerous factors exert an influence upon the extent to which each dollar change in per share earnings is reflected in per share prices.

In this continuous interpretation of the volume and quality of emerging earnings, the so-called insiders—the managements of the companies concerned—are not the experts. They do not usually make these movements. In the midst of the price rise of the stock of R.C.A. in the late 1920's, for example, some of the high officials of that company confessed to a Congressional Committee that they did not understand the reason for the price fluctuation. Such experiences happen again and again. The pattern of the market in relation-

ship to the reported earnings is established in one of the fiercest competitive markets existing in the modern economy. Investors large and small, rich and poor, corporate and individual, personal and institutional, optimistic and pessimistic, short-term and long-term, economically and statistically minded, informed and ignorant, educated and uneducated, citizens and aliens, all express their opinions in the buying or selling of securities. Some investors look to the past. Others look mainly to the future and project earnings based upon new products, new processes, and market expansion.

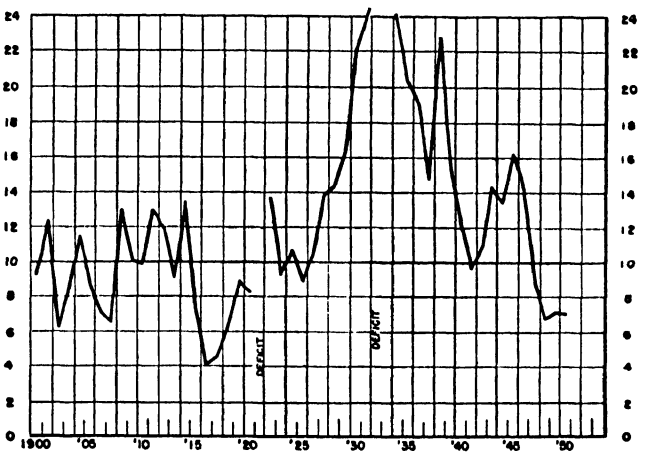
As these patterns are woven over the course of years, a number of general influences tend to produce a higher or a lower price-earnings ratio for the *market as a whole.* These influences cannot be set down dogmatically. No research project could be devised that would prove conclusively the precise contribution made to such a price-earnings ratio pattern by each of numerous causes. Even after a market has gone into the pages of history, differences of opinion over the underlying causes for a given market pattern are likely to persist indefinitely. The forces, suggested herewith, should be considered, only as suggestions, not as explanations.

The fact of a changing price-earnings ratio pattern is, however, incontrovertible. Figure 9 shows the price-earnings ratios of Moody's 125 industrial stocks between 1900 and 1950.

FIGURE 9

Price-Earnings Ratios of Industrial Stocks

ANNUAL AVERAGES, 1900-50



This chart shows the movement of the annual averages of the price-earnings ratio of Moody's 125 Industrials. Cowles Commission data were adjusted to obtain corresponding data prior to 1929. The heavy line, at the ratio of 10, represents an assumed "normal." Statistics for 1950 are for the first three-quarters of the year.

Courtesy, Moody's Investors Service.

The wide difference between the price paid for each dollar's worth of earnings at different periods is here revealed. Starting, for example, from a low ratio in 1924, the multiple moved up sharply in the boom years to 1928 and 1929. The lively expectation of a continued rise in earnings is perhaps the best explanation of this phenomenon. The belief in continuous expansion was by no means confined to unsophisticated investors. Economists, academicians, investment companies, and many professional buyers shared in this judgment. Some of the economists associated with a leading Eastern university lent their collective judgments (through a service carrying the name of this institution) to these expectations.

In the prosperous years of 1936 and 1937, the expansion of earnings surpassed the rise in market prices. Hence, the price-earnings ratios were below those realized in the booming years of 1928 and 1929.

Perhaps the least expected pattern, however, was woven in the prosperous years of 1946-50. In 1946, the expansion in profits was retarded by the labor disturbances in the early part of that year. Market prices early in that year, however, moved up rapidly, and the price-earnings ratio, accordingly, advanced to a level slightly higher than in 1936. In the following two years, business continued to boom. Production, as measured by the Federal Reserve Board Production Index, increased from a low of 152 early in 1946 to 192 in December 1948. Per share earnings of Dow-Jones industrials also soared to a new high of approximately $22 per share. Careful investors, nevertheless, who bought stocks in 1945 and early 1946 in correct anticipation of a rapid rise in production and profits, were left with losses on their hands in many cases by the summer of 1949. Stock prices moved down instead of up, and the price-earnings ratio (of the Dow-Jones industrials) at the end of 1948 slumped to 7.7. At the end of 1949, in a rising stock market, the price-earnings ratio increased slightly to 8.5. In 1950, stock prices rose further, but earnings advanced more rapidly. Even on the basis of the *highest* Dow-Jones industrial stock prices for that year, the price-earnings ratio was only 8.4. This was a low ratio, as compared with 15.6 in 1946 and 16.9 in 1937.

Postwar Price-Earnings Ratios. There are several explanations for these low postwar ratios. First, the period was characterized by a rising price level, and hence profits included nonrecurring inventory appreciations. Since the goods sold at high prices had to be replaced at these or at even higher prices, the gain in one year or in one period might, in the event of declining prices, be replaced by

losses in another year or in another period. LIFO accounting minimizes, but by no means reduces, these nonrecurring profits. Investors believed, therefore, that these profits were temporary. Since such profits would not be realized annually, the multiple at which they sold in the market place should not be high.

Second, because of conventions prevailing in the accounting art, the expense of replacing technologically inefficient or physically exhausted property is based upon the *cost* of the replaced asset. Reported profits were, therefore, overstated by the difference between expenses recorded on the books of the company as depreciation and those incurred for the replacement of the asset. These two causes usually exist in every inflation period.

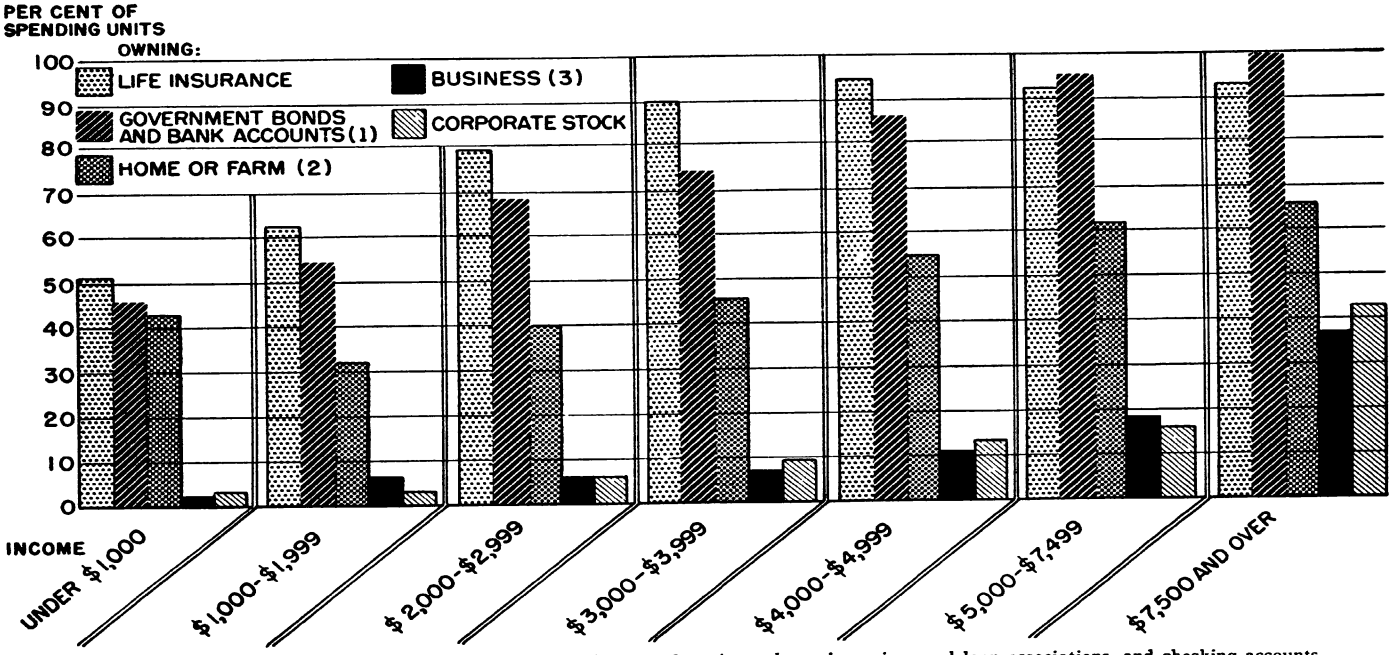
Third, a new factor, not important in previous inflationary periods, appeared. The price of a stock is associated with supply and demand forces. The demand for common stocks comes largely from the high-income groups. The basic facts on this point are well brought out in Figure 10.

Observe the small percentage of assets represented by stocks of family income groups with annual incomes of less than $5,000, and how the percentage increases rapidly in the higher groups, particularly in those whose income exceeds $7,500. The rise in living costs, combined with heavy personal income taxes, has reduced the savings of the high-income groups. The percentage of personal income received in 1949, for example, by those with annual incomes after federal taxes in excess of $25,000 was less than one-third of the 1929 figure. A Federal Reserve study discloses, furthermore, that in 1949 five million families with annual incomes higher than $6,000 spent $10.8 billion more than they earned. In 1950, dissaving in this income group increased further. To this extent, these families lived upon their savings. Obviously, they had relatively little with which to buy securities.

Furthermore, persons in the federal high-income tax brackets need higher returns on stocks to realize reasonable yields. An investor in the 50 per cent tax bracket who secures 6 per cent on a stock, receives a net return of only 3 per cent. If he lives in New York, he pays an additional income tax, and if he is a resident of Pennsylvania, he is likely to pay out a substantial part of his net income after Federal taxes in the form of a personal property tax. Considering the risk involved, the slightly higher yield from stocks as contrasted with tax-exempt municipal bonds is not particularly attractive. Even investors in the 40 per cent bracket—comprising a large investment army—might be disposed to prefer 2 per cent tax-exempt bonds to a common stock yielding 6 per cent before taxes.

FIGURE 10. Asset Ownership by Family Income Groups

SPENDING UNITS OWNING VARIOUS TYPES OF ASSETS AS A PERCENTAGE OF ALL SPENDING UNITS IN SPECIFIED INCOME GROUPS, 1950



1 Includes U. S. Government Bonds, savings accounts in banks, postal savings, shares in savings and loan associations, and checking accounts.
2 Owner occupied home or farm. 3 Full or part interest in a nonfarm unincorporated business or privately held corporation.
Source: 1949 Survey of Consumer Finances conducted for the Federal Reserve Board by the Survey Research Center of the University of Michigan. A consumer unit is defined as all persons living in the same dwelling and related by blood, marriage or adoption, who pooled their incomes for their major items of expense.
Courtesy: Institute of Life Insurance.

Fourth, a new political pattern both domestic and international, in the judgment not only of investors, but of many other thoughtful people, appeared to be forming. There appeared to be emerging a popular judgment that profits were excessive and that they should be turned over to the government in taxes. Many investors, therefore, feared that profits might soon decline.

Fifth, investors also saw a new international pattern likely to oblige this country to spend a substantial part of the national income for arms. The financing of this venture into economic unproductivity would require heavier personal and corporate taxes, unless the country were willing to pay the bill in rapid price inflation.

Sixth, there was also a growing belief that a new political hierarchy would not only increase income taxes of the high-income groups, but would also establish a centralized, planned economy. This, in the opinion of many, threatened to reduce the country's economic productivity. An increasing diversion of the national income from job-creating production to administrative supervision over and interference with such production would, in the opinion of many investors, reduce profits.

Seventh, professional market technicians—those who study the internal price structure of the market, the relations between prices, volume of trading, the number of shares advancing and declining, and so on—had still another explanation. Leadership of professional traders is usually essential to make the adjustment between changing earnings and market prices. Such speculative leadership in the past created a large public following. Professional activities of this character, so it is contended, have been destroyed by the regulated market under supervision of the Securities and Exchange Commission. The pattern of stock price movements has been permanently modified. Prices respond more than ever to investor buying. Investor fears and suspicions in the postwar years produced hesitant buying prior to 1950. Beginning with that year, the stock market assumed a twofold character. Many high investment quality stocks advanced in price more rapidly than corporate earnings and sold at high price-earnings ratios, while most of the stocks of lower investment qualities sold at materially lower ratios.

Ratios by Industries.—Within a price-earnings ratio pattern woven by these general forces, each industry and each company within the industry present varying and distinctive price ratios. These ratios are neither standardized nor fixed. They fluctuate within wide ranges, due partly to causes that affect the stock market as a whole and to others that affect only particular industries or

companies. Furthermore, the price-earnings ratios of industries and companies change frequently. In fact, such changes sometimes give the investor one of the earliest selling signals of an unfavorably developing background, and one of the earliest buying signals is a background that is favorably developing.

In the study of price-earnings ratios by industries, one general trend stands out clearly. In relationship to the current year's earnings, to those anticipated in future years, or to the average earnings of a number of previous years, the stocks of companies in expanding industries sell at higher prices than those of the declining industries. Though this statement is made unqualifiedly, it must not be interpreted to mean that it applies indiscriminately to every single company in both groups of industries. The conclusion is true, however, on the basis of a composite of such industries.

The price-earnings ratio of each industry reveals a changing picture within the pattern set by all industries and of the market as a whole. A general rise or decline in stock prices affects both the expanding and the declining industries. Whether on a higher or on a lower scale, the differences in ratios as between prosperous and nonprosperous industries are maintained. If a dollar's worth of annual chemical earnings in the market of the late 1920's sold at $25, a dollar's worth of railroad earnings sold at $8 to $10. In the markets of 1947 and 1948, the same dollar of chemical profits sold for about $12, while the railroad earnings dollar sold at about $4. In 1951, the respective figures for these two industries were about $16 and $5.

The price paid by the investor for expectations of continued profit expansion in the prosperous industry occurs even in the face of good fortune in the declining industry. If secular forces reveal a picture of decline for a particular industry, the investor will continue to pay a small price for its (temporarily) rising earnings. In the post-World War II boom, for example, expansion in earnings of the woolen and cotton textile industries was paralleled by rises in stock prices. The price-earnings ratios, nevertheless, held at relatively low levels. The war rise in railroad earnings was reflected in the security markets by an equally conservative valuation. The chemical industry experienced a much slower expansion of wartime earnings than the railroad industry. Its stocks, nevertheless, sold at consistently higher price-earnings ratios. Table 32 shows the price-earnings relationships of some of the leading stocks in these two industries.

The higher chemical ratios typify the expanding industries, and the railroads, the declining industries. In the postwar years, the

stocks of leather, lumber, ice, bituminous, anthracite, raw sugar, flour milling, marine transportation, cotton and woolen textiles, and street railway companies, for example, continued to sell at low price-earnings ratios. Meanwhile, stocks of expanding industries, such as ethical drugs, aluminum, air lines, rayon, business machines, electri-

TABLE 32

PRICE-EARNINGS RATIOS OF LEADING RAILROAD STOCKS IN SELECTED YEARS, WORLD WAR II AND POSTWAR PERIOD—1942, 1946, 1949

Name of Road	Earnings per Share	Market Price per Share (High)	Price-Earnings Ratio
I. 1942			
Atchison, Topeka & Santa Fe	$27.79	52	1.87
Southern Pacific	21.28	18⅛	0.85
Union Pacific	13.07	42⅝	3.26
Chesapeake & Ohio	4.25	36¾	8.65
Norfolk & Western	3 84	48	12.50
Atlantic Coast Line	27.46	34½	1.26
New York Central	7.61	12½	1.64
Baltimore & Ohio	16.77 *	4⅛	0.25
Pennsylvania ..	7.71	25⅞	3.36
II. 1946			
Atchison, Topeka & Santa Fe	$13.52	121	8.9
Southern Pacific	6.70	70	10.4
Union Pacific	5.95	84¼	14.1
Chesapeake & Ohio	3.62	66⅞	18.4
Norfolk & Western	4.06	72⅛	17.7
Atlantic Coast Line	6.64	83	12.5
New York Central	1 62 def.	35¾	†
Baltimore & Ohio	0.86	30¼	35.1 †
Pennsylvania	0.65 def.	47½	†
III. 1949			
Atchison, Topeka & Santa Fe	$18.06	105½	5.8
Southern Pacific	8.06	51	6.3
Union Pacific	10.26	89½	8.7
Chesapeake & Ohio	1.36	34¾	25.5 ‡
Norfolk & Western	3.56	59¼	16.6 ‡
Atlantic Coast Line	9.40	51½	5.4
New York Central	1.51	13½	8.9
Baltimore & Ohio	1.76	11⅜	6.4
Pennsylvania	1.44	17¾	12.3

* Before Capital and Sinking Fund.

† The decline in earnings in these three major eastern roads, due in part to widespread industrial strikes, was interpreted as nonrecurring. Hence, as in depression periods, stocks sold at high prices in relation to nominal earnings, and to deficits.

‡ The high ratios of the Chesapeake & Ohio and the Norfolk & Western reflected the year's subnormal earnings, due to the coal strike. Investors recognized the abnormality of the 1949 profits of these two roads, and accordingly paid prices for the stocks based on more normal earnings. In 1950 as earnings bounded upward to normal levels, the prices for the stocks advanced much more slowly. By October 1950, for example, these two stocks sold at prices from six to eight times estimated earnings for that year.

PRICE-EARNINGS RATIOS OF LEADING CHEMICAL STOCKS IN SELECTED YEARS, WORLD WAR II AND POSTWAR PERIOD—1942, 1946, 1949

Name of Company	Earnings per Share	Market Price per Share (High)	Price-Earnings Ratio
I. 1942			
Dow	$1.59(x)	33⅝	21.15
duPont	5.07(x)	144	28.40
Monsanto	1.25(a)	30⅜	24.30
Union Carbide	1.11(a)	27⅝	24.88
II. 1946			
Dow	$2.31	48	20.78
duPont	9.44	227	24.05
Monsanto	2.37	64	27.00
Union Carbide	2.04	41⅝	20.40
III. 1949			
Dow	$4.44	57⅜	12.9
duPont	4.52	63¾	14.1
Monsanto	3 74	57½	15.3
Union Carbide	3.20	45½	14.2

(x) After contingency (special) reserves.
(a) After contingency reserves of 22 cents and wartime adjustments of 12 cents.

cal equipment, farm equipment, tin and glass containers, and tissue paper, for example, continued to sell at higher ratios, as investors frequently overlooked declines in earnings.

The investor interprets the nonrecurring character of the higher earnings of the decadent industries and the genuine quality of those of the growth industries. He looks forward to the reduction in the earnings of the former and the expansion in the earnings of the latter.

It is essential again to express a word of caution. Though there is an unmistakable relationship between the prosperity of an industry and its price-earnings ratio, the relationship can be reduced to no rule. The extent to which the earnings of a rising industry, both actual and anticipated, are reflected in higher prices is based upon a never-ending assessment of complex and changing factors that have produced the past earnings and are expected to increase future earnings. From time to time, investors make grave mistakes in judgment, and the stocks of prosperous industries on occasion tumble rapidly or advance spectacularly.

Neither does it follow that the price-earnings ratio of an expanding industry will necessarily rise with the expansion in earnings, even though such expansion is more rapid than anticipated. Other factors of a more controlling character may intervene to offset the

effect of a dynamic secular expansion. An approaching saturation of the market for a good or service, the recognition of the nonrecurring nature of the profit rise, or the existence of an overwhelming debt may pull the ratio down to lower levels. In the post-World War II boom, for example, deferred demand for leading domestic, electrically powered appliances led to an upsurge in the earnings of these industries. In 1947, 1948 and 1949 the earnings of most of the companies in these industries, including the high-cost corporations, advanced. Surprisingly enough, that is, to the uninitiated and unsophisticated investor, the prices of these stocks did not respond to the rise in earnings. In 1948, the stocks of such enterprises as Bendix Home Appliances, Apex Electric, Kalamazoo Stove and Furnace, Servel and Seeger Refrigerator, for example, sold between two and five times their current earnings. In automobiles, the same phenomenon occurred; price-earnings ratios of that industry in postwar years were among the lowest on record.

The increase in the profits of the department store industry in 1945 and 1946 were also, and with surprising accuracy, discounted by the investor as nonrecurring in character. The department stores in these years were the beneficiaries of a seller's market. Personal savings were high both in dollars and in percentages of personal income. The supply of durable goods, representing a small percentage of department store sales, was slight. The supply of nondurables, representing a much greater share of department store sales, was relatively abundant. The department store industry, accordingly, received a more than normal share of the consumer's income as compared with the prewar period. Its expenses, furthermore, were low. Returned merchandise, credit losses, and even credit sales—all involving heavy expenses—were below normal. That this favorable combination could not long be maintained was understood by careful investors. Although prices of department store stocks rose in the booming markets of 1945 and 1946, even at their high levels, they sold at low prices in relation to current earnings.

Similar refusal to place a high value on nonrecurring profits in the postwar years took place in the ocean shipping industry. The high earnings of 1946 and 1947 were recognized as temporary. They would continue only until British, Norwegian, Japanese, and German competition returned. Hence, each dollar of the annual, high, postwar earnings, applicable to such stocks as United States Lines, American Export and Moore-McCormack, sold from two to three dollars on the stock market.

Transition from Expansion to Decline.—A difficult problem develops in the period of transition from an expanding to a declining industry. At the crest of their happy financial records, with a history of earnings and dividend payments, with a satisfied army of investment followers, the well-managed companies in expanding industries occupy an enviable position. Their securities have high credit ratings and new capital is obtained on reasonable terms. The bonds sell at low yields and the stocks at high prices in relationship to earnings. If the transitional period from expansion to decline takes place in a business boom or if it is unusually short, the injury to the investor proves to be severe. In the period of industrial decline, stock prices drop not only because of the drop in earnings, but also because of the lower market evaluation accorded each dollar of profits in a declining industry.

An orthodox illustration is afforded by the railroad industry. In the middle 1920's, by the Congressional mandate in the Transportation Act of 1920, rates were regulated so as to give the railroads the opportunity to earn a fair return on the fair value of their property. Spurred by this legislation, the investor poured heavy supplies of capital into the industry. Ample funds were provided for the improvement of the physical plant and for the prosecution, at existing high price levels, of a program of corporate consolidation. In 1928 and 1929, the industry succeeded in selling hundreds of millions of dollars of junior bonds, and in November, 1929, one of the leading members of the industry, the New York Central, sold a large issue of common stock. Many of the bonds defaulted a few years later.

Although the transitional stage, as in the railroad industry, may be relatively long and may take place in a period of stabilized commodity prices, a declining demand may be masked by rising sales due to inventory accumulation and inflationary expansion. Lumber, leather, and cotton and woolen textile industries produced such losses in the inflation-deflation period of 1918-21. The long-term decline in demand was not evident in the post-World War I inflation period. Careful investment and economic studies continued to be predicated, in part, upon the hypothesis of their continued prosperity. Despite the inflationary boom of World War II, the prices paid for their leading equities in the 1918-20 period have, since then, rarely been equalled. Each dollar of their high earnings in the middle and late 1940's were valued in the 1947-49 markets at about two to four dollars.

Two conclusions emerge from this analysis: (1) that the securities of declining industries sell at lower price-earnings ratios than

those of expanding industries; and (2) that the price-earnings ratios of securities of once-expanding industries drop as they reach the stages of stagnation and decay.

Time Lags.—In the process of adjustment of price-earnings ratios to industrial expansion and decline, time lags normally occur. Investors can use these lags to obtain good securities at reasonable prices and to sell poor securities at high prices. Short-run market considerations can be used wisely to effect sound long-term investment policies. Securities of an expanding industry receive investor consideration only after a record of sound financial experience has been established. Only companies with good dividend records, sustained earnings and resistance to depression influences, attract many investors. Before this record has been definitely established, the stocks tend to sell at relatively low price-earnings ratios, even in the face of persistent expansion, rising earnings and rising dividends, as well as improved financial positions.

In many cases, there is a conflict in the minds of investors between favorable expectations arising out of increased sales and earnings in an expanding industry and fears inculcated by widespread reductions in selling prices. Years may pass before increased earnings, higher dividends, and improved finances are reflected in higher price-earnings ratios. Investors in such industries as kraft, paper bags, newsprint, rubber tires, fruit and vegetable canning, for example, have been haunted for years by fears of disturbing price cuts. Improved finances and profits are scrutinized in the light of the unprofitable price wars of earlier years. Here again no rules can be laid down. Well-balanced judgment is essential.

This general statement does not mean that there exists a species of judgment that can carry an investor forward to a smoothly paved highway of investment success. A balanced judgment of relative risks and investment values is useful in the purchase of securities of an expanding industry before the general recognition of inherent values establishes high price-earnings ratios. Many careful investors try to accomplish this difficult feat.

The usefulness of the price-earnings ratio as a means of measuring the beginning of a secular decline in the fortunes of a prosperous industry also should not be overlooked. The difficulties in selling securities of expanding industries in their earlier stages of decay have already been noted. Experience, however, discloses many cases of industrial stagnation in which a relative decline in the price-earnings ratio of an industry is of some value.

QUESTIONS AND PROBLEMS

1. You are told that, for the current year, the Dow-Jones Industrial Stocks are selling for about eight times the current year's earnings and that that ratio represents a fair market value for investment-grade stocks. Hence you, as an investor, should pay no more than eight times current earnings for any stock you buy. Would you accept this conclusion? Explain your reasons for or against.
2. Explain problems in developing a uniform relationship between earnings, dividends, and market prices of common stocks.
3. The price of stock X is so high that the return to the investor is only 2¼ per cent, less than the return on long-term United States Government bonds. A banker, accordingly, suggests that, because of this low return, the stock at prevailing prices is not attractive for investment and should not be bought. Do you agree with this recommendation? Could you present an argument to challenge this point of view, at least for some stocks?
4. A stock broker asserts that company A's earnings will rise more than 100 per cent during the next year, and that, therefore, the stock (of investment quality) will rise proportionately. Explain conditions under which this forecasted price movement is likely not to materialize.

READINGS

See Chapter 22.

Chapter 22

PRICE-EARNINGS RATIOS: COMPANY

Price-earnings ratios thus reflect fundamentals in the national economy and in each industry. They also reflect differences between companies in a particular industry. Each company has a characteristic ratio within the pattern set by the ratio of the general market and of the industry of which it is a part. Once the investor is assured of the soundness of the economy and of the industry, his task of selecting a sound investment is relatively simple.

Investment-Grade Companies.—Only a few corporations make the investment grade in each industry. These need not necessarily be the low-cost companies, nor the oldest. In some industries, there is no problem of selection, for often only one company possesses the qualities essential to make its securities attractive for investment. In the elevator business, Otis Elevator stands alone. The elevator phase of the business of Westinghouse Electric cannot be separately capitalized for investment purposes. In the photographic industry, Eastman Kodak is the only candidate for investment honors. International Salt and Diamond Match are without investment rivals in their industries. International Nickel, producing 75 per cent of the world's nickel, is the only stock in that field suitable for investment consideration.

In some essentially cyclical industries, sometimes only one company emerges as a leading investment vehicle. Management succeeds in so stabilizing earnings and maintaining financial strength as to achieve the investment ideal of stable dividends over a prolonged period and on an ascending scale in times of prosperity.

Take, for example, the moving material equipment industry. More than 90 firms produce such mechanisms that are outstanding for the purpose of reducing unit labor costs. Of this number, only Link Belt has succeeded in creating a financial record that makes its common stock suitable for investment. Approximately 40 per cent of its gross revenue in 1950 was derived from the sale of materials-handling equipment and of power transmission machinery.

Another 20 per cent came from the sale of castings and miscellaneous products. The company's simple capital structure, its earnings stability, and its almost continuous dividend record since 1907 has placed its stock in its industry in a favored category. The price-earnings ratio of that stock has long been higher than that of other members of this cyclical industry.

In most industries, however, two or more corporations compete for the investor's dollar. Even in some of these, however, investment preference has elevated one or two securities to a position of investment leadership. In electrical equipment, General Electric has for many years sold at higher relative prices than its leading competitor, Westinghouse Electric. In business machines, International Business Machines stands head and shoulders above its competitors in the mind of the investor, and the investor accepts a lower yield on this stock than from other leading companies in that industry. In railroad equipment, American Brake Shoe, reflecting its ability to avoid losses in depression, sells at a higher ratio than other concerns. (It is assumed that General American Transportation and Union Tank Car are not members of the railroad equipment industry.) In ethical drugs, Abbott Laboratories has for many years sold at an exceptionally high price-earnings ratio. The company, in the 1930's and 1940's, was aggressive in bringing out new products and in appropriating sums for scientific research, though in recent years others have followed in its path. In more recent years, a number of additional ethical drug stocks have sold at high ratios.

The number of companies competing for the investor's choice are, however, limited in almost all industries. In many of the country's basic industries, less than five constitute the list from which investors make their choice. In others, the investor has a wider choice. In oil, pharmaceuticals, and chemicals, for example, there are more than ten concerns with sufficient quality to make them attractive for investment consideration. In still others, such as glass containers, consumers' paper specialties, cigarettes, chewing gum, and variety stores, nonferrous metals, the list ranges from three to ten or more, though the majority are in the lower range. (See Chapter 6, p. 94.)

Ratio and Dividends.—Many influences fashion the company price-earnings ratio. Other things being equal, a company that pays a higher proportion of its earnings in dividends sells at a higher ratio than one that pays a smaller proportion. An earned dividend dollar is worth more, usually, than an earned nondividend dollar.

In power and light, as well as in gas and in operating telephone utilities, a higher percentage of earnings paid in dividends tends to

increase the price-earnings ratio.[1] This tendency is general. In the industries whose profits are rapidly expanding, the price of the stock tends to reflect primarily the rising earnings—actual and expected. As dividends increase, stock prices tend upward, and the yield to the investor from the higher dividend is not substantially different than from the lower dividend. Indeed, frequently, it is lower. When sales and earnings are advancing and when optimism is rampant, stock prices may advance at a rate more rapid than the increase in earnings and dividends. Such stocks as du Pont, Dow Chemical, Corning Glass, Scott Paper, Merck, and International Business Machines are typical.

In such a stable industry as commercial banking, conservative dividend policies have been one of the factors in reducing price-earnings ratios in the 1940's. Ratios in the postwar period were, indeed, the lowest recorded for many years. There are, of course, other reasons for these low ratios and for the relatively high returns to the investor. Yields on bank stocks advanced in the war and postwar years, and in 1952, the differential between these returns and those on higher-yielding industrial stocks was narrower than for many years. Probably the most powerful cause for the lower price-earnings ratios and the higher yields was the secular decline in earnings. Though earnings increased in the 1940's, the rise was slow, and it started from a low base. The rapid earnings expansion characteristic of the industry in the pre-1929 era was no longer in evidence.

Ratio and Past Record.—Important also is the past financial record of a company. A long history of expanding dividends and earnings, combined with a financial structure lightly represented by debt and sustained by an abundant supply of liquid assets—these are qualities that attract the careful investor. For these virtues, he is willing to pay a price. In every industry, a few companies (and occasionally just one) are outstanding in this respect. The price-earnings ratio of the industry may be higher than that of the general securities market, while the ratio of a company may be even higher. Consider, for example, the profitable chemical industry. Table 33 presents the relationship for the year 1949.

[1] This conclusion is implied in a study of public utility common stocks between 1930-49, appearing in the *Commercial and Financial Chronicle,* January 4, 1951, E. B. Barrett, "Selection of Public Utility Stocks by Formula." Another study of a number of high quality electric utility and electric-gas combination companies made by the *Ebasco Services,* a leading public utility engineering firm, in December, 1950, showed a positive correlation between high payout of earnings in dividends and high price-earnings ratios.

TABLE 33

PRICE-EARNINGS RATIOS OF LEADING COMPANIES IN THE CHEMICAL INDUSTRY, 1949

Name of Company	High Price of Stock 1949	Earnings for Year 1949	Price-Earnings Ratio
Allied Chemical & Dye	52½	4.20	12.5
American Cyanamid	51⅛	5.28	9.7
Commercial Solvents	20¾	1.28	16.2
Dow	57⅜	4.44	12.9
du Pont (E. I.)	63¾	4.52	14.1
Hercules Powder	53	3.58	14.8
Monsanto	57½	3.74	15.3
Union Carbide and Carbon	45½	3.20	14.2

Still other differences in price-earnings ratios between these companies can be observed over the ten-year, 1939-49 period. In these years, Dow and du Pont maintained a position of pre-eminence in the mind of the investor. The stock of the former displayed a range from a high of 38 to a low of 15, and of the latter, from a high of 31 to a low of 17. Allied Chemical & Dye, American Cyanamid, and Union Carbide and Carbon, reflecting lower ratios, sold, respectively, at 23, 26, and 25 in the higher price range, and 12, 9, and 11 in the lower.

In each of these three companies, an unique factor partially explains the preference of the investor. Allied Chemical & Dye did not participate as actively in the research and new product programs featuring the expansion of the chemical industry. The reported earnings of American Cyanamid were adversely affected by the relatively low profit margin of its high-cost calcium carbide business, heavy research expenditures, and by a number of nonrecurring expenditures. Union Carbide and Carbon derived a considerable portion of its earnings from nonchemical sources, especially in the erratic metallurgical field. Hercules Powder, during the same nine-year period, sold at a high price ratio of 34, only to drop later to a relatively low ratio of 11. Investor expectations of rapid expansion in earnings of this company have not been fully realized. Extensive participation in the rosin and turpentine industry has brought slight profits due to rapid price fluctuations. In future years, the ratios of all these companies will probably change again.

Accounting policies also account for differences in price-earnings ratios among companies in a particular industry. The stock of a company in the oil industry, for example, that charges its intangible

development expenses to the expense account (as does Amerada) sells at a higher ratio to its *reported* per share earnings than another company (such as Skelly Oil) that capitalizes those expenditures.

Discrepancies in price-earnings ratios among companies reflecting differences in financial strength, earnings, and dividend records also characterize the declining industries. The range of ratios among these companies lies within lower limits. The soundest company normally sells at a ratio lower than the soundest company in an expanding industry, and the poorest sells at a ratio lower than the poorest in the expanding industry.

FLUCTUATIONS OF RATIOS. These differences in investment preference between one company and another are not standardized, and they necessarily change from time to time. When a company achieves a major industry position and attains unusual financial strength, investor acceptance produces some picturesque terminology. Such a stock is called a "blue chip" or, by more cynical observers, a "sacred cow." Such stocks as General Electric, Scott Paper, American Can, Johns-Manville, Corn Products Refining, du Pont, United States Gypsum, Diamond Match, and International Salt, for example, have stood the test of repeated survival in successive depressions. In periods of expansion, they prosper, increase their earnings, strengthen their financial position, and reward the patient investor with higher dividends. And these luscious gifts the investor appreciates in the form of a willingness to pay higher prices for past and current earnings than for those of other companies within the same industry.

Few things, nevertheless, are more certain than the possibility that an existing concern might languish, lose part of its prosperity, and be replaced by a competitor. Perhaps the longest record of investment experience is furnished by the steam railroad industry, and many are the illustrations in this industry of changing investment acceptance. From the days of Cornelius Vanderbilt in the late 1860's to the Depression of the 1930's, the New York Central's securities, for example, stood high in the estimation of the investor. The bonds sold at high prices and low yields, and the stocks at high prices in relationship to earnings. In the 1930's, however, the road fell from its high estate. Between 1935 and 1951, the investor paid little for its earnings and insisted upon an exceptionally high yield on its bonds. The Norfolk & Western and the Atchison, Topeka & Santa Fe, on the other hand, went through receivership in the 1890's. Their financial structures were reorganized, and in the next two generations, both their bonds and stocks rose to positions of invest-

ment leadership. Similar illustrations can be drawn from many other industries.

In the dynamic atmosphere of modern industrial and commercial life, investors can never, therefore, be certain that the stock with the highest ratio will always remain in the front ranks. Investors cannot assume that their investment policies are fixed because of a brilliant past record of a given security. Within each industry, therefore, the investor is faced with the necessity of reappraising the relative competitive position of the various members of the industry. The decision to accept a newcomer into the investment field is, nevertheless, a task fraught with exceptional difficulties. Occasionally, some serious loss occurs because of an erroneous appraisal of existing forces and tendencies.

A notable illustration is afforded by a recent experience in the soft drink industry. That industry, with more than a century of history, has experienced a phenomenal record of growth. Its sales have doubled about every 12 years, and over the past three decades the rate of growth has increased. From 1932 to 1941, production doubled about every three and a half years. In the last upward spurt in consumption in the late 1930's and in the 1940's, the Pepsi-Cola Company turned in an enviable performance. From 1937 to 1943, for example, its sales increased almost 400 per cent, as against an increase of about 100 per cent of the leading investment-quality company, the Coca-Cola. In the summer of 1947, Pepsi-Cola's price-earnings ratio, on the basis either of its 1946 earnings or of its anticipated 1947 earnings, was exceptionally high. Every important company in the industry was then engaged in an expansion program designed to increase plant capacity. In the face of this expansion, a slight drop in sales, combined with a sharp rise in costs, precipitated a break in earnings. The Pepsi-Cola stock in less than a year lost 75 per cent of its market price. Dividends were passed. Investors, including some sophisticated and professional votaries of the art, made a grave mistake in their estimate of the emergence of a new candidate for investment honors in this seasoned and expanding industry. As a result of this experience, Coca-Cola still remains, despite the multiplicity of its competitors, as the single investment survivor of the industry.

Price-Earnings Ratio and Equity Ratio.—While the speculator, in quest of capital appreciation, is attracted to a heavily leveraged financial structure (see Chapter 7), the investor, searching for a steady income, prefers a company with a light debt. It has already been observed that a company with more shares and fewer bonds is

able, on the average, to show more stable earnings per share than another with many bonds and fewer shares. The investor is, therefore, disposed to pay more for each earnings dollar of the company with a higher equity ratio; that is, with a higher percentage of stocks to total capitalization.

In both industrial and railroad fields, comparisons of equity ratios and price-earnings ratios are difficult to make: there are so many other factors, other than equity ratios, that influence share prices. Perhaps a better laboratory for the comparison of these two ratios is afforded by the electric and gas utility industry. There is in this industry a wide variety of financial structures. There is, furthermore, little of that diversity of output that characterizes so many manufacturing industries. This is not to assert the perfect comparability of utility companies. There are plenty of local differences that influence price-earnings ratios and, thus, make difficult the determination of *exact* relations between them.

A comparison between market prices and equity ratios of a representative group of utility stocks discloses some relationships in accordance with expectations. Table 34 gives the price-earnings ratios and financial structures of a group of representative electric and gas utilities. The price-earnings ratios were computed from stock prices on August 28, 1951, in relation to the most recent 12-months' earnings then available.

Note, for example, Tampa Electric and United Illuminating companies. They have no preferred stocks. Their equity ratios are 45 and 58 per cent, respectively. In August, 1951, their stocks sold, respectively, at 11.8 and 16.0 times the latest 12-months available earnings. Here the relationship between equity and price-earnings ratios held. This parallelism was by no means universal. Pennsylvania Power and Light had an equity ratio of only 22 per cent (though there was also outstanding preferred stock equal to 20 per cent of the total capitalization), yet its price-earnings ratio was 11.3, not much below that of the Tampa Electric.

Compare this with Lake Superior District Power: here is an equity ratio of 33 per cent (and preferred equal to 14 per cent of capitalization), considerably better than that of the Pennsylvania Power and Light, but its price-earnings ratio was lower at 9.4. This company, however, serves an iron ore mining area. Its business is cyclical, and its earnings fluctuate within a wide range. Hence, investors tend to pay a low price for its annual earnings in a period of prosperity. On the whole (subject to exceptions as an examination of Table 34 discloses), however, favorable price-earnings ratios tend to accompany favorable equity ratios.

TABLE 34

COMPARISON OF EQUITY RATIOS AND PRICE-EARNINGS RATIOS: ELECTRIC AND GAS UTILITY OPERATING COMPANY COMMON STOCKS

(Based on prices of August 28, 1951, and latest 12 months earnings then available)

Company	Per Cent Debt	Per Cent Preferred	Per Cent Common and Surplus	Market Price Times Latest 12-Month Earnings
Arkansas Missouri Power	65	9	26	9.0
Atlantic City Electric	50	17	33	14.3
Bangor Hydro-Electric	48	22	30	12.8
Boston Edison	43	–	57	15.2
California Oregon Power	49	12	39	12.9
Carolina Power & Light	56	13	31	11.1
Central Arizona Light and Power	58	20	22	12.6
Central Hudson Gas and Electric	56	16	28	13.9
Central Illinois Electric and Gas	54	17	29	10.2
Central Illinois Light	40	21	39	11.9
Central Illinois Public Service	55	12	33	11.4
Central Maine Power	51	20	29	11.5
Central Vermont Public Service	53	18	29	12.1
Cincinnati Gas and Electric	41	17	42	13.3
Cleveland Electric Illuminating	51	11	38	12.6
Colorado Central Power	59	–	41	12.2
Columbus & Southern Ohio Electric	62	11	27	10.5
Commonwealth Edison	53	–	47	14.3
Connecticut Light and Power	34	25	41	14.7
Consolidated Edison	43	14	43	13.4
Consolidated Gas Baltimore	50	12	38	14.8
Consumers Power	47	19	34	11.9
Dayton Power and Light	43	21	36	11.6
Delaware Power and Light	51	15	34	11.7
Detroit Edison	50	–	50	12.6
Duke Power	44	–	56	13.5
El Paso Electric	59	7	34	11.6
Empire District Electric	61	12	27	10.3
Florida Power	58	14	28	13.5
Florida Power and Light	57	10	33	9.8
Gulf States Utilities	52	20	28	12.3
Hartford Electric Light	33	15	52	15.7
Houston Lighting and Power	53	8	39	14.4
Idaho Power	48	21	31	13.1
Illinois Power	50	12	38	12.8
Indianapolis Power and Light	55	14	31	10.3
Interstate Power	62	11	27	10.9
Iowa Electric Light and Power	58	14	28	10.2
Iowa-Illinois Gas and Electric	56	–	44	11.2
Iowa Power and Light	52	17	31	11.8
Iowa Public Service	53	21	26	10.5
Iowa Southern Utilities	57	13	30	9.2
Kansas City Power and Light	54	15	31	12.6
Kansas Gas and Electric	46	25	29	10.4

TABLE 34—*Continued*

Company	Per Cent Debt	Per Cent Preferred	Per Cent Common and Surplus	Market Price Times Latest 12-Month Earnings
Kansas Power and Light	50	21	29	11.8
Kentucky Utilities	46	21	33	10.1
Lake Superior District Power	53	14	33	9.4
Louisville Gas & Electric	47	24	29	11.0
Madison Gas and Electric	52	–	48	13.4
Minnesota Power and Light	59	14	27	9.1
Montana Power	48	15	37	9.6
Mountain States Power	52	11	37	9.3
New York State Electric & Gas	50	16	34	13.5
Niagara Mohawk Power	54	16	30	12.3
Northern Indiana Public Service	54	14	32	10.3
Northern States Power (Minn.)	48	23	29	11.1
Northwestern Public Service	53	22	25	8.1
Ohio Edison	49	14	37	11.9
Oklahoma Gas & Electric	54	17	29	13.3
Pacific Gas & Electric	51	20	29	16.6
Pennsylvania Power and Light	58	20	22	11.3
Philadelphia Electric	47	14	39	13 8
Portland General Electric	62	–	38	10.5
Potomac Electric Power	56	8	36	14.6
Public Service of Colorado	41	22	37	12.1
Public Service of Indiana	51	12	37	12.2
Public Service of New Hampshire	61	13	26	13.6
Public Service of New Mexico	66	–	34	10.6
Public Service Electric and Gas	55	5	40	12.2
Rochester Gas and Electric	51	17	32	14.4
St. Joseph Light and Power	52	7	41	10.8
San Diego Gas and Electric	33	25	42	11.8
Scranton Electric	42	28	30	12.0
Sierra Pacific Power	56	20	24	12.3
South Carolina Electric and Gas	60	12	28	14.0
Southern California Edison	49	17	34	12.2
Southern Indiana Gas and Electric	46	27	27	10.4
Southwestern Public Service	65	10	25	13.1
Tampa Electric	55	–	45	11.8
Toledo Edison	56	17	27	11.7
Tucson Gas Electric Light and Power	51	10	39	10.8
United Illuminating	42	–	58	16.0
Utah Power and Light	60	–	40	10.5
Virginia Electric Power	48	20	32	12.5
West Penn Power	49	23	28	15.0
Wisconsin Electric Power	50	18	32	10.8
Wisconsin Power and Light	55	15	30	12.7

Courtesy the First Boston Corp.

A careful student of the economics of the utility industry and of the forces affecting the earnings of particular companies within the industry can exercise considerable judgment in buying and selling securities to take advantage of varying price-earnings ratios. The investor can shift his portfolio accordingly, thereby increasing his income. Many profitable switches from one utility to another developed after 1940, in part because of the outpouring of common stocks by utility holding companies.

Even wider corporate differences prevail in the railroad industry, though many of the financial structures with low equity ratios were revamped in the financial reorganization of the 1940's. There still remain instructive contrasts. The Union Pacific stock has, for example, for many years sold at a higher price-earnings ratio than the stock of the Southern Pacific. The major, though not the only, reason for this discrepancy is the lower equity ratio of the latter as compared with the former.

Summary of Controlling Factors.—The investor in deciding the price to pay for current earnings must, therefore, consider many conflicting forces. He must study the past, he must assay the present, and he must also peer into the future. If he ignores the past, he may overlook the lessons of experience. If he overestimates the past, he may underestimate obsolescence. If he ignores the future, he may discount managerial ability, perhaps even genius. The investor recognizes that the industry and the corporation change with the changing times. A change in corporate policy, however, may lean backward as well as forward.

The investor, furthermore, in pricing past earnings, must weigh the quality of those earnings. A dollar of earnings arising from inventory profits, inadequate maintenance, and depreciation expenditures priced at levels below replacement costs, for example, are weak earnings. They are worth little in the market. The investor also distinguishes normal from abnormal earnings.

Furthermore, the investor must project existing earnings into the future. What will the company's earnings be in a depression? How much will the earnings be reduced by a given drop in disposable income? Is his industry thriving by its ability to secure an abnormally high percentage of disposable income, and if this is the case, what will the profits be when the industry's share of the consumer's income is reduced to normal proportions? If the industry is expanding, what factors of latent obsolescence and symptoms of approaching decline are appearing or are likely soon to appear and impair the company and the industry's earning power?

The two problems, determining normal earnings trends and pricing such earnings, are most important in the field of common stock-buying. The latter, however, is the more dynamic and the more subject to unexpected gusts. Forces external to the management and to the industry as a whole are important in determining price-earnings ratios. The investor, in pricing the earnings of a company and of an industry, must be a student of diplomacy, of politics, of technology, of psychology, of taxes, of law, and of accounting. He must be able to interpret a background in these and other fields in terms of their probable effects upon existing and future earnings. He must understand, further, that he can never be perfect in reaching a final judgment. The demand for and the supply of securities in a free market comes from buying and selling. It is the total buying and the total selling that are the deciding considerations. An uninformed, uneducated, and unintelligent dollar is just as important in affecting prices as an educated, informed, and intelligent one.

For convenience of discussion, price-earnings ratios in these two chapters were based for the most part on the relationships between earnings and stock prices of the same year. For many purposes this is not satisfactory. Ratios averaged over a number of years will produce arithmetical differences. The broad relationships and the general tendencies will, however, be substantially the same.

QUESTIONS AND PROBLEMS

1. Table 34 in this chapter suggests that common stocks of power and light companies with high equity ratios tend to sell at high price-earnings ratios. Explain reasons for this correspondence. How does this relationship fit with the principle of "trading on the equity"?
2. Table 34 reveals a number of companies that are exceptions to the relationship noted in question 1. Examine the following companies to ascertain the reasons for high price-earnings ratios in the face of low equity ratios.
   a) Pacific Gas and Electric
   b) West Penn Power
   c) Houston Lighting and Power
   d) Consolidated Gas Electric Light and Power of Baltimore
3. The past record of a company, particularly its earnings and dividends, normally justifies an investor in buying the stock on the basis of a high price-earnings ratio. Explain the major risks of such a policy.

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Chapter 23

MARKET ANALYSIS

The two previous chapters examined the effect on stock market prices exerted by money rates, dividends, and earnings. Neither of these items move indefinitely in one direction, though earnings fluctuate more rapidly and extensively than the other two. Prices of common stocks do not move carefully in precise response to each one of these forces. Sometimes a rise is engineered by speculative interests and sometimes by the persistent purchasing by investors, occasionally even to the point of sheer desperation. Investors frequently are no more careful and conservative than speculators.

Forces Relating to Stock Prices.—The interaction between the forces of dividends, interest rates, and earnings, expressed in varying yields on stocks and in varying price-earnings ratios, produces trends in stock market prices. Over periods as long as five or six years or as short as an equal number of months, stock market prices move in one way and then in another. The causative forces of money rates, dividends, and earnings may favor an upward or downward trend of stock prices, but over prolonged periods, the trend may move in the contrary direction. Furthermore, these basic forces do not determine the length and amplitude of a trend, for earnings and dividends are reflected in stock market prices in terms of fears, hopes, doubts, uncertainties, enthusiasms and discouragements, belief or disbelief in war or peace, or in political and other uncertainties. A stock of a company, under reasonably stable conditions of financial strength, earnings, and dividends, will at one time sell at four or five times its earnings, and at another at 25 or 30 times. General Electric in 1930, for example, sold for more than 35 times its earnings for that year. In 1948, 1949, and 1950, even though the company had better sales and earnings and enjoyed a better financial strength, the stock sold at less than ten times its earnings for those years. Numerous illustrations of wide variations in price-earnings ratios of stocks between 1947 and the succeeding years of 1948-51, inclusive, can be cited. Earnings and dividends increased between 1947 and

1949, but stock prices declined or increased less than the rise in earnings and dividends.

Long experience reveals the existence of persistent trends of stock prices. In broad perspective, these price trends are associated with and can be correlated with the trends of general business. By general business is meant the movement of physical production, employment, and usually of commodity prices. These broad trends of stock market prices and of other economic factors do not, however, move simultaneously. The average individual, of course, believes that stock prices reflect general economic trends and that, hence, the successful investor is the one who buys securities when business is improving and sells when business is declining. Unfortunately for the peace of the mind of the investor, this is not usually the case. The stock market shows trends of its own. In amplitude and duration, these price cycles trace patterns different from those of the business and of the bond cycles. Many investors believe that these trends can best be examined by studying the price movements in the stock market itself or by studying economic data that bear close relation to such trends. Those who adopt this approach are called "market analysts," as distinguished from security or investment analysts, whose attention is concentrated upon the examination of those forces that bear upon earnings, dividends, and money rates and the relation of these factors to market prices.

Selling High and Buying Low.—Theoretically, there is ground for asserting that the sale of stocks at high prices and their purchase at lower prices afford opportunities for substantial profit. It is needless to furnish figures on this point. There is probably no single investment factor that is equally as well known, though only slightly understood, as the constant fluctuation of stock market prices. Most everybody is aware of the certainty of rising stock prices in prosperity and declines in depression. A long list of high-grade investment stocks, such as du Pont, General Motors, Standard Oil of New Jersey, American Can, and many others, can be cited as examples of stocks that rose to great heights in 1929, dropped 50 per cent and, in many cases, more than 75 per cent by 1932, and then, in the following 15 to 20 years after numerous fluctuations, rose to prices higher than those prevailing at the top of the 1929 market.

The market analyst forms definite rules that he thinks will enable the investor to sell his stocks in the higher level of the price range and to rebuy them or to buy others of good or better quality at prices approximating the lower ranges. One can be dogmatic and say that probably no market analyst ever expects to be able to sell stocks at

the *highest* prices and to buy them at the *lowest* prices. The analyst, or technician as he is sometimes called, does, however, profess to be able to forecast the range or general trend of stock market prices.

Forecasting Errors.—Like all forecasting, the work of the stock market forecaster is tantalizing, at times highly thrilling, and at other times almost self-stultifying. Stock market forecasting, like economic and business forecasting, has its ups and downs. A curious failure of general business forecasting in the summer of 1950, almost comprehensive and ignoble in the scope of its failure, is about on a par with the lack of success of stock market forecasters in the spring of 1946. Throughout the last six months of 1950, business forecasters, both private and in the government service, urged businessmen to accumulate inventories of goods. Shortages would be certain and inventories would be as good as gold.

Businessmen generally followed this advice. They bought heavily in both the summer and fall of 1950. Consumers also bought in 1950, but in 1951 they changed their minds. Though in that year they earned more, they spent less and saved the balance. The high inventories of businessmen had to be sold at lower prices.

A somewhat similar error was made by many stock market forecasters in the spring of 1946. Business looked good and in the following years it remained good. The majority of market analysts believed that the rising stock market would continue to rise. They were in error; prices in the fall of that year declined sharply. Many other such errors have been made, and many investors are, therefore, convinced that stock market forecasting is definitely unsuccessful. One writer, who made a careful examination of the work of numerous market forecasters, concluded that the attempts to forecast the action of stock prices as a whole have met with failure.[1]

Only a minority of investors are really concerned with market analysis. A large percentage of investors never concern themselves with fluctuations in stock market prices to an extent sufficient to lead them to buy and sell in accordance with a quest for the profit that results from the ability to sell at a high price and rebuy at a lower price. Corporate ownership, thus, is becoming more stable. In 1928, for example, the annual percentage of listed shares traded was 123 per cent; it was only 20.5 per cent in 1946. In standard, high-grade investment stocks the annual turnover in ownership often is less than 10 per cent of the shares held by the stockholders. Ninety per cent and even more of the holders of this grade of stocks, according to

[1] Harold T. Davis, *The Analysis of Economic Time Series* (Bloomington, Indiana: The Principia Press, Inc., 1941), p. 109.

one author, "seem to regard themselves as more or less permanent owners with only an economic interest in day to day, month to month, and year to year fluctuations." [2]

Nature of Market Analysis

Market analysis, as distinguished from security analysis, studies the forces of the demand for and supply of securities within the market itself. The market analyst watches major price trends with the market. He has, or he thinks he has, certain tools that will enable him to identify major price trends and to locate evidence that this trend is continuing or that it is about to reverse itself.

The analyst recognizes that not all stocks move with the general trend, although a large majority tend to move in the same direction. One study indicates that:

> ...the price trends of reasonably well-selected common stocks are probably controlled to the extent of at least two-thirds by the general movement of stock prices, [and that in major price movements] the general price trend may control the prices of as much as 90 per cent of stocks or even more.[3]

Since the investor, unlike the professional trader, is interested primarily in adjusting his holdings to major market movements, it is accordingly reasonable to conclude that a large percentage of stocks follow the general price trends in periods of major price reversals.

Such major price trends are usually contemporaneous with the movements of business cycles. To the investor, trying to determine the point at which he should sell his stocks because of an impending reversal in the major price trend, such a generalization is, however, of little value. For many years, stock market prices have moved in anticipation of those broad business changes known as business cycles. One authoritative study concludes, on the basis of a comprehensive examination of the underlying data, that stock prices usually decline in the last third of a business boom and advance in the last third of a business depression.[4] This study is also of little use as a guide to the investor. It does not lay down any standards to enable him to identify the time of arrival of a new phase of the business cycle, or to determine the time interval between the arrival of such a cycle and the prior movement of stock prices.

[2] L. O. Hooper, "Right and Wrong Ideas about Stocks," *Commercial and Financial Chronicle*, February 6, 1947, p. 757.

[3] William F. Edwards, Annual Convention, *National Federation of Financial Analysts Societies*, March 6, 1948.

[4] Arthur F. Burns, and Wesley C. Mitchell, *Measuring Business Cycles* (New York: National Bureau of Economic Research, 1946), p. 395.

There are other students who endeavor to ascertain by scientific research the length and also the shape of common stock cycles. One such organization is the Foundation for the Study of Cycles. This organization concludes that, from 1871 to 1951, there were cycles of about nine years in length in industrial common stock prices. "This 9-year cycle," it is stated, "is the most important single cycle discovered to date in industrial stock market prices."

Though the regularity of the cycle from 1854 through 1950 is noteworthy, the Foundation, in 1951, had great difficulty in concluding whether the low of the then current stock market cycle actually came in the second quarter of 1949, which would have been two years ahead of its time, or whether at that time (in June 1951) the actual low of the present cycle was still to come. The difficulty encountered by an investor in using this kind of analysis as a tool is well illustrated by the careful and scholarly qualifications set up in the conclusion of the Foundation's author.

> [If] the indicated cycles are real and continue, if the length, shape, amplitude, and timing of the cycles have been correctly determined, if there are no other long-term waves that need to be taken into account, if the short-term waves do not "gang up" on the long-term waves and distort them, and if no accidental factors enter into the situation, this particular 9.2-year cycle could very easily have an early low.[5]

The market analyst is more confident of his success than the scientific student of business and of stock price cycles. That is not to say that he is at all times certain of the accuracy of his conclusions. Nor does it mean that there is any unanimity of opinion among them in regard to the movement of market prices. Indeed, it is closer to the truth to say that, in general, they are in disagreement with each other.

For convenience of discussion, market analysts can be divided into two general classes. The first embraces those who assert a relationship between stock prices and some other economic phenomenon. The other class ignores economic arguments and bases its forecasts upon technical conditions operating within the market itself.

Forecasting by Economic Series.—Many in the first group would deny their identification with stock market forecasters. They probably would not consider themselves as market analysts. It would be difficult, nevertheless, to place them in any other category. They study various factors for the purpose of expressing opinions on future stock market prices, regardless of those forces that bear

[5] *Cycles, June, 1951* (New York: Foundation for the Study of Cycles, 1951), p. 207. The previous quotation is from p. 204.

directly or indirectly upon earnings of particular companies, and upon dividends from particular stocks. To the extent that their views reflect the trend of money rates, they also express judgments upon the general trends of stock prices, rather than upon the values of individual securities.

It would be well, at this point, to comment on a conclusion made by a careful student of economic time series on this kind of stock market forecasting. This writer concluded, "that any attempt to forecast the action of stock prices from available time series is doomed to failure." [6] This study does not, however, reflect an analysis of the work of professional market forecasters and market analysts. The conclusion is based upon the activities of investors, financial publications, and financial agencies. These either are or represent those investors who are concerned primarily with underlying investment values and who do not buy and sell in anticipation or in reflection of broad, stock market price changes. This is not to assert the superiority of market analysts over professional or individual investors. It is merely to suggest the desirability of examining the analysts' operations critically.

Stock Yields and Forecasting.—Some market analysts use the yields of high-grade stocks as one basis for forecasting stock prices. Normally, common stock prices afford higher yields than bonds. When stock prices increase to such an extent that their yields are abnormally low, the market is believed to be too high and is likely to decline. This general tendency has, in some quarters, been reduced to a standard of arithmetical accuracy. One exhaustive study into stock market prices reveals that, between 1871 and 1938, stock yields dropped on four occasions below 3 per cent. These were in February-March-April, 1899; April, 1901; August-September, 1929; and July, 1933. Each of these four periods was a favorable one for the sale of stocks, because in each case, lower prices developed in the next year.

There have also been three cases in which yield expectations rose above 8 per cent. These occurred in October, 1873; October-November-December, 1917; and April-May-June-July, 1932. In each of these three instances, stock prices averaged higher in the subsequent 12 months. "It would thus appear that, when average yields are below 3 per cent, stocks are priced too high, and when average yields are above 8 per cent, stock prices are too low." [7]

[6] Harold T. Davis, *The Analysis of Economic Time Series* (Bloomington, Indiana: The Principia Press, Inc., 1941), pp. 501-2.

[7] [Alfred] Cowles Commission for Research in Economics. *Common-Stock Indexes, 1871-1937* (Monograph No. 3, 2d ed., Bloomington, Illinois: The Principia Press, Inc., 1939), p. 47.

A significant comment may be made about the buying point in October, 1873. There was a rise, it is true, for one year. The rise was speculative in character and was engineered by Jay Gould with Union Pacific stock as the major market tool. The market rise was short and was followed by violent declines in stock prices of panic proportions, which drove prices to low levels in the spring of 1877. Furthermore, it can hardly be contended, from a long-range *investment* standpoint, that in April, 1901, there was a good selling market, but it was so, probably, from a *trading* standpoint. The lows reached in April, 1901, were followed by substantial highs made in 1906.

Some interesting conclusions can be drawn from the prevailing stock yields at turning points in the stock market between 1929 and 1949. Between those years, the yield of the 30 Dow-Jones Industrial common stocks ranged as follows:

1. Highest prices in the 1929 rising market, yield was 2.88 per cent
2. Bottom prices of the 1932 declining market, yield was 10.38 per cent
3. Highest prices in the 1936 rising market, yield was 2.63 per cent
4. Bottom prices in the 1942 declining market, yield was 7.91 per cent
5. Highest prices in the 1946 rising market, yield was 3.23 per cent
6. Bottom prices in the 1949 declining market, yield was 6.84 per cent

Without endeavoring to establish any accurate arithmetical or statistical standards, the conclusion would follow (excluding, however, the 1932 declining market, which analysts and others still find difficult to explain) that high-grade stocks should be sold when they return between 3½ per cent and 4 per cent, and should be bought when they return between 6½ per cent and 7½ per cent.

Yield Differentials and Forecasting.—Somewhat similar results are obtained if a comparison is made between the yields on stocks and on bonds. The difference between the yield on the 30 Dow-Jones industrial stocks and on the 40 Dow-Jones bonds at various critical periods in market history since 1929 are as follows: At the highest 1929 prices, bonds yielded 1.97 per cent more than stocks; at the lowest 1932 prices, stocks yielded only slightly more than bonds, about 0.20 per cent. At the highest 1936 prices, bonds yielded 1.24 per cent more than stocks. At the 1942 lowest prices, stocks yielded 2.31 per cent more than bonds. At the highest 1946 prices, stocks yielded 0.34 per cent more than bonds. At the low 1949 prices, stocks

yielded 2.95 per cent more than bonds. At the prices prevailing in October, 1951, stock prices yielded about 2.50 per cent more than bonds.

These statistics, like statistical data in general, must be interpreted in the light of other considerations. At the low prices prevailing in 1932, for instance, stocks did not yield much more than bonds. Due to extensive liquidation by institutional investors, particularly the commercial banks many of which were failing at that time, the yield on bonds, however, was abnormally high.

Those who forecast stocks on this basis would, therefore, have concluded in the fall of 1951 that the rising stock market, which began inauspiciously in the spring of 1942, had not yet completed its movement. Not until yields drop to 4 per cent, and perhaps a little lower, would market analysts, following this line of reasoning, conclude that stocks should be sold. This conclusion, of course, might be modified if a rapid rise in bond yields should occur. If bond yields, in the course of a few months, should have advanced, say, to 5 per cent, then the existing differential in favor of stocks in the fall of 1951 or in the winter of 1951-52, would have been narrowed to such an extent as to have justified the sale of common stocks.

Stock Prices and Money Rates.—Closely similar to the above line of reasoning is another that relates stock market prices to *changes* in money rates. A definite priority in the movement of short-term rates, i.e., commercial paper yields, bond yields, and rates on stock prices, is observed. These three series make their high prices in the order mentioned. Such a priority in relationship was, for many years, stressed in the bulletin of the Cleveland Trust Company. Charts between 1880 to 1931 were presented to show this relationship. From 1901, this priority had become well established and was followed almost perfectly, according to this market observer, until 1914. Thereafter, the priority was disturbed.[8]

A relationship between interest rates and stock market prices was also stressed by the Harvard Economic Service in the 1920's. The culmination of an upward move in the stock market and the beginning of a downward movement was "invariably" signaled by a sharp advance in money rates.[9] This relationship was reduced to arithmetical accuracy. Experience since 1897 had revealed that every major downturn in industrial stock prices had been signaled by a rise in rates on commercial paper of 1¼ per cent, and every upturn by a decline in rates. In the rising markets in the 1920's, this guide

[8] See on this point, *Cleveland Trust Co., Bulletin,* March 15, 1931.
[9] Harvard Economic Service, April 29, 1922.

signaled rising stock prices and enabled this group to anticipate correctly the rising markets until the fall of 1929. It did not, however, permit it to anticipate the declining markets that followed.

The rigid relationship between short-term and long-term rates, prescribed by the joint activities of the Treasury and the Federal Reserve between 1942 and 1947, impaired, perhaps destroyed, the effectiveness of this priority. Even before 1942, the historical relationship between short- and long-term rates had been substantially modified. The race away from risk, particularly by the commercial banks, in the 1930's produced a persistent rise in price and an unprecedented decline in yields on short-term securities. Furthermore, the reduction in the supply of commercial paper combined with other forces to reduce the significance of any priority in the movement of commercial paper rates and of bond yields.

Security Prices and Forecasting.—Another hypothesis, closely related to the one just discussed and designed to facilitate the sale of stock at high market prices, is associated with the priority of bond prices and the subsequent movement of stock prices. In prosperity, businessmen borrow extensively. The demand for money, therefore, increases, and its price rises. The rise in the price of money means a decline in the price of outstanding bonds. Furthermore, as business grows better and earnings and dividends rise, investors tend to prefer stocks to bonds. Many sell bonds to buy stocks, and others, with new funds, buy stocks in preference to bonds.

Thus, in prosperity, bond prices tend to fall and stock prices to rise, though in the boom of the 1940's, bond prices rose. At some point in the later stage of the boom, the supply of credit fails to keep up with the demand. Business loans are called, inventory liquidation ensues, businessmen sell stocks to raise cash, loans secured by stocks and bonds are also called, and stock prices decline. One student of bond prices declares flatly that the bond market "habitually precedes a recession in business by six to eight months and an important decline in stock prices by several months." [10]

In a depression, bond prices tend to rise before stock prices. Both banks and individual investors in search of a return on idle funds buy high-grade bonds. The banks, with a few exceptions, do not buy any stocks at all, and individual investors, in the midst of depression uncertainties, buy bonds long before they buy stocks. One group of economists declared in 1930 that since 1890 there had been no clear exceptions to the rule that one of the first things to recover after a

[10] Moody's *Bond Survey*, October 28, 1946, p. 211.

period of business decline was the price of high-grade railroad bonds.[11] Much more has been written on this subject.[12]

Here again, statistical data must be carefully interpreted. It is true that, in the *majority* of cases, this priority in the movement of bond prices before stock prices was clearly established. There were, however, many exceptions. In a book of this kind, it is not fruitful to go too far back into history, but an interesting experience may be recorded in the period between April, 1928, and the fall of 1930. Bond prices began to decline in April, 1928. In the next 18 months, while bond prices moved down, stock prices moved up in perhaps the most rapid advance in market history. After October, 1929, stock prices moved down. Those who sold their stocks in the rising markets while bond prices were declining and who interpreted the decline in bond prices as a precursor to a subsequent decline in stock prices followed a correct investment policy. In the spring of 1930, however, bond prices rose. Stock prices rose also from December, 1929, until April, 1930. Thereafter, while bond prices rose for some months, stock prices declined and, indeed, continued to decline until July, 1932. The decline was one of the most severe in stock market history. The investors who followed the successful bond price signal in 1928 and 1929 followed exactly the same signal in 1930. What turned out to be a wise move in 1928 and 1929 proved to be equally unwise in 1930. Other variations and erratic movements can be traced over the course of years. Suffice it to say that there is no dependable relationship true *at all times* between the movements of bond prices and the subsequent movements of stock prices.

Stock Prices, Bank Investments, and Forecasting.—Still another relation between bonds and stocks is used to forecast stock prices. Commercial banks are large holders of high-grade bonds. Their main responsibility is to the business community: to invest in commercial, agricultural, industrial, and real estate loans, though in recent years they have increased their loans to consumers. When businessmen and farmers borrow extensively, the banks hold more loans and fewer bonds; when business is bad and growing worse, loans are paid off, and the banks use the proceeds to buy bonds. When business is exceptionally good, when the peak in the prosperity cycle is being reached, the demand for loans from businessmen and

[11] Harvard Economic Service, December 20, 1930.

[12] See for example Emerson W. Axe and Ruth Houghton, "Stock Prices and Business Activity, 1884-1926," Annalist, August 20, 1926, p. 238; August 12, 1927, p. 236; August 19, 1927, p. 268; J. Eugene Banks in *Barron's Weekly*, July, 1948, p. 25; and Arthur F. Burns and Wesley C. Mitchell, *op. cit.*, p. 117.

farmers is likely to be particularly insistent. To meet this demand, the commercial banks sell bonds. As the demand for loans continues to increase, the banks not only press the sale of bonds, they also call the collateral loans. In the course of time, the stock market, accordingly, runs short of funds. Investors buy bonds pressed on the market by the commercial banks and, thus, have less funds for stocks. Holders of stocks on borrowed money, because of the calling of their loans, are forced to sell, and prices of stocks decline. In brief, a reduction in the bond account of commercial banks, in the opinion of many investors, precedes major stock market price declines.

A study of the market since 1905 suggests such a priority. Prior to May, 1905, there had been a substantial increase in bank investments. Between that date and January, 1907, there was a slight decline in their bond account. During this period, meanwhile, the loan account of the banks increased substantially, by an amount representing more than 80 per cent of the investment account. The break in stock market prices of 1906-07 thus followed the decline in the banks' bond account. The major stock market liquidation in 1920 was also preceded by a reduction in the investment account of the banks. The latter began in May, 1919, and the downward move in stock prices followed in November of that year. Bank investments first went down in June, 1928, and the decline in stock market prices followed in September, 1929. Again, in July, 1936, while stock market prices were rising, bank investments began to decline, and by October, 1937, the reduction reached record proportions. The stock market began its decline in April, 1937. The subsequent break to the October low of that year was extremely rapid. Considering the time involved, the decline was sharper than the market move in the fall of 1929.

In 1946, the liquidation of banks' investment holdings began about four months prior to the sharp decline in stock market prices in the fall of that year. The time interval between prior liquidation of the banks' investment holdings and the later drop in stock prices ranges from six to fourteen months. In the 1950-51 period, this priority did not work so well. In January, 1950, the investments of the Federal Reserve member banks began to decline. On that date, they amounted to $66.2 billion, while in July, 1951, they aggregated $59.8 million, a decline of almost 10 per cent. Except for a sharp decline in market prices in July, 1950, as the result of the Korean incident, stock prices, however, continued to advance.

In previous periods of bank liquidation, bonds sold by the banks were bought largely by investors. In the 1950-51 period, however, investors were not prepared to buy these bonds sold by the banks,

mostly Government securities, for the prices were too high and the yields too low. Many investors, particularly institutional, bought real estate mortgages, others bought corporate bonds, and an increasing number bought common stocks. The bonds sold by the banks were bought largely by the Federal Reserve Banks. Between January 4, 1950, and August 29, 1951, for example, the holdings of Government securities of the Federal Reserve banks increased from $18.8 billion to $23.0 billion.

This was something new in American financial history. It is probable that Federal Reserve's buying of Government bonds has broken the chain of connection between bank liquidation of bonds and the movements of stock prices.[13]

Blast Furnace Index.—Another economic factor, unrelated to bond prices, bond yields, or money rates, was long used as a forecaster of stock prices. This gadget was known as the "blast furnace index." Leonard Ayres, affiliated with the Cleveland Trust Company and a statistician with a wide investor following, was a strong advocate of this device. An increase in the operation of blast furnaces (mechanisms for the manufacture of pig iron) beyond 60 per cent of their capacity suggested the arrival of a stockselling opportunity.

Before the wide-spread use of scrap, a high percentage of steel was produced from iron made in the blast furnaces. An increase in their activity, therefore, reflected an improvement in business. Excessive blast furnace activity, accordingly, pointed to industrial overexpansion. Hence, there followed the reasoning that, in a period of overexpansion when corporate earnings were good and stock prices high, it was wise to sell stocks.

Though this relationship between blast furnace operation and stock market prices did not always develop accurately, there were some reasonably satisfactory experiences in the years preceding the early 1930's. Early in the 1930's, a forecast based on the blast furnace hypothesis went awry. January, 1931, figures showed the first increase in blast furnace activities since March, 1930. They indicated that the bottom of the business depression had been reached.[14] The signal proved incorrect. Since that time, the blast furnace index has rarely been used, and it can now probably be relegated to the historical museums.

New Offerings and Price Forecasting.—Another approach to forecasting was made in 1946 by a large investment firm. It was

[13] This discussion of the relation between bank liquidation of investments and stock prices is based largely on the market letters of James F. Hughes of Auchincloss, Parker and Redpath, members of the New York Stock Exchange.

[14] *Cleveland Trust Company Bulletin,* February 15, 1931.

observed that a danger signal had been hoisted when new stock and bond issues could be distributed only at lower than offering prices in the face of an advance in the general stock market averages.[15] In the summer of 1937 and again in the summer of 1946, the failure of underwriters to sell, at the offered prices, a considerable number of new issues was followed by sharp breaks in stock prices. The observation also was made that the successful offering of stock issues at a time when stock prices were selling at low levels was not followed by any further decline in stock prices. Both additional experience and research may lead to fruitful conclusions in this field.

"Technical" Market Analysts

Another school of market analysts pays only slight attention to economic phenomena: interest rates, commodity prices, wages, stock and bond yields, and so on. These analysts assert that all economic and business knowledge possessed by everybody is already reflected in stock market prices. Those who have examined economic forces are either selling or buying stocks. It is possible to measure the buying power and selling pressure of buyers and sellers by an examination of price trends and the volume of sales. Forces connected with and part of the stock market suggest the direction in which prices will move. The devices set up to measure price trends to serve either as a barometer or as a forecaster of subsequent price movements are mechanical in character and are not based upon economic reasoning. "When the market technically is ready for a decline," runs an aphorism of the practitioners of this art, "the reason for its taking place will come along in due course."

"Technical" and Economic Approaches Compared.—There is a difference of opinion about the usefulness of the internal evidence approach. The champions of this philosophy argue that, "Stock prices constitute a time series of dependent events revealing internal causal relations which produce persistent trends of prices. . . . Trend is, in fact, one of the dominant characteristics of most economic time series." [16] Trends in stock prices have even been elevated to the status of an economic principle. One writer in a scientific journal is sufficiently bold to assert that ". . . the attractiveness of the share will be the greater, the greater has been the rise in prices sometimes before." [17] One is reminded of the remark of a leading stock trader

[15] *The Shields Index,* published by Shields and Co., New York.

[16] Joseph Mindell, *The Stock Market* (New York: B. C. Forbes & Sons Publishing Co., Inc., 1948), pp. 82-83.

[17] J. Tinbergen, *Review of Economic Statistics,* November, 1939, p. 154.

of the late nineteenth century that the best argument for a rise in prices is a rising market. There are many investors who look upon internal market analysis as speculative, if not worse, and there are many others who stand in fear of being accused by fellow investors for paying any attention to them.

There are fundamental distinctions between the two philosophies of buying and selling stocks. There is in many quarters a scarcely concealed preference in favor of the first—the economic analysis—approach. It appears to be more rational and to be founded on a more exhaustive search for fundamental tendencies. There seems to be a greater relationship between such an approach and the intrinsic value of securities. This kind of reasoning, furthermore, is more closely aligned with the thinking of the economists whose thoughts are incorporated in the economic textbooks.

Analysts in both groups have had their successes and their failures. A number of them incorrectly appraised the rising markets in the middle 1920's and correctly appraised the decline in 1929. Others, on the contrary, accurately appraised the rising markets in the 1920's and failed in sizing up the break in 1929 and the early 1930's.

In the declining markets of 1937, a new idea, based upon a gadget of the relationship between new orders and the movement of stock prices, worked well. In the spring and summer of 1946, most analysts, both economic and technical, did poorly. One institutional investor, for example, declared that, in June of that year, eight investment services, presumably embracing both schools of thought, expressed the unanimous opinion that stock prices would go higher. Within 90 days thereafter, stock market prices suffered their worst decline since 1937.[18] Scholars who wrote books on this subject, as a rule, fared no better. A number of volumes appearing between 1929 and 1931 made statements about stock market price trends that were not borne out by experience.[19]

The task of selling good stocks at high prices and rebuying them at low prices is similar to an art. An "artist" in this field, just as in painting, literature, and music, is usually not bound by rules. The creative mind makes its own rules. The "art" of selling securities at high prices and of rebuying them at low prices must necessarily be reserved for the minority. Realistically, of course, the majority never can follow such a policy. There would be nobody to whom the securities could be sold.

[18] E. J. Overman, *Trusts and Estates*, May, 1948, p. 406.

[19] See, for example, Warren M. Persons, *Forecasting Business Cycles* (New York: John Wiley & Sons, Inc., 1931); and Charles A. Dice, *New Levels in the Stock Market* (New York: McGraw-Hill Book Co., Inc., 1929).

It must also be stressed that any scheme successful in one depression or boom may be the very cause of its failure in a subsequent depression or boom. It is well recognized that each cycle is a phenomenon with peculiar characteristics. The expansion in bank credit through broker's loans that characterized the boom of the 1920's has not since been repeated. Buying of poor securities by the national banks has, through more careful regulation, been minimized, while precipitate liquidation of bank-owned securities has also been minimized through the guarantee of bank deposits. The assumed closeness of the relationship between money rates and cyclical fluctations is probably now, on a minor scale, compared with the late 1920's and the early 1930's. The stock market declines in the late 1930's and in 1946 were accompanied by only slight firming of interest rates. There were no such rises as that which characterized the money markets in 1929.

Dow Theory.—The oldest and probably the most popular of the devices to determine stock price trends from an examination of the price movements in the market itself is the Dow theory. This theory and its line of reasoning are frequently misunderstood. Many writers, popular and otherwise, have gone to great lengths in debunking the presumptive infallibility of the Dow practitioners, but those who apply the Dow theory to investment (and also to speculative) problems do not claim perfection. A successful practitioner of the theory declared that he was pursuing "a subject where, although perfection could never be attained, proficiency would prove invaluable." [20] The Dow theory assumes that a limited number of stocks reflect a price trend representative of the entire market. The stocks in the three Dow-Jones stock averages (see Chapter 24, p. 428) are representative of the issues of large corporations. Each one of these companies has many shares outstanding, and they are owned, moreover, by many investors. For that reason, they change hands frequently. They are, to use the language of the financial community, reasonably "active" stocks.

The Dow theory sets up three price movements. The primary movement, either up or down, lasts from one to over five years. The secondary movement lasts a much shorter time, perhaps from three weeks to about five months. The third are the day-to-day movements, which are of no concern to the theory. A major price trend, either up or down, is always punctuated by movements in the reverse direction. A rising market, the primary trend being upward, is characterized by sharp downward movements—the secondary trends.

[20] Robert Rhea, *The Story of the Averages*, 1934, mimeographed, p. 1.

In a secondary movement, from one-third to two-thirds of the preceding major movement is cancelled. Assume that the primary trend is upward. Market prices, nevertheless, decline, and one-third or more of the previous rise is cancelled. Thereafter, market prices rise again.

If in this rise, prices move beyond the previous top from which the secondary reaction developed, the primary trend is still upward. Prices, after advancing from the low price reached in the secondary movement, may not exceed the previous high price. The trend may, after numerous irregular movements, decline to a point below the low made in the downward movement. In that event, the trend of the market has changed under the Dow theory from a rising to a declining market. In the rise of prices above the previous peak or in the decline below the secondary bottom, the industrial and the rail averages must move in the same direction. Otherwise, under the Dow theory, the trend of the market has not changed.

To confirm the continuation of the rising trend, prices of stocks in the industrial and in the rail averages need not reach new highs at the same time. Neither need they make new lows at the same time to confirm the transformation of the primary trend from an advancing to a declining one. The utility average is not used in the Dow theory, that is to say, in the identification of the turn in the primary trend from declining to advancing or from advancing to declining.

An example of the movement of the stock market under the Dow theory is furnished by the price trend between June, 1949, and April, 1952. In 1949, the industrial and railroad averages sold at low prices, respectively, of 161.60 and 41.03. The industrial and railroad low prices were made on the same day, June 13. Stock prices, thereafter, rose steadily, subject, of course, to those daily fluctuations with which the Dow theory is not concerned.

No substantial decline of the magnitude necessary to register a secondary movement occurred until June, 1950. The Korean invasion was followed by a substantial decline. The pre-Korean highs in the industrial and railroad averages, respectively, were 228.38 and 56.87. These prices were reached on the same day, June 12. The low prices on the downward post-Korean movement in the industrial and railroad averages, respectively, were 197 and 51. The industrial low was made on July 13, and the railroad low on June 29.

Under the Dow theory, a rising market would be indicated when and if the previous highs in both averages were surpassed. On July 20, the railroad averages moved to 58.75, and on October 12, the industrial averages reached 229. Thus on this date, the industrial average confirmed the railroad average. The existence of a rising

market under the Dow theory was thereby registered. Since that date there have been upward and downward movements in both averages. By July, 1952, both the railroad and industrial averages had obtained new high prices—higher than those reached before secondary declines. Hence under the Dow theory, the primary trend remained up; the rising market was again confirmed.

There are Dow practitioners who would not accept the above-mentioned dates and prices for the transformation of the market from a declining to an advancing one. It is rare for the practitioners to agree on such points. They differ among themselves with regard to numerous details and it is difficult, perhaps impossible, to present a concise statement of the Dow theory and its application to any given market that would command unanimous acceptance.

DEFECTS OF THE DOW THEORY. Once the market changes its primary trend, the investor does not know how long the trend will continue. Neither does he know, under the theory, how high prices will go in a rising market nor how low they will drop in a falling market. There are primary markets, such as the one in 1948, that last only six months, and there are others, such as the one in the 1920's, that last more than six years. Under the Dow theory, the investor knows *only* that the market is either advancing or declining; he knows neither the extent nor the duration of the move.

The defects in the theory are recognized by the practitioners and condemned by the critics. The investor is *never* certain at the beginning of a major primary move, up or down, that it is a major move in one direction or a secondary move in the other. Mark, for example, the broad declining market between 1929 and 1932. Between November 13, 1929, and April 17, 1930, there was a spectacular rise in the Dow-Jones industrials from 198.69 to 294.07, or 48 per cent. The investor could not tell whether that rise was the beginning of a new major upward market, as many economists and numerous spohisticated and reasonably shrewd investors believed, or merely a secondary upward move in a declining market. A declining market was not confirmed until both the rail and the industrial averages declined below the lowest point reached in November 13, 1929. When both the rail and the industrial averages declined below this point on June 24, 1930 at 126, and on October 9, 1930 at 192, respectively, the declining market first registered in the autumn of 1929 was confirmed.

There is another peculiar difficulty with the Dow theory, one that is characteristic of historical studies and observations. History records the completed past. Inferences and conclusions about the

wisdom of those events and their significance are best appraised by those who have a full knowledge of the past. They know things that enable them to interpret past events in terms of subsequent developments. This truth applies also to the Dow theory.

When, in a rising market a secondary reaction is completed, followed by a rise to a new high price, the rising market is confirmed. When, however, a decline in a rising market is actually proceeding, it is difficult to know definitely that the decline is a secondary reaction in a rising market and not the beginning of a broad price decline.

At the bottom of many declines, there prevail varied interpretations of the definition of the decline, either as a reaction in a rising market or as a beginning of a decline in a falling market. In the rising market of 1949-51, for example, Dow-Jones industrial stocks declined in March, 1951. They rose again in May of that same year, to a new high price. The May advance was followed by a new decline, to a price below the price reached in March of that year. The daily newspaper through whose columns for many years the philosophy of the Dow theory was developed made the following observation with regard to the significance of the decline in prices in early July below the level attained in March 1951:

> Technicians using the Dow method disagree on the significance of the decline in the Dow-Jones Industrial Average last week below its March low. Some think it means a bear [declining] market has been underway since the February-May highs, while others claim it has only been a secondary reaction. Unfortunately there is no way of settling the dispute.[21]

The point is that investors, following the signals offered by the Dow theory, often have trouble in deciding whether a given move is in reality a turning point from a declining to an advancing market, or the reverse. In due perspective, the investor, like the historian, can tell that the given price trend was the prelude to a transformation in the market. Such an observation may furnish fascinating historical data, but it is of little significance to the investor searching for the opportunity to sell his high-grade stocks at high prices and to rebuy them at lower prices.

Despite its weaknesses, the hypothesis implied in the reasoning of the Dow theory is adopted in numerous quarters as a basis for investment policy. It is implicit in the Dow theory that stock prices never move indefinitely in one direction. This is true of almost all economic phenomena, although cynics, viewing trends in the 1930's

[21] *Wall Street Journal*, July 6, 1951.

and 1940's, might assert that the trend of wages constitutes a major exception. That remains to be seen.

Corporate earnings, dividends, interest rates, national income, personal income, national product, foreign trade, wholesale and retail prices, and so on do not show regular increases or decreases. The Dow theory represents an empirical device to locate a change in trend of stock market prices. The inability to surpass a previously attained price peak after an initial decline from such a peak constitutes the major mechanism of possible aid to the investor. As will be seen in the subsequent chapter, many organizations offering services to the investors use the Dow mechanism, though they do not follow the Dow theory of price trends.

BREADTH INDEX. A disadvantage of the Dow theory is the lack of representativeness of the Dow-Jones stocks. The Dow theory asserts that stock prices move in accordance with the trends established by the Dow-Jones stocks: as Dow-Jones stocks go, so goes the market. Again, this probably is so in the long run, viewing the market in an historical perspective. Frequently, however, there are time lags between the trend of the Dow-Jones stocks and of most of the other stocks. A noteworthy illustration of this discrepancy is furnished by the price trend in the cumulating phase of the rising market of the 1920's. In the first nine months of 1929, a majority of stocks were declining, while the Dow-Jones industrials and the rail stocks were advancing to new highs. Some observers characterized the stock market during that period not as a rising market, but as a creeping declining market.

There are, of course, other price averages embracing more than the number of stocks included in the Dow-Jones average. One published by the Moody's Investors Service contains 200 stocks, and another, that of the Standard-Poor's Statistics service reports weekly on 416. The number of stocks listed on the New York Stock Exchange, however, exceeds 1,400, and in a reasonably active day, more than 1,100 shares are traded. Of this difference between the number traded and the number listed, many are outstanding in small amounts, and many of such stocks are held by other corporations. This latter is true particularly of the stocks of a number of railroads whose dividends are guaranteed by other railroads. The guaranteeing railroads own most of the stocks whose dividends they guarantee.

Listed also are numerous preferred stocks, of both industrial and power and light companies, which rarely change hands. To obtain an idea of the breadth of the market, of the number of shares that actually increase and decrease in price, it is, accordingly, unnecessary

to include those stocks listed, but not traded. A crude, though representative, idea of the extent to which stocks as a whole are moving in line with the prevailing advancing price trend, as represented by the stocks included in a price average, is afforded by the number of stocks that advance as compared to those that decline in price. On one day, for example, in October, 1951, there were 1,477 issues listed; 1,220 were traded. Of this number, 149 were unchanged in price. Of the 1,071 shares that did change in price, 96 advanced and 975 declined. The net declines were (975 minus 96) 879. The percentage of the net declines to the number traded was 72 per cent.

Some market analysts accordingly build up a breadth index. A base in some previous year, say 1926, or of an average of a number of other years is set down as 100. Other market analysts compute a moving average for, say, 150 or 250 days. The index of the breadth of the market is compared with the Dow-Jones industrial average or with some other average of stock market prices. The theory of resistance points both on the up side and the down side—the idea used in the Dow theory—is then applied to the breadth index. The breadth index makes new highs; it then declines. Subsequent movements are observed to determine whether the index surpasses its previous highs, or whether it drops below the decline made after its retreat from its previous high. The representative character of the market on a broad scale is, therefore, reflected by the movement of the breadth index.

If the index moves in a direction contrary to the trend of a more limited representative index, such as the Dow-Jones average, the market is vulnerable. The failure of most stock prices in the summer and fall of 1929 to move in harmony with the sharp rise in the Dow-Jones Industrial Averages was measured by the breadth index. The breadth index made a high on July 9, 1929 (as computed by one of the market analysts using such an index), while the Dow-Jones industrials made its high on September 3. The breadth index thus failed to confirm the industrial average for the last few months of the 1929 stock market advance.

In the market rise of 1950-51, one breadth index up until spring of 1951 advanced more rapidly than the Dow-Jones Industrial Average. Between February and October, 1951, however, while prices of these stocks advanced, a breadth index, smoothed out on a basis of a 150-day moving average, declined.[22] Thus the rise in the price of the stocks included in the Dow-Jones Industrial Average did

[22] This index is computed by Hugh H. McKiernan, of Hallowell, Sulzberger & Co., members of the New York Stock Exchange.

not represent the price movements of the general body of stocks. On that basis, market analysts anticipated a subsequent decline in general stock market prices. Or, to apply the reasoning of the Dow theory, while the Dow-Jones Industrial Average made a new high in September, the breadth index did not rally and it failed to rally to the peak reached in the previous February.

Public Interest in the Market.—Some market analysts also assign considerable importance to the extent to which the so-called "public," those who are relatively ignorant of stock market values, buy in a rising market. Such buyers, it is asserted, normally begin to buy stocks in the higher price range. It is believed that such people, on the whole, are unsuccessful speculators and that they rarely make a profit over the years. Picturesque names have been invented to describe them as a group. They are called the "lambs," and frequently they are contemptuously described as gamblers. Some market analysts, therefore, assert that their active participation in the market suggests strongly the sale of stock by sophisticated, well-informed sellers to relatively poorly informed buyers.

The volume of margin trading, that is to say, the buying of stocks with borrowed funds secured by the purchased stock, was formerly a good evidence of public participation. In the 1930's and 1940's, margin trading was reduced to small proportions. In the rising market between 1942 and 1946, this evidence of public participation was of slight value. At that time, since stocks had to be paid for in cash, there was no margin trading, but individuals bought stocks for cash and borrowed money against them at the banks. These loans, however, were small.

There is, nevertheless, currently published evidence to suggest the trend of public participation in the stock market. First is the excess of sales over the redemptions of the shares of the open-end investment companies. (See Chapter 28.) It is assumed that a large percentage of these shares are bought by the small stockholders, i.e., the relatively uninformed. Hence, rising sales of open-end stocks in comparison with redemptions indicate that small stockholders are active in the market.

The second line of evidence is the trend of odd-lot buying. Subject to some unimportant exceptions, stocks are traded in lots of 100 shares. The purchase or sale of stocks in amounts of less than 100 shares suggests again the activity of the relatively small and, therefore, uninformed investors—a cynical point of view. A transaction of 100 shares or some multiple thereof is called a full lot, and

one involving the purchase of less than 100 shares is known as an odd lot. Between May, 1949, and June, 1950, for example, in the face of a dynamic rise in stock prices, odd-lot sales substantially exceeded purchases. The connection between the excess of odd-lot buying over sales as a measure of the technical weakness of the market and of the probable price decline at an early date is, however, not entirely justified by the available evidence. It is a belief, nevertheless, that is widely held in a number of informed investment sources.

Volume of Trading.—Another measure of the technical condition of the market is the volume of stock trading. An advance in stock prices accompanied by an increase in sales volume, it is asserted, reflects increasing confidence. More and more people are buying more and more stocks. A rise in stocks accompanied by a decline in volume reflects, on the contrary, a relative loss of confidence. The advance reflects the purchase of fewer shares of stock by fewer investors. The same reasoning applies to market declines. A decline accompanied by a substantial increase in volume suggests insistent selling by numerous investors with many shares for sale. A decline accompanied, on the other hand, by a slight increase or, perhaps, by a decrease in volume suggests a lack of confidence in the certainty and strength of the decline. Only relatively few people with relatively few shares are depressing the market.

This line of evidence has the approval of scientific authority. An exhaustive and scholarly investigation of 15 business cycles between 1878 and 1933 disclosed that the volume of shares traded preceded, on the average, the downward trend in the business cycle by about ten months. The volume of trading led the rise in the cycle by an average about four and one half months.[23] Market analysts have extended this relationship between the volume of trading and the business cycle to embrace a relationship between volume and stock market prices. A decline in trading volume accompanying the market rise in the spring of 1946, for example, led a number of market analysts to forecast the decline in the fall of that year. Another decline in volume between February and October, 1951, supported a forecast of a drop in market prices. Trends in sales volume are irregular, and to eliminate confusing shifts, some analysts build up trends in terms of moving averages or on the basis of indexes. Additional research in this field, as well as in the more general area of economic time series, might produce more accurate and reliable conclusions, perhaps of a reasonably satisfactory scientific character.

[23] Burns and Mitchell, *op. cit.*, pp. 376, 380.

QUESTIONS AND PROBLEMS

1. Which of the following classes of investors probably use *more* or *less* of the ideas included under the general heading of market analysis: formula planners, those who follow dollar averaging, those who buy and sell with reference to changes in the business cycle, and those who follow the buy-and-hold philosophy? (See Chapter 24.)
2. According to the Dow theory, is the stock market now in a primary up-trend or in a primary down-trend? Explain reasons.
3. What is meant by the "internal evidence" approach with regard to the buying and selling of common stocks?
4. On the basis of the most recent year-end prices of the Dow-Jones industrial stocks, the dividends paid on such stocks for the last calendar year, and the yield on 40 Dow-Jones bonds for that same year, compute the yield differentials between stocks and bonds. On the basis of such differentials should stocks or should bonds be held for investment?
5. Explain why the Treasury-Federal Reserve policies in the 1940's probably impaired the relationship between the movement of money rates and the movement of stock prices.
6. Explain the theoretical relationship between the bond investment account of commercial banks and the movement of common stock prices.
7. Explain why and how the breadth index theoretically supplements the Dow theory, and in what respect it may be regarded as superior to the Dow theory.

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Chapter 24

INVESTMENT SERVICES

A mass of information useful to the investor is made available by private and Government sources. Corporations, trade associations, trade and scientific journals, congressional committees, Government bureaus, among many others, produce a continuous succession of facts and interpretative comment and explanation. Some of this data, necessary for investment analysis and investment decision, are published in newspapers and periodicals. The *Wall Street Journal* and the *Journal of Commerce* are the leading daily financial papers, while the *Commercial and Financial Chronicle*, appearing three times weekly, is the most comprehensive financial periodical. Some investors are able to reach decisions based upon these sources exclusively.

To an increasing degree, however, investors are looking to investor's services for facts, their interpretation of the facts, and the statement of tendencies or forecasts growing out of such facts. Other investors depend upon services to give them a judgment rating upon the value of individual securities. There are, if one can be arbitrary about classification, four classes of such services: (1) those reporting factual data; (2) those interpreting the data; (3) those using the data for the purpose of developing forecasts or identifying trends; and (4) those rating individual securities. There are in this field, as in almost all other fields of human activity, borderline cases. An organization may offer two or more classes of services. Frequently a service may be factual, interpretative, and even forecasting in character. There are, nevertheless, clear distinctions between the various services, and each tries to perform a service useful to the investor.

Factual Services.—The oldest kind of factual services are the manuals of collected corporate information. Beginning in the late 1860's the earliest in the field was *Poor's Manual of Railroads*, an annual volume containing some pertinent information on individual railroads. This was followed many years later by the manuals pub-

lished by Moody's service. There are, today, compendiums by the Standard and Poor's Corporation, Moody's Investors Service, and the Fitch Publishing Company. Manuals are published annually on the securities of railroads, public utilities, industrials, Governments, and municipal borrowers and also on insurance companies, banks, and other financial institutions. For each company, there is assembled information on financial history, balance sheets, and income statements, together with some description of the company's business.

The volume of factual material has increased in recent years, particularly since the Securities and Exchange Commission was given the power to require the publication of additional information. The data are also presented for individual companies over a period of years and in the form of ratios, such as margin of safety, working capital, and net quick assets, which have already been examined in previous chapters. The data are frequently so voluminous in detail as to make it difficult for investors quickly to seize upon relevant relationships, to develop those broader backgrounds of comprehension that are essential in comparing a particular company over a period of years, to compare one company with another in a given industry, and to judge of the composite trends of the leading corporations within a particular industry.

Investment services have, therefore, been established to represent corporate factual information in a more convenient form. Studley, Shupert & Company of Boston, for example, has attempted to meet this demand through its *Factual Analyses*. This organization prepares statistical statements for many companies disclosing numerous factual items over a 20-year period. The leading items in the income statement and balance sheet are presented in dollars and also in the form of ratios. Significant ratios correlate sales with working capital, gross plant, and net plant, and the relationship of the market price of the common stock to earnings. Still other data are presented, such as the number of times fixed charges are earned before and after income taxes, the earnings per common share, the percentage of earnings distributed in common dividends, the per cent earned on total capitalization, the depreciation per share of common stock and, also, per share of preferred stock. Much of this information is provided by other services, too. This service arranges them in a convenient way, thereby enabling the investor to judge comparable financial results for many companies over a 20-year period. It also publishes a composite statement for a number of industries. This makes it possible to examine the trend in an industry over a number of years and to compare the results of a given company with the results of the industry.

Most of the same financial data are presented by other services in interesting chart form. The Investograph Corporation is one of the leaders in this field.

The investor can, of course, follow the market prices of both stocks and bonds in the daily newspapers. Various investment services, however, prepare computations that enable the investor to secure information that enables him to judge the price movements of individual securities in terms of broad price currents. The oldest and perhaps the most popular of the stock price indexes is the one furnished by Dow-Jones & Company. Three different stock averages are prepared. There is one for 15 utility stocks embracing the electric light and power, the natural gas pipeline, and the retail gas industries; another for 20 railroad stocks; and another for 30 industrial stocks. The averages for each one of these groups are computed daily on the basis of the closing market prices. The prices of the stocks included in the Dow-Jones industrial and in the railroad averages go back to 1897. There have been many changes, however, and of the former, only American Tobacco and General Electric of the original list remain in the averages. The average of the Dow-Jones industrials reflects the movement of the high-grade quality stocks and, for that reason, is not considered by many observers as representative of the broader movement of stock prices.

The Standard & Poor's Corporation makes available a weekly index of 416 stocks, and these are broken down into a number of industrial groups. It also publishes a daily market average of 90 stocks. Some investors consider this latter index as the most representative daily indication of the action of the entire market. The service endeavors to relate each industrial group to the composite total in such a way that the percentage approximates the industry's total value of shares listed on the New York Stock Exchange to the total value of all shares so listed on the Exchange.

There are also stock indexes published monthly by *Barron's*, a weekly magazine. Several newspapers such as the *New York Times* and the *New York Herald Tribune* also publish stock price indexes. Other private organizations publish still others based upon different hypotheses. One brokerage house, for example, prepares an index of secondary stocks on the ground that the Dow-Jones Industrial Averages do not reflect the performance of the stock market as a whole. Moody's Investors Service prepares still another index, showing the price movements of common stocks, and another of preferred stocks.

In 1951, the S.E.C. criticized existing indexes as being "heterogeneously compiled which results in confusion as to what constitutes

a standard for computing changes in trends in stock prices. Some of these are based on so few stocks that their movements are over-sensitive while others, on the other hand, include so many issues that market movements are obscured." The Commission accordingly prepares a weekly index of its own, embracing 265 stocks and 29 industry groups, designed to afford a representative coverage of stocks listed on the New York Stock Exchange, based on the volume and value of trading.

The investor is also supplied with indexes showing the movement of bond prices. The Dow-Jones Company, for example, publishes an index showing the prices of 40 bonds, subdivided into 10 high-grade and 10 second-grade railroad bonds, 10 public utility bonds and 10 industrial bonds; another index of 20 municipal bonds; another of 10 revenue bonds; and still another of 10 income railroad bonds. *Barron's*, as well as Moody's and Standard & Poor's services also provide indexes of bond prices.

There are also factual services in many specialized fields. The Institutional Utility Service publishes information to show the trends in the field of public utilities. Though much of the information published by this service is also provided by others already discussed, there is much more highly specialized information.

Another specialized factual service is provided in the field of railroad securities by the Security Research Bureau of Philadelphia. Various aspects of the affairs of particular railroads are subjected to close examination. The service is financed jointly by a number of investment institutions. Detailed information and ratios, not generally available in the manuals and in the more general investment services, are prepared by this bureau.

One of its special services is the determination of earnings available for individual railroad mortgage bonds. Ton-miles for that part of the property covered by the mortgage are given, and from these data, earnings for individual bonds are computed. Such specialized knowledge is of questionable value, though many careful investors rely upon such detailed analysis, at least in part, as a basis of investment judgment.

Another service furnished jointly to a group of savings banks in New York is that of the Savings Banks Trust Company. (See Chapter 27, p. 517.)

Still another research organization, operating in prosperous and expanding industries, is Duff and Phelps. It prepares elaborate reports on the financial strength, strategic position, and physical condition of the properties of companies in the electric light and power and gas industries. Some of these data are found in other factual services

and in Government reports, but much of it is collected by workers in the field.

Another similar service, though not confined to securities of any one industry, is provided by Kerr and Company. A group of engineers, appraisers, and other specialized staff workers provide detailed reports on individual companies. These reports are not as elaborate as those developed by Duff and Phelps in its specialized field of public utilities.

These specialized fact-finding service organizations do not, as a rule, deal with individuals. Their clients are largely institutional investors; the insurance companies and trust companies, the investment companies and investment counsellors, the investment and brokerage houses, and the banks, together with some endowment and charitable funds.

Interpretative Services.—It is frequently difficult to distinguish between factual and interpretative services. Most of the services discussed above as factual interpret data, also. Indeed, the mere rearrangement of information published in annual corporate reports and in Government documents smacks of interpretation, for it is largely a problem of emphasis. Those services that provide factual data as an incident to the formulation of conclusions on individual securities or on the securities of individual industries are classified for convenience of discussion as interpretative services. Moody's Investors Service, one of the leading factual organizations, also publishes a weekly letter on stocks and another on bonds, known as *Moody's Stock Survey* and *Moody's Bond Survey*. Both of these are current discussions of various problems affecting the trend of security markets. The interpretations are general in character, though summaries of new bond and stock issues are accompanied frequently by specific recommendations.

Another typical service in this category is that of the Argus Research Corporation. This service is based upon the philosophy that "There logically may be a wide difference between the characteristics needed by a good research specialist and those that are helpful to someone who has to handle the public." [1] This service develops information, rearranges it, interprets it, reaches conclusions, and makes recommendations upon individual securities. Argus keeps under continuous examination approximately 250 companies in the railroad, utility, and industrial fields.

Another service, older than Argus and more comprehensive in the nature of the services offered to the investor, is provided by

[1] Argus Research Corp., *Weekly Staff Report*, May 11, 1949.

Lionel D. Edie and Company. It publishes studies of individual securities and companies, as well as monthly letters on the subjects of general investment interest, such as industrial earnings, commodity prices, taxes, foreign developments, and so forth. In addition, it offers investment advice to financial institutions and helps them in formulating over-all investment policies and acts as investment adviser both to individuals and to corporations.

A flood of material in the form of recommendations for the purchase of bonds and stocks swamps the investor's mails. In most cases the basic information described in these circulars, pamphlets and letters are culled from investment services. Occasionally, some investment or brokerage house prepares original literature. It may be based on interviews with corporate executives or on field work conducted by a research staff or by partners. Information gathered by partners is, as a rule, not reproduced in written form. Such data are normally passed on orally and frequently constitute the basis for significant investment decisions.

Security Forecasting Services.—The investment services thus far reviewed do not purport to throw much light on a problem of major significance to some stock-minded investors. Services concerned with the presentation of facts and with their interpretation in terms of the *quality* of individual bonds and stocks do not provide answers to problems of timing. *When* to buy a high-grade common stock may be as important as *what* to buy. As long as an industry is expanding and the management of a company is reasonably, though not unusually, good, bonds issued in moderate amounts are likely to retain their investment quality. Indeed, experience has disclosed that, in the overwhelming majority of cases, the lower-quality bonds of the expanding and prosperous industries have fared better than a large number of the better-quality bonds issued by the declining industries. The experience in the Depression of the 1930's as between railroad bonds on the one hand and the electric power and light companies' bonds on the other, is a notable case in point. The good quality of the common stocks of expanding industries affords no protection, however, against the ravages of a business depression. The price of the highest-grade common stocks may drop in spectacular fashion.

Investors, therefore, have long been in search of some way to enable them to sell high-grade stocks in the higher price range and to buy in the lower price range. A fat library of books, documents, pamphlets, and material of passing interest has been built up to explain how this ideal can be achieved. In the financial and invest-

ment community, there has probably been more intellectual power exercised in the development of such schemes than in any other single phase of investment. Nor has the research been confined to professional investment and trading circles. Numerous academicians, singly and jointly, have joined in this never-ending quest. The price of success is great indeed, and the cost of failure is correspondingly heavy.

The previous chapter examined some of the major problems involved in the effort to enable investors to sell at high and to buy at low prices. Investment services have devised numerous schemes based upon various lines of thinking to accomplish this task.

STOCK PRICES, BANKING, AND CREDIT TRENDS. A number of investment services interpret and forecast stock market prices by using the banking and credit data of the Federal Reserve System. These weekly and monthly figures show the amount of money currently available, the amount spent, and debts currently accrued at the commercial bank level. The deposits plus the currency in circulation constitute the nation's supply of money, the bank debits measure the amount spent, and the loans show the debts incurred. Data of the Federal Reserve System and its member banks constitute, therefore, a sort of national financial statement.

Most of the funds needed by business come from earnings and depreciation allowances and, in much smaller amounts, from the sale of securities. Bank loans are made largely for expansion of working capital—for investment in inventory and receivables. Hence, an increase in loans should be balanced by a proportionate, and even more desirable, by a more than proportionate increase in spending. An increase in loans accompanied by a lesser increase in spending, or by an actual decrease, suggests a piling up of inventories.

Production, sales, and inventory data are published in profusion. They are, however, late in appearance. The banking and credit data appear weeks, frequently months, before information on sales, inventory, and the like are made available. Furthermore, the banking data are standardized. Since there are no differences in grades and qualities, dollar figures can be readily compared. Production, sales, and inventory data, on the other hand, are not uniform, and it is difficult to compare the information on a standardized basis.

Banking and credit information, according to this line of thinking, are the earliest available figures that reveal economic trends. If, for example, loans are low, lower than before, low in relation to spending, or if spending is expanding more rapidly than are loans from a low level, then it is concluded that business will improve. Sales will

increase and profits will rise. Such a succession of economic events will be followed by a rise in stock market prices.

At the time loans begin to increase, it is possible that business conditions may not be favorable. Stock prices may then be low and business inventories may be in process of liquidation. Such a situation prevailed, for example, in the spring and summer of 1949. At that time a prolonged inventory liquidation was just being completed. Business loans were light. Bank debits (that is to say, spending) were beginning to increase. While business pessimism was general, stock market prices began to rise from their low levels. Those services, which reasoned from banking and credit figures to later stock market trends, correctly anticipated a rise in prices. In May, 1949, according to figures of member banks, reported weekly in 141 leading cities, spending (bank debits) increased over May, 1948, by 2 per cent, while commercial loans declined about 4 per cent. Thus, less *lending* was accompanied by more *spending*.

By February, 1951, according to this line of approach, the banking and credit data had changed for the worse. As compared with May, 1949, loans had increased 36 per cent, and debits only 16 per cent. The credit investment services, accordingly, hoisted their warning flags. While business was booming and employment, wages, dividends, and stock market prices were increasing, the underlying credit data suggested caution. Increased borrowing accompanied reduced spending. The future of business appeared clouded and care in making stock commitments was recommended. Decrease of stock holdings in investment portfolios was favored.

Two investment services in this country and one in Canada supply mechanisms based upon the reasoning involved in this banking and credit approach. The Trend Reports of Townsend-Skinner and The Basic Trends of the Harding Index are representative services in this country, while the Composite Equity Index of the Canadian Trembolgraphs is published in Montreal. All three use the Federal Reserve data. Each service builds up a set of figures, currently depicted in charts, which foreshadow subsequent movements of stock prices.

Townsend-Skinner publishes (among other things) a Major Trend Measure. This consists of three sets of data with the base in each case being 1926 as 100. The first represents the activity of money and is a ratio of spending to commercial loans. This ratio compares spending (i.e., the dollar volume of checks drawn against deposits) with the loans that are not secured by stocks and bonds, plus the direct advances and prepayments that are made by government to industry.

The second set of data discloses the availability of money and is computed by dividing net deposits plus currency outstanding, by security loans plus required reserves of member banks held with Federal Reserve banks. The net deposits are computed by deducting from the gross deposits the deposits equal to business loans, Government securities, and Federal Reserve credit. Part of the net deposits are already utilized in secured loans and in reserves required to be held with the Federal Reserve banks. If this ratio declines, there is less money available for the purchase of securities and for loans to business, and if it rises, there is more money available.

The third ratio reflects the inflation of money and is computed by dividing deposits, plus currency in circulation, by gold reserves. More gold per dollar of money supply means, in the opinion of many investors, sound money; and less gold per dollar of money leads to inflation—to higher prices of goods and common stocks. There is no general agreement on this point. Many believe that the supply of money can be, and has for many years been, managed on a basis independent of changes in the supply of gold.

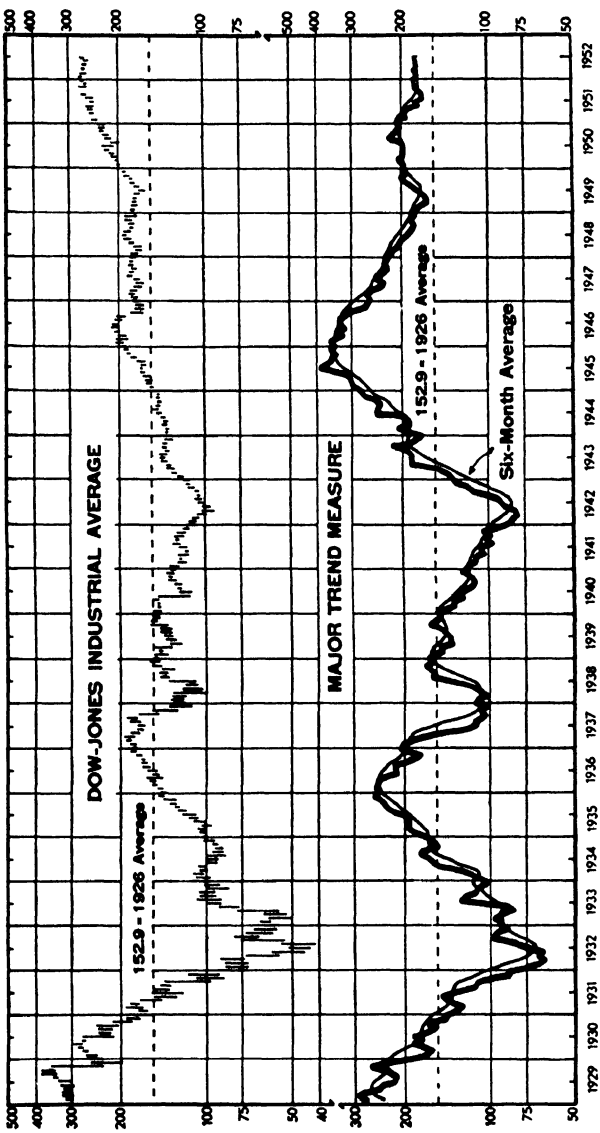
These three elements: (1) the ratio of total spending over commercial loans, (2) the ratio of net deposits plus currency over security loans plus required reserves, and (3) the ratio of deposits plus currency over gold reserves are combined into a composite, known as the Major Trend Measure. This measure is charted currently and, also, on the basis of a six-months' average. The Dow-Jones Industrial Averages are also charted. Figure 11 shows the trend of the Dow-Jones industrial averages and of the Major Trend Measure from 1929 to 1952. The Major Trend Measure, it is asserted, forecasts the subsequent trend of stock market prices. There is no claim of accuracy nor is there any definite time lag between the preceding movement of the Major Trend Measure and the subsequent movement of the stock market.

The Harding Index, though using a different mechanism and expressing its philosophy in different language, uses approximately similar ratios. Townsend-Skinner's Major Trend Measure corresponds to the Stock Market Credit Indicator in the Harding Index. Using 1926 as a base, the Harding Index sets up three ratios: (1) bank debits to commercial loans, (2) bank loans to deposits, and (3) gold reserves to deposits. A mathematical average of these three produces the Stock Market Credit Indicator. Again, though no claims are made to precise accuracy, it is asserted that, by the use of this Indicator, the high and the low points of major market trends within a 10 per cent range have been determined since 1935. The Indicator, it is claimed, precedes stock market prices by months.

FIGURE 11

The Major Economic Trend Measure

A Composite Measure Relating to Stock Prices and the Public's Valuation of Business Ownership. When this Measure Rises, Conditions Underlying Equity Values Are Improving; When It Drops, They Are Deteriorating.



Source: Townsend-Skinner's *Trend Reports*, July 25, 1952.

Figure 12 shows the movements of the Dow-Jones Industrial Average and of the Stock Market Credit Indicator between 1919 and early 1952.

The Canadian Trembolgraph works up the underlying Federal Reserve data into an index, the Composite Equity Index, "which combines in one sensitive line the changes in the banking situation in such a way as to give clear-cut indications of the major turning points and probable future trends of equity prices." Banking figures are set up in the form of a current asset ratio, so generally used in financial analysis. This working capital ratio is computed by dividing deposits (businessmen's cash assets) by bank loans (businessmen's liabilities). The bank debits are described as sales or the business turnover. Figure 13 charts the Composite Equity Index from 1919 to early 1952.

The indexes as set up by these banking-credit services are useful tools. They are of value to informed investors who are well grounded in the knowledge and understanding of the American banking system.

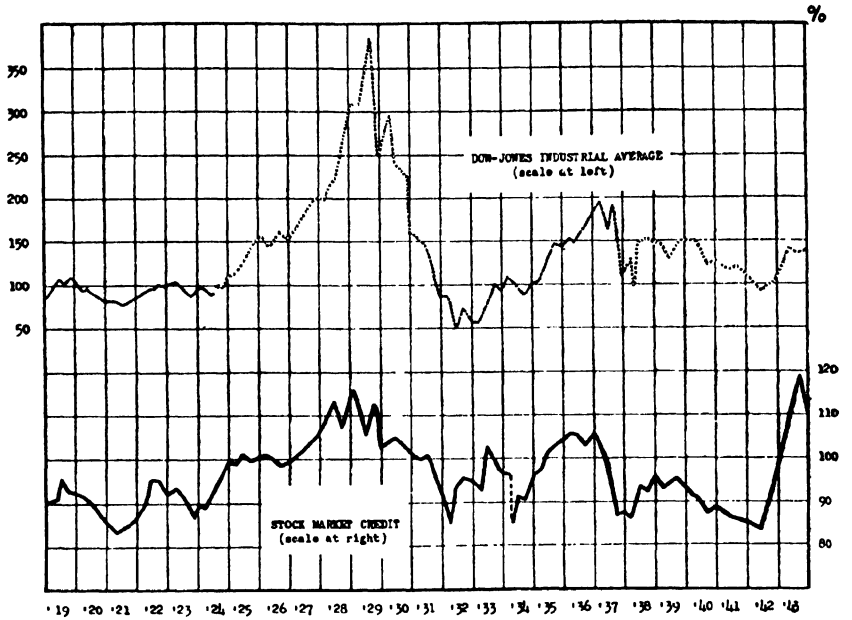
BUYING POWER AND SELLING PRESSURE. Another group of investment services is based on the idea that the price trends in the stock market can be anticipated by computing the value of the number of shares bought and sold. Major price rises reflect more buying than selling, and major price declines reflect more selling than buying. The law of demand and supply operates in the stock market, as in every other market. Demand and supply—buying power and selling pressure—are measured by multiplying the plus and minus changes in the price per share by the number of shares traded (full lots only, thus excluding odd lots). Suppose General Motors advanced one point in one day, with a trading volume of 5,000 shares. The gain in dollars for that day for that stock was $5,000. The same computation is made for all stocks that advanced in price. In this way, the dollar value of all price gains is computed. This is called buying power. A similar computation is made for stocks declining in price; this gives the dollar value of all losses. Take an example from a typical market day:

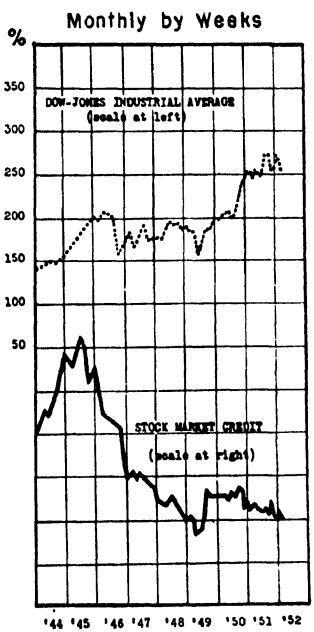
1.	Total number of shares traded	1,430,000
2.	Number of issues, advanced in price	373
3.	Number of issues, declined in price	392
4.	Dollar value gains (points gain in each advancing issue times volume in that issue)	$513,898.50
5.	Dollar value losses (points loss in each declining issue times volume in that issue)	$190,945.50
6.	Ratio-gain for day (No. 4 divided by 1)	359
7.	Ratio-loss for day (No. 5 divided by 1)	133

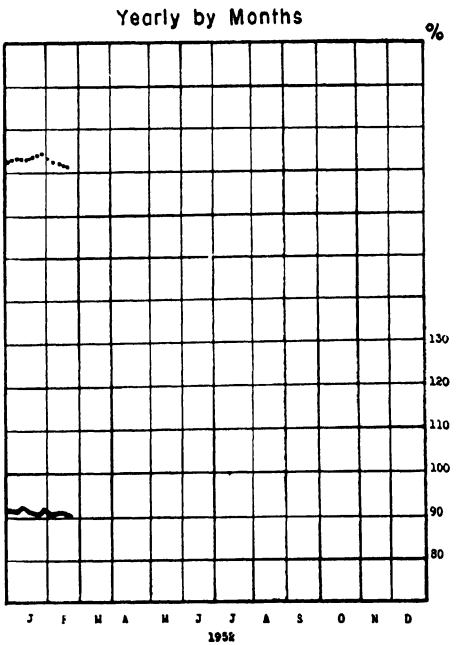
Courtesy, American Investors Service.

FIGURE 12

Dow-Jones Industrial Average and Stock Market Credit Indicator, 1919-1952



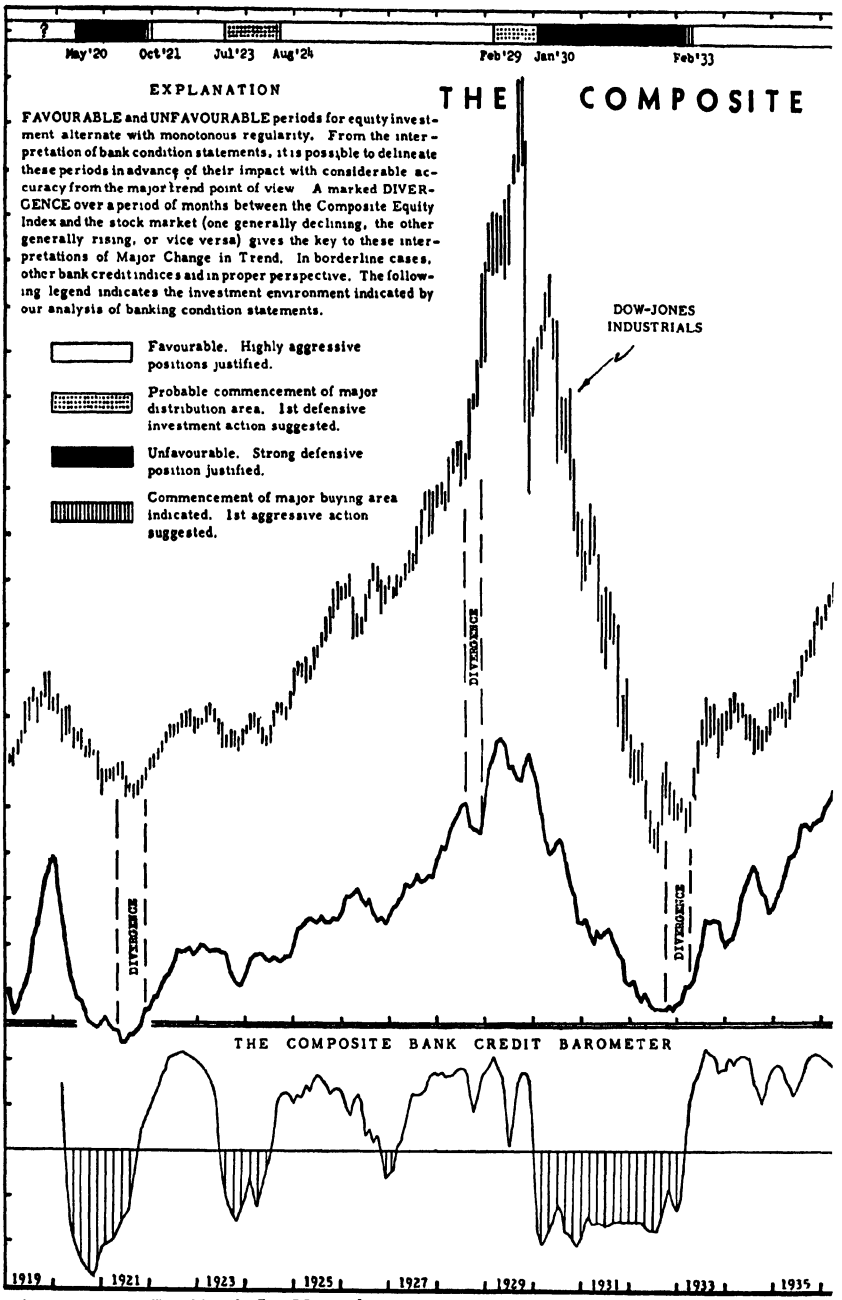




Source: The Harding Index.

FIGURE

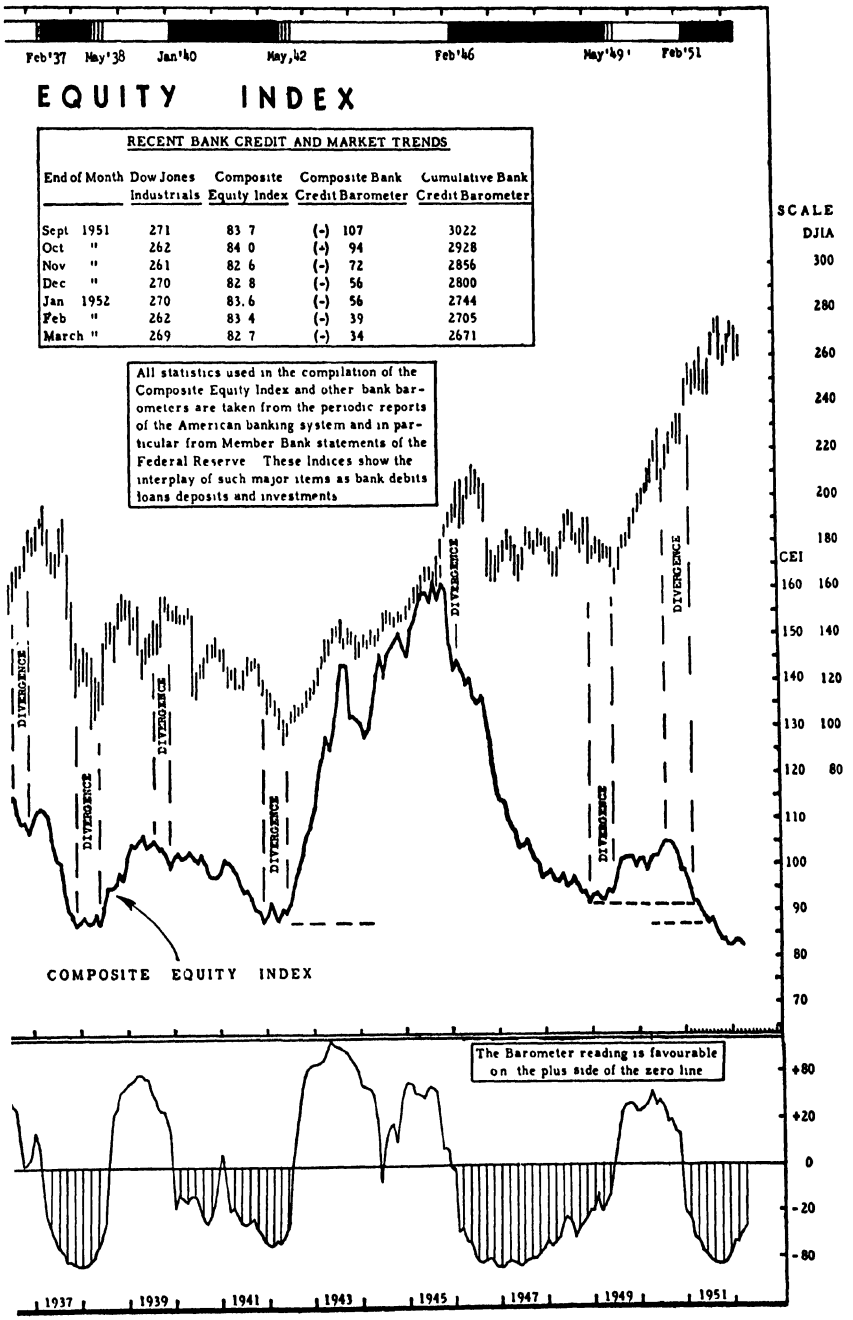
Composite Equity



Source: Bolton, Tremblay & Co., Montreal.

13

Index, 1919-1952



On that day, the Dow-Jones Industrial Averages declined 52 cents. Substantially more money was involved, however, in buying than in selling securities. Buying power was greater than selling pressure. Buying areas and selling areas can thus be identified. The buying power may build up early in a price rise, thereby indicating the development of a strong trend. Or, it is contended, the action of price times volume may reveal a price tendency before an important change in price takes place. A market, for example, may neither advance nor decline. The market is said to be moving sidewise. It is a dull market, there is no action, and prices do not change perceptibly. With no significant fluctuation in price, the stocks showing price gains may begin to score more points than those showing price losses. Thus, a rising price trend in its early stages may be discerned.

Two investment services are typical of this approach to the problem of buying and selling stocks. One is Buying Power vs. Selling Pressure published by Lowry's Reports, Inc., and the other is Market Trend Analysis by American Investors Service. Both adopt the arithmetical mechanism already explained, and both depict the buying and selling trends on charts. The charts of both services trace also the trend of the Dow-Jones Industrial Average. There are a number of other mechanisms included in the charts designed to aid in the identification of the trends. These details are different in these two (and also in other similar) services. They introduce no new major ideas and need not be examined.

Figure 14 presents the *daily* Buying Power and Selling Pressure graph of the Lowry organization for the year 1951. Buying power in this period measured more points on the scale for longer term indices (on right-hand section of chart) than the selling pressure, and therefore the price trend was still upward. One rule calls for the sale of stocks "when, after an important uptrend has occurred, the Selling Pressure Index increases to a position *above* [italics in quoted material] the Buying Power Index," though there are other rules as well.

Figure 15 presents the *weekly* buying and selling graph of the American Investors Service from January, 1949, to March, 1952. Neither service asserts infallibility, both admitting that they are not perfect forecasters. In the words of the Lowry service: "We recognize this work is by no means a perfect answer to market operations. There is no perfect answer. However, based on past experience, sound probabilities can be had by means of a factual study of this kind for the determination of profitable buying and selling zones." Like the Dow theory, these services do not profess to forecast the length nor the amplitude of a price trend. A trend, once established,

continues until the volume-price evidence indicates that it has changed in a contrary direction.

TRADING VOLUME AND FORECASTING. The connection between the volume of stock market trading and the direction of market prices is used by another investment service as a major tool in market forecasting. The Investograph Service eliminates the concept of primary and secondary trends, which is so distinctive a mark of the Dow theory. It gives major emphasis to the price movement, which is in line with volume. A price movement, either up or down, is of good quality and will continue in that direction only if it is accompanied by an increase in volume. A rise in prices upon light volume will not be maintained and a drop in prices upon light volume will also not be maintained. It is the increase in volume that sustains both the rise and the decline in price. In a rising market, "deterioration in confidence, as evidenced by falling volume against a continued price advance, is a warning that the price trend is likely to turn down soon;" and "if trading contracts as prices ease, it means that confidence is positive."

To carry this theory into practice, the service has devised a moving volume curve based on the New York Stock Exchange trading. This is so constructed "that in each succeeding week it traces the volume of trading for the six most recent weeks. . . ." It is contended that this moving volume curve will reach its peak sometime ahead of the stock market. A signal that the major trend of stock prices has changed from advancing to declining, or the reverse, is afforded by a price-volume pattern relationship, which must continue for four weeks. If, that is to say, *after a major price rise,* the six weeks' moving volume curve declines for four weeks while prices continue to rise, a selling signal is given. If, on the contrary, *after a major price decline,* the curve declines for four weeks while prices continue to recede, a buying signal is flashed. There are, however, some qualifications to this rule.

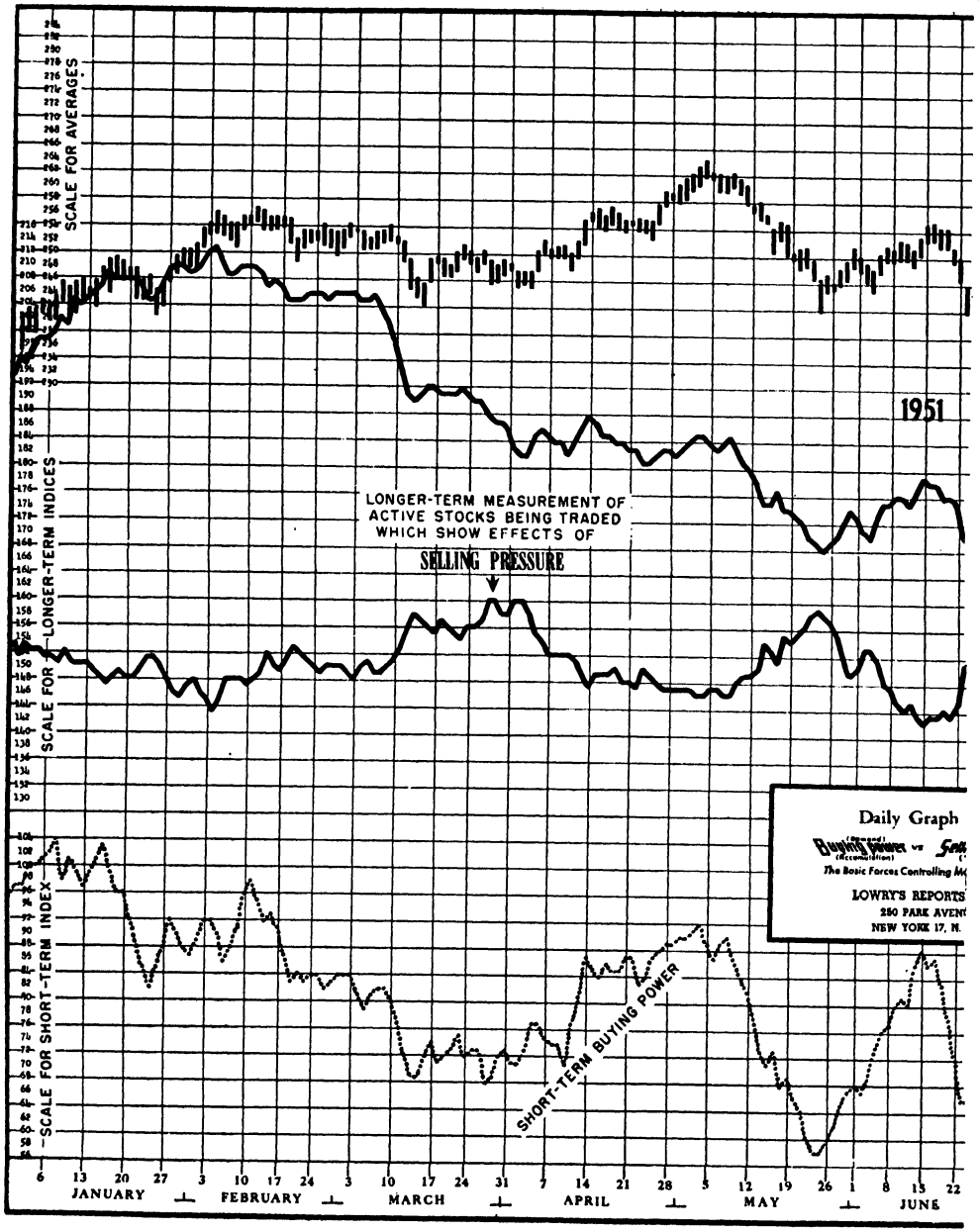
This mechanism is supported by an investment activity index. This index is a ratio of transactions in a group of investment stocks to the total trading on the Stock Exchange. There is a long-term trend index and a short-term trend index. These indexes reflect the quality of selling or buying of the high-quality investment stocks. Through the use of the moving volume curve and the investment activity index, the investor, it is reasoned, can recognize strength or weakness in the market. Both strength and weakness become visible by deterioration in volume before prices move in a contrary direction.

This price-volume service was first introduced in 1947. Experience has, therefore, been limited, but the publishers conclude, on the

FIGURE

Daily Graph of Buying

LOWRY'S REPORTS, INC.,



Courtesy, Lowry's Reports, Inc.

14

Power vs. Selling Pressure

JAN. 1-DEC. 29, 1951

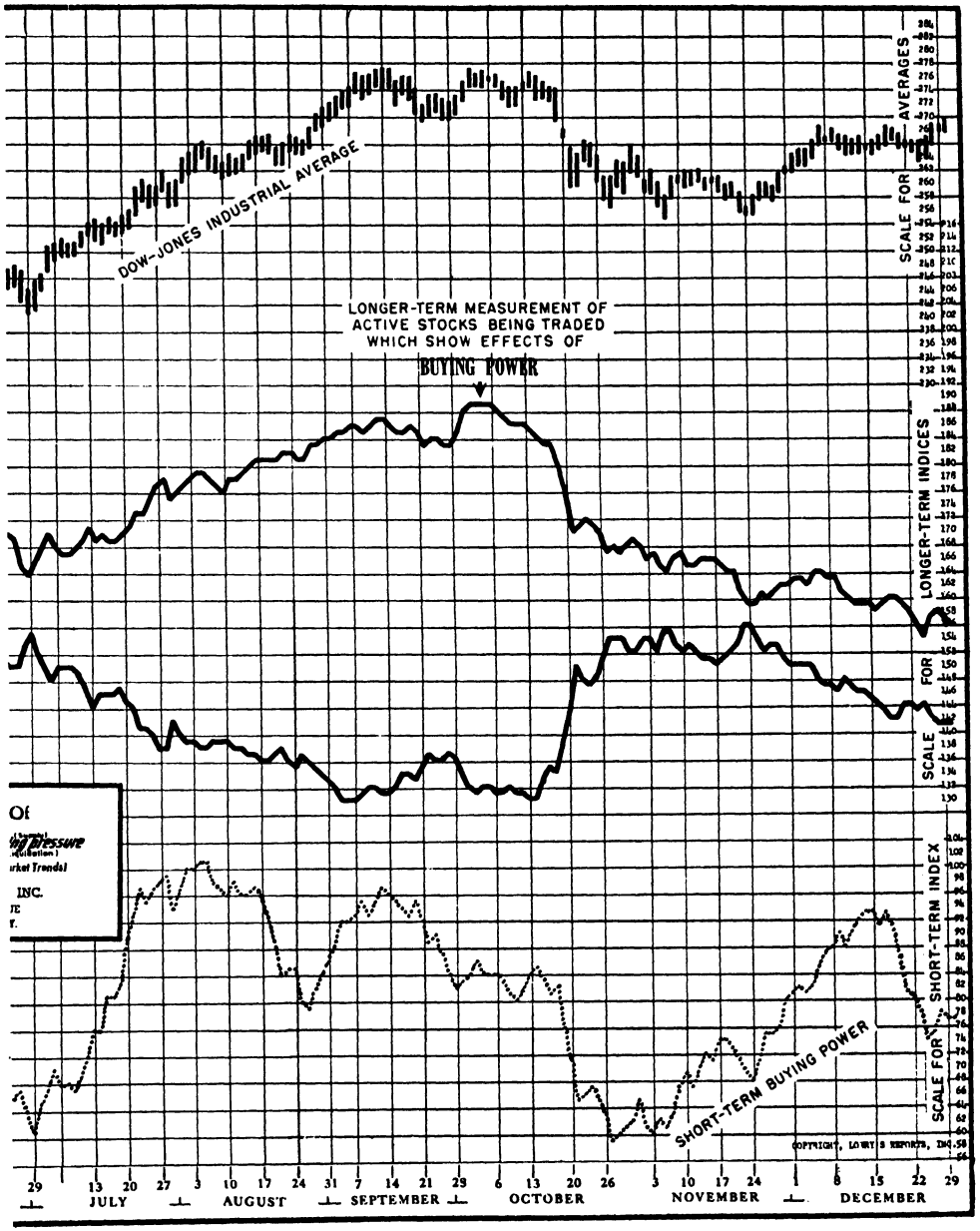
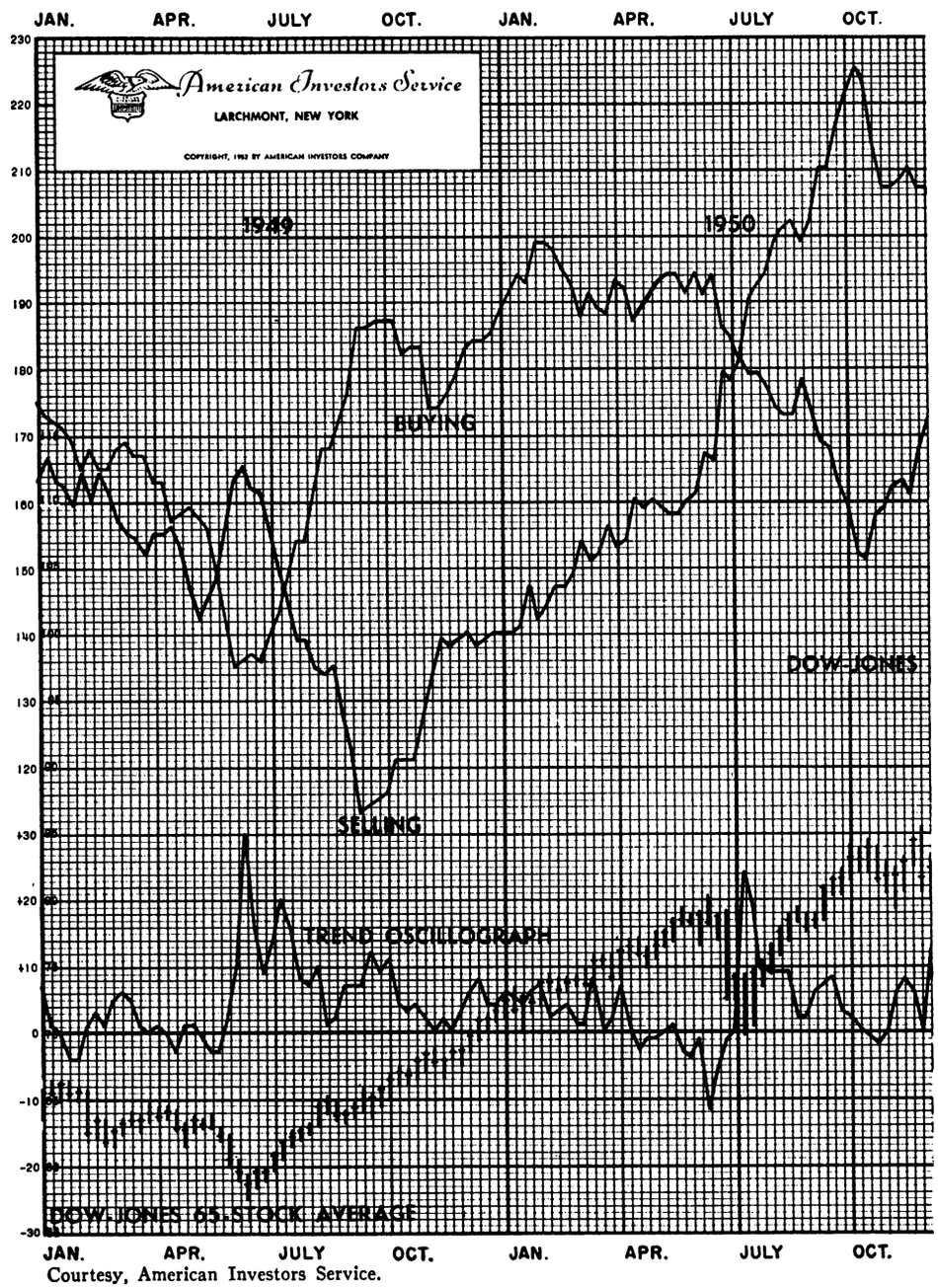
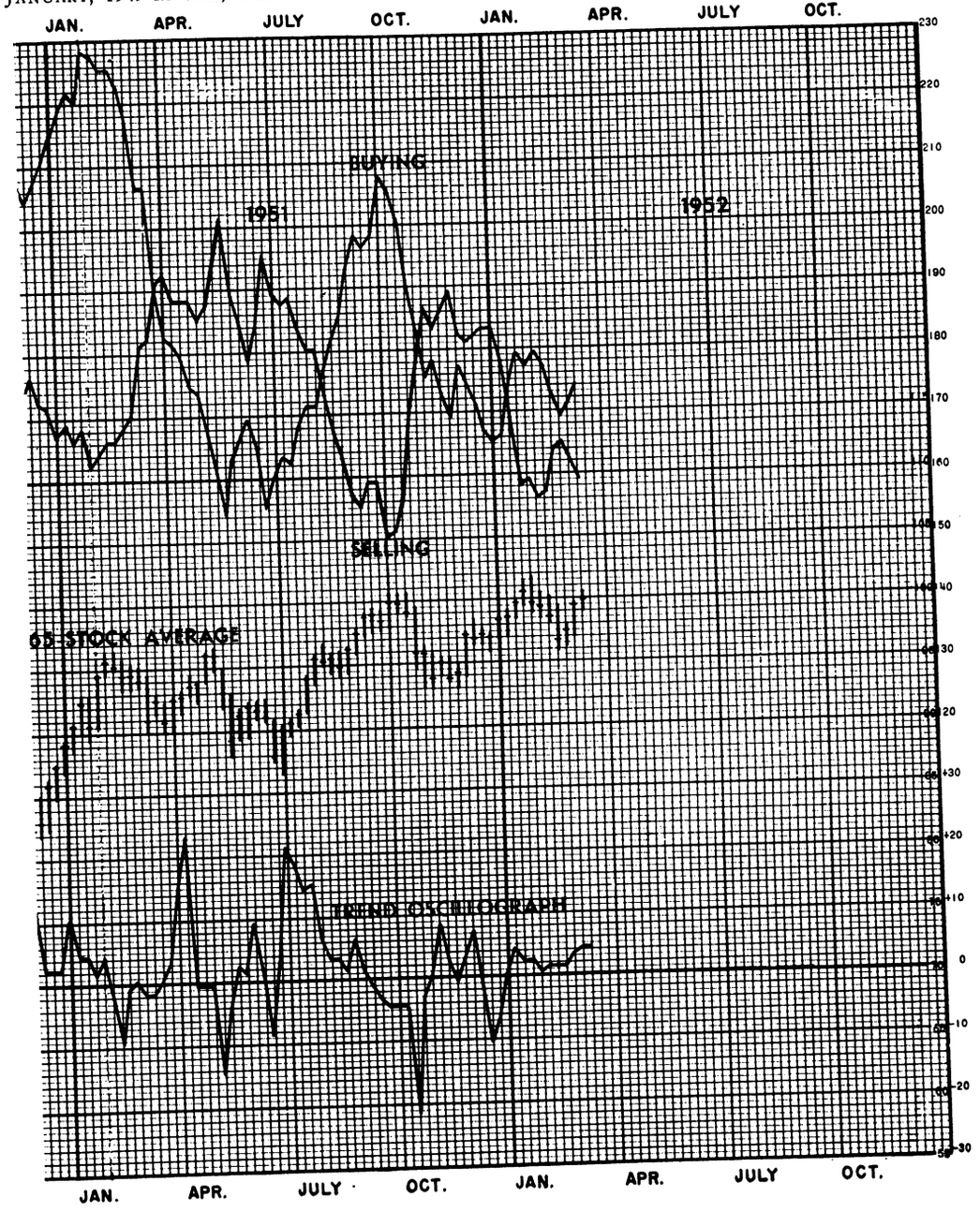


FIGURE 15

Buying and Selling Graph

AMERICAN INVESTORS SERVICE, JANUARY, 1949-MARCH, 1952





Courtesy, American Investors Service.

basis of research back to 1897, that, through its use, the investor would have been able with only rare exceptions to sell stocks at high prices and to purchase them at lower prices.

Figure 16 shows a chart of the Investograph Service between January, 1951, and May, 1952. Separate lines trace the prices of the Dow-Jones Industrial Average, the volume of stocks traded on the basis of a six weeks' moving average, and the long- and short-term trends of the activity of investment-grade stocks.

There are still other automatic mechanisms provided by various organizations that need not be described here. Though they are built on different principles, they agree that significant conclusions can be based upon an examination of the internal structure of the market.

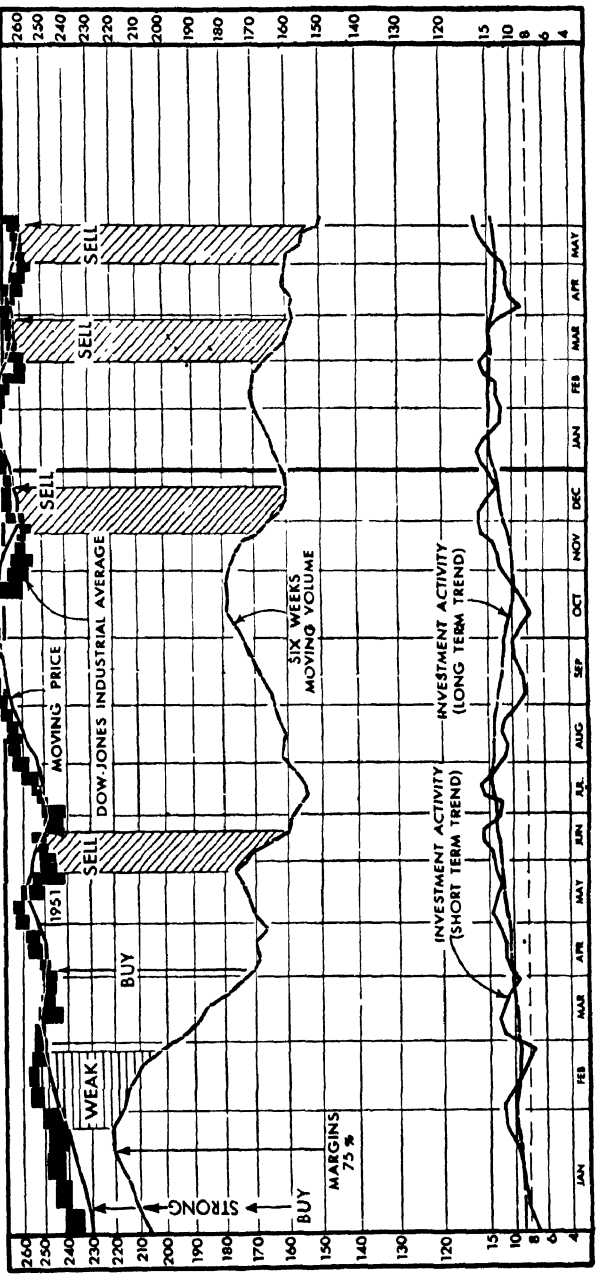
FORECASTING INDIVIDUAL STOCKS. In addition to forecasting the general trend of stock prices, some services set up mechanisms to forecast the prices of individual stocks or to suggest their purchase on the basis of a price trend showing superior strength. A price trend once clearly begun, so it is reasoned, will continue for some time. A number of services perform the functions of both general market and of individual stock price forecasting. It is assumed, usually implicitly, sometimes explicitly, that prices of particular stocks cannot in the vast majority of cases move in a direction contrary to the primary price trend.

In a rising market, however, the prices of some stocks advance more rapidly than others, or more than those representative stocks included in the averages—Dow-Jones, Moody's, Poor-Standard Statistics, or some other index. Both Lowry's Reports and American Investors Service, compute and chart relative strength measurements for industries and for stocks within those industries. A group of stocks representing an industry and a particular stock of a company within that industry may fluctuate in line with the general market. This group and stock trace a neutral price pattern. Another group or stock is rising more or losing less than the general market. That group or stock, therefore, displays a favorable relative strength measurement trend. The identification of a stock with a favorable trend does not involve a forecast of a price movement. The stock is held only as long as the trend continues. Of course, the purchase of a stock with a favorable relative measurement in a generally declining market will not avoid a loss. It will only reduce the loss in relation to a greater one arising from a commitment in a stock with an unfavorable measurement.

INDIVIDUAL STOCKS—VALUE LINE. Another investment service, the Value Line Rating, assigns primary importance to the de-

FIGURE 16

Stock Market Prices and Trading Volume
Jan., 1951-May, 1952
from
Weekly Investment Letter
INVESTOGRAPH SERVICE, PUBLISHED BY INVESTOGRAPHS



termination of the value of each of 527 supervised stocks. The service relates the value of each stock to the general stock market trend. Through a series of weekly, semimonthly, and annual reports, a formula is developed to express the present value of each of these stocks. By a multiple correlation process, the mechanics of which are changed from time to time, the earnings, dividends, and market price of each stock are considered in computing a normal value for each stock. Each stock has an individual price-earnings ratio, and it is thus valued on the basis of a ratio between market prices and earnings in light of the general trend in interest rates.

This normal value, or Value Line Rating, is designed to indicate, on the basis of existing and future trends of interest rates, the price at which each stock should normally sell. If this normal value is higher than its current price, then the stock should be purchased; if the normal value is lower than the current price then the stock should be sold. The normal price is also projected into the future on the basis of a multiple correlation process. Also, each year, as new corporation figures are published, the value line for each stock is changed accordingly. An example of a Value Line Rating for General Foods is shown in Figure 17.

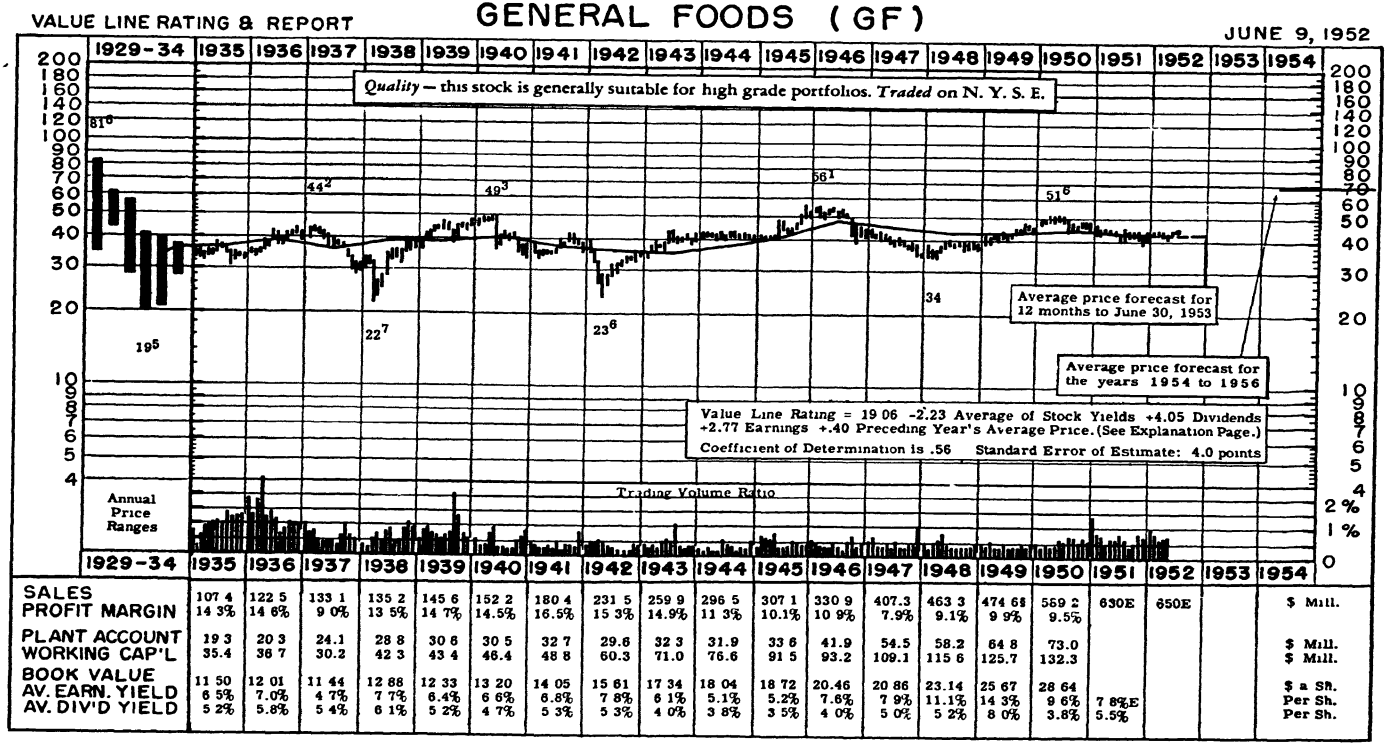
The investor is also furnished with figures computed from each company's published income statements and balance sheets, and to this extent, the report is factual in character. On the basis of the Value Line Rating for the stocks included in the Dow-Jones industrial, railroad, and utility averages, determinations are made of the probable movement of the stock prices included in these averages. A marked discrepancy between the "normal" values based upon the value line formulas and the actual Dow-Jones averages prices in 1946 and 1947 tended to indicate a future increase in the prices of the Dow-Jones stocks. In this way, the discrepancy between existing prices and "normal" values would either be reduced or eliminated.

The determination of normal values for individual securities is the basis for a popular investment approach. The calculation of normal values for individual stocks is frequently helpful. There is, however, no invariable relationship between fluctuations in such values and fluctuations in stock market prices.

INDIVIDUAL STOCKS—RAY SIGNALS. An interesting attempt to relate values and prices of groups of stocks by industries and of individual stocks within those industries is made by Ray Signals. This investment service professes to forecast the prices neither of the stock market as a whole, nor of individual stocks. The investor determines

FIGURE 17

Value Line Rating and Report



	1929-34	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	
SALES		107 4	122 5	133 1	135 2	145 6	152 2	180 4	231 5	259 9	296 5	307 1	330 9	407.3	463 3	474 6$	559 2	630E	650E			$ Mill.
PROFIT MARGIN		14 3%	14 6%	9 0%	13 5%	14 7%	14.5%	16.5%	15 3%	14.9%	11 3%	10.1%	10 9%	7.9%	9.1%	9 9%	9.5%					
PLANT ACCOUNT		19 3	20 3	24.1	28 8	30 6	30 5	32 7	29.6	32 3	31.9	33 6	41.9	54.5	58.2	64 8	73.0					$ Mill.
WORKING CAP'L		35.4	36 7	30.2	42 3	43 4	46.4	48 8	60.3	71.0	76.6	91 5	93.2	109.1	115 6	125.7	132.3					$ Mill.
BOOK VALUE		11 50	12 01	11 44	12 88	12 33	13 20	14 05	15 61	17 34	18 04	18 72	20.46	20 86	23.14	25 67	28 64					$ a Sh.
AV. EARN. YIELD		6 5%	7.0%	4 7%	7 7%	6.4%	6 6%	6.8%	7 8%	6 1%	5.1%	5.2%	7.6%	7 9%	11.1%	14 3%	9 6%	7 8%E				Per Sh.
AV. DIV'D YIELD		5 2%	5.8%	5 4%	6 1%	5 2%	4 7%	5 3%	5 3%	4 0%	3 8%	3 5%	4 0%	5 0%	5 2%	8 0%	3.8%	5.5%				Per Sh.

Source: The Value Line, Investment Survey, Ratings and Reports, June 1952, Part I, June 9, 1952.

for himself whether the market is rising or falling, and upon that judgment he determines what proportion of his funds should be held in common stocks. The Ray Signals offer investors buying and selling signals on a limited number of stocks. These issues are selected from a small group of above-average industries. By a comparison with the price movement of the Standard-Poor's 416 stocks index, price ratios are computed for each industrial group. A price index, say, for cigarette stocks is divided by the 416 stock index. A current group ratio and a ten-month group ratio is prepared, thus facilitating the study of the relative attractiveness of these groups. Similar price ratios for individual stocks show their relation to the market and to the group of which it is a part. The service does not predict any price movement; it only determines which stocks will do better or worse than the general market. It is further recognized that perfection is unattainable, and that, therefore, it is best that investors, in order to get best results, should use not one, but a number, of groups and stocks.

Study of group and stock price movements discloses recurring price patterns. Most frequent is a trend channel: the ratios when plotted "take the form of a trend of relative performance confined between two parallel trend lines." When the ratios move out of the channel in directions opposite to the trends, the trend is reversed. It is assumed that a trend once reversed, will continue for some time in the opposite direction, but that, eventually, this trend will again be reversed. Signals afford the investor the opportunity to buy and sell in response to indicated changes in trend. It is asserted that the signals will enable the investor to buy and sell in the early or middle stages of the trends. In this way, the investor realizes capital gains and avoids capital losses. There are still other price patterns and signals for buying and selling, based upon these patterns.[2]

Figure 18 is a chart of General Motors from 1945 to 1951. Observe the reversal in trend in 1945 from advancing to declining, in 1946 in the reverse direction, and in 1951 again from advancing to declining.

Rating Agencies.—There are still other investment services, highly useful for many purposes. These are the rating agencies. Three firms, Moody's Investors Service, Standard & Poor's Corporation, and the Fitch Publishing Company, have devised systems of lettered symbols to measure the relative investment quality of bonds.

[2] A discussion of this service is found in an article by H. C. Ray in *Trusts and Estates*, April, 1948, p. 299 ff. The quotation is from this article, p. 301.

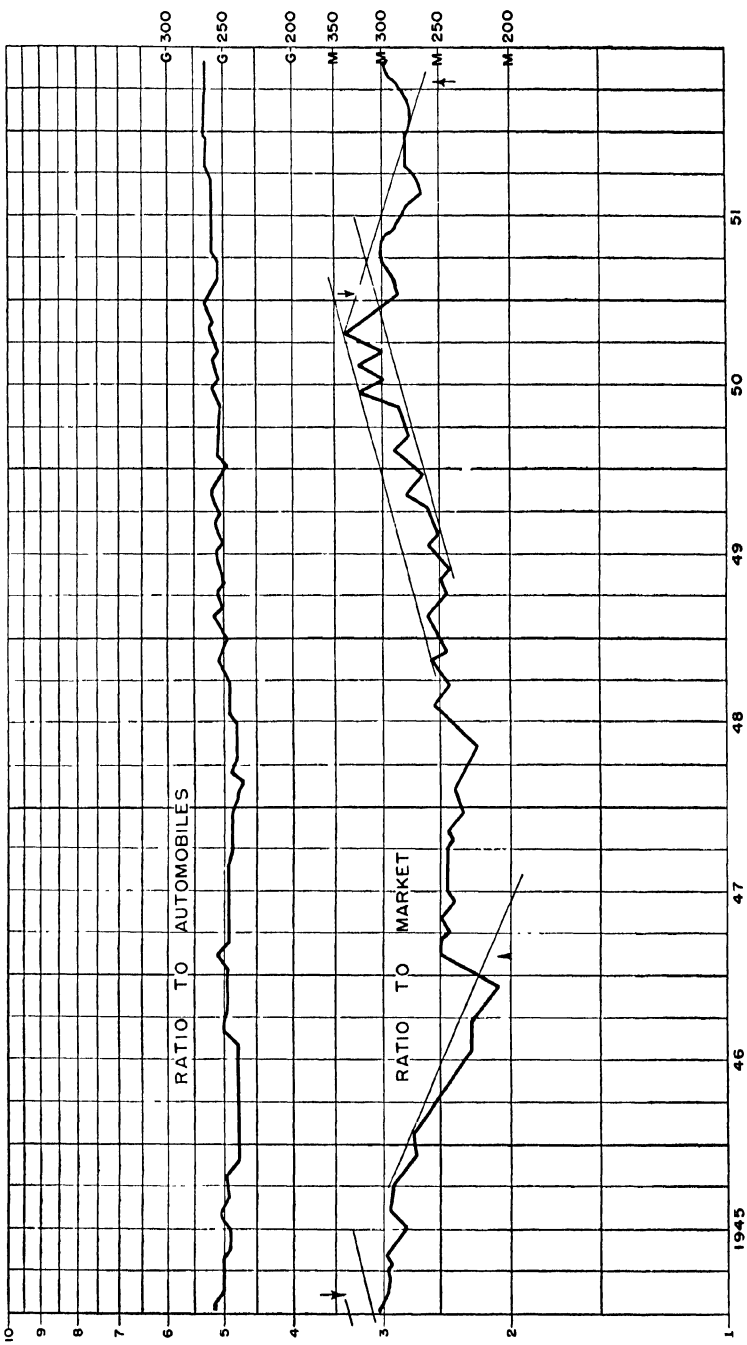


FIGURE 18
Ray Signals
GENERAL MOTORS, 1945-1951

(Fitch also rates *stocks,* though relatively slight importance is accorded in investment circles to such ratings.) Moody's Bond Ratings, in the order of quality, are listed as Aaa, Aa, A, Baa, Ba, B, Caa, Ca and C. Standard & Poor's ratings have somewhat different symbols, the highest is A-1, and the lowest is C. The highest-rated bonds are presumed to carry the smallest degree of investment risk, and the lowest rated, are the most speculative. Generally speaking, subject to those tantalizing exceptions that make iron-clad generalizations so difficult in investment matters, the higher-rated bonds sell at higher prices and realize lower yields than the lower-rated bonds. Frequently, technical features interfere with the relationship between lower yields and higher bond ratings. A callable provision, for example, might maintain the price of a highly-rated (5 per cent) bond in a 3 per cent money market close to the call, say of 102, thus affording an exceptionally high yield. Both Moody's and Standard & Poor's Services assign no weight to the marketability of the bond, while the Fitch Service does give some weight to this factor, though the exact proportion is not published.

The ratings represent an effort to express an informed and experienced judgment on the investment quality of a bond. The rating is not the result of a formula, universally or even generally, applied. Factors that have been discussed in previous chapters, together with others, are examined. One of the services suggests "that there are a few ratios that are outstanding. . . . but these must be weighted by a host of correlated factors before they can be properly appraised." [3] Ratings represent the personal judgment of the rating organizations. There is general agreement among the services on the high and the poor quality of some bonds, and there are differences of opinion about the rating of others.

It is important to recognize that there are gradations of risk greater than those reflected in the symbol ratings of the services. There may, for example, be more differences in quality between the three classes of Moody's A bonds than suggested by the three ratings. There may be in each one of the A ratings some bonds of variable risks. Careful investment judgment may reflect these risks in terms of differences in yield. It is, therefore, possible that, because of differences in investment quality, aside from such other factors as marketability, bonds with the same rating may produce differences in yields. This is not a criticism of the rating services. These services do not presume to classify accurately every individual risk and to assign a different rating to reflect every such risk. A careful

[3] Letter from L. Brand, Standard and Poor's Corp., to author.

rating, to quote one of the services, "is not a precise quantitative measurement of its risks." [4]

Bond ratings were given a powerful boost in the investment world when the Comptroller of the Currency, in 1938, prescribed regulations to guide member banks in the purchase of bonds. Bonds were divided into various classes reflecting investment quality or its absence, and banks were prohibited from buying bonds with speculative characteristics. When there was doubt about the investment quality of a bond, both banks and regulatory authorities tended to use its rating to determine whether it should be held by a bank or some other financial institution. The presumptive recognition of the usefulness of the rating services led to a spate of generally critical literature. A well-balanced judgment of the value of the rating services requires the consideration of these criticisms.

The Comptroller of the Currency issued his statement shortly after some highly-rated bonds defaulted in the early and middle 1930's. There is no need to present any of the detailed statistics. A number of Aaa bonds, acceptable for conservative investment, passed their interest, while many poorly rated bonds did not default. Before the services were able to reduce the ratings to reveal the increased risks, extraordinary differences appeared in yields on bonds included within a given rating. In many cases, banks and other investment institutions bought highly rated bonds at high prices shortly before they passed their interest.

The experience of the rating services in the 1930's tends to confirm the soundness of the theory of expanding and declining industries. Almost all of the high-grade, highly rated bonds that produced trouble for the investors were issued by the railroads. A majority of the lower-quality and the lower-rated bonds were issued by companies within the expanding power and light industry. The railroad earnings were going down from a recent high level, and power and light earnings were advancing from a low level. The radical transformation in the investment status of railroad bonds could be comprehended only in terms of the secular decline in the railroad industry as a whole. It is a valid criticism of the rating services that they failed to give adequate consideration to the economics of an entire industry, as distinguished from the ratios of individual companies based upon past experience. For conservative investment purposes, it cannot be assumed that the securities of any one company should be expected to rise above the economics of the industry of which the company is a part.

[4] Moody's Stock Survey, January 3, 1944.

Another criticism frequently made is the way in which the services change their ratings to reflect changes in the investment quality of the bonds. They make changes as new data on income statements and balance sheets suggest strength or weakness. Those investors who follow ratings exclusively, or almost so, as a basis for investment judgment, are inclined to criticize the failure to improve a rating as a bond rises in price and the failure to down-grade the rating as a bond declines in price.

This, in turn, leads to consideration of yet another criticism. It is suggested that the prices of bonds rise after the rating is improved, causing rating-minded investors to buy bonds at high prices. Similarly, after the rating agencies downgrade a bond, prices decline. The investor thus is led to sell his bonds at lower prices. The truth is difficult to locate. It is, of course, true that word may get around that a bond rating will be changed and that dealers, brokers, salesmen, and partners may trade against the anticipated change in rating. No exhaustive study has been made of this problem. It is probably true that, in most cases, changes in bond ratings, particularly among the higher-rated bonds, record quality changes already reflected in market prices. The yield variations among the higher-rated bonds, especially in state and municipals, are relatively slight and the changes in yields because of rating changes are normally of no substantial concern to the investor.

One other point must also be considered. The effect of a change in rating cannot be measured under static market conditions. In a strong or in a weak bond market, the effects of bond rating changes may be entirely different. The effect may also vary in the background of improving or declining earnings of a given company. Special investor preferences may operate as a favorable factor or as a deterrent in a given market. Preference for serial over sinking fund bonds, for bonds close to a callable price, or for bonds more or less marketable are some of the factors that may exert a pull on bond prices substantially more powerful than that generated by a change in the bond rating.

The rating services, like other services, offer no unfailing guide to investment safety. From time to time, they recommend the purchase of certain bonds; sometimes the recommendation is justified by market experience and, again, it is not. The ratings *do* present the judgment of informed experience. Small investors and small banks and institutions do well in buying bonds in the light of recommendations made by the rating agencies. The larger and more sophisticated investors and investment institutions have their own

investment organizations, and they probably pay less attention to ratings. Even in this case, however, the assignment of bond ratings based upon their investment quality performs a useful service. They are not perfect. It is expected that rating services will make mistakes, especially in periods of transition of the economics of an industry and also in a change of the national economy from prosperity to depression.

Investment Counselors.—Investors who are unable or unwilling to carry responsibilities for the investment of their funds can engage professional help. For a fee averaging about ½ to 1 per cent of the principal (though on accounts larger than $1 million the fees are usually lower), an investment counselor provides such professional service. Such a person, unlike a broker or investment banker, handles neither the securities nor the cash of the investor. The counselor presumably has wide experience, comprehensive knowledge, and sound judgment. He is not, however, a speculative counselor, and he cannot, therefore, and should not promise capital gains to investor-clients. If he preserves the principal and secures an income considerably in excess (say, 25 to 50 per cent), of that realized on the highest-grade investments, long-term United States Government bonds, he has earned his fee. In a period of inflation he may be expected also to increase the market value of the principal in proportion to the depreciation of the dollar. There are different opinions on this point. It is questionable, however, whether the counselor should expect the investor to assume risks in search of capital appreciation.

The counselor ascertains the objective of the investor. The purpose may be a stable return with the highest emphasis on safety of principal, a maximum of liquidity, or a substantial return (to be achieved only through a high percentage of common stock holdings), or the realization of capital gains with the attendant risks involved. Within the pattern set by the objective, the counselor makes suggestions for the purchase and sale of securities. He may supply information on national and world trends; he may comment on individual securities, or on the movement of interest rates. His primary task, however, is to recommend the purchase and sale of securities for the individual portfolio of the investor, for this service, unlike other services, is entirely personal. The counselor has a record of the investor's portfolio, and he assumes the responsibility of changing the portfolio of each investor, individually.

The counselor, under the Investment Adviser's Act of 1940, must file some data with the S.E.C. He is denied, under this law, the

opportunity to make contracts with his clients upon the basis of a share of profits. The law, furthermore, contains provisions designed to lead to fair dealing between the counselor and his client and to avoid any conflict of interest that might tend to prejudice the judgment of the counselor.

Summary Note.—The services sketched in this chapter typify lines of thinking; representative samples were presented. There are many more offered, particularly in the factual group. Facts are relatively easy to secure, and they are, indeed, as numerous as the sands in the ocean. Experts, so called, are ready to swamp the investor with billions of facts. The facts must be fashioned into the truth, and truth itself is an elusive factor that can be identified only with the greatest difficulty—frequently not at all. This task of interpreting facts into meaningful trends is undertaken by the interpretative and forecasting services. There are many of the former, but not so many of the latter.

QUESTIONS AND PROBLEMS

1. The banking and credit type of forecasting services are based upon a comparison of borrowing from banks and spending. How is the volume of spending measured? Why should there be any relationship between the bank loan-spending relationship, on the one hand, and the movements of the stock market prices, on the other?
2. Explain the line of thinking based on the idea that a trend in stock market prices is reliable only if accompanied by increased volume.
3. Bond X of a company in a particular industry rated by an investment service as AA yields 3¼ per cent and another bond of a company, also rated AA, yields 3⅝ per cent. How is it possible for an investor to get a higher yield on a bond with the same rating? Examine the factors that might be responsible for such a substantial difference in yield between two bonds carrying the same investment rating.
4. Indicate the merits and the limitations of any three investment services.

READINGS

DREW, GARFIELD A. *New Methods for Profit in the Stock Market.* Boston: The Metcalf Press, 1948, Section III.

HAROLD, GILBERT. *Bond Ratings as an Investment Guide.* New York: The Ronald Press Co., 1938.

PLUM, LESTER V., and HUMPHREY, JOSEPH H. *Investment Analysis and Management.* Chicago: Richard D. Irwin, Inc., 1951, chap. viii.

The best descriptions of the services are found in their own literature. The student can secure descriptive material by writing direct to the publishers. The names and addresses of the services discussed in this chapter follow:

1. Fitch Publishing Company, New York.
2. Standard and Poor's Corporation, New York.
3. Moody's Investors Service, New York.
4. Studley, Shupert & Co., Boston.
5. Dow-Jones & Co., New York.
6. Institutional Utility Service, Inc., New York.
7. Security Research Bureau, Philadelphia.
8. Duff and Phelps, Chicago.
9. Kerr & Co., Los Angeles.
10. Argus Research Co, New York.
11. Lionel D. Edie & Co., New York.
12. Townsend, Skinner & Co., New York.
13. Value Line, c/o Arnold Bernhard & Co., New York.
14. Investographs, Rochester, New York.

The letters of the Harvard Economic Service from 1922 to 1931 are available in many libraries.

Chapter 25

TAXATION AND THE INVESTOR

The investor in formulating his portfolio gives careful consideration to taxation problems, which are ever growing more important. In some cases, in fact, the taxation problem controls in the making of an investment decision. The investor can increase his yields frequently through the wise application of the provisions of tax laws.

No comprehensive examination of tax problems can be presented in a general treatise on investment, there being volumes that deal elaborately with the manifold problems of taxation. It is often essential for an investor to consult those who are expert and skilled in these matters. There are, however, some general facets of the subject of importance to the investor that can be examined with profit.

Personal Property Taxes

States and their political subdivisions impose many taxes paid by all citizens, including investors. Real estate, real estate transfers, cigarettes, gasoline, soft drinks, among many other items, are subject to city, county, village, and state taxes. There are, however, some taxes that are imposed primarily on securities. The laws differ in each state and, frequently, in different communities in a given state. The personal property tax levied on judgments, mortgages, notes, bonds, and stocks is the most important of such taxes. In some of the wealthier states (Connecticut, Maryland, Massachusetts and Pennsylvania, for example), personal property is taxed.

An examination of the tax in Pennsylvania will illustrate some of the problems with which the investor must contend. There, the counties levy a tax of 4 mills on personal property; the tax base is determined by year-end market values. The state also authorizes other political subdivisions to levy an additional tax, and in 1950, an additional 4 mills tax was imposed by the city and school districts of Philadelphia and Allegheny counties.

This tax is of great moment to an investor, and its effect on bonds will be first examined. Suppose an investor, in 1950, holds a $1,000

face value 2¾ per cent bond of the Standard Oil Company of New Jersey, due in 1974. In September, 1950, it sold at 102. Assume that, at the year's end, it sells at the same price. An investor, resident in Philadelphia or Pittsburgh, thus pays the tax of 8 mills on $1,020, or $8.16. His annual interest income from his bond is $27.50. The investor thus, in effect, pays an income tax of approximately 30 per cent. Or, to put it in another way, the investor receives an interest return of $19.34 after the deduction of personal property taxes. This amount represents a return of 1.9 per cent on the investment of $1,020. Since the personal property tax does not apply to Government bonds, this return is less than the 2.45 per cent that, in September, 1950, could have been realized on a United States Government bond due in 1972. Federal income taxes would be paid on the interest received by the investor from both bonds.

Some corporations pay or refund all or part of the personal property taxes, that is, there are "tax free" and "tax refund" provisions in bond contracts. In the former, the company pays the tax from its own funds directly to the tax-levying authority. The bondholder receives his interest in full. In a "tax refund" covenant, the bondholder pays the tax; the company, upon application by the bondholder, then refunds all or a stated portion of the tax paid. The Pennsylvania Railroad, for example, agrees in its general mortgage to pay all the personal property taxes assessed by the state or any of its subdivisions. The Pittsburgh and West Virginia Railroad in its first mortgage contract agrees to pay only 4 mills of this tax. The Philadelphia Transportation Corporation on two of its bonds agrees to pay 5 mills, while the Louisville Gas & Electric Company, to introduce another variation, agrees in one of its bond contracts, upon application by the bondholder, to *refund* 5 mills of the taxes paid. The number of corporate borrowers that assume this responsibility is rapidly declining. These arrangements were made years ago at a time when taxes were lower. In more recent years, in the process of refunding old obligations to take advantage of lower money rates, most of these special provisions were dropped.

Even holders of tax-exempt state and municipal bonds must grapple with personal property tax problems. Pennsylvania, for example, does not impose the tax upon municipal and revenue bonds of civil units in the State of Pennsylvania. The tax is, however, levied upon obligations of other states or their municipalities. Wealthy investors in Pennsylvania, accordingly, are not good customers for the municipal bonds of other states. A yield differential of $\frac{7}{10}$ths of 1 per cent between municipal bonds of a community in the State of New York as against a municipality in Pennsylvania would not be

attractive to investors in Philadelphia and Pittsburgh. On the other hand, such investors would be ready customers for a municipal bond of some community of the State of Pennsylvania, even though the yield were 6/10ths or 7/10ths of 1 per cent lower than a comparable bond of some community in another state.

Corporate stocks under the Pennsylvania law receive better treatment than corporate bonds. The stock of a non-Pennsylvania company that pays a franchise tax to the state, or of a Pennsylvania company that pays a capital stock tax, is exempt from the payment of personal property taxes by the stockholder. A long list of companies, embracing not only those incorporated in Pennsylvania, but many others as well, are included in this favorite category. Stock buying investors in Pennsylvania pay careful attention to the exemption status of a particular security. An investor may do better by buying a stock with a lower return than another stock of equally good investment quality, if the former is exempt from the Pennsylvania personal property tax, while the latter is not so exempt.

There are also a limited number of companies that refund Pennsylvania personal property taxes paid on their preferred stocks.

In one respect, this tax is inequitable. It is entirely unrelated to income on a stock. Particularly to a small investor, it is not related to any ability to pay, but is levied upon market value. A stock that pays no dividend pays the same tax as a stock that pays a dividend, providing both sell at the same market price. There are stocks, both common and preferred, that for years pay no dividends and sell at market prices that oblige the investor to pay relatively high personal property taxes. In the 1930's and in the first half of the 1940's, for example, many millions of dollars of preferred stocks of public utility holding companies paid no dividends. They were bought as investments at high prices. For many years, the investors received no income on these securities, and they had unrealized losses on their investments. Had they sold their stocks to raise cash, they would have taken substantial capital losses. They were obliged, nevertheless, to pay personal property taxes annually.

Federal Corporate Income Taxes

Important to the investor, also, is the federal income tax. The investor must consider this tax from two points of view. He must familiarize himself with the taxes paid by the corporations and also with the taxes paid by himself on the investment income received from the corporation. The taxes paid by the corporation affect, in varying degrees, the payments it makes to holders of its securities.

Federal income taxes discriminate in favor of some classes of securityholders against others. The income that is paid out to stockholders, with some minor exceptions, is subject to federal income taxes. Corporate profits upon which income taxes are levied are those realized after the payment of all operating expenses, including reasonable depreciation, and interest on bonds, but, with certain exceptions, without a deduction for dividends paid on stock. Rental and royalty payments are normally included in operating expenses.

Until 1950, the corporate income tax was 38 per cent. Since 1950, it has been successively increased to 47 and 52 per cent, though this last 5 per cent increase is scheduled to terminate April 1, 1954. For convenience of discussion, the tax of 30 per cent upon the first $25,000 of profits is ignored. The term "income tax," hereafter, will include both normal tax and surtax, but will exclude excess profits tax. The distinction between the normal tax and surtax is not important for the large companies in which investment funds are placed. On bonds issued prior to 1941, the interest on some United States Government bonds was exempt from the normal tax, but not from the surtax. There are some other minor distinctions.

In World War I and World War II, a corporation tax, in addition to the normal tax and surtax, was levied upon that part of the profits that the law declared to be "excessive," and that were, therefore, subjected to excess profits taxes. The World War II excess profits tax ended in 1945, but in 1950, another excess profits tax was enacted. Profits under that law are "excessive" if they exceed either (1) 83 per cent of the profits realized in three of the best four years between 1946 and 1949, *or* (2) 12 per cent of the first $5 million of invested capital, 10 per cent of the second $5 million, and 8 per cent on amounts over $10 million, with a minimum credit of $25,000. Corporations accepting the first alternative—the "earnings" base—can earn, in addition to the 83 per cent of the base years' earnings, 12 per cent of one-half of the capital added in 1948 and 12 per cent of all of the capital added in 1949. Capital includes 75 per cent of borrowed capital.

The "invested capital" base, for corporations using the second alternative, consists of surplus (i.e., earnings not paid in dividends), capital stock, and 75 per cent of borrowed funds. Since dividends from most corporate stocks and interest from tax-exempt bonds are not subject to excess profits taxes, investments in these securities are deducted from the "invested capital." They are therefore known as inadmissible assets.

A tax of 30 per cent, in addition to the 52 per cent income tax, is levied upon those profits realized in excess of the sums earned

under the earnings base or the invested capital base. A corporation will obviously select that base that gives it the highest credit, and therefore, subjects it to the lowest possible excess profits tax. If the sum of the income tax and excess profits is more than about 70 per cent (i.e., for the larger corporations whose annual profits exceed $25,000, with which the investors are most entirely concerned), then the total tax is limited to that amount. Hence, the ceiling federal tax is about, though not exactly, 70 per cent of net income.

There are numerous features of this highly technical provision of the law that have been omitted in this sketchy discussion. Some of these are of a general character and apply to all corporations subject to excess-profits taxes, and others apply only to some and not to others. In the first category, there is, for example, the definition of excess-profits net income. That term excludes capital gains and all dividend income, again with a few exceptions. In the second category are a number of provisions of controlling importance to affected industries and companies. Companies in publicly regulated industries—electricity, gas, telephone, telegraph, water, street railways, railroads, airlines, pipe lines, for example—receive special treatment. Before they pay excess profits taxes, they are allowed to earn an amount equal to their income tax plus 6 per cent on invested capital (7 per cent for airline, telegraph, and telephone), and for these industries, all of the borrowed funds are included in invested capital. Most of the publicly regulated companies, therefore, pay no excess profits taxes.

The law also makes special provisions for many companies that are likely to be more adversely affected than most concerns. Relief is designed to cover companies that, in the base period:

1. Had their profits reduced by temporary economic circumstances,
2. Or were engaged in depressed industries,
3. Or substantially enlarged their productive capacities,
4. Or experienced unusually rapid growth,
5. Or were then organized.

This is by no means an all-inclusive list. Investors interpret earnings to June 30, 1953 (the termination date of the excess profits tax), in the light of these arbitrary and technical provisions. There are many companies whose normal earnings trends after taxes are substantially altered by these taxes. Price-earnings ratios based upon current earnings might look high, while in reflection of earnings, normally to be expected in the absence of excess profits taxes, the ratios might indeed be reasonable, or even unusually low.

Though the investor cannot and need not understand these laws in all their ramifications, he needs to know of the existence of these problems. He must have some concept of the extent to which a given company might be subject to the excess profits tax. Some investors in the war years made a serious error in liquidating the stocks of well-managed companies in expanding industries, because of a temporary depression in profits due to the incidence of the excess profits tax.

Depreciation.—Corporations are permitted to include as a deduction in computing net taxable income annual sums that, in the aggregate, enable them to recover the original cost of assets at the end of their useful lives. This provision of the law does not square with economic and financial realities. The replacement value of an asset in a period of rising prices is greater than original cost. In such a period, therefore, the corporation must set aside, not an amount necessary to recover the cost, but rather an amount required to finance its replacement value. An investor must know what policy the corporation follows. If the corporation includes in operating expenses, in a period of rising prices, only the sum necessary to recover cost as provided for by the income tax law, the corporation is overestimating profits. The distribution of a large part of "profits" in dividends might well involve the payment of dividends out of capital. In a period of declining commodity prices, the corporation needs less than the cost to finance replacement values.

There is another curious aspect of the income tax structure that is of interest to the investor, namely, that cost must be charged as a depreciation deduction, annually, to operating expenses in roughly equal amounts over the useful life of a property. In poor business years, numerous companies in the capital goods industries have deficits. They have no income against which to charge the year's depreciation. In succeeding years (in the absence of a loss carryover arrangement),[1] they are not allowed to make up the depreciation expenditures for the years in which they had losses. This provision discriminates against companies in capital goods industries whose earnings are cyclically irregular and in favor of those in consumption goods industries whose earnings are more stable. An annual depreciation charge by a company in a capital goods industry increases its deficit for that year. The investor must interpret earnings of capital goods industries with this background in mind. Otherwise, he might be disposed to sell good securities at low prices.

[1] See p. 466.

Depletion.—In natural resource industries such as coal, gas, oil, and many others, a corporation's assets are exhausted in the process of earning a profit for the investor. These assets are irreplacable. Part of the profit is, therefore, a return of capital. For various reasons, different provisions are made for different natural resource industries to enable them to replace their investment through current earnings. Since 1926, crude oil companies have been permitted to charge to operating expenses 27½ per cent of gross revenue or 50 per cent of net income, whichever is smaller. In coal mining, the percentage is 10 per cent; in metal mines, 15 per cent; and in sulphur mines or deposits, 23 per cent. These depletion provisions are frequently important in assessing the value of securities in the natural resource industries. In the oil industry, the crude oil companies and the crude oil divisions of the integrated oil enterprises deduct 27½ per cent of the gross income from the sale of crude, providing, of course, this amount is less than 50 per cent of net.

Since corporate income taxes are increasing, the depletion allowance of 27½ per cent produces a greater percentage of tax-free net income. A crude oil producer, for example, has a profit before taxes and before depletion allowance of $100 million and a gross income of $125 million. The depletion allowance is $34,375,000 (27½ per cent of $125 million). The income subject to taxes is $100 million minus $34,375,000 or $65,625,000. After deduction for taxes at 38 per cent (the rate prior to the increase in the fall of 1950) on $65,625,000 there is a balance of $40,687,500. To this is added the tax-free depletion allowance of $34,375,000. The net income is, therefore, $40,687,500 plus $34,375,000 or $75,062,500. The tax rate, effective for the full year 1952, was increased to 52 per cent. The depletion allowance, however, remained at $34,375,000. The higher tax rate applied only to the income, after depletion allowance, of $65,625,000. The increased tax rate paid by a nonnatural resource company would, however, be paid on the profit before taxes of $100 million.

In a period of rising corporate taxes, accordingly, the stocks of the crude oil companies are, for tax reasons, likely to be more attractive to the investor. The same fact, though to a lesser degree, applies to stocks in the metal and sulphur mining industries, and to the natural gas producing companies. As an example of these savings, note that, in 1950 in the face of the high excess profits taxes, the effective tax rate of the Freeport Sulphur Company approximated 27½ per cent.

There are companies in other mining industries that receive similar benefits. Firms like Virginia Carolina Chemical, and Interna-

tional Minerals and Chemicals are in a tax-favored position. It is possible that a mine or an oil or gas well might have an unusually long life, considerably longer than anticipated. A company, therefore, may recover an amount considerably greater than the cost of the property through depletion charges.

It is also possible that the sums deducted for depletion purposes might not necessarily be used for further drilling or exploration. The depletion allowances may thus increase a corporation's working capital. It is to be noted, however, that there has been much sentiment in Treasury circles that depletion allowances have been too generous. Serious consideration has been given to the idea of reducing the allowance. Such proposals were renewed in 1950 and 1951, but the revenue acts of those years made no reductions. In fact, depletion allowances on some natural resources were increased.

Corporate Tax and the Stockholder.—A corporation pays a tax on its income after deduction not only of operating expenses, but also of its interest charges. Hence, the bondholder is not as vitally concerned with corporate taxes as a stockholder. The law thus encourages corporations to finance their needs by creating debts, for they pay no income taxes on sums paid to the bondholders, while they do pay taxes on sums paid to the stockholders. Both the stockholder and the bondholder pay taxes upon their incomes received from the corporation. The stockholder, in effect, pays taxes to the government twice: first, the corporation pays a tax on the net income available for dividends to the stockholder; and, second, when these taxed profits are distributed, no deduction being allowed for dividends paid, the stockholder pays a tax on such dividends.

This system of double taxation upon the stockholders appears to be peculiar to the tax system of this country. It has been severely criticized, and many suggestions have been made to eliminate the practice. It has been proposed that a credit to the stockholder be given for taxes paid by the corporation or that dividends be treated like interest and deducted from the corporation's income tax base. Indeed, certain classes of public utility companies, in determining taxable net income, are now entitled under some conditions to a deduction for certain dividends paid on their preferred stock.

Averaging Corporate Taxes.—A corporate income tax assessed annually and uniformly on all corporations favors those in consumers goods industries and discriminates against those in capital goods industries. In depression years, the earnings of the former type decline less than those of the latter. It is, furthermore, less likely that consumer goods industries will incur operating losses in depression

years. Such losses are not normally anticipated, but in capital goods industries, on the other hand, they are normal. The excellent earnings of companies in iron and steel, metals, machinery, and automobiles, for example, are replaced by losses in the poor years.

Under a system of annual corporate taxes (with no averaging of annual earnings), it is possible that a corporation in a capital goods industry, over a cycle of good and bad years, might pay a tax on no earnings and conceivably in the face of operating losses. For example, a corporation might have a taxable income of $100,000 in each of two successive prosperous years. Income taxes (aside from excess profits taxes), under 1952 rates, would be $52,000 each year, or $104,000 for the two years. In the third year, the company loses $150,000, and in the fourth, $60,000. It pays no taxes in the third and fourth years. For the four years, the corporation has a net deficit of $114,000. It, nevertheless, has paid taxes of $104,000. The loss is, of course, passed on to the securityholders through the elimination of dividends and the reduction in the market value of their securities.

To remove this inequity, the law permits the averaging of corporate earnings over a number of years. A company can treat an operating loss, first, as a carryback to offset the profits of the immediately preceding taxable year. Then, to the extent that the loss is not absorbed in that year, the company can carry it forward to offset profits of the next five succeeding years. A corporation's losses can thus be averaged over a seven-year period. To continue the illustration, the corporation with the loss of $150,000 in the third year will thus get a refund from the government of the taxes paid on the $100,000 profit in the immediately preceding year. The unused $50,000 of the loss will then be carried forward to the fifth year, together with the loss of $60,000 from the fourth year. This total loss carryover of $110,000 will be offset against fifth year profits and will reduce the tax accordingly. If the profits in the fifth year amount to only $40,000 this amount will be entirely eliminated by the $110,000 carryover, and the unused loss of $70,000 will be carried forward to the sixth year and so on, until profits eliminate previous losses, or until the five year period has elapsed, whichever occurs first.

Such an averaging of corporate losses over a seven-year period increases the investment quality of securities in the capital goods industries. Earnings will still be unstable in comparison with those in the consumer goods industries, but the tax averaging, however, will aid in reducing the degree of relative instability. Increased financial strength of capital goods companies and a higher price-earn-

ings ratios for their stocks are two other favorable consequences that, in the course of time, should be expected.

Corporate Taxes on Dividends and Interest.—As a borrower and dividend payer, a corporation pays no income taxes on income used to meet interest payments, while it does pay taxes on income used to meet dividend payments (with the exception of dividend payments on certain preferred stocks of public utility corporations). As a lender and a receiver of dividends on bonds and stocks owned, the situation is almost completely reversed. As an investor in bonds, a corporation—like most other taxpayers—pays taxes on interest received, except of course on tax-exempt municipal bonds. As a stockholder (both common and preferred), however, it receives special treatment. It pays income taxes on only 15 per cent of the dividends received, subject to some minor exceptions, and pays no excess profits taxes on this income.

The post-World War II rise in corporate income taxes, from 38 to 52 per cent, has produced a substantial yield differential in favor of stocks against bonds. The heavy tax on corporate and taxable United States Government bonds has reduced the yield after taxes on corporate-owned bonds to almost nominal levels. High-grade preferred stocks have, accordingly, become more attractive for the investment of corporate funds. Table 35 gives the yields as of May, 1952, to a corporate investor in various Treasury issues, municipal bonds, and preferred stocks. The relatively higher after-tax yields on preferred stocks are obvious.

Other companies have large common stockholdings. The ownership of substantial, indeed of controlling, blocks of railroad common stocks by other railroads is widespread. Atlantic Coast Line owns a majority of the stock of the Louisville and Nashville; New York Central, of the New York and Harlem; Pennsylvania, of the Norfolk and Western and of the Wabash; and Great Northern and Northern Pacific, jointly, of the Chicago, Burlington and Quincy. In industrial fields this intercorporate ownership, though not as extensive as in railroads, is sufficiently important for many companies to merit careful investor consideration. Allied Chemical and Dye—a leading investment-grade corporation—obtained in 1950 almost 10 per cent of its net income of $41.2 million from dividends.

Many corporations also receive dividends from stocks in *foreign* concerns. Such dividends are exempt from excess profits taxes and are also entitled to tax credits based on taxes paid to foreign governments. Domestic companies in numerous fields of activity—oil, copper, asbestos, meat packing, drug manufacturing, business machines,

TABLE 35

YIELDS TO CORPORATIONS INVESTING IN UNITED STATES GOVERNMENT BONDS, PRIME CORPORATE BONDS, AVERAGE MUNICIPAL BONDS, AND HIGH-GRADE PREFERRED STOCKS, MAY, 1952

(In percentages)

	Treasury Bills	Treasury Certificates of Indebtedness 1⅜% March 1954	Treasury 2¼% September 1959-56 *	Treasury 2¼% June 1962-59 *	Treasury 2½% September 1972-67 *	Treasury 2½% December 1972-67 *	Prime Corporate Bonds **	Average Quality Municipal Bonds †	Preferred Stocks ‡
Pretax yield to maturity	1.68	1.76	2.16	2.35	2.57	2.59	2.93	2.06	3.83
Yield after 25% tax	1.26	1.32	1.62	1.76	1.93	1.94	2.20	2.06	3.69
Yield after 50% tax	0.84	0.88	1.08	1.18	1.29	1.30	1.47	2.06	3.55
Yield after 65% tax	0.59	0.62	0.76	0.82	0.90	0.90	1.02	2.06	3.46
Yield after 80% tax	0.33	0.35	0.43	0.47	0.51	0.52	0.59	2.06	3.37

Note: After-tax yields do not reflect subjection of discounts to long-term capital gains tax.
* 1959-56, for example, means that the bond is due in 1959 and that it can be called for payment in and after 1956, until it matures in 1959.
** Moody Aaa Averages Corporate.
† Standard Statistics & Poor s.
‡ Average of Moody's High Grade Industrials and High Grade Utilities.
Courtesy, Lionel D. Edie & Co.

for example—have heavy investments abroad. Oil investments in the Middle East, in view of the expropriation of the properties of the Anglo-Iranian Oil Company, became a problem of serious concern to American investors in 1951. In 1950, Standard Oil (California) received in dividends from its middle eastern oil investments about 24 per cent of its total earnings; while Texas Company's dividends from this area produced an estimated 26 per cent of its earnings. Gulf Oil, it is estimated, realized in the same year about $1.00 per share in dividends from its middle eastern oil holdings, out of a total per share net for the company of $4.90. The domestic copper industry also has substantial foreign investments. Of the three major concerns, Anaconda and Kennecott have heavy holdings abroad. The former, indeed, has most of its reserves and produces most of its copper from nondomestic sources.

Federal Income Taxes—Individual

In addition to taxes on corporations, the government also levies taxes on the income and capital gains of individuals. The federal individual income tax levies sharp increases in taxation rates upon progressively higher brackets of income. After various exemptions and deductions (under the 1951 act) the lowest bracket of tax-subjected income from 0 to $2,000 is assessed at the rate of 22.2 per cent and the highest bracket of over $200,000 at the rate of 92 per cent. A small part of this tax enacted in the Revenue Act of 1951 expires in 1953.

There is an over-all tax ceiling (for 1952 and 1953) of 88 per cent of an individual's income, to be reduced to 87 per cent in 1954. A wealthy person pays 92 per cent of his income above $200,000 in taxes. On the lower brackets, however, he pays less than that proportion. To this tax, investors in some states must add personal property taxes and in others, state income taxes.

This system has advantages and disadvantages from the social point of view, but it has one adverse effect that must carefully be considered from the standpoint of the investor. Common stock for investment is bought largely by wealthy individuals. A study reported in the Federal Reserve Bulletin, indicated that in 1950 only about 7 per cent of all consumer spending units owned stock in publicly held corporations.[2] Without submitting any additional figures, the conclusion is clear that most of the investment in common stock is made by those in the upper income tax brackets.

[2] Federal Reserve Bulletin, *1950 Survey of Consumer Finances,* December, 1950, p. 1601.

Those in the lower brackets normally save through institutions: life insurance companies, savings banks, and savings and loan associations. These institutions invest largely in bonds. The amount of stocks purchased is small. The progressive individual income taxes thus reduce the amount of savings available for common stock buying and increase the amount invested in debt. Some way must be found to reconcile the necessity of taxing higher incomes at progressively higher rates with the equally important necessity of attracting funds to productive industry without the creation of a dangerously high mountain of corporate debts.

Tax on Capital Gains.—One of the few ways left to the individual investor to maintain his income in the face of high taxes is through the purchase and sale of assets, for example, real estate or securities. Gains realized on the sale of such assets that have been held for more than six months are subject to a maximum tax of 26 per cent effective to 1954. Thereafter, this ceiling drops to 25 per cent. Any transaction that can be converted into capital from income substantially reduces the tax burden upon the wealthy investor. For example, a stock drops in price on the day it sells ex-dividend by the amount of the dividend. (That is to say, excluding the dividend—on that day, the buyer does not get the dividend. Had he bought the stock the day before, he would have received the dividend.) The investor can, however, sell stock on some day previous to the ex-dividend day. He thereby gets his dividend in the form of a higher market price. If he has held the stock for more than six months and the market price is higher than his cost price, he has realized a capital gain.

His capital gain, however, was, in 1951, taxed only at the relatively low capital gain rate of 25 per cent. On February 1, 1951, for example, the preferred stock of the New York Chicago and St. Louis Railroad sold at $150.50 a share. On that day, the company declared a dividend of $45.00 a share. This amount constituted the accumulated dividends that had not been paid in previous years. An investor with an annual income of $23,000 from other sources would at that time have had to pay a tax of 59 per cent on the income received in form of this dividend. On February 14, the stock sold ex-dividend; on that day, that is to say, the holder of the stock was not entitled to that dividend. And on that day, the price of the stock declined by 48 points from 156½ to 108. On the day before, the investor sold his stock 48 points higher. These prices are the last quoted prices on each day of trading, described in the parlance of the business as the closing prices.

It cannot be assumed, of course, that the investor would have realized exactly these prices. He could, however, by selling his stock in the few days before February 14, have secured a sum approximately equal to the dividend. This amount, however, was not income; it was a capital gain. This investor paid a tax of only 25 per cent on the gain. Such a form of tax saving was, in 1951, of benefit only to a person in the income tax bracket in excess of about $16,000 a year; and in 1952 and 1953, to one with annual income of more than $14,000.

The tax on capital gains, which is unique in the United States among income tax systems, produces a number of investor problems. Securities bought and sold within a six-months' period lead to short-term capital gains or losses; while transactions involving more than a six-months' interval between purchase and sale are known as long-term capital gains or losses. Under the Revenue Act of 1951, 100 per cent of long-term and of short-term gains and losses are matched against each other. If net long-term gains exceed short-term losses, the tax is levied upon 50 per cent of the excess with the maximum rate being 26 per cent.

Suppose the investor has a long-term net gain of $10,000 and a short-term loss of $2,000. The balance of $8,000 is reduced by 50 per cent. Thus, $4,000 is taxed at rates applicable to that tax bracket. Suppose that this investor has an annual income from sources other than capital gains of $17,000 and that he files a separate return (not a joint return), any added income, such as his capital gains, is taxed under the 1951 Revenue Act at a rate beginning at 56 per cent. Thus, the capital gain of $4,000 would be taxed beginning at 56 per cent. The investor, however, can use an alternative tax, which, effective in 1952, amounts to 26 per cent of the long-term gain of $8,000. Twenty-six per cent of $8,000 is $2,080. If, however, the investor's income from other sources is less than $16,000 per year, he does not profit under the rates effective in 1952 by using this alternative tax.

Suppose now there is a net long-term loss of $6,000, and a short-term loss of $2,000. There would then be a net loss of $8,000. The investor then would have a total loss of $8,000, but only $1,000 of this capital loss is deducted from income, and the balance is carried forward for five years. In each year, the capital loss carried forward is deducted from income, if available, to the extent of $1,000, and the balance of the loss is charged against capital gains of that year.

To take maximum advantage of the law on taxation of capital gains, the investor makes numerous other kinds of transactions. To

many, probably to a majority of investors, the transactions necessary to minimize taxes under the capital gains and losses feature of the law, are carried out in the closing weeks of the year. "Tax selling," then becomes important in security markets. An investor may be prompted to sell securities at capital losses in order to reduce the tax on capital gains. Particularly sound and well-balanced judgment is necessary to avoid losses and to realize maximum gains from transactions of this character. Possible tax savings must be balanced against the likelihood of substantial capital appreciation within the statutory time limit allowed for repurchase in a stock that is sold to secure a capital loss.

To minimize the volume of "tax selling," the law prohibits the purchase of a similar stock, on which a capital loss has been incurred, for a period of 30 days before and after its sale. One way to comply with the law and yet secure the possibilities of capital appreciation is to buy another good stock in the same industry, or the stock of a company that is likely to be affected by the same influences as the stock sold. An investor selling United States Steel stock to take a loss might buy Bethlehem Steel to replace it; or an investor selling Chrysler might buy General Motors; or an investor selling a stock in the electric utility industry might buy another in the utility gas industry.

The tax on capital gains is of further interest to the investor because of its effect on the quality of the security markets. Many wealthy investors in the absence of a capital gains tax endeavor to sell their stocks at high prices, or what they believe are high prices, and repurchase them at lower prices. Such purchases and sales enhance the strength of the market. They increase the number of persons who buy and sell securities, as well as the volume of securities that are thus traded. Under the capital gains tax system, an investor in the 53 per cent and higher tax brackets can benefit from the sale and the repurchase of a security only if a stock declines by more than 26 per cent of the capital gain, plus the commissions on both the purchase and the sale, together with the dividends paid in the period in which he is awaiting the repurchase of his stock. While awaiting the price decline, he can invest his funds released by the sale of the stock in short-term securities.

A price decline of this amount is substantial, and an increasing number of investors are disinclined to take the chance. Hence, there are fewer sales when the prices of securities are rising. Stock prices, in particular, are likely to advance more sharply and with fewer reactions than in former years. They are also more likely to go down more sharply in a broad, declining market without the

presence of upward movements. Taxes on capital gains thus have made markets thinner. By reducing the number of shares traded, they have impaired the absorptive ability of the market, particularly in periods of declining prices. The price of a stock declines a given amount with the sale of fewer shares.[3]

Tax-Exempt Securities.—Another way to reduce income taxes is through the purchase of tax-exempt securities. Investors can buy bonds and receive interest, on which taxes are levied in part or not at all. These are called tax-exempt bonds. There are still a relatively few securities of the federal Government issued prior to 1941 that are partially tax-exempt; they are not important in the investment markets. State, municipal and revenue bonds are also in the tax-exempt category. Many billions of these are outstanding, and the volume is steadily increasing. An investor in the higher brackets, in many cases, compares the yield on a security subject to tax with that on a tax-exempt security. Tables showing the yield on tax-subject securities (before federal income taxes) necessary to equal yields on tax-exempt securities are available to the investor. Table 36 compares the yields both for corporations and for individuals.

Take an extreme case: An investor is in the 90 per cent tax bracket of income. A 3 per cent tax-exempt bond equals a return of 30 per cent on a security whose income is subject to the payment of federal income taxes. There are few stocks in the speculative groups that afford such an income, and there are none in the investment categories. There were in 1952 also few high-grade, tax-exempt bonds that returned 3 per cent. It is more realistic to assume that this taxpayer buys a high-grade, tax-exempt bond with a yield of 1.70 per cent. To get the same yield after taxes on a tax-subject security, it is necessary for a taxpayer in the 90 per cent tax bracket to secure a return before taxes of 17 per cent. It is obvious that there are few, if any, investment-grade securities that afford the investor that return before taxes. Investors in the higher tax groups, therefore, are likely to buy tax-exempt bonds. They are unable to this extent to supply capital to the nation's private, job-producing industries.

Tax-exempt securities are obligations usually secured by the taxing power of states and municipalities, or by the revenues of publicly owned projects. There are, however, stocks whose dividends in the hands of the stockholder are nontaxable as ordinary income.

[3] Some data on the number of shares sold per 1 per cent price decline and per $1.00 price decline in the markets between 1930 and 1937 are presented in Benjamin N. Anderson, *Economics and the Public Welfare* (New York: D. Van Nostrand Co., Inc., 1949), pp. 449-50.

TABLE 36

TAX-EXEMPT YIELDS AND EQUIVALENT TAXABLE YIELDS

Tax-Exempt Yield	Corporation Taxes Effective April 1, 1951 (Approximate rates)			Federal Tax Brackets									
	52%	70%	82%	30%	40%	50%	55%	60%	65%	70%	75%	80%	90%
				Equivalent Taxable Yields—Approximated									
0.50%	1.04%	1.67%	2.77%	0.71%	0.83%	1.00%	1.11%	1.25%	1.42%	1.66%	2.00%	2.50%	5.00%
0.55	1.14	1.83	3.05	0.78	0.91	1.10	1.22	1.37	1.57	1.83	2.20	2.75	5.50
0.60	1.25	2.00	3.33	0.85	1.00	1.20	1.33	1.50	1.71	2.00	2.40	3.00	6.00
0.65	1.35	2.17	3.61	0.92	1.08	1.30	1.44	1.62	1.85	2.16	2.60	3.25	6.50
0.70	1.46	2.33	3.89	1.00	1.16	1.40	1.55	1.75	2.00	2.33	2.80	3.50	7.00
0.75	1.56	2.50	4.16	1.07	1.25	1.50	1.66	1.87	2.14	2.50	3.00	3.75	7.50
0.80	1.66	2.67	4.44	1.14	1.33	1.60	1.77	2.00	2.28	2.66	3.20	4.00	8.00
0.85	1.77	2.83	4.72	1.21	1.41	1.70	1.88	2.12	2.42	2.83	3.40	4.25	8.50
0.90	1.87	3.00	5.00	1.28	1.50	1.80	2.00	2.25	2.57	3.00	3.60	4.50	9.00
0.95	1.98	3.17	5.27	1.35	1.58	1 90	2.11	2.37	2.71	3.16	3.80	4.75	9.50
1.00	2.08	3.33	5.55	1.42	1.66	2.00	2.22	2.50	2.85	3.33	4.00	5.00	10.00
1.05	2.18	3.50	5.83	1.50	1.75	2.10	2.33	2.62	3.00	3.50	4.20	5.25	10.50
1.10	2.29	3.67	6.11	1.57	1.83	2.20	2.44	2.75	3.14	3.66	4.40	5.50	11.00
1.15	2.39	3.83	6.39	1.64	1.91	2.30	2.55	2.87	3.28	3.83	4.60	5.75	11.50
1.20	2.50	4.00	6.66	1.71	2.00	2.40	2.66	3.00	3.42	4.00	4.80	6.00	12.00
1.25	2.60	4.17	6.94	1.78	2.08	2.50	2.77	3.12	3.57	4.16	5.00	6.25	12.50
1.30	2.71	4.33	7.22	1.85	2.16	2.60	2.88	3.25	3.71	4.33	5.20	6.50	13.00
1.35	2.81	4.50	7.50	1.92	2.25	2.70	3.00	3.37	3.85	4.50	5.40	6.75	13.50
1.40	2.91	4.67	7.77	2 00	2.33	2.80	3.11	3.50	4.00	4.66	5.60	7.00	14.00
1.45	3.02	4.83	8.05	2.07	2.41	2.90	3.22	3.62	4.14	4.83	5.80	7.25	14.50

1.50	3.12	5.00	8.33	2.14	2.50	3.00	3.33	3.75	4.28	5.00	6.00	7.50	15.00
1.55	3.23	5.17	8.61	2.21	2.58	3.10	3.44	3.87	4.42	5.16	6.20	7.75	15.50
1.60	3.33	5.33	8.89	2.28	2.66	3.20	3.55	4.00	4.57	5.33	6.40	8.00	16.00
1.65	3.43	5.50	9.16	2.35	2.75	3.30	3.66	4.12	4.71	5.50	6.60	8.25	16.50
1.70	3.54	5.67	9.44	2.42	2.83	3.40	3.77	4.25	4.85	5.66	6.80	8.50	17.00
1.75	3.64	5.83	9.72	2.50	2.91	3.50	3.88	4.37	5.00	5.83	7.00	8.75	17.50
1.80	3.75	6.00	10.00	2.57	3.00	3.60	4.00	4.50	5.14	6.00	7.20	9.00	18.00
1.85	3.85	6.17	10.28	2.64	3.08	3.70	4.11	4.62	5.28	6.16	7.40	9.25	18.50
1.90	3.96	6.33	10.56	2.71	3.16	3.80	4.22	4.75	5.42	6.33	7.60	9.50	19.00
1.95	4.06	6.50	10.83	2.78	3.25	3.90	4.33	4.87	5.57	6.50	7.80	9.75	19.50
2.00	4.16	6.67	11.11	2.85	3.33	4.00	4.44	5.00	5.71	6.66	8.00	10.00	20.00
2.05	4.27	6.83	11.39	2.92	3.41	4.10	4.55	5.12	5.85	6.83	8.20	10.25	20.50
2.10	4.37	7.00	11.66	3.00	3.50	4.20	4.66	5.25	6.00	7.00	8.40	10.50	21.00
2.15	4.48	7.17	11.94	3.07	3.58	4.30	4.77	5.37	6.14	7.16	8.60	10.75	21.50
2.20	4.58	7.33	12.22	3.14	3.66	4.40	4.88	5.50	6.28	7.33	8.80	11.00	22.00
2.25	4.68	7.50	12.50	3.21	3.75	4.50	5.00	5.62	6.42	7.50	9.00	11.25	22.50
2.30	4.79	7.67	12.77	3.28	3.83	4.60	5.11	5.75	6.57	7.66	9.20	11.50	23.00
2.35	4.89	7.83	13.05	3.35	3.91	4.70	5.22	5.87	6.71	7.83	9.40	11.75	23.50
2.40	5.00	8.00	13.33	3.42	4.00	4.80	5.33	6.00	6.85	8.00	9.60	12.00	24.00
2.45	5.10	8.17	13.61	3.50	4.08	4.90	5.44	6.12	7.00	8.16	9.80	12.25	24.50
2.50	5.21	8.33	13.89	3.57	4.16	5.00	5.55	6.25	7.14	8.33	10.00	12.50	25.00
2.55	5.31	8.50	14.16	3.64	4.25	5.10	5.66	6.37	7.28	8.50	10.20	12.75	25.50
2.60	5.41	8.67	14.44	3.71	4.33	5.20	5.77	6.50	7.42	8.66	10.40	13.00	26.00
2.65	5.52	8.83	14.72	3.78	4.41	5.30	5.88	6.62	7.57	8.83	10.60	13.25	26.50
2.70	5.62	9.00	15.00	3.85	4.50	5.40	6.00	6.75	7.71	9.00	10.80	13.50	27.00
2.75	5.73	9.17	15.27	3.92	4.58	5.50	6.11	6.87	7.85	9.16	11.00	13.75	27.50
2.80	5.83	9.33	15.55	4.00	4.66	5.60	6.22	7.00	8.00	9.33	11.20	14.00	28.00
2.85	5.93	9.50	15.83	4.07	4.75	5.70	6.33	7.12	8.14	9.50	11.40	14.25	28.50
2.90	6.04	9.67	16.11	4.14	4.83	5.80	6.44	7.25	8.28	9.66	11.60	14.50	29.00
2.95	6.14	9.83	16.39	4.21	4.91	5.90	6.55	7.37	8.42	9.83	11.80	14.75	29.50
3.00	6.25	10.00	16.66	4.28	5.00	6.00	6.66	7.50	8.57	10.00	12.00	15.00	30.00

Courtesy, Chase National Bank.

Some corporations have unrealized capital losses on security holdings. Such losses, when realized, eliminate current and accumulated earnings. By selling some of these securities, the corporation realizes tax losses. The dividends paid by the company to its stockholders, accordingly, represent a return of capital for tax purposes.

Electric Bond and Share, a large public utility holding company, informs its stockholders that such losses "are available in amounts which would make possible the payment of dividends not taxable as ordinary income for many years to come." [4] The plan of reorganization, the consummation of which is needed to make these dividends not taxable, had not been approved in 1951. The United Corporation had an unrealized tax loss early in 1950 of about $7 a share and, according to the computations of one investor service made in that year, it could pay exempt dividends at the then annual rate of 20 cents per share for about 35 years. The Pennroad Corporation, according to the same service, had an unrealized tax loss of $10 a share and could pay exempt dividends at the rate current in 1950 for about 10 years.[5] The very next year, however, this corporation, owing to certain technical difficulties, found it impossible to take capital losses in amounts sufficient to offset current earnings. Hence, the stockholder had to pay income taxes on his dividend income.

There were in 1952 a considerable number of other stocks whose dividends in the hands of stockholders were nontaxable.

Estate and Inheritance Taxes.—An estate tax, being a tax on the privilege of transmitting property at death, is levied against the estate, while an inheritance tax, being a tax on the privilege of acquiring property by bequest, devise, inheritance, or intestacy, is levied against the persons among whom the estate is distributed.

Every state, except Nevada, has an inheritance or an estate tax. Both the state and the federal taxes are highly complicated. The federal estate tax, like the personal income tax, is a progressive one. The tax consists of two parts: the "Additional" tax, and the "Basic" tax. The rates of the former range from 3 per cent to 77 per cent, and of the latter from one per cent to 20 per cent. There is also a federal gift tax with a $30,000 specific exemption to each donor (which he may use in one year, or from year to year until entirely absorbed) plus an annual "exclusion" of $3,000 for gifts to each donee (with certain exceptions). The gift tax brackets are 75 per cent of the estate tax brackets, the maximum gift tax rate being 57¾ per cent.

[4] Annual Report, Electric Bond and Share Company, 1950, p. 6.

[5] These conclusions are published in the Fitch Investors Service Survey, Sept. 2, 1950.

For federal tax purposes, the value of the estate is the value that prevails at the time the owner of the estate dies. There is, however, an option to value the estate at a period one year after the date of death. Were it not for this option, it would be possible that, if the death occurred at the peak of a rising stock market and if the estate were liquidated some months later in a declining market, the effect on the value of the estate might be catastrophic. There are recorded instances of this kind. The writer is familiar with a large estate, the owner of which died in August, 1929. The common stocks that constituted a large percentage of the assets of the estate were liquidated early in 1932. The tax was based upon the market value as of August, 1929, while the cash value of the assets actually received by the beneficiaries, based upon early 1932 market prices, was substantially lower. The beneficiaries received only a nominal percentage of the amount they expected, based upon the value of the estate at the time of the death of the owner.

A family company, representing a large part of the value of an estate, creates further complications. If the beneficiaries decide to continue with the business of the deceased and do not wish to sell control of the family business, they will need liquid funds to pay the tax bill. It may become necessary for the beneficiaries, in the absence of adequate liquid funds, to mortgage the business or for the beneficiaries personally to assume heavy obligations in order to pay the tax bill and still retain control of the business. A recent change in the law alleviates this problem in part.

QUESTIONS AND PROBLEMS

1. Does a personal property tax based on market value exact a higher or lower percent of the income from a higher or lower investment-grade bond or preferred stock? Explain
2. Explain how under an excess profits tax of the type incorporated in the Revenue Act of 1951 a corporation can, by borrowing, reduce its tax bill.
3. How does the averaging of corporate earnings for taxation purposes reduce the tax bill of some corporations?
4. Explain how the income tax law operates to reduce the demand for common stocks.
5. The Transamerica Corporation is a large holding company; it owns many securities of various companies. Explain under what conditions the dividends paid on the stock of the Transamerica Corporation can be exempt from federal income taxes.

6. Under what conditions does an allowance for depreciation and a corresponding increase in expenses operate so as *not* to reduce the company's income tax?

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Chapter 26

PORTFOLIO MANAGEMENT

The economic, social, cultural, and political forces that affect investment values are focused in the purchase and sale of securities. Otherwise, from an investment point of view, these forces are only of academic importance and constitute exercises in intellectual gymnastics. The application of these forces in the investment markets involves complex problems. There is no single rule of successful investment, no combination of rules or formulae, no guiding principle that leads *uniformly* to financial success. The art of investment management is as difficult as the art of business management. A thorough knowledge, although essential to investment success, does not necessarily lead to that promised land. There are practitioners (master specialists) in a given field of investment who are not successful. Many of them know too much. A deep knowledge of the intricacies of the lumber or street railway industries, for example, does not lead to success. There is little financial fruit to be found in these gardens, and hence, little or no such fruit can be gathered.

A number of forces has changed the relative investment attraction of bonds and mortgages versus stocks. Interest rates have steadily declined, reaching record low levels in the post-World War II period. At the same time, commodity prices have increased, reaching record or near record levels. State and federal taxes, meanwhile, have further reduced the net return to the investor. Table 37 discloses the effect of these factors on the yield to an investor in 1929, in 1939, in 1949 and 1951. The investor in 1949 is a Massachusetts resident, single, and without dependents. His portfolio consists of 50 per cent in Moody's Aaa, 25 per cent in Aa, and 25 per cent in A bonds—the three bonds rated highest by this investor service. The value of the dollar is based upon the Consumer's Price Index of the United States Department of Labor.

There are some investors whose capital has increased; hence, their dollar income with lower interest rates is as high as or higher than before with higher rates. There are, however, many others for whom the rise in taxes, the increase in commodity prices, and the

TABLE 37

NET RETURN TO INVESTOR FROM HIGH-GRADE BONDS *
1929, 1939, 1949, and 1951, COMPARED

	1929	1939	1949	1951
Principal	$100,000	$100,000	$100,000	$100,000
Over-all yield	4.92%	3.28%	2.77%	2.91%
Income	$ 4,920	$ 3,280	$ 2,770	$ 2,910
Income after taxes	4,613	3,012	2,253	2,228
Income in 1929 dollars	4,613	3,720	1,630	1,480

* Source: Paper by Hazen H. Ayer, *Should a Trustee Try to Protect Purchasing Power*, Annual Convention of the National Federation of Financial Analysts Societies, Mar. 2, 1950. The 1951 data were presented by the same author in another paper delivered on Oct. 22, 1951, before a group of business and professional men.

reduction in interest rates have made trouble. For some investors, living standards have been adversely affected. Life insurance companies have found it difficult to earn enough to meet their expenses and to pay also their contractual obligations to their policyholders. Some have reduced dividend payments. Educational and charitable institutions are at their wits' end to meet increased salary rolls out of diminished investment income. Beneficiaries of small trust estates, and these are counted in the thousands, have had their purchasing power reduced.

The effort to increase investment returns has developed new investment problems. Some investors, particularly life insurance companies, have made commitments in real estate ownership. Other investors have purchased bonds of inferior quality. This tendency is suggested by the relatively narrow yield differential between the best grade and the lower grades of bonds. The increased return realized through the purchase of lower grades of bonds (excluding bonds of definitely inferior grades, involving the assumption of excessive risks) is not, however, sufficiently substantial to meet investor requirements.

Common Stocks.—An obvious solution to the search for higher yields lies in the purchase of high-grade common stocks. (The differences in yields between stocks and bonds were examined in a previous chapter.) In the post-World War II years, the yield differential in favor of stocks has been exceptionally wide. Purchase of common stocks in conservative investment portfolios has been actively discussed for many years. Indeed, a specialized literature has been built up around this problem. The first significant stimulus to its examination came, paradoxically enough, not from a search for higher yields, but rather from the effort to maintain the principal.

Between the middle 1890's and the early 1920's, a prolonged rise in interest rates was reflected in a drop in the open market prices of long-term bonds. During the same period the prices of high-grade stocks advanced. The more favorable results from investment in common stocks than from high-grade bonds was discussed by many writers, both in the 1920's and in the 1930's.[1]

The appearance of this literature was followed by a reversal in the trend of bond prices. Prices advanced in one of the most enduring rising bond markets ever recorded. Those who bought bonds in the 1920's and held them throughout the 1930's were the gainers, not the losers. In the depression of the 1930's, high-grade bonds, after some decline, maintained their prices. In the late 1930's and early 1940's, subject to a few minor interruptions, bond prices continued to advance rapidly. Bonds bought at relatively low prices in the late 1920's and early 1930's were redeemed at premiums, and for periods ranging from ten to twenty years, the investor received returns of about 5 per cent.

It was in World War II and particularly in the postwar years that new problems emerged. The rise in commodity prices combined with the persistent decline in interest rates produced those low returns indicated in Table 37.

These low returns from bonds have led many investors to think in terms of stocks. It is, of course, not necessary to choose between an exclusive commitment in either bonds or stocks, for diversification between bonds and stocks is still a sound principle. The investor, however, must consider whether he should buy stocks to increase his return and to "protect" himself from the baneful influences of a drop in the purchasing power of the dollar.

Inflation and Common Stocks.—To the investor, inflation is damaging, because the dollars he receives in interest and dividends buy less of goods and services. He needs more dollars in income from a given invested principal to maintain his standard of living. To get these additional dollars, the investor has turned more and more to purchases of common stocks, which have become widespread in the inflation years. It is not at all clear, however, that common stock investment is always an effective protection against inflation.

In England in the postwar period, an increase in commodity prices was accompanied by a decrease in common stock prices. It is true that this may be attributed to the nationalization of some industries, the regimentation of economic life, and the serious impairment

[1] A summary of this literature is found in Leo Spurrier, *Common Stocks and Bonds as Long-Term Investments* (Chicago: University of Chicago Press, 1941).

of the country's economy. There are, however, other factors that might bring about the same result. In the war years in this country, the excess profits tax limited profits and dividends. High corporate taxes divert profits to government use, and high personal income taxes do the same to dividends. Furthermore, inflations in this country have always (since 1780) ended in deflations with damaging losses to investors.

There are varying kinds and degrees of inflation. There are also numerous causes of the phenomenon and various definitions of the term. Inflation may reflect different combinations of reductions in the supply of goods and services, increases in the supply of money or in the velocity of its circulation, or a combination of both. It may reflect rises in costs due to increasing wages or prices of farm products, heavy uneconomic expenditures for armament either in peace or in war, large transfer payments by the government to an increasing number of persons who produce no goods or services in exchange for funds received, or some combination of any or all of these factors. Whatever the reason, the effect upon the investor arises from the higher prices of goods and services that he exchanges for his investment income. His investment must give him either more dollars in income or in capital appreciation.

A dollar received under the terms of a debt contract with a private or public borrower or a dollar received on a preferred or common stock in an inflationary period buys less and less of goods and services. By 1951, for example, an investor's dollar bought, probably, about 40 per cent less than it did in 1939. The purchasing power of the dollar in March, 1952, according to the National Industrial Conference Board, for example, was only 56.6 cents, as compared with 100 cents in January, 1939. The investor requires a twofold protection in a period of rising prices: he needs an income that will increase in dollars as the value of the dollar declines in terms of goods and services, and a capital that will increase in dollar value as the value of the dollar declines.

The investor in inflationary periods has endeavored to achieve these results in various ways. He has purchased real estate. He has bought commodities or paper titles to commodities. He has bought gold. He has bought the currencies of other countries where little or no inflation exists, in the belief that the value of those currencies will be maintained. The classical hedge in this country, however, has been the purchase of common stocks. Companies own assets, and as prices rise, the value of the assets rise. Also, expansion in sales volume, because of increasing prices and higher physical turnover, usually leads to greater profits. Hence, stock prices rise.

Relationships between commodity price changes and stock and bond prices disclose interesting ramifications. In the 1920's, the sharp advance in stock prices was accompanied by stable commodity prices. The first half of the 1940's was featured by rising commodity and bond prices. Another unusual phenomenon occurred. Theoretically, railroads and public utilities, whose selling prices are limited by public regulation, suffer in an inflation period. Increased labor and material costs are not accompanied by correspondingly rapid rises in selling prices. Public regulation limits price increases. In the first half of the 1940's, however, prices of railroad bonds and stocks soared. The prices of bonds of many roads close to or in bankruptcy doubled and tripled and, in some cases, advanced in even more fantastic proportions. Table 38 presents the range of prices of a representative list of railroad bonds from 1941 to 1945.

TABLE 38

REPRESENTATIVE LIST OF RAILROAD BONDS—RANGE OF PRICES, 1941-45

	1945	1941
Baltimore & Ohio 4½%—1960	78¾	7½
Central of Georgia Ref. & Gen. 5½%—1959	28	¾
* Chicago, Milwaukee & St. Paul 5%—2000	17¾	¾
International Great Northern 6%—1952	54⅜	4⅝
Missouri, Kansas & Texas 5%—1967	112	3½
Missouri, Pacific 5½%—1949	49¼	½
New York, New Haven & Hartford 4½%—1967	81¾	12
St. Louis, San Francisco 4½%—1978	51⅛	7
* Seaboard Airline 6%—1945	43⅞	2⅞

* Replaced by new bonds in accordance with plan of reorganization.

None of these bonds were of investment quality. They served unusually well, nevertheless, in the first half of the 1940's as a protection against the inflationary forces of those years, better in fact than any other major class of securities. Theoretically, they are ill-suited for this purpose. In the previous price inflation, just prior to the 1920's, they acted in accordance with theoretical expectations. In the face of rising inflationary costs and relatively rigid selling prices prescribed by law, profits declined, and so did railroad stock prices. In the first half of the 1940's, circumstances were unusual. The flexible-minded investor, against a background of understanding of the economic forces involved, had in those years an advantage over the investor whose thinking was confined to channels set by conventional patterns.

In those years between 1940 and 1945, even the securities of one of the most rapidly declining industries, the street railway industry,

joined in this price boom. In the second half of the decade, a notable difference emerged. The prices of railroad and street railway securities declined, while those of the power and light and the natural gas industries increased. The application of the theoretical economics of inflation to the investment markets in the inflationary 1940's up to 1949 would have produced results largely inconsistent with expectations. Many capital appreciations and increased incomes came from securities that theoretically should have been adversely affected. Similarly, slight benefits accrued to the investor from the purchase of other securities from which they should have benefited.

An idea long advocated, for example, is the purchase of stocks in industries that have their assets in the ground, in natural resources. It is contended that such industries can, in inflationary periods, easily increase selling prices. In the inflation preceding 1920, the prices of such raw materials advanced substantially, and the stocks of these industries reflected rising earnings and dividends in higher market prices. Most of these price increases were snuffed out in the summer and fall of 1920, and it took many years for some of these industries to recover their normal earnings. Companies in such industries as phosphate, rubber, oil, sugar, lumber, coal, and iron ore are illustrations.

In the inflationary 1940's, the stocks of natural gas producing companies served well as a hedge against inflationary price rises. The securities of the anthracite coal industry did not do well at all. That industry at no time developed any strong earning power sufficient to provide protection against inflationary forces. The most sustained rise in earnings and in market values prior to 1949 came, indeed, not from those raw material industries in which the best protection was anticipated, but rather from the well-managed companies in many growth industries. Except in the war years when profits were limited by Government price regulation and excess profits taxes, the earnings and stock market prices of such companies as du Pont, Corning Glass, International Business Machines, General Motors, Chrysler, Sears, Roebuck, Procter and Gamble, Allied Chemical and Dye, Scott Paper, American Cyanamid, Pfizer, Merck and other so-called blue chips served the investor well in his search for an inflationary hedge.

Subsequent to 1949, however, additional groups of stocks showered blessings upon their followers in the form of higher dividends and market values. Between 1949 and 1952, securities of industries that are expected to benefit handsomely from inflation—those with assets in the ground—rewarded investors well. Oil, natural gas, and nonferrous companies reported substantial increases in earnings,

and the prices of their stocks moved ahead correspondingly. There was, however, no uniform trend. Surprisingly enough, the stock of International Nickel—the world's largest producer of nickel, a strategic metal—advanced least in price of the major nonferrous producers.

The stocks of many other major industries in the 1949-52 period actually declined: cigars, cigarettes, movies, department stores, drug chains, biscuits, soft-pile fabrics, among others.

These performances by no means set up precedents that can be followed in subsequent inflations. No single rule of general application can guide the investor in arranging his portfolio to secure the maximum protection against inflation. There is, indeed, no really new principle involved. In inflation, as well as under other economic conditions, rising stock prices reflect rising earnings and dividends, and these, in turn, reflect the underlying economic forces of expanding demand, declining unit costs, and sound management.

This generalization does not, however, apply to the last stages of a ravaging inflation. At that time, the value of the currency just melts away. Take Austria as an example. In 1914, the investments of the Vienna Central Savings Bank were almost entirely in fixed interest obligations. By 1922, the borrowers had paid off almost all of these securities in cash, and this cash was worthless. In post-World War II years, Hungary, and Nationalist China prior to the Communist conquest in 1949, afford further illustrations. Under such conditions, stock prices bear no relation to earnings and dividends. Investors then race to diamonds, real estate, stocks, and stable foreign currencies for protection. Such a "flight from the currency" last took place in the United States in 1780. In that year, the Continental Congress asked the states to levy a tax of one silver dollar for 40 paper dollars.

Portfolio Philosophies

Whether the investor buys bonds or stocks or a combination of both, or whether he practices diversification to the maximum or to the minimum degree, he necessarily adopts a definite portfolio philosophy, whether tacitly recognized or not. It is probably true that there are many individual investors, particularly among those in the field of active business or of the professions, who buy in response to rumors or because of suggestions from friends.

Some individuals buy only when prices are rising and sell only when prices are falling. Some economists, such as Lord Keynes, for example, have severely criticized investors for this kind of approach.

"They [the professional investor and speculator]," he writes, "are concerned, not with what an investment is really worth to a man who buys it 'for keeps,' but with what the market will value it at, under the influence of mass psychology, three months or a year hence." [2] These, however, are not the investors whose decisions determine market prices for investment-quality stocks. There are many of these speculators and traders, but their buying power is small, relative to that of long-term holders, individual and institutional alike. Successful investment flows from the policies of these investors, and only rarely from those professionals to whom Keynes refers.

Varying investment philosophies are followed. The most widespread is the buy and hold policy. There is also the buy and sell cyclical policy: to buy in depression at low prices and to sell in prosperity at high prices.[3] What is bought under the buy and hold policy is held regardless of cyclical changes and changes in corporate management. Bonds are held until they mature. That is a well-established investment policy. Even if bonds are held exclusively in the portfolio, however, this policy cannot be universally followed. From time to time, cash is needed for purposes that cannot always be anticipated, and then some part of the portfolio is liquidated. This policy is rational and realistic for those investors who must meet contractual obligations that are fixed in dollars. As the bonds mature the proceeds needed to discharge these obligations become available.

Buy and Hold.—The increasing degree to which common stocks are held in portfolios, however, introduces new problems. The purchase of high-grade bonds, except for changes in interest rates, involves little risk of principal. Even fluctuations in interest rates do not concern most of the buy and hold bond investors, for they invest upon the hypothesis that their bonds will be paid at maturity. A wide diversification among good bonds reduces to a minimum the risk arising from imperfections of this hypothesis. The prices of high-grade common stocks, however, fluctuate within wide ranges. Deflations and cyclical downturns usually produce price declines, and inflations and cyclical upturns usually lead to price advances. Investment fortunes and tragic investment losses characterize the buy and hold policy in the field of common stocks. Spectacular income returns and increase in asset values feature those portfolios whose funds are committed to the common stocks of well-managed corpora-

[2] John M. Keynes, *The General Theory of Employment Interest and Money* (New York: Harcourt, Brace & Co., 1936), pp. 154-55.

[3] A statistical presentation of the argument in favor of the buy and sell school of thought is presented by J. J. Quinn and J. M. Haas in *Commercial and Financial Chronicle*, Dec. 30, 1948.

tions in the leading, expanding industries. Heavy losses are incurred by those portfolios whose funds are invested in the stocks of the declining industries. The investment income and capital accretion of the du Ponts, the Mellons, the Pews, the Rockefellers, the Guggenheims, the Fords, and many, probably most, of the wealthy American families grew from the buy and hold policy in the stocks of the expanding industries.

The argument in its favor is simple in the extreme. The success of this policy assumes a dynamic national economy, an expanding industry, and a well-managed and financially strong company. There is, in the pursuit of this policy, no assumption of unusual prescience on the part of the investor. He only assumes that management will successfully solve the problems that may emerge, and as long as the economy and the industry are sound, the company will prosper.

The investor looks forward to exceptions to these generalizations, but in a group of stocks representing expanding industries and excellent management, the losses from the expansion will be absorbed by the gains from the others. The net gain will be significant. Critical observers look askance at these crude assumptions. Keynes, the brilliant English economist, for example, makes the following statement:

> The outstanding fact is the extreme precariousness of the basis of knowledge on which our estimates of prospective yield have to be made. Our knowledge of the factors which will govern the yield of an investment some years hence is usually very slight and often negligible. If we speak frankly, we have to admit that our basis of knowledge for estimating the yield ten years hence of a railway, a copper mine, a textile factory, the good will of a patent medicine, an Atlantic liner, a building in the City of London amounts to little and sometimes to nothing; or even five years hence.[4]

And at another point, he declares that "investment based on genuine long-term expectation is so difficult to-day as to be scarcely practicable." [5] The opposite is probably much closer to the truth. Keynes' observations are not relevant to the affairs of the major, well-managed companies whose capitalized earnings produce investment values. If the corporation is well managed, if its finances are sound, and if it is a part of an expanding industry it will continue to benefit as long as the national economy is dynamic. There is the knowledge that the investment-quality companies in the expanding industries usually maintain their earning power, as long as the industry and the social economy continue to grow.

[4] Keynes, *op. cit.*, pp. 149-50.
[5] *Ibid.*, p. 157.

In prosperity, the profits of the well-managed companies in the expanding industries benefit handsomely. There is a definite relationship disclosed by long experience between the increase in profits and dividends on the one hand, and the rise in national income on the other. As long as the economy needs and is willing to pay for more and more of the goods and services of the expanding industries, so long, subject to some exceptions, will those industries increase their profits and dividends.

Within the pattern of a buy and hold policy, the investor must decide how he will determine the long-term value of a stock. An approach is suggested in previous chapters of this volume: expanding demand, a reasonably large share of the market in an industry, good management, a decline in relative selling prices attuned to declining costs, and the avoidance of price wars. These underlying factors work themselves out in financial resources, earnings, and dividends of a corporation. These three primary forces are constantly appraised in the markets. Their past, as well as their estimated or probable future trends, are reflected in stock prices. (See Chapters 21 and 22.)

This trinity of primal forces is reduced by some investors to a figure known indifferently by such terms as appraised fair value, central value, or intrinsic value.[6] Stocks should, therefore, be bought only when their prices are below this appraised or central value. This approach is a useful guide in determining the reasonableness of stock prices. The danger arises from the possibility that this line of reasoning might develop a static concept. Central values in the midst of a growing industry and a dynamic national economy necessarily change, and change rapidly. The far-reaching shifts in investment values in a wide variety of industries were sketched in Chapters 3, 4, and 5, on expansion and decline.

The central values of New York Central and Pennsylvania were vastly different in 1930 from what they were in 1935, 1940, and 1952. The meteoric rise in ethical drug stocks in the 1940's produced, as well as reflected, changes in central values. Whether or not definitive basic values are computed, forces modifying past trends of earnings, dividends, and financial resources must always be kept in the foreground. If they are favorable to the industry, the investor's risk is confined largely to the possibility of managerial blunders. There is, of course, also the cyclical recession due to fluctuations in the national economy over which no single management has any control.

[6] See Benjamin Graham and David L. Dodd, *Security Analysis* (3d ed., New York: McGraw-Hill Book Co., Inc., 1951), pp. 15-16.

Investors who follow the buy and hold policy cannot, as a class, liquidate their holdings when the industry has lost its power of expansion and its ability to earn profits and pay dividends. To avoid heavy capital losses, the decision to sell must be made when the industry still is sound, reporting profits, and paying dividends. The decision cannot be made as and when the industry and the leading corporations therein have suffered serious earning declines. Most everyone can read figures and understand the significance of reductions in earnings and losses in business. Liquidation at such times at any reasonable price level is difficult and often impossible.

Dollar Averaging.—An investment policy that can be included in the buy and hold philosophy is that of "dollar averaging." The investor purchases, at regular intervals, a security or securities for a *given* number of dollars. It is assumed that prices of stocks will fluctuate and that accordingly (for a fixed number of dollars), fewer shares will be bought at higher prices and more shares at lower prices. Aside from changes in interest rates, such price volatility does not occur in the high-grade bond market. This stock buying policy leads to a reduction in the average cost per share as compared with the average sales price of shares in a given period. The same dollar amount, for example, may be invested *monthly* in shares selling in successive months at $40, $30, $20, $20, $30, and $40 per share. The average of these prices is $30. If the same number of dollars ($1,000) are invested at each price level, the average cost per share, however, is only $27.69. For $6,000, 216.66 shares are bought. The average cost is thus less than the average price.

Many computations have been made of the favorable results flowing from investments made in accordance with dollar averaging. An annual investment of $100,000 in the Dow-Jones industrial stock averages between 1929 and the first six months of 1950 would have resulted in an investment of $2,200,000, market value at average prices of $3,343,221, a profit of $1,143,221, and an average yield on the investment over the entire period of 5.5 per cent. A tabulation made by Standard & Poor's Corporation and published in *Poor's Investment Advisory Survey* (November, 1951) shows the results of dollar-averaging in *growth* stocks between 1929 and the first ten months of 1951. Growth stocks are "listed stocks of companies which are strongly established but which have well-defined prospects for major further growth over the long term." A number of expanding companies "whose present size is calculated to make dynamic further progress difficult" are excluded.

"Aside from this angle, the determining considerations include industry prospects; the vision, alertness and aggressiveness of management as proven by results under test; emphasis on new product development through research; financial strength; and policy with respect to dividend payments versus the ploughing back of earnings." An annual investment of $10,000, involving a total investment of $230,000 would have produced a market value of $1,484,878, a profit of $1,254,878, and an average yield on the investment over the period of 18.03 per cent. Moody's Investors Service has also presented computations with highly favorable results flowing from dollar averaging. Other tabulations are based on dollar averaging with open-end shares. (See Chapter 28 on open-end shares.) Many other stocks can be used for dollar averaging.

Though not consciously so, many investors in fact follow a policy somewhat similar to this. Stocks are bought from time to time for pension or employees savings funds. There is no estimate made at the time of each purchase of the reasonableness of the price in relationship to the value of the security. A notable illustration is the profitable fund of Sears, Roebuck. Dollar averaging seems to be well suited to investors with steady incomes who can set aside regular sums at regular intervals.

Dollar averaging ignores the business cycle. It is, from this point of view, a genuine buy and hold policy. The success of the averaging procedure is based on the assumption of a secular upward trend in stock prices. The most successful results will come from the purchase of those stocks whose prices advance most rapidly. And there is the vital problem in the dollar averaging philosophy. To compute a program of profitable investing in the past, based on stocks whose values are recognized now, as they were not so recognized in the 1920's, is to beg the question. Railroad and public utility holding company stocks were regarded as desirable investments in 1929. Pennsylvania, New York Central, Chicago and Northwestern, and Electric Bond and Share stocks were, for example, then highly regarded. Their purchase under an averaging plan in 1929 would have resulted in staggering investment losses.

Dollar averaging makes imperative the choice of quality stocks in expanding industries. If such stocks are bought (even at relatively high prices), the investment results will be satisfactory. If they are bought at low prices by dollar averaging, the results will be even more satisfactory. And if they are bought at cyclically low prices, the results will approach the attainable practicable ideal. The wrong choice of stocks under an averaging plan will, on the other hand, lead to investment failure, just as in any other plan.

Defensive and Aggressive Policies.—There are many investors, however, who do not follow the buy and hold policy. They believe it unwise to hold stocks continuously, for such a policy involves the possibilities of heavy loss, even in high-grade stocks. Investors differentiate between defensive and aggressive policies and securities. A defensive policy is based upon the primary desire of preserving the principal. Those securities are purchased whose prices fluctuate least, and securities with the minimum risk will be acquired, such as Government bonds and the best grades of municipal and corporate bonds—preferably short-term. The price of these bonds will move only, it is thought, in accordance with changing interest rates.

Aggressive securities are those characterized by volatile price fluctuations. They are mostly common stocks, to which, however, upon favorable occasion, may be added second-rate preferred stocks, convertible preferred stocks, convertible bonds, and even defaulted bonds. The volatility of defaulted railroad bonds between 1932 and 1945, for example, was equaled in the same period by only a few stocks. They were sufficiently aggressive in price action to suit the most hardened and the most risky trader and speculator. The defensive policy aims to preserve principal, but the aggressive policy aims to increase it.

In considering an aggressive policy in a pattern of conservative investment, it should be stressed that, theoretically, the mind of the investor is dominated by a search for income. The purchase of a high-grade bond produces the contractual income. The purchase of common stocks complicates the problem. The highest-grade common stock is one whose dividends are likely to be increased. Stability in a common stock dividend is an asset, but a rising dividend is an even better asset. Experience discloses, furthermore, that the price of even the best grade of common stocks does not remain stable. Stock prices advance substantially in one period and decline sharply in another. Many investors endeavor, in a variety of ways, to sell their stocks at high prices, reinvest the proceeds in defensive securities, and then repurchase stocks at lower prices.

Buy and Hold vs. Buy and Sell.—There is a clear conflict of underlying philosophies between these two schools of thought. The buy and hold policy advocates the purchase of sound values. If the security remains sound, and if it increases in strength over many years as sound stocks in expanding industries normally do, then the declines in market prices should be considered as aberrations. It is conceded that, in a depression, the prices of all stocks, including the best grade, decline and that profits and dividends also decline.

A good stock, according to the buy and hold school, once bought for investment should be held as long as the stock maintains its investment quality. If the analysis of all forces indicates a continued increase in earnings and dividends, then the stock should be retained, and the risks of cyclical business reverses must be assumed. Though it is theoretically sound to sell a high-grade stock at one price and repurchase it at a lower price, the actual task of accomplishing this objective is difficult, to say the least.

The buy and sell school of thought presents a contrasting point of view. Those who believe that it is possible to sell stocks at cyclically high prices concede that sales prices will not be the highest. They will, nevertheless, be higher than will later prevail. It is also accepted that stocks cannot be bought at the lowest prices, but the purchase prices will, nevertheless, be substantially below the prices at which the stocks were sold.

There is more to it, according to this view, than the desire to repurchase at lower prices. A period of general stock price readjustment normally reflects some dynamic change. The prosperous industries may be different in the depression and subsequent recovery from what they were in the preceding boom. And the same holds true for the profitable company within a prosperous industry.

To be in cash towards the bottom of a downward stock price movement affords the investor the opportunity to examine afresh underlying trends and underlying values. At the top of the postwar boom in 1919 and early 1920, the prices of high-grade stocks in the lumber, woolen, leather, cotton textile, and raw sugar industries, for example, reflected good investment quality. It was difficult to identify at that time those forces of latent obsolescence that were soon to transform these into unprofitable industries. The prices of many of these stocks had not recovered by 1952, and their earnings and dividends were permanently reduced.

A similar experience occurred in the transition between the market peak of 1929 and the trough of 1932. Railroad, ice, cigar, snuff, and public utility holding company securities sold in 1929 at high prices; those of the latter indeed, at fanciful prices. The common stocks of the public utility holding companies lost most of their asset value and market value. The same is true, to a lesser degree, of the ice and railroad securities and, perhaps to a still lesser degree, of the other securities. The reasons were different in each case.

The investor's loss, however, is not lessened by the knowledge or lack of knowledge of the underlying reasons. The point is that a policy culminating in the sale of securities at any time in the two-year period preceding the climactic stock market collapse in

September, 1929, avoided the *secular* losses in these industries. Many industries, of course, retained their relative strength in the national economy and most of the major companies maintained and later increased their earning power. The 1929 market values of securities of major expanding industries, chemistry, drug manufacturing, business machines, and automobiles, among many others were fully recovered and, in numerous cases, substantially improved upon in later years.

Many of the statistical demonstrations of the advantages of the buy and hold policy, as applied to common stock, smack of hindsight reasoning. They reveal the advantages of holding the stocks of the well-managed companies in the expanding industries, but these results cannot usually be known in advance. Investors, in the pre-World War I years, who bought stocks of industries that later lost their earning power, as illustrated above, fared poorly. The purchase of a group of good stocks, for example, those included in the Dow-Jones industrials or in Standard & Poor's stock group, reveals better results. There is, of course, no certainty that would ensure the recurrence of such an outcome in the future.

The buy and sell school of thought, therefore, remains convinced that the buy and hold policy is not the most desirable. The critical problem here is to judge the selling points. Stock prices are normally high when business is good. Then most everybody believes that stock prices are reasonable because business is booming. An investor who sells under such conditions operates contrary to majority opinion. Experience discloses, however, that stock prices decline when optimism flourishes and when business is good. None of the elements that make up general business show any unvarying time relationships to the stock market. In the past fifty years, commentators, analysts, academicians, practical and theoretical people, investment counselors, and others have observed relationships between market prices and many other things. Included among the latter are general industrial production, operation of blast furnaces, prices of hides, money rates, loans and deposits of commercial banks, and the success or failure of new security issues. None of these guides has been *uniformly* successful.

There are some investors, furthermore, who sell and who also buy in accordance with the price movement of individual stocks. Each stock has a price movement of its own. Every little movement has a "meaning all its own," and the price curve of every stock has a movement peculiar to it. There are investors, accordingly, who sell a stock when it sells at historically high prices. There are considerations in favor of this method. Such a policy probably ensures an

investor against the risks of holding a high-grade stock indefinitely, since many such stocks, at times, become poor. Illustrations of this have already been presented.

In the forward march of an expanding industry, on the contrary, historically high prices are reached only to be repeatedly surpassed. The price careers of such stocks as du Pont, National Lead, General Motors, Scott Paper, Dow Chemical, Monsanto Chemical, and International Business Machines are typical. By selling such stocks at record high prices, and merely because they are high, investors are likely to lose good investments paying reasonable returns, which later show further substantial capital appreciation.

Formula Plans.—An increasing number of investors have, accordingly, decided that there is no rational way, based upon an analysis of fundamental factors, to determine proper selling price levels. They have become fatalistic over their inability to reach wise decisions by observation and analysis and have, therefore, adopted mechanical schemes to determine appropriate selling and buying levels. Such mechanical or automatic policies are known as formula plans and are designed to exploit the advantages of cyclical increases and decreases in price. Dollar averaging, on the contrary, is designed to exploit the advantages from long-term holding. The former uses the business cycle; the other ignores it.

The determination of the time to sell and buy securities through the use of formulas is known as "formula planning." Formulas are not forecasting devices, for they assume an inability to forecast. They assume only that security prices will move in the future as they have in the past. At some point or points or within the boundaries of some price range determined in advance, securities will be sold or bought.

The investor operating under formula planning divides his portfolio into aggressive and defensive securities. It is assumed that the prices of the defensive securities will be reasonably stable, while the prices of the aggressive securities will fluctuate. Though defaulted bonds or poor preferred stocks may be included in the aggressive portfolio, common stocks, particularly for conservative investment purposes, are the major vehicle. The prices of common stocks do not fluctuate idly. They are not, according to the hypothesis underlying formula planning, driven hither and thither by contradictory currents. They move within definite maximum and minimum limits. Since 1897 (when reliable and comparable data first became available), the prices of the stocks included in the Dow-Jones Industrial Averages, for example, have moved within a channel whose max-

imum and minimum prices were reached in successive periods of prosperity and depression. It is remarkable that the secular rise in stock prices revealed by this average has approximated that annual rate of 3 per cent, which measures approximately the annual secular growth in the country's production. The upward and downward movements of market prices in the pattern of the secular rise has occurred within this channel. This phenomenon is reflected in Figure 19, showing the prices of the stocks in the Dow-Jones Industrial Averages between 1897 and 1952. No satisfactory explanation has ever been made of the abnormal move of the 1929 peak and the 1932 trough.

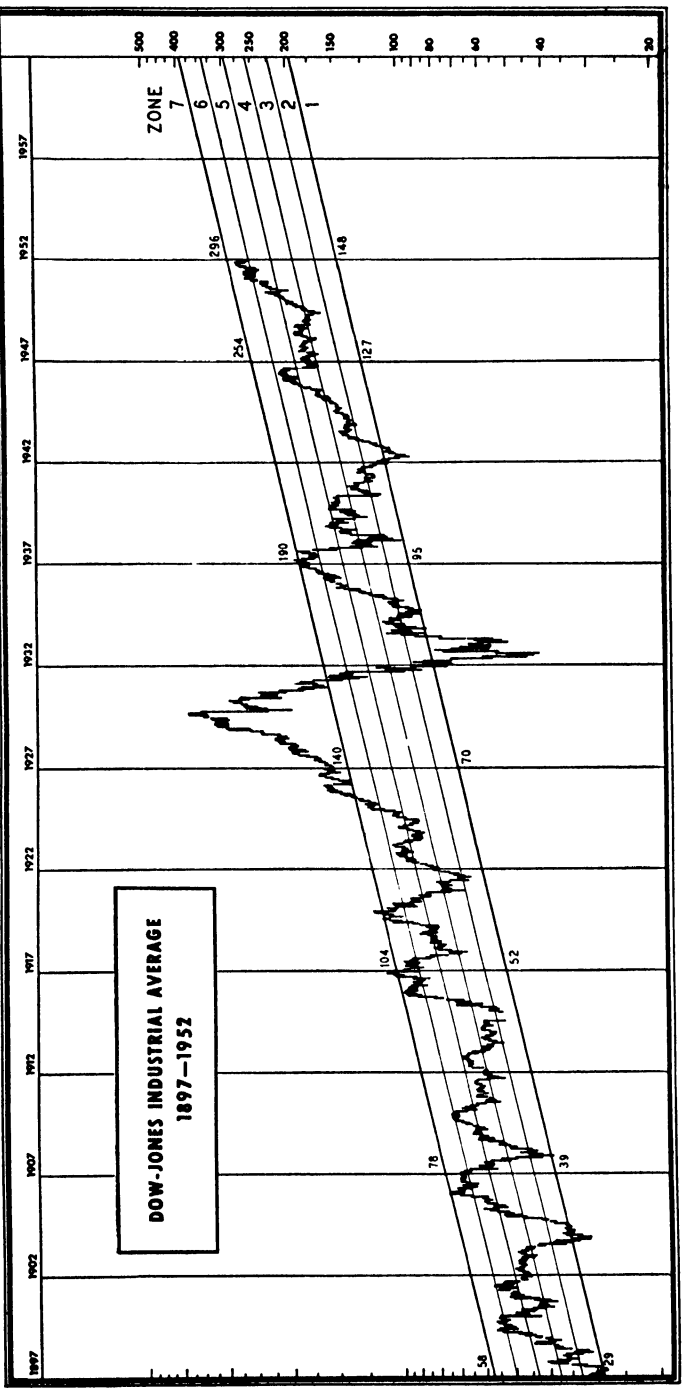
Formula planners have devised different mechanisms to sell stocks in a rising market and to buy them in a declining market. The choice of a stock to buy or sell is made upon an investigation of all factors relating to investment quality, though there are plans in which the choice of security is also suggested. The formula plan concerns itself with timing considerations—*when*, and not usually *what*, to buy or sell. One plan, called the "constant dollar fund," calls for the automatic purchase or sale of stocks to keep the dollars invested in stocks at a given dollar figure. As the market value of the fund rises, due to an increase in stock prices, stocks are sold. A drop in stock prices, accordingly, leads to the purchase of stocks. In a rising market, capital appreciation of a fund is obviously limited. Take a fund of $50,000; fix the amount of stocks at $10,000. The value of stocks rises to $11,000 in the early stage of a rising market. Stocks are then sold to reduce their value to $10,000. This plan is therefore not so popular.

In another plan, the constant is not the number of dollars, but the ratio of the market value of stocks to bonds. An investor may decide, for example, to keep a fund 40 per cent in stocks and 60 per cent in bonds. As stock prices rise, the percentage of stocks to bonds will move up, say, to 45 per cent. Stocks, therefore, are sold in order to reduce the ratio to 40 per cent. And when prices decline, say, to 30 per cent, stocks are bought to bring the ratio back to 40 per cent.

Another plan, known as the variable ratio plan, is characterized by a changing ratio of stocks to bonds. As stock prices rise, then, at various specific predetermined prices, stocks are sold and bonds are bought. The percentage of stocks to the value of the fund thereby falls, and the percentage of stocks, indeed, might drop to zero. As stock prices fall, and also at various specific predetermined prices, stocks are bought and bonds sold, and the percentage of stocks might conceivably rise to 100 per cent.

FIGURE 19

Dow-Jones Industrial Averages, 1897-1952



Courtesy: Keystone Custodian Funds.

Still other plans set up zones in which stocks are sold in a rising market and bought in a declining one. Such a plan is used by the National Securities and Research Corporation, based upon the index of Standard & Poor's industrial stocks. In the middle area, stocks are neither bought nor sold. In the selling area, there are zones in which stocks are sold in varying percentages, and in the buying area, there are also zones in which stocks are successively bought. A chart illustrating this formula plan is shown in Figure 20.

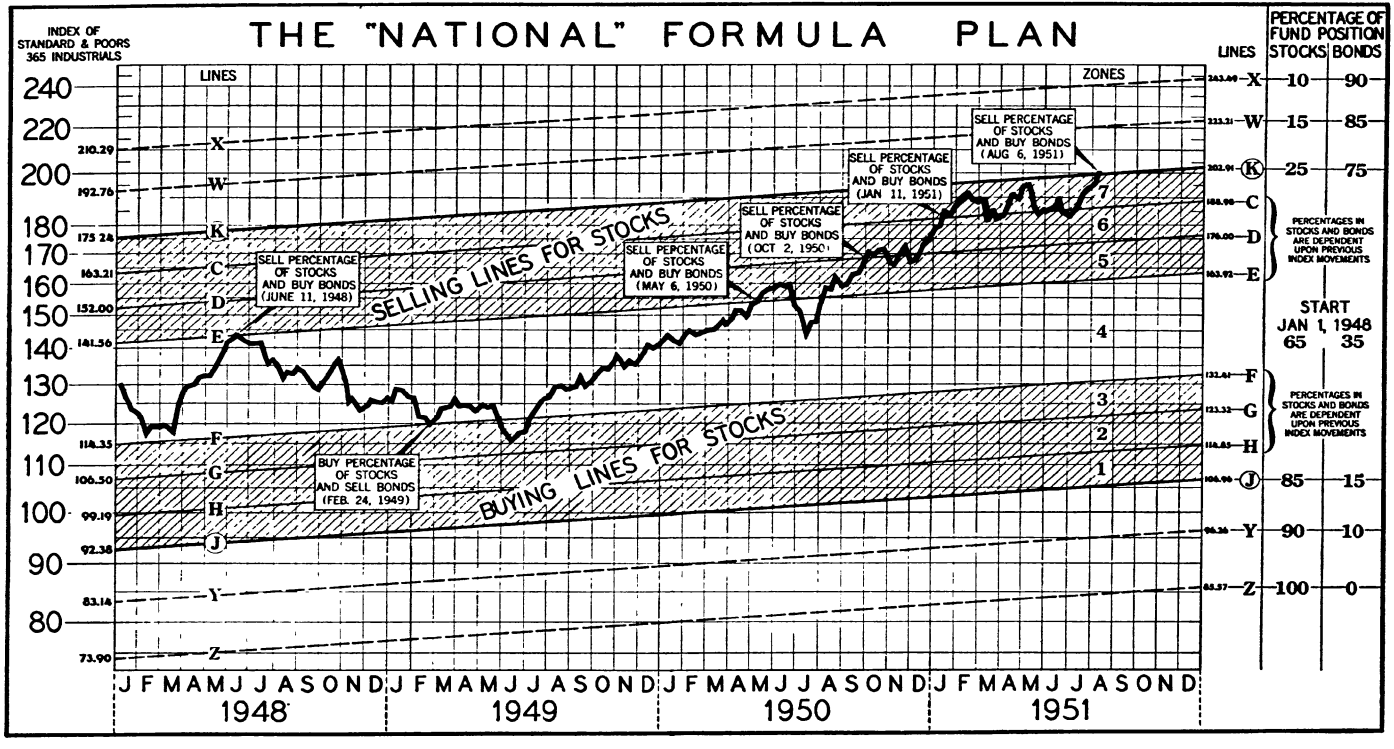
Various ingenious adaptations of these formulas are devised to permit the participants to secure the benefit in some degree of upward price movements greater than those projected in the formulas themselves.

Different mechanisms are also devised to set up a normal market level; that is to say, a point at which the normal bond–stock relationship is set. The original formula plan of Vassar College used a median line. A five-year moving average was changed later to a ten-year moving average, and still later to a fifty-year trend line, showing approximately a 2 per cent annual rate of growth. When in 1946, the Dow-Jones Industrial Average went above 195, all common stocks were sold. For some time thereafter, the median point for the buying of stocks was not reached. Later, however, part of the fund was segregated and removed from the operation of this formula plan and invested in stocks under a new formula. This suggests a significant psychological question: can investors keep away from buying stocks in a rising market after they have sold out in accordance with an existing formula plan? Other formula plans use different kinds of moving averages, and still others aim to buy in accordance with the long-term trend of some group of stocks, such as Moody's, Dow-Jones, or Standard & Poor's.

Formula plans have one overwhelming advantage: they force the sale of stocks at high prices. An important cause of investment losses in a common stock policy comes from the purchase of high-grade stocks at high prices. A formula plan can be a protection against this mistaken policy. In addition to this advantage, according to formula reasoning, profits from investing in the high-grade common stocks can be maximized by selling in periods of high prices and buying in periods of low prices. It is impossible to say, on the basis of experience and analysis, whether these theoretical results will be realized in practice. Buying points or buying ranges under a formula might just miss a favorable buying opportunity. For example, buying in the range between 155 and 160 of the Dow-Jones Industrial Averages between the fall of 1946 and the spring of 1949

FIGURE 20

The National Formula Plan



Courtesy: National Securities and Research Corp.

would have kept the practitioners of such a formula in bonds. The rise in stock prices after the spring of 1949 would have been missed.

Investing formulas became popular in the early 1940's. Using the historical approach, so characteristic of the formula type of reasoning, the investor-planners generally used the 1937 price peak as an appropriate selling point, and the 1938 bottom as a buying point. These prices worked well in the 1940's. On the basis of the Dow-Jones Industrial Averages, the lowest price was reached in 1942, at about 92, and the highest in 1946, at about 212. The latter figure was attained and surpassed early in 1950, and a subsequent top of about 277 was registered in the fall of 1951. Between early 1950 and the summer of 1952, many formula-investors vainly awaited an opportunity to buy stocks at substantially lower prices than those prevailing.

Conclusion on Portfolio Policy.—Investors who use formulas or dollar averaging, as well as those who do not, will probably agree that there is no hard and fast, single rule, program, or technique that can solve all investment problems. There is little opportunity to predict with any degree of reasonableness the movements of those numerous forces that affect market prices. There is no fixed and regular succession of sequences. There is no substitute for continuous judgment. There are always possibilities and probabilities leading to conclusions in one direction or in a contrary direction. Yet the investor cannot long remain suspended between the poles of these alternatives. He must, at almost all points, stand firm and fast and make his decisions. Whatever his investment policy and approach may be, there must be the admission that his knowledge is finite, that he knows but little, and that full knowledge is not possible to him. He must, therefore, strike a balance.

If the investor is an individual, he should have some stable investments in the form of life insurance or savings bank deposits. If he is a wealthy industrial or institutional investor, he balances and diversifies his holdings, not in terms of numbers, but rather in terms of the scattering of risks to reflect varying influences. The portfolio, therefore, is balanced between securities to maintain principal and to secure a small income, and those designed to enlarge principal and to obtain a higher income. If the national economy is sound and expanding, if the choice of industry and management is wise, the results are likely to be favorable. The growth of a free economy expresses itself in the creation of material goods and services through the prosperity of corporations in the basic industries and through the wise utilization of borrowed funds by the city, state, and federal

governments. An investment policy wisely and carefully balanced to include the securities of the prosperous and well-managed public and private issuers is perhaps the closest approach to the golden mean between rapid capital appreciation and the potentiality of heavy losses, on the one hand, and the maintenance of principal values with a low rate of return, on the other.

QUESTIONS AND PROBLEMS

1. Show how defensive and aggressive investment policies are related to the movement of interest rates and to formula planning.
2. Invest $100 monthly under a dollar averaging plan for five most recent years. Take two of the following common stocks:
   a) General Motors and Hudson
   b) Chrysler and Packard
   c) Pennsylvania, and New York, Chicago and St. Louis
   d) Merck and E. R. Squibb
   e) International Business Machines and Burroughs Adding Machines
   f) Dow Chemical and Heyden Chemical
   g) Celanese and American Viscose
   h) Sears, Roebuck and Montgomery Ward
   i) May Department Stores and Gimbel Brothers
   j) Standard Oil of New Jersey and Island Creek Coal Company

   Determine which stock of the two shows the better results on the basis of the relative cost price per share on all of the stocks bought during the entire period as compared to the market price per share at the *end* of the period. Explain why the one stock produced better results than the other.
3. When wholesale and retail prices are rising, what would be the most desirable common stocks to buy from those included in the following list? Explain reasons for your answer.
   a) New York Central Railroad
   b) Commonwealth Edison of Chicago
   c) Standard Oil of New Jersey
   d) American Cyanamid
   e) General Motors
   f) American Telephone and Telegraph
   g) Johns Manville
   h) Kennecott Copper
   i) Island Creek Coal
4. When wholesale and retail prices are falling, what would be the most desirable securities to buy from those included in the following list?

a) United States Government 2½ per cent bonds at 100 due in 1972
b) United States Government 1⅞ per cent certificates at 100 due in one year from date of purchase
c) Common stock of Cleveland Electric Illuminating Company at a price affording a return to the investor of 5½ per cent
d) E. I. du Pont de Nemours common stock at a price giving a return of 5 per cent
e) General Motors $3.75 cumulative preferred, callable at 104, and selling at 100 to return 3¾ per cent

5. Under a portfolio policy based on the buy and hold philosophy, what are the forces and factors (other than need of cash) that lead to the decision to sell securities?

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PART VI

Institutional Investments

Chapter 27

BANKS AND LIFE INSURANCE COMPANIES

A silent revolution in the investment field has been going on for a quarter century or more. Personal savings from salaries, wages, and property income have been turned over in increasing amounts to institutions for investment. Individual savings find outlets in bank deposits, currency, postal savings, mutual savings banks, savings and loan associations, life insurance, and pension funds.

The major savings institutions are the commercial and mutual savings banks, life insurance companies, savings and loan associations, and within more recent years, the investment companies formerly known by the less descriptive title of investment trusts. Fire and casualty insurance companies invest large sums entrusted to them by insurers. Trust funds are committed largely to the care of trust companies, and common trust funds have been set up to afford small trusts the same opportunity of diversification and other advantages available to the larger ones. Pension funds can also be considered as investment institutions.

Each investment institution has its unique problems. Though all are concerned with safety of principal and a reasonable income, each one buys different kinds of securities, faces distinctive problems of marketability, and caters to different investor needs. Some institutions buy securities in blocks of millions, even hundreds of millions of dollars, while others buy largely in units of thousands of dollars.

Commercial Banks

The commercial bank, the bank of loan and discount, for many years dealt almost entirely in short-term commercial credits. The assets of the banks that earned profits for the stockholders, earnings assets as they are called, consisted largely of businessmen's short-term notes. Since 1873, however, the volume of investments has been increasing. The ratio of investments to earnings assets expanded from 3.5 per cent in that year, to 12.3 per cent in 1900, and

to 21.5 per cent in 1921.[1] Since the early 1930's, holdings of securities have rapidly increased. In 1951 (year end), securities of insured commercial banks amounted to 41 per cent of their assets. Of these securities, 82 per cent consisted of the obligations of the United States Government.

The profitability of a commercial bank accordingly depends to a considerable degree upon the management of its investment account. In 1945, slightly more than 52 per cent of the operating earnings of insured commercial banks came from investments. Indeed for the years 1943 to 1947, inclusive, these banks received more income from their securities than from their loans. In the following three years, however, the income derived from loans steadily increased, reaching 51 per cent in 1950 and 55 per cent in 1951. By 1951 as compared with 1945, loans had more than doubled, and United States Government securities had declined about 32 per cent, while holdings of non-Government securities had increased about 83 per cent.

Federal Reserve and Treasury Policy.—The supply of cash for bank investment is influenced by Federal Reserve and Treasury policy. Member banks must maintain, with the Federal Reserve Banks, deposits known as reserves, equal to a minimum percentage of their own deposits. When the reserve requirements of the commercial banks (i.e., the minimum balances they must have on deposit with the Federal Reserve Banks) are increased, they have less funds available for investment, and when their reserve requirements are decreased, they have more. The Federal Reserve Banks, furthermore, can increase or decrease the supply of member banks' reserves by buying or selling their own assets, usually government securities. (See Chapter 20, p. 354.)

Treasury policy also affects the volume of bank cash. From 1930 to 1946, the United States Government spent annually more than its income. Needed funds were raised through the sale of securities. Some were sold to nonbank investors, but large amounts were bought by the commercial banks, thereby increasing the volume of deposits—of cash.

Investment in Non-Government Securities.—The supply of cash is thus largely determined by Federal Reserve and Treasury policies. In the search for investments, the banks, like good merchandisers, seize the initiative and solicit business loans. The volume of such loans depends upon general business conditions and the willingness of businessmen to borrow. When business is active and demand for

[1] *Harvard Economic Service,* May 5, 1923.

bank accommodation is strong, bank loans increase. Bankers want such loans, for the return is usually higher than on investments. When the demand for bank loans is relatively slight, as it was, for example, between 1933 and 1945, banks must search for alternative investments. Under such conditions, able management of the bond account determines, more than any other single factor, the earning power of the bank.

MUNICIPAL BONDS. Banks can also buy municipal and revenue bonds. Bank earnings are subject to federal taxes; hence, the sharp rise in corporate income taxes in the post-World War II period from 38 to 52 per cent increased the demand for municipal and revenue bonds. No federal income taxes are paid on the interest received from these bonds, whereas, with the unimportant exception of those issued prior to 1941, the income from the securities of the United States Government and, of course, from private securities are subject to the payment of such taxes. (See Chapter 25, pp. 473, 476, concerning exemptions on private securities.)

Bank holdings of municipal and revenue bonds have expanded in postwar years concurrently with the decline in the holdings of Treasury issues. For the insured commercial banks, the holdings of "obligations of States and subdivisions" between 1945 and 1951 (year ends) rose from $3.8 billion to $9.0 billion. In the same period, their Treasury securityholdings declined from $88.9 to $60.6 billion. So extensive are these investments in municipal securities that, according to good authority, the commercial banks in 1951 were furnishing one-third of the capital requirements of municipal borrowers.[2]

Since returns on the better-grade municipal bonds are low, some banks have been inclined to place commitments in revenue bonds, yielding higher returns. This practice has drawn a warning from the Comptroller of the Currency. Referring to the tendency to put the municipal securities and the revenue obligations on a par with one another, the Comptroller observed that municipal obligations are more desirable because they are supported by the full taxing power of the governmental unit, rather than by the revenue of a particular project.

[2] Raymond E. Gengren, deputy chief, Division of Research and Statistics, Federal Deposit Insurance Co., in address to Iowa Bankers Association, Nov., 1951. Under the 1951 Excess Profits Tax, these tax-exempt securities are "inadmissible" assets; that is, they cannot be included in invested capital for the purpose of computing the excess profits tax credit. A bank might, because of its ownership of municipal bonds, thus lose the opportunity to save the excess profits tax of 30 per cent upon part of its earnings. A bank can earn 12 per cent upon its first $5 million of invested capital before it need pay excess profits taxes.

REAL ESTATE LOANS AND BONDS. The banks can also make investments in real estate obligations. National banks can invest up to 60 per cent of their time deposits in real estate mortgages, but not to exceed 100 per cent of their capital and surplus. Real estate mortgages were for many years considered unsuitable for bank holding in large amounts, for they were difficult to liquidate and the markets were narrow and specialized. Real estate mortgages since 1934 have become more attractive for bank investment, as indeed they have for many other investment institutions, such as savings banks, saving and loan associations, life insurance companies, pension funds, and philanthropic and educational institutions. Beginning with that year, the Government passed a number of laws providing a variety of devices designed to stimulate the building of homes for owner occupation. The Federal Housing Administration was set up to concentrate most of the risk in mortgage lending on residential properties in the federal Government. Since then, special arrangements have been made for veterans, farmers, war workers, and rental property for all income groups. Out of this legislative ensemble, there has developed a number of securities based on real estate that attracts the funds of institutional investors.

The first of these securities is the long-term mortgage payable over periods ranging from five to thirty years, and made on one- to four-family residences. In rental and cooperative housing, the term of the loan might be forty years. The loan is made to finance improvements to an existing property, to buy a used home, or to build a new one. Up to 95 per cent of the loan may be insured by the Federal Housing Administration, and, in the event of default by the mortgagor and delivery of title to the F.H.A., debenture bonds of the various insurance funds [3] are (subject to a minor exception) delivered to the lender, in an amount equal to the unpaid balance of the loan. These bonds are guaranteed, principal and interest, by the United States. Included in this first group are also loans to veterans. The Government guarantees up to 60 per cent of a loan made to a veteran, with a maximum guarantee of $7,500.

These one- to four-family home loans at the end of 1950 were outstanding in the amount of nearly $47 billion. (By mid-1952 the total had increased to almost $60 billion.) For 1950 alone, $7.8 billion

[3] The F.H.A. Funds are as follows:

a) Mutual Mortgage Insurance Fund
b) Housing Insurance Fund
c) War Housing Insurance Fund
d) Housing Investment Insurance Fund
e) Military Housing Insurance Fund
f) National Defense Housing Insurance Fund

were added, almost triple the rise from 1933 through 1941. Of the 1950 total, the commercial banks held 20 per cent, as compared with 11 per cent in 1929, when bank holdings had reached a record high. In 1945, the year prior to the sweeping postwar upswing, the percentage was 14.

The second of the real estate securities is the mortgage loan on multifamily rental projects. The mortgage cannot exceed $5 million for a private, nor $50 million for a public borrower. These mortgages, like those on the small owner-occupied dwellings, must be amortized by periodic payments. They are also insured, the maximum insured amounts varying with the different kinds of projects.

The third type of security is in the form of a bond, instead of a mortgage. The bond is the obligation of a local, public housing agency, which builds a public project, the homes being rented to low income groups. The difference between the revenue and the expenses (including, in the latter term, the principal and interest on the bond) is made up annually by a grant from a federal agency, the Public Housing Administration. The primary security for the bonds of the local housing agency is the annual contribution of the federal agency. This contribution is unconditional; it is incorporated in a contract with the local borrower; and the bond resolution obliges the latter to use the contribution to pay principal and interest. The local housing agency agrees to charge rents sufficient, together with the P.H.A. contribution, to raise revenue equal to the amount necessary to pay all operating expenses and principal and interest on the bonds.

No federal income tax is levied on the interest paid on these bonds. Since the faith of the United States is pledged to the payment of the contributions to the local borrower, the bonds are, in effect, Government obligations with tax-exemption privileges. They are legal investments for national banks and, in most states, can also be bought by savings banks, insurance companies, trust funds, and commercial banks incorporated under state laws.

An argument against bank investment in real estate mortgages is their poor marketability. Each mortgage reflects a local economic environment, and the factors underlying its value are known only to a few. Hence, the market is narrow; only a small handful of investors know enough about a real estate mortgage to be able to form an informed judgment. Commercial banks (prior to 1934) were, therefore, disinclined to make large commitments in mortgages. Two factors since then have tended to improve their marketability. First, the F.H.A. insurance tends to standardize their quality. The unpaid balance of the mortgage is insured, and capital can, therefore, be the more readily attracted. Secondly, the federal Government has set up

an agency to buy and sell mortgages. The Federal National Mortgage Association, a federal agency with the authority to spend $3.650 billion as of July 1952 for the purchase of mortgages, was originally established to create a private national mortgage market.

The agency, however, has not served its original purpose well. To facilitate the building of homes for veterans at the lowest possible price, a maximum interest rate of 4 per cent on mortgages, guaranteed by the Veterans Administration, was prescribed. Due to the rise in interest rates and the higher rate of 4¼ per cent on some F.H.A. insured mortgages, the supply of money for veterans' loans dwindled. In the summer of 1949, there was made available $1 billion to the Federal National Mortgage Association for the purchase of mortgages including V.A.'s (V.A. refers to those guaranteed or insured by the Veterans Administration). So heavy were the offerings to the new agency (mostly V.A.'s) that the maximum buying authority was raised successively to $2.5 billion, to $2.750 billion, and in 1952 to $3.650 billion. A substantial proportion of the mortgages (89 per cent of a total of $1.849 billion on December 31, 1951) held by this agency were V.A.'s. Investment institutions sold these 4 per cent V.A. obligations and invested the proceeds in the F.H.A. insured type with interest rates of 4¼ per cent.

Though such a large portion of funds of the new mortgage association are tied up in the 4 per cent V.A. loans, its activity in the mortgage market is by no means nominal. The association pursues an active sales program. Since the beginning of its sales effort in August, 1949, to the end of 1950, for example, a total of $489 million of mortgages were sold. To a considerable degree, institutions including banks, savings and loan associations, and mortgage bankers can look forward, in the event of an emergency, to a strong market and to the sale of a large volume of mortgages at prices close to their face value. To this extent, real estate mortgages tend to be liquid, and hence, commercial banks are disposed to invest more extensively in such obligations. They thereby increase their income substantially. Mortgages yield higher returns than Treasury securities, and in the money markets since the early 1930's, they have also afforded better yields than commercial loans, most of the time.

Corporation Bonds. Banks also invest in high-grade corporate bonds. Bonds of this caliber are scarce, though the amounts outstanding are increasing, and competition for them is keen. Life insurance companies in particular, favored until 1950 by virtual tax exemption, have bought many of the choice offerings at private sale. Many of these bonds have maturing dates so far removed as to make them

unsuitable for bank portfolios. In November, 1951, for instance, a number of life insurance companies agreed to buy $150 million of 100-year bonds of the Union Carbide and Carbon Corporation. Though the borrower could at its option pay these notes at stated times at their face value, there was no sinking fund to require it to reduce the debt prior to its maturity. The volume of short-term corporate offerings of suitable investment grade are also small. Bank holdings of corporate bonds, accordingly, are small.

BANK INVESTMENTS. Corporate, municipal and revenue bonds, and real estate mortgages can solve only a fraction of the investment problems of the commercial banks. More than any other investment institutions, banks need liquidity. The securities must be riskless, insofar as any securities in a dynamic world can be without risk, but they must also be quickly convertible into cash. The banks are the suppliers and, in part, the creators of current purchasing power. An unduly excessive commitment in long-term securities places the bank at the mercy of a change in interest rates. A rise in interest rates is reflected in a decline in the price of bonds, and the more distant the maturity, the greater is the price decline. It is essential, accordingly, that the bond account be so arranged that a high degree of liquidity be secured. Bonds in the amounts necessary to fulfill bankers' needs must be supplied largely by the federal Government. Government obligations in a considerable variety of maturities are available for bank investment.

Short-term Treasury bills and certificates are suitable for bank investment. Their yield is usually too low to attract many nonbank investors, except for the purpose of anticipating tax payments. Nonbank investors usually seek the higher returns on intermediate and long-term bonds. In fact, many such bonds can be bought only by nonbank investors; they are not eligible for bank purchase. To increase the supply of higher-yielding bonds for bank investment, the Treasury makes some intermediate and long-term maturities eligible for banks. In the late 1930's and in 1940 and 1941, however, the majority of banks, anticipating a rise in money rates, and a falling bond market bought more bills and certificates and less of the longer-term bonds. Contrary to experience, however, the war and postwar inflation produced a rising, not a falling, bond market. Those few banks that bought long-term bonds between 1933 and 1941 secured better returns than the majority that prudently bought more of the bills and certificates. Most banks, in 1950 on the contrary, wanted more longer-term bonds, though, fortunately in view of price declines in 1951, they could not buy many. Only a relatively small amount of

long-term bank eligibles were then outstanding. They respected the ability of the Federal Reserve Banks to maintain United States Government bond prices at their face value. They were mistaken, however, and in 1951, these bonds dropped below their face values. (See Chapter 20, pp. 355, 356.)

Liquidity in intermediate and long-term obligations can be realized in part through the spacing of maturities. A bank buys bonds with varying maturities so as to produce portfolios with a desired average maturity. (See Chapter 1, pp. 15-19.) To carry out this policy successfully and to afford the banks a reasonable return requires an adequate supply of bank-eligible bonds of the intermediate and longer maturities. Treasury policy can either increase or decrease this supply. If the Treasury issues bills and certificates, the yield on the bank's bond account is reduced; while if it issues five- to ten-year bank-eligibles, the yield is increased. (This statement is based on the yield curve pattern since 1933.) Many other considerations motivate Treasury policy, but this is not the place to undertake their examination. Indeed, some have only slight investment significance.

The size of a bank's investment account is influenced by its deposits, and the volume of its deposits bears some relation to its stock and surplus. For many years, there was a generally accepted rule that deposits should not exceed ten times stock and surplus. The heavy Government bond account has modified the usefulness of that ratio. It is now frequently applied to earnings assets other than Government securities. Government securities, for all practical purposes, are assumed to be riskless. This judgment emphasizes the leverage factor in the banking business. Between 1929 and 1951 deposits of Federal Reserve member banks more than tripled, while their capital accounts increased only about 52 per cent. Bondholdings also expanded more rapidly than capital. The integrity of a Government bond account weighted heavily with long maturities depends in part upon the soundness of the hypothesis that interest rates will not appreciably rise and that the Federal Reserve will hold the prices of Government securities at about their face value. The 1951-52 price decline, carrying long-term and intermediate Government bonds below their face, points to the necessity of widening the capital base of the banking system.

Loans have also increased more rapidly than capital accounts. For member banks of the Federal Reserve, the ratio of capital accounts to loans approximated 25 per cent in 1929, rose to 41 per cent in 1934, declined to 30 per cent in 1945, and moved down sharply to about 20 per cent at the end of 1951.

Summary of Commercial Bank Investment Problems.—Commercial bankers are, therefore, active as investors primarily in loans and in Government bonds, and secondarily in municipal, revenue, and corporate bonds. Their major responsibility is to serve the needs of business for short-term accommodation. In good business years, their loans increase, and in poor years, they decrease. To secure funds to extend accommodation to business, they can sell Government or other bonds, and they can, of course, borrow from the Federal Reserve Banks. The policies of the reserve banks and the Treasury influence the policies of the commercial banks. If, because of the unwillingness of investors to buy at current prices, the reserve banks reduce the price for long-term Government bonds, the commercial banks might be obliged to take a loss when they sell them to raise cash to advance funds to business. If the reserve banks increase reserve requirements, the member banks, in order to raise cash, must call loans or sell bonds. The Treasury can make long-term bonds eligible for bank investment, thereby increasing bank income; it can raise or reduce the rates on bills, certificates, or notes, thereby either expanding or contracting bank income. Changes in rates on Treasury short-term paper also affect rates on business loans, though in a free market, rates on Treasury obligations and on business loans are determined by similar causes.

The commercial banker is thus a student of Treasury and Federal Reserve policy, as well as a diagnostician of the soundness of business loans. He must also assay the quality of municipal, revenue, and corporate bonds, and pass upon the reasonableness of prevailing market prices of such bonds. And for all kinds of loans and securities, he must also pass judgment upon the trend of interest rates.

Mutual Savings Banks

Mutual savings banks in 1952 had about 20 million deposit accounts, representing $22 billion. Each account is small; in the State of New York, for example, a savings bank can accept a maximum deposit of only $7,500 from one depositor. At the end of 1951, however, the average savings bank deposit was only slightly in excess of $1,000. Unlike the commercial banks, the mutuals do not make loans to businessmen. These banks (529 in number and holding 36 per cent of the country's savings and time deposits at the end of 1951) are located in 17 states, though most of their assets come from Massachusetts, New York, and Pennsylvania. In these and other states, personal savings are also deposited with commercial banks. They are known as time deposits.

Laws Regulating Investments.—The laws regulating the investment of the mutual savings banks, which hold about one-third of the time and savings deposits combined, are passed by states. Personal savings have not been declared interstate commerce, and hence, each state is responsible for the regulation of the institutions accepting savings deposits. Each state, accordingly, has its own rules, and the history of such regulation reveals the successive changes in thinking among conservative investors.

Originally, the investments of *each* bank were regulated by legislative charters. Later, the supervision became more uniform. In New York, for example, where the mutuals have attained great popularity, a constitutional amendment of 1874 provided for a "uniformity of powers, rights and liabilities" for savings banks. The following year a law was passed authorizing the purchase of Government securities, securities of the State of New York, and of any other state that had not defaulted for ten years prior to the investment. Investments could also be made in the bonds of any municipality of New York and of real estate mortgages in that state. No investments could be made in the securities of any industries, whether or not they were publicly regulated.

Real estate mortgages were given an early preference and that status has characterized savings bank investment policy ever since. Despite numerous shifts, savings banks have been heavy mortgage investors. Savings banks' assets have grown, and the scope of investments has, therefore, been widened. Laws enacted in the 1890's and in the first decade of the twentieth century permitted the banks to buy bonds of cities located outside of New York and of railroad and street railway companies. Other states, Maine, Connecticut, Massachusetts, and New Hampshire, for example, also permitted banks to put their funds into railroad and street railway bonds. These laws were enacted largely in the late 1890's at a time when money rates had declined to low levels. The savings banks, following the thinking of the average prudent investor, bought long-term bonds, such as Lake Shore and Michigan Southern 3½'s of 1997, Illinois Central 3's of 1951, and the Lehigh Valley Consolidated 4's of 2003. It was believed that low interest rates would last for a long time.

The bankers, however, were mistaken. The low interest rates proved temporary, and a long period of rising rates culminating in 1921 proved costly. In the panic of 1907, savings banks, in order to meet the demand of their depositors, were obliged to sell long-term bonds at depressed prices. This experience taught savings banks the lesson that they could not depend upon a rise in bond prices as a means

of establishing an adequate surplus and reserve account. They, therefore, adopted a policy of bond amortization.

Furthermore, observing the good record of real estate mortgages, they increased their investment in this type of obligation. In 1929, 63 per cent of the loans and investments of savings banks were in mortgages. In the 1920's meanwhile, the bonds of water, gas, and electric light and power companies were added to the list of securities legal for investment. This extension of the scope of legally permissible securities again reflected the changing investment thought of the day. These industries had, by that time, recorded a satisfactory expansion in earnings and, for many years, had experienced no serious defaults.

The law regulating the investments of savings banks gives a state official or state board considerable latitude. It permits the banks to make investments in classes of securities that measure up to earnings, dividend and interest payments, financial strength, and mortgage lien standards. The state official then publishes a list of securities suitable for investment. This inflexible law was liberalized in New York in 1938. The state's banking board was authorized to add to the legal list investments not meeting the legal tests, provided they were approved either by a certain number of banks or by the Savings Banks Trust Company. (See p. 517 for statement on this company.)

Changes in Investment Policy, 1920-52.—The legal list cannot be blindly followed by the banks, for the securities in the list are used as a guide and are not designed to replace careful analysis and sound judgment. The standards laid down in the law reflect the thinking of investment bankers and others who concern themselves with the investment problems, but they, like everyone else, can make mistakes. In the 1920's, the banks made two such mistakes. In that period, many railroad bonds afforded higher yields than those available on other high-quality bonds. The bonds of the railroads were issued by companies in a declining industry and many of the roads in the following decade went through receivership or bankruptcy.

The second mistake was made in the purchase of real estate mortgages on the basis of inflated costs affording returns higher than those realized on other securities. Despite the heavy foreclosures, the yield on mortgages in the depression of the 1930's was reasonable. One study reveals that, in Massachusetts, an average yield of 3.8 per cent was secured in the 1931-45 period, after allowances for losses. After making another deduction of 4/10th of 1 per cent for the cost of acquiring and servicing real estate purchased under foreclosure, the

yield was reduced to 3.4 per cent.[4] An examination of the railroad bond holdings would probably reveal the same conclusion. Capital losses arising from reorganization in bankruptcy and receivership were probably made up by the increased returns on the high yielding railroad bonds. A substantial percentage of railroad bonds carrying 4 per cent, 5 per cent, and 6 per cent coupons remained outstanding in the 1940's. They were not called.

The depression of the 1930's and the war financing of the 1940's again changed the investment policy of the savings banks. Between 1931 and 1945, almost all of the available funds were placed in United States Government bonds; the mortgage holdings relative to total assets dropped sharply. Though Government bonds have dropped from the high wartime levels, they still constitute an important part of the banks' portfolios. At the end of 1951, about 42 per cent of the total assets of the mutual savings banks were invested in Government securities. Savings banks, unlike commercial banks, do not need much liquidity. They carry no demand deposits, and therefore, they need not prepare themselves for sudden withdrawal of substantial sums. Experience indicates that savings deposits have a slow turnover. It is, therefore, unnecessary to hold many securities of short maturities. An examination of the banks' portfolios of United States Government securities shows the adjustment to this background. In 1951 (year end) the insured mutual savings banks had 71 per cent of their total Government holdings in 10- to 20-year maturities—a ratio of long-term bonds unacceptable for commercial banks.

In the postwar years, the mutual savings banks reduced their Government holdings and again turned to real estate mortgages as a leading investment outlet. By year end 1951, about 44 per cent of their total assets were in mortgages. New York State banks, prior to 1949, were not permitted to invest freely in mortgages in other parts of the country. In that year, legislation authorized three or more banks to invest in mortgages insured by the Federal Housing Administration on properties outside of the state. The mortgages are made by the Institutional Securities Corporation, owned and operated by the savings banks in the state. The banks, however, supply the funds to buy the mortgages, but the Institutional Corporation holds title to and services the mortgages. In this way, the banks secure diversification of risks and reduce administrative costs. The bonds are held by the corporation as trustee, and the banks that provide the funds are the beneficiaries.

[4] John V. Lintner, *Mutual Savings Banks in the Savings and Mortgage Markets* (Boston: Harvard University Graduate School of Business Administration, Division of Research, 1948), p. 306.

The savings banks in New York have already had some experience with a central corporate agency. For some years, the Savings Banks Trust Company has acted as a trustee in reorganization proceedings for bonds held by the banks. This company analyzes bond portfolios and prepares comprehensive studies on investment problems, such as diversification and amortization practices. The State of Massachusetts in 1949 also authorized savings banks to buy F.H.A. mortgages secured by liens on property located outside of the state.

Prior to 1951, there was no federal income tax on the earnings of mutual savings banks. In that year, with some exemptions, the banks were subjected to the regular corporate tax rate. In view of the tax-exemption feature, these banks are likely to increase substantially their holdings in municipal bonds, which constituted less than 1 per cent of the banks' total assets in 1951.

Savings banks are interested also in common stock for investment. In some states they are not allowed to buy any stocks. The New England states, however, have long permitted investment in stocks of local commercial banks, and in 1950, Massachusetts legalized the purchase of stocks of banks located outside of the state. In 1951, eleven states allowed the savings banks to buy stocks, but these banks held only 31.7 of the deposits. New York, the most important state in this regard, prohibited investment in stocks prior to 1952. In that year, a law was passed authorizing savings banks to buy stocks up to 5 per cent of their assets, or 50 per cent of their surplus, whichever was smaller.

Savings banks have a long record of investment experience and have learned much about adapting themselves to changing environments. They have demonstrated their ability to introduce those new policies that the changing needs of the time require. The success of their investment policies, by the early 1950's, had become intimately associated with the trend of real estate values.

Life Insurance Companies

Life insurance companies attract more funds than the savings banks, and insurance receipts, even in depression, normally exceed outlays. Receipts consist of premiums, interest, rents, dividends, and capital gains arising primarily from maturities and called bonds. There is also some slight, miscellaneous income. Disbursements consist of death and annuity payments, maturing and cash surrender payments under policy contracts, home office and field expenses, commissions to salesmen, and dividends to policyholders or stockholders.

The insurance business is under the contractual necessity of earning a return on its funds. Between 2½ and 3½ per cent, on the average, must be earned to cover operating expenses and to pay the policyholders the return stipulated in their insurance policies. Investment earnings are important. In 1950, the industry received 78.1 per cent of its total income from premiums, slightly more than 19 per cent came from investment earnings, and the balance from other income. Disbursements consisted of 42 per cent for benefit payments, 16.8 per cent for operating expenses, 1.7 per cent for taxes and 0.9 of 1 per cent for dividends. The remainder, 38.6 per cent, was reinvested in policy reserves, special reserves, and surplus funds. There is also a flow of cash from maturing obligations and called bonds requiring continual reinvestment. In the decline in money rates since 1930, this last source of cash became particularly important. In view of the low level of interest rates, it might not be as important in the future.

The sharp rise in national income and in personal savings in the World War II and postwar years have increased life insurance assets to new high records. In 1929, they amounted in billions to nearly $17.5; in the depression year of 1932 to nearly $20.8; and in 1940 to over $30.8. Eleven years later, they advanced further to a total of $68.2. More savings flow into life insurance than into any other private investment institution. Life insurance assets are more than three times those of the mutual savings banks, and about three and one half times the assets of the savings and loan associations. Investment of life insurance funds, approximating $4 billion annually, cannot await opportunities such, for example, as a rise in interest rates and a drop in bond prices. For the most part, these funds must be invested currently as they are received.

Legal Regulation of Investments.—These funds are invested, like those of the savings banks, in accordance with the provisions of state laws. The first law regulating life insurance investments was passed in New Jersey in 1852, followed a few years later by New York. The laws of both states prescribed the investments that life insurance companies could buy, including Government bonds, state bonds, and mortgages. New York also permitted the purchase of both bonds and stocks of New York corporations and of loans with such securities as collateral. The laws in these and other states, over the course of years, widened the range of investments. State laws set up earnings standards, so that only securities of companies with good earnings records could be bought. Insurance funds were, therefore, not available for the purpose of financing new industries or

new companies in established industries. As with mutual savings banks, the state laws serve only as a general guide. They lay down only a general pattern within which the companies have considerable freedom in their choice of investments.

Evolution of Investment Policies.—The investment policies of the life insurance industry have generally lagged behind the growth of American industry. As an industry expanded and developed a good earnings record, and as it established long-term debts amply covered by earnings, its securities were successively included in the list of legal investments. Those industries, accordingly, that grew out of earnings and from the proceeds of stock sales sold few securities to insurance companies. The expansion and rise to power of the automobile, nonferrous metals, biscuit, tin and glass containers, chemical, farm equipment, and business machines industries, for example, were financed largely out of funds raised from other sources.

Railroad bonds, however, found a place in insurance company portfolios, and their volume increased over the years until the 1930's. Mortgages were also popular, but between 1931 and 1939, they declined from nearly $7.7 billion to nearly $5.7 billion. This was paralleled by an increase of real estate owned from $683 million to over $2.1 billion. These two sets of data reveal the foreclosure of real estate mortgages and the transfer of ownership to the insurance companies in the depression years.

Since 1939, there has been a substantial increase in mortgage holdings, reaching in 1950 a total of $16.1 billion and $19.3 billion in 1951. In the postwar years, the substantial rise in mortgage holdings reflected, in part, the improvement in quality of these obligations due to Government insurance and guarantees, as outlined previously. The yield was also more attractive than on other debt-securities. Although the mortgages owned reached record dollar amounts in 1951, the percentage (28.3) to total assets was far below the 43 per cent figure of 1927. Though the real estate holdings of insurance companies are low, some have made comparatively large investments in rental housing projects, particularly in New York and to a lesser degree in other states.

Holdings of Government securities have reflected primarily wartime requirements. An increase between 1860 and 1865 reflected the needs of the Civil War. The decline in the Federal debt until the early 1890's was paralleled by an even more rapid decline in life insurance holdings of these obligations. In the years prior to World War I, the holdings of Government securities dropped to zero. They

advanced again in the war years, reaching $907 million in 1922, and then dropped to a post-World War I low of $336 million in 1930. Thereafter, as the volume of Government bonds increased, life insurance holdings of these bonds also advanced, reaching $21.6 billion in 1946. In the next five years, however, probably to increase their yields, the insurance companies sold more than $10.5 billion of these bonds and reinvested the proceeds in non-Government securities. By the end of 1951, United States Government bonds had declined to $11.0 billions. Between 1946 and 1951, the percentage of Government bonds to total assets declined from 44.9 to 16.1 per cent.

Foreign government bonds do not occupy an important place in life insurance portfolios. Most of such holdings are in the bonds of the Canadian Government.

The field of private corporate securities was opened only gradually to life insurance companies. By 1898, investor confidence in the financial strength of the well-managed railroads led to legislation legalizing the purchase of those bonds that met certain statistical tests, and in that year, such a law was passed in New York. Some years later, the bonds of street railway companies were added to the legal list, but the bonds of water, gas, and electric light and power companies were not included until the 1920's. By this time, moreover, the bonds of industrial companies had also been admitted.

The changing proportion of holdings in corporate securities reflects the changing fortunes of American industries. Street railway bonds were legal for only relatively few years; in fact, the investment life of the street railway industry was remarkably brief.

Railroad bonds enjoyed a longer life in insurance portfolios. By 1921, slightly more than twenty years after they were admitted into the legal list in New York State, they represented 21 per cent of insurance assets. Encouraged by the Congressional mandate upon the Interstate Commerce Commission in the Transportation Act of 1920 to adjust rates so as to afford the railroads an opportunity to earn a fair return upon the fair value of their property, the life insurance companies made additional investments in railroad bonds. Holdings in these securities increased from $1.6 billion in 1921 to $2.9 billion in 1930, representing in the latter year 15.4 per cent of insurance assets.

Congressional efforts to stabilize railroad earnings proved unsuccessful. In the 1920's, their dynamic expansion was replaced by stagnation, and in the depression, this retarded growth, together with an increase in bonded debt of the previous decade, produced a

heavy crop of bankruptcies and receiverships. The earnings of roads whose securities, for many years, had merited a high investment rating—New York Central, Pennsylvania, Baltimore and Ohio, Chicago and Northwestern, Lehigh Valley and Delaware, Lackawanna and Western, for example—declined sharply. This debacle had not been anticipated by life insurance managements, and in the 1930's and 1940's, new investments in railroad securities, with the exception of equipment obligations, dwindled to small proportions. Even including equipment obligations, the percentage of railroad securities of total assets amounted to only 4.8 per cent in 1951.

The securities of water, telephone, gas, and electric companies have recorded an experience characteristic of expanding industries. No serious factors of obsolescence have intervened to retard their growth, and their bonds have produced satisfactory investment results. Even secondary bonds, rated poorly for many years by the statistical agencies, have paid their interest and met their principal obligations, with insignificant exceptions. Life insurance companies have increased their holdings in public utility bonds from $160 million, aggregating 2 per cent of assets in 1921, to $11.2 billion in 1951, representing 16.5 per cent.

For many years, municipal bonds were important, reaching a 1940 peak of $2.3 billion or 7.7 per cent of assets. In the war years, there was a decline reaching a low of $936 million, or 1.9 per cent of assets in 1946. By 1951, the amount increased to 2.5 per cent of assets.

A significant investment trend in life insurance is revealed by the increase in industrial and miscellaneous bonds. Industrial bonds embrace all private corporate securities, except railroads and public utilities. There is, of course, no such industry as "industrial," with which railroads and utilities can be compared. The industrial grouping includes a wide variety of industries, some expanding and prosperous, others decaying.

Industrial bonds held by the life insurance companies increased from $45 million in 1921 to $284 million in 1929, an increase from 0.6 of 1 per cent to 1.6 per cent of assets. A number of insurance companies at that time held few such bonds. In 1933, the Northwestern Life held none, while Massachusetts Life and John Hancock held less than $2 million each. The increase since 1929 has been significant. There was an increase in the first two depression years of 1930 and 1931, and after a slight decline in 1932 and 1933, the volume expanded to $1.8 billion by 1941. Due to priority of Government wartime requirements, they expanded only slightly during

the war period. A spectacular expansion took place after 1945, reaching $11.4 billion in 1951, equivalent to 16.8 per cent of assets.

This expansion in the holdings of industrial bonds reflects a new combination of forces, not entirely wholesome. Well managed and successful corporations had reduced their debts in the 1920's and 1930's. They financed most of their needs from profits and depreciation allowances and from the proceeds of the sales of stock. Many corporations still follow this policy. In the last 15 years, however, a number of new factors have increased the use of bonds.

In the 1930's and in the war years of the 1940's, capital expansion was below normal. But after the end of the war, business spent heavily for plant and equipment. The war-created liquid funds, together with the postwar corporate profits, were insufficient to finance this program. An inflationary rise in prices made the problem more difficult. It was, therefore, necessary for many industries to secure outside capital to raise the funds required, and many companies decided to sell bonds. This situation was a godsend to life insurance companies. At a time when corporate needs were great, the supply of life insurance funds was ample. Corporations, moreover, were able to reduce the cost of borrowing by selling entire issues direct to the life insurance companies—a practice known as private placement. They were thus relieved of the necessity of registering their issues with the S.E.C.

It was observed previously that this development was not entirely wholesome. Corporations have been encouraged to borrow, and some have yielded to the temptation. An overwhelming percentage of the bonds bought by the insurance companies are, however, of high quality.

A new form of investment for insurance companies has recently been made available. As of May, 1952, forty-one states allowed insurance companies to buy income-producing commercial and industrial properties for subsequent lease to the seller. Other tax-exempt institutions, such as colleges and charitable foundations, also invest in this manner. The rent repays to the insurance company-lessor the purchase price of the property plus interest by the end of the lease. Thereafter, the lessee usually has the option of renewing the lease. Sometimes the lessee is given an option to repurchase at the end of the lease. Corporations in this way secure liquid funds for their needs, and the insurance companies secure a good return, usually in excess of that realized on corporate bonds. Selling companies also have income tax advantages. The rental, consisting largely of the repayment of principal, is a deductible operating expense to the lessee.

Investment Returns.—The problem of investing the heavy flow of life insurance company funds has been complicated by the sharp reduction in interest rates. This trend has reduced returns on invested funds from more than 5 per cent in the years from 1921 to 1930 to a low of 2.88 per cent in 1947. A slight increase to 2.96 per cent was registered in 1948. In 1950, the return was 3.09 per cent, and in 1951, 3.18 per cent.

Before the early 1930's when the downward trend developed, the life insurance companies were able to earn substantially more than the amount needed to maintain the rates required for their reserves. They then considered earnings of about 3.2 per cent sufficient for this purpose. The margin between 3.2 per cent and the higher return enabled them to pay dividends to their policyholders or shareholders. The drop in income has made it somewhat more difficult to secure the earnings needed to provide a margin over policy reserves.[5] Such a margin is essential to conservative management. Experience teaches that some investment losses are likely and that a reserve or surplus to absorb such losses is desirable. To some degree, the loss in income from reduced interest on bonds bought since the middle 1930's was made up partly through the redemptions of bonds at premiums in excess of their face value. Also, a high interest rate was paid on railroad bonds that were not redeemed.

Current Investment Problems.—The life insurance industry has been a satisfactory conservator of funds over a period of many years. Its investment problems have frequently changed, and new ones now confront the industry. Heavy investments in real estate and in mortgages, for instance, have been made at historically high costs. The future of the cost level cannot be foreseen. Though some part of the high cost has been frozen into the price structure, a substantial part may be lost in succeeding years. Increasing productivity, arising from technological progress, has led in the past to lower cost and price levels. Changes in location have also exerted effects upon real estate values. Against these possibilities are the carefully drawn contracts by which mortgage debts are reduced and real estate ownership amortized. Also Government insurance and guarantees on a part of their mortgage portfolios are a stabilizing influence.

Large sums have also been committed to a variety of manufacturing and distributing industries. Management, a baffling and elusive factor, affects the earning power of many of these companies. The

[5] Dividends also arise out of favorable mortality rates, and in this regard, the life insurance companies have had a steadily improving experience. This has, in part, offset their loss in investment earnings.

soundness of many of these investments will be tested in periods of business depression or of general deflation.

Another serious problem is the low interest rate of many long-term bonds, for a sharp rise in interest rates would depress the prices of such bonds. Securities, both stock and bonds, must be valued in accordance with the directions of the Committee on Valuation of Securities of the National Association of Insurance Commissioners on the basis of market quotations. A rapid decline in bond prices reflecting higher interest rates might reduce the value of assets to a point at which the surplus or reserves might be impaired. In an emergency, however, insurance companies might be authorized, as they were in the 1930's, to carry bonds on a basis substantially higher than market values. Many different schemes for the valuation of securities on a basis other than market quotations have been proposed. These are designed largely to stabilize long-term security values.

Investment in Common Stocks.—Another problem that has assumed increasing importance in recent years is the purchase of stocks by the life insurance companies. Opinion in the industry is divided. One school of thought holds that life insurance funds should go into preferred and common stocks, and most states have authorized the purchase of common stocks. New York took the step in 1951 by allowing investment in common stocks (except bank and insurance stocks), in amounts equal to not more than 3 per cent of the assets, or one-third of the surplus, whichever is lower. There are others who believe that the purchase of common stocks would be a mistake. Stocks are risk-bearing securities. The personnel of the industry, furthermore, is not trained to make the necessary analysis that stock investment requires.

A strong objection to the purchase of stocks is their excessive market fluctuation. The prices of high-quality bonds react largely to changes in interest rates. Prices of high-quality stocks, however, move within an exceptionally wide range. A severe depreciation in market values might reduce assets to an extent sufficient to impair reserves. These fluctuations frequently do not reflect corresponding changes in investment value. Advocates of the purchase of common stocks for life insurance portfolios have, therefore, proposed that securities be valued on some basis other than year-end market quotations.

It has also been proposed that contingency reserves built up from earnings be established to amortize the cost of the stock. Other and more elaborate methods for stock valuation have been suggested, but

so far, this problem has not been solved. Under proper safeguards, the purchase of reasonable amounts of stocks would increase investment returns and thereby help in solving one of the industry's acute problems: that of securing a more favorable return on its assets.

QUESTIONS AND PROBLEMS

1. How is leverage created for holders of bank stocks, even though no senior securities are usually issued?
2. In what way, generally speaking, should the prices of commercial bank stocks move in periods of inflation? In what ways did United States Treasury and Federal Reserve policy in the 1940's disturb this tendency?
3. Why should the investor in commercial bank stocks follow closely fluctuations in Treasury policy with regard to the management of the United States Government debt?
4. Why have the investments of commercial banks come to consist so largely of Government securities?
5. Why is the investment policy of a mutual savings bank likely to differ from that of a commercial bank?
6. Explain why savings banks and life insurance companies buy proportionately more real estate mortgages than commercial banks.

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Chapter 28

PROPERTY INSURANCE, INVESTMENT AND TRUST COMPANIES

Fire and Casualty Insurance Companies

Many of the fire and casualty companies are old, well-seasoned enterprises. Companies established in the late eighteenth and early nineteenth centuries are still in business. They have survived many depressions, wars, and disasters, including the San Francisco earthquake, the Boston and Chicago fires, and many hurricanes, floods, and forest fires. Unlike life insurance, most of the business is done by stock companies. Since there is no substitute for insurance protection against property loss, there is no competition with other industries; though, of course, insurance companies compete with cooperatives. There is, however, no business obsolescence in the strict sense of the word. Bonds and preferred stocks are rare, and the investor, to secure participation in the fortunes of the industry, must usually become a common stockholder.

Source of Funds for Investment.—Fire and casualty premiums are usually paid from one to five years in advance of insurance protection. It is, therefore, necessary to set up unearned premium reserves. Since frequently exact losses cannot be determined for some time, on account of prolonged negotiations or even litigation, loss reserves, particularly for casualty companies, are also established. Each company sets up reserves, either upon the basis of its own experience, or as required by law. As a further safety factor, substantial surplus accounts are maintained. These frequently exceed the capital stock and in almost all cases, equal at least 50 per cent of the stock. Thus fire and casualty companies invest funds represented by unearned premium reserves, loss reserves, surplus and capital stock.

These companies follow diversified investment policies. Unlike life insurance carriers, both fire and casualty companies have substantial holdings in common and preferred stocks. Because of the nature of their business, they have relatively large cash holdings,

and hence, the higher return on common stocks is balanced somewhat by the absence of return on cash balances. In 1949, for example, a group of thirty-five major fire companies had nearly 10 per cent of their assets in cash, and twenty-five casualty companies, slightly more than 10 per cent. Both invest heavily in government bonds.

Dividends Paid from Investment Income.—The fire and casualty industry is unique in an important respect. Organized for the purpose of providing insurance coverage, it has long followed a practice of paying few dividends out of its underwriting profits. This policy is even more unusual in the light of the public character of the business. Its rates are subject to state regulation, and the regulatory authorities establish rates, which, over a course of years, permit the industry to earn a reasonable return. Underwriting profits, however, fluctuate widely. In a year in which a heavy volume of new insurance is written, the premiums increase, but profits decrease. This is due to the fact that a company writing a new policy must pay in that one year "acquisition costs" between 30 and 40 per cent of the premium. Unlike other industries, a rise in gross revenue in a particular year is accompanied by a decline in underwriting profits.

If there is a general rise in prices, the expense of settling claims for losses also increases. In each of the years, 1945-47, in fire insurance, for example, there was an underwriting loss. In 1948 and 1949, there were substantial profits. For the five year 1946-50 period, however, profits approximated only 2.1 per cent on invested capital even though a 6 per cent return was considered reasonable by the National Association of Insurance Commissioners. Similar tendencies prevail in casualty insurance. As price levels decline or as funds in the reserve for unearned premiums are converted into profits, underwriting profits increase. Even though underwriting profits are frequently substantial, returns to the investor are paid largely from investment income.

Investment Policies.—The investment policies of property insurance companies vary widely, and investors in their stocks can make commitments in different kinds of portfolios. Some companies are heavy buyers of common stocks, for example, Fidelity-Phoenix Fire, Continental Insurance, and Insurance Company of North America. Others are heavy bond buyers, such as American Automobile, New Amsterdam Casualty, and Traveler's Insurance. Tax considerations, also, have a bearing upon the portfolio. Sharp tax increases in 1950 and 1951 were accompanied by increases in the holdings of tax-exempt municipal bonds. For the year ending June 30, 1951, for example, Continental Insurance and Fidelity-Phoenix

Fire Insurance, two major property insurance carriers, reported substantial purchases of municipals. The former expanded its municipal bonds from 7.7 per cent of its assets in 1950 to 13.1 in 1951. The other company increased its holdings from 5.7 per cent in 1950 to 10.9 per cent in the following year. Both companies, meanwhile, reduced their United States Government issues substantially. There was a clearly defined shift from Treasury to municipal issues.

To an investor in fire and casualty stocks, the investment program is more important than the underwriting losses and profits. Any pronounced increase in underwriting losses is normally followed by rate increases granted by the regulatory authorities. Few losses to the investor in this field can be attributed to managerial errors in the underwriting end of the business. Normally 75 per cent of the operating profit is earned from investment income, and 25 per cent, from underwriting.

Regulation of Investments.—Investments made by fire and casualty companies are regulated by state laws. There is little uniformity among states. Some exercise no control, while others regulate only the investments made with funds raised through the sale of capital stock. Others, including New York, regulate the securities purchased for reserves, surplus, and capital stock. In New York, an amount equal to the minimum capital required to do business must be invested in United States Government bonds, bonds of New York State and municipalities, and mortgages on property located in that state. Subject to these restrictions, fire and casualty insurance companies can buy other specified classes of securities, including stocks or bonds of solvent corporations. Government, state, and municipal bonds are allowed in all of the states. Most states also permit the purchase of bonds of various federal agencies. Fire and casualty companies can therefore buy a greater diversity of securities than the life insurance companies.

Investment Record.—With minor exceptions, very few heavy investment losses have been incurred in the portfolios of fire and casualty companies. The average percentage earned on total assets has, in recent years, however, declined, in part because of the necessity of maintaining substantial cash balances. Net investment earnings on admitted assets (these assets include cash balances) of stock fire and casualty companies, for example, dropped from 4.3 per cent in 1925 to 2.5 per cent in 1951. The return on stocks normally exceeds the return on bonds. One study reveals that, over a 30-year period between 1908 and 1938, the average annual return of twenty-five of the large fire insurance companies was 4.43 per cent on bonds and

6.05 per cent on stocks.[1] Although fire and casualty companies have only a nominal amount of senior securities outstanding, their common stocks possess leverage characteristics. Conservative financial policies, particularly the payment of only a portion of profits in dividends, have built up substantial surpluses. The income produced by the investment of such funds flows to the common stockholder.

Investment Companies

A more recent institution to attract the funds of the investor is the investment company, known earlier in its growth, as the investment trust. Unlike banks and insurance companies, the exclusive function of the investment company is the purchase and sale of securities on behalf of its stockholders. Persons who are specially trained and skilled in the art and practice of investments, so runs the argument for the justification of this institution, receive the funds of many investors, and so invest them as to secure higher returns than investors themselves could secure. Long before such companies were organized in the United States, a record of experience had been built up in England. There, the investment companies were established largely in the business boom of the late 1880's, but many collapsed in the depression of the early 1890's. Companies thereafter learned their lesson from the experience of their predecessors, and most of these have since been prudent and fairly successful.

History of Investment Companies.—A few investment companies were established in Boston in the early years of the twentieth century, but they did not attract an extensive public following. The investment company movement in this country had its origin, substantially, in the 1920's. In accordance with a primary attribute of human nature that people benefit only from their own experience and not from observing the experiences of others, the American investment companies repeated the error of their British predecessors. The percentage of failures among the investment companies established in the excited speculative markets of 1928 and 1929 was high. New companies were organized in the years following the business recovery of the mid-1930's, and since then, the industry has attracted an investment following.

Open and Closed Companies.—A distinction is made between open-end and closed-end companies. The former type, known also

[1] Dwight C. Rose, "The Policyholders' Interest in Equity Investments" in *Proceedings of the Annual Meeting of the American Life Convention*, Chicago, 1939, p. 277.

as mutual funds, sell new shares continuously, and these are redeemable at the option of the holder at their approximate net asset value. A charge averaging about 7½ per cent and ranging between 6 and 9 per cent, covering salesmen's commissions, expenses, and an investment management fee, is paid upon the purchase of the shares. Most funds make no charge for the sale. Some funds offer lower sales charges for quantity purchases. One fund has the following scale: on purchases between $10,000 and $25,000, the charge is reduced from 7½ to 6¾ per cent; between $25,000 and $50,000, it is 4¾ per cent; between $50,000 and $100,000, it is 3¾ per cent, and on orders of more than $100,000, the charge is reduced to 2¼ per cent. Another fund grants special concessions to charitable, educational, and other nonprofit institutions.

A closed-end company raises its funds at one time, and its common shares are not redeemable at the option of the holder. These companies, like mining and manufacturing companies, can make additional offerings. Their securities after the initial offerings are bought and sold like shares of ordinary business corporations, and some are listed on the New York Stock Exchange.

The growth of investment companies, rapid since 1940, has been concentrated largely in the open-ends. These companies trace their origin in this country to Boston in 1924. By 1941, the assets of the open-ends (103 companies) had increased to $401,611,000, and by December, 1951, to about $3,129,000,000. This is, of course, only a small element in the institutional investment field, constituting, for example, only 4.5 per cent of life insurance assets. Between 1942 and 1951, the number of shareholders are reported to have increased from less than 300,000 to almost 1,000,000.

Federal Regulation.—Since 1940, the investment companies have been subject to federal regulation, the Investment Company Act of that year requiring registration with the S.E.C. The law enjoins some practices followed by some companies in the days prior to regulation. For example, companies are not permitted to sell stocks short nor to trade on joint accounts, and, except through registered underwriters, they cannot serve as distributors of shares. Open-end, as well as the closed-end, types must inform their shareholders what portion of the payments comes from income, and what portion from realized capital gains, on a per share basis. Open-end companies formed after 1940 can issue only one class of security, common stock. Closed-end companies can create debts, provided they are covered three-fold by assets; preferred stocks must be so covered twice. Other provisions prescribe the minimum amount of capital required

for a new company and supervise the manner in which the securities are sold to the investors.

Varieties of Investment Companies.—Investors in investment companies are offered an assortment of speculative and investment opportunities:

1. There are leverage and nonleverage companies. Open-end companies are normally of the nonleverage type, and under the Act of 1940, no leveraged open-end companies can be created. Leverage is found in the closed-end companies, though some of the most successful closed-end companies have no leverage. An outstanding illustration is the Lehman Corporation, one of the few closed-end concerns organized in the high-price period of the late 1920's, which had, nevertheless, succeeded in increasing the asset values of its common stock by 1950.

Just as in railroads, utilities, and other debt-issuing industries, there are companies with different degrees of leverage. General American Investors, with total assets at the end of 1950 of $26 million and with $6.2 million of par value preferred, is conservatively leveraged. Central States Electric Corporation, in reorganization since 1942, with assets of $35.8 million senior securities consisting of two bond and four preferred stock issues and with face values substantially in excess of the assets as of 1950 year end, had a leverage sufficient to excite the fancy of the most speculative trader.

2. Investment companies also offer a variety of diversified and specialized funds. Balanced funds usually invest in a diversified list of bonds and preferred and common stocks, though most of the time they are largely invested in common stocks. The managers endeavor to provide a stable income. For example, the Eaton and Howard Balanced Fund on December 31, 1950, had in relation to its total assets, 1.26 per cent in cash, 20.05 per cent in bonds, 17.05 per cent in preferred stocks, and 61.64 per cent in common stocks. There are other funds, however, whose investments are confined to a few industries and, in some cases, exclusively to one industry. Century Shares Trust, for example, confines its holdings largely to the insurance and banking industry, and at the end of 1951, 53.3 per cent of its assets were invested in fire insurance stocks, 27.0 per cent in stocks of casualty, life insurance, and insurance holding companies, 19.6 per cent in stocks of banks and trust companies, with cash and Government obligations making up the remainder of less than 1 per cent.

Investment companies specializing in securities of chemical, railroad, aviation, and more recently in the television and gas industries

have been organized. These specialized companies prosper with the prosperity of the industry. Chemical Fund, for example, did well in making commitments in the profitable and expanding chemical industry. Carriers and General (known originally as International Carriers), which restricted its original investments largely to railroad securities, shared the declining fortunes of that industry. Since the company changed its policy to one of diversification, with balanced holdings in bonds and preferred, though with prior emphasis on common stocks, it has done better. In more recent years, National Aviation Corporation (a closed-end trust), whose holdings were confined largely to aircraft and airline securities, reflected the postwar downward trend in the earnings of these industries. Between 1945 and 1949, the market value of its assets declined from $13,307,000 to $6,165,000, but on September 30, 1951, the value rose to $9,391,000. The investor who has faith in the growing fortunes of an industry, but who does not believe himself competent to select the successful corporations within that industry, can entrust the selection to an investment company. Expert knowledge and sage judgment, however, do not always go hand in hand.

3. There are some companies that invest their funds in the stocks of companies in expanding industries. A leading illustration is National Investors' Corporation. At the end of 1950, this concern had 97.9 per cent of its assets invested in common stocks and the other 2.1 per cent divided between cash and receivables. Another is Growth Industry Shares organized in 1949. The task that such a company undertakes is difficult. Some of the expanding companies are seasoned, and their stocks have an excellent investment record. Other growth stocks represent companies without an established dividend record. Here, judgment must take into consideration the character of the management, the probability of price wars, the overexpansion of the industry, and the development of substitutes, always a danger in the early stages of an industry's expansion. These problems have been already examined in previous pages, and for the most part, the only protection of an alert investment manager against these normally recurring, but always unexpected, influences is the quick liquidation of adversely affected securities in a strong market. This is truly a task of Herculean proportions.

Another company (a closed-end) that places a premium on growth is the State Street Investment Corporation. Its funds are frequently invested heavily in "special situations," in securities not classified strictly as investments. These have relatively poor markets, but, nevertheless, appear to have unusual opportunities for rapid

growth. From time to time, this company has paid substantial capital gains dividends.

4. Some companies invest largely in bonds, such as the Bond Fund of Boston and the Manhattan Bond Fund. The former company on September 30, 1951, had 68.90 per cent of the market value of its assets in public utility bonds, 11.36 per cent in railroad bonds, and 18.12 per cent in industrial bonds, with the balance in cash and receivables. The latter, as of October 1, 1951, had (on a market value basis) 81.26 per cent in railroad bonds, 7 per cent in utility bonds, 9 per cent in industrial bonds, and the balance in cash. Few high-grade bonds are in this list. Its holdings consist principally of bonds selling at substantial discounts. Investors who have faith in the rehabilitation of the credit standing of the weaker members of the railroad industry can, through the Manhattan Bond Fund, secure a wide diversity of holdings. Other bond funds include the Bond Investment Trust of America, the bond series of the Keystone Custodian Funds and of the Union Trusteed Funds.

5. There are others that invest largely in stocks. Massachusetts Investors Trust is a leading example. This fund on December 31, 1951, had 96.6 per cent of its assets invested in common stocks; 0.9 per cent was in United States Government securities, and the balance scattered among bonds and cash.

6. Then there are regional funds. An investor who has faith in Canada can buy a participation in a diversified list of securities in this country through the Canadian Investment Fund. And one confident of the future of Texas can invest his savings in the Texas Fund.

Institutional Investments.—The satisfactory record of investment companies has recently led to the inclusion of their stocks in the portfolio of savings banks and fiduciaries. New Hampshire permits savings banks to invest a maximum of 5 per cent of its deposits in the shares of open-end companies. To qualify, the company must be registered with the S.E.C. as an open-end company. It must be at least ten years old, with net assets of a minimum of $10 million and with no debts or stock outstanding having a priority over the shares bought by the banks. It must also have paid dividends from income in each of the ten years preceding the purchase of the security.

Some states, such as Oklahoma, Nebraska, and New Hampshire, have legalized the purchase of investment company securities by fiduciaries. In Massachusetts, the Probate Judges have approved their purchase by trustees. They accepted the fact that the investment in open-end shares was "not such a delegation of authority on

the part of a trustee as would warrant an objection on that score alone." In that state, trustees, except when bound by the trust itself, have for many years been permitted to use the "Prudent Man Rule," i.e., to buy securities of a kind that are bought by men of prudent judgment. A similar line of reasoning was used by the Supreme Court of Oklahoma in 1951 in sustaining the legality of trustees' purchase of investment company shares.

Accurate data on institutional ownership of open-end funds shares, as a whole are not available. Information on individual funds suggests a wide distribution of ownership. The Eaton and Howard Balanced Fund, for example, reported in 1951 that its shares were owned by 644 trustees, guardians, and administrators, 106 banks and trust companies, and 152 churches and other religious organizations. A survey made in June, 1951, of a number of open-end funds holding about 70 per cent of the industry's assets disclosed that insurance carriers, banks and trust companies, religious organizations, schools, colleges, hospitals, trustees, guardians, executors, pension funds, and miscellaneous institutions and fiduciaries owned shares equal to about 10 per cent of the assets of these representative funds.[2]

Record of Investment Companies.—The record of investment companies, especially since the early 1940's, has been good. There has, of course, been no uniformity of results, and some funds have done better than others. The records of all companies are open and available for public examination, and the investor can obtain the facts to help him in formulating a judgment. Care must be taken, however, not to relate conclusions too closely to past experience. Much of the rapid growth of the open-end funds has occurred since 1940. Indeed, their asset increase in 1949 exceeded their total assets at the end of 1940. Since 1940, the prices of investment-grade common stocks have shown a marked rise. No spectacular liquidation, accompanied or preceded by serious business recessions, has, however, characterized the markets of the 1940's. But there are a number of companies, both open-end and closed-end, that successfully survived the panic market between 1929 and 1933. The record of the balanced funds in the last fifteen years has been particularly successful.

Investment companies represent a welcome addition to the art of portfolio management concerned mostly with investment in common stocks. Good common stocks, over the course of years, normally realize better returns than bonds, but the word "good" must be stressed. Holding good and eliminating poor stocks, thereby avoid-

[2] "Pension Progress in an Armed Economy," *Journal of Commerce*, June 14, 1951, p. 26.

ing heavy losses, is an attribute of high-grade investment management. The ability to avoid holding good stocks at excessively high prices must also be demonstrated. By their success in securing a reasonable return on stocks, investment companies can help counter the strong current running in favor of the creation of public and private debts. Their growth will give ample opportunity to test their mettle as investment managers.

Savings and Loan Associations

Savings and loan associations or building and loan associations—as they are known under some state laws—invest their funds primarily in mortgages on homes of the low- and moderate-income groups. The average face value of the mortgages held by these associations in 1952 was less than $5,000. Organized under either state or federal laws, the associations sell stock and make loans to stockholders secured by mortgages on their homes, though loans are also occasionally secured by the stocks of the associations. Loans, however, can be made for purposes other than the building of new, or the purchase of used, homes.

Associations issue shares on the basis of three types of accounts. The shareholder may place his funds with the association at such times and in such amounts as he chooses, dividends being added to the share account as earned. In a second type of contract, the shareholder pays the par or share value and receives dividends by check. In a third type, the association issues series of shares for which the shareholders pay in periodic installments until the payments plus the dividends equal the par value of the shares. Funds of many small investors (about 10 million) are thus diverted from current consumption and are channeled largely into a major capital good—the providing of homes.

As of December 31, 1951, more than 89 per cent of the $18 billion assets of these associations were insured by the Federal Savings and Loan Insurance Corporation, an instrumentality of the United States Government. This corporation insures savings up to $10,000 of each investor in both federal and state chartered institutions. Upon failure of an association, the corporation, at its discretion, pays the depositor either in cash or in new accounts in operating insured institutions.

The financial position of the savings association is further protected by its membership in the Federal Home Loan Bank System. Eleven Federal Home Loan Banks in a similar number of districts operate under the supervision of the Home Loan Bank Board. In

addition to the state and federally chartered associations, insurance companies and savings banks can also become members of the system. The Home Loan Banks can lend money to their members, and the banks, in turn, can raise funds in three major ways: (1) they can issue consolidated bonds, as joint obligations of the eleven banks, (2) they receive deposits from member institutions, and (3) they receive cash from subscriptions of such institutions to the stock of the Home Loan Banks.

More than any other investment institution, the earning power of the savings and loan associations is dependent upon the income from real estate mortgages. In fact, substantially more than 90 per cent of their assets may be so invested. This is clearly recognized by federal law, which requires members of the Home Loan Bank System to maintain only 6 per cent of their withdrawable accounts in cash and Government securities.

Most of the remaining funds are invested in mortgages. At the end of 1950, for example, the associations held about $13.7 billion of mortgages on one- to four-family, nonfarm homes, or 29 per cent of the total volume then outstanding. This was more than the amount held on that date by any other investment institution. Commercial banks came second with only 20 per cent of the total, and life insurance companies third, with only 18 per cent. In assessing the relative importance of these figures, one should note the fact that the last-mentioned institution has about 3½ times the assets of the savings and loan associations.

An examination of the returns on the shares of these associations discloses an interesting trend. The average return is about 2.5 per cent, though an increasing number are paying 3 per cent. Some in California in 1952 were paying 3½ per cent. On United States Government E bonds, if they are held for the full term of 9 years and 8 months, the investor realizes 3.0 per cent. However, if the bond is redeemed prior to maturity, the investor gets less. Subject to some exceptions, the savings and loan shares, however, draw the full rate immediately. Funds to the credit of the shareholders, furthermore, can be withdrawn at their option, usually, without notice. The shareholder's investment up to $10,000 is protected by United States Government credit via the insurance route. For short-term investors, these shares, therefore, offer attractive competition with the E bonds.

Trust Companies

Trust companies act as trustees. They handle property under a variety of contracts by which a person leaves some property with them

for the benefit of another person or persons. With the increase in personal fortunes in the late nineteenth and early twentieth centuries, the business of the trust companies expanded rapidly. Between 1895 and 1907, for example, their resources almost trebled, and in the decade prior to 1916, they almost doubled. In the absence of income, estate, and inheritance taxes, many estates were large, and hence, an investment policy of wide diversification and satisfactory marketability could be administered at reasonable unit costs. Increased taxes have reduced the number of estates with amounts in the millions. A line of evidence suggestive of the decline in the size of estates is revealed by Federal Estate tax returns. They show a reduction in the number of million dollar estates, and an increase in the number worth less than $100,000.[3] The increase in national income and wealth in the 1940's has, however, increased the number of moderate-sized trusts. Owing to the growing complexities of investment problems, corporate trustees are gaining ground in competition with individual trustees.

There are also numerous new fields of trust services developing. Pension funds to pay liabilities under pension plans are increasing in both number and amount of funds involved. Living trusts are being created to build up estates out of earnings during the lifetime of the grantors. Living trusts as small as $5,000 can be established. Tax laws encourage the creation by one person of several trust accounts, and the division of income among members of the family creates substantial tax savings. The annuity type trust is a relatively recent innovation. If the income of the trust is insufficient to meet fixed payments to the beneficiaries, the difference is paid out of principal. All or part of the proceeds of life insurance can be trusteed. Profit sharing trusts, to create inducements to efficient performance and to achieve greater productivity in industry, have also become popular. There are still other fields open that will increase the funds available for investment by trust companies.

Regulation of Trust Investments.—Trust funds are invested under state laws; there is no federal regulation. The states have followed two different principles in regulating investments of trust funds (and also of life insurance companies and savings banks). One involves the legal list, under which the state law sets up a number of classes of securities that trustees are permitted to buy. The trustees can, of course, be instructed to buy other securities, and the trust then becomes unrestricted. In the absence of such instruction, the

[3] See on this point, data of the Statistical Section of the Bureau of Internal Revenue in successive years, giving Federal Estate Tax Returns by number and value of gross estates.

trustee must buy legal securities: he then administers a restricted trust. This philosophy is followed by some states.

A different approach has been followed for over a century by Massachusetts and Maryland. In these states there is no legal list, and a trustee invests funds under the "prudent man" rule. The fundamental idea was first laid down by a court in Massachusetts in 1830 and was more recently stated as follows: "A trustee is required to conduct himself faithfully and to exercise a sound discretion, and to be enlightened as to how men of prudence, discretion and intelligence manage their own affairs, not in regard to speculation, but in regard to the permanent disposition of their funds, considering the probable income, as well as the probable safety of the capital." [4]

THE LEGAL LIST. When the idea of a legal list for investment guidance for institutional investors was first devised, sources of investment information were inadequate and numerous losses were encountered in the purchase of poor securities. In succeeding years, however, the legal guide for institutional investment managers has become increasingly obsolescent, and different states have adopted various formulas in the selection of legal securities. The great virtue of a formula is its apparent simplicity; it can be easily applied. By its use, inexperienced trustees and other institutional investors are presumably protected from making investment errors. Fixed formulas, on the other hand, are infected with the vice of inflexibility. The list cannot readily be changed to reflect changing economic, social, and financial conditions. It cannot be modified, for example, to reflect the transformation of an industry from an expanding to a declining one. This weakness alone accounted for most of the heavy institutional losses in railroad bonds incurred by investors operating under the legal list.

In New York, the most important investment state, the legal list in 1926 permitted the purchase only of railroad bonds, in the field of corporate bonds. So powerful was the preference in investment circles in their favor that, in the spring of 1929, the legal list was broadened by adding $2.7 billion to the existing volume of $4.2 billion. In the following two years, $700 million more were added. Of the total of $3.4 billion of railroad bonds thus added to the legal list between 1929 and 1931, more than $700 million defaulted. The law necessarily looked to the past. The past was good, but that past reflected the economics of an expanding industry that had already reached the stage of stagnation. Only an insignificant percentage of

[4] C. J. Rugg, in Springfield Safe Deposit and Trust Co. *vs.* First Unitarian Society, 293 Mass. 480, 1936.

defaults occurred in the higher-quality bonds of nonrailroad industries. By following the legal list, trustees, as well as other institutional investors (such as savings banks and life insurance companies), not only took a loss in railroad bonds, but were also prevented from securing good returns from bonds of other industries.

By the 1940's, the obsolescent character of the legal list had already led to a substantial increase in the number of unrestricted trusts. In New York, a study made in 1949 covering more than 20,000 trusts, with a value exceeding $4 billion, disclosed that the proportion of restricted trusts was about 20 per cent in volume and not much above 30 per cent by number of accounts. A somewhat similar experience was recorded in the Middle West. A trust officer of a Chicago bank in 1945 observed that, on the basis of his experience, few trust investments with restricted investment powers were being drawn, even in the legal list states.[5]

By early 1950, New York remained as one of the important major states still adhering exclusively to the legal list. Later in that year, a law was enacted authorizing trustees of restricted personal trusts to invest up to 35 per cent of the market value of the trusts in specified, "nonlegal" securities, which opened the way for the purchase of investment quality common stocks. In 1951, two more states, Pennsylvania and New Jersey, with many trusts involving large sums, passed laws authorizing trustees to buy common stocks.

PRUDENT MAN RULE. By 1952, thirty states had adopted the prudent man rule of institutional investments, wholly or partially. This rule imposes a greater degree of responsibility on the investment manager, whose analysis may range over a wider field than under the legal list formulas. He can choose his securities from more industries and from more corporations within an industry. He has greater opportunity for diversification and, thus to that extent, is protected against heavy losses arising from obsolescence in any single industry or from poor management of any single company within an industry. He is at greater liberty to shift his investments from bonds to stocks or from stocks to bonds, depending upon the difference in yields. Unusually high yields on good stocks, such as those that characterized the post-World War II period, afforded the investment manager the opportunity to increase returns.

There is the danger that trustees, as well as other institutional managers, may concentrate their holdings in relatively few securities. Trustees particularly are perhaps likely to feel that they would be legally protected from surcharges if they invested in the same class of

[5] D. C. Miller, *Trusts and Estates*, Jan., 1945, p. 79.

high-grade common stocks in which almost all the other trustees invest. A certain degree of inflexibility might thus be introduced, though even in such a case the degree would still be less than in the legal list.

Trust companies, like other investment institutions, have been confronted with the problem of declining yields in the face of rising living costs. While savings banks and insurance companies satisfy their contracts by paying out dollars, trust companies have greater responsibilities to beneficiaries. Many young and old persons look to income from trust funds as the major, and frequently as their sole, means of support. The realization of a satisfactory return is particularly acute for the increasing number of small trusts.

Common Trust Funds.—A large part of the costs of operating trusts and investing funds are overhead costs and do not decrease substantially with the reduction in the size of the trusts. Experience has proved the difficulty of increasing the fees for trust administration. Fees are fixed by statute or by local customs, which are generally followed by the judges. The courts are reluctant to increase fees in accordance with the higher costs of investing the funds of the smaller estates.

The idea occurred to many engaged in trust work that the costs of trust operation could be reduced and a satisfactory program realized if the resources of many trusts were placed in one fund.[6] The beneficiaries of the estates would then receive their income return in the form of participations in the income of the fund. Several obstacles had to be overcome before this concept could be realized. A legal principle of long standing required that trust funds be kept separate. After prolonged discussion, this hurdle was negotiated and the concept of commingled trust funds became widely accepted.

To avoid double taxation, it was necessary, in the second place, to eliminate a ruling of the Treasury requiring these funds to be taxed as entities. This principle was finally recognized, and as in the case of mutual funds, the tax is now levied on the ultimate recipient of the investment income. To take advantage of such a tax arrangement, the Internal Revenue Code requires that common trust funds be administered in compliance with rules of the Federal Reserve Board. The Board laid down rules confining common trust funds to bona fide trusts (thus excluding agency accounts), or to trusts created for the specific purpose of securing the advantages of trust fund participation. Since these trust funds were established primarily for the pur-

[6] A number of funds in 1946, for example, estimated cost savings from 25 per cent to 66 per cent. B. M. Wingfield, in *Trusts and Estates,* Feb., 1946, p. 199.

pose of aiding the smaller estates, a dollar limit was placed upon the funds of a trust that could be held in a common trust. It was first limited to $25,000, later increased to $50,000, and in 1951 again, to $100,000.

Common trust funds have grown rapidly, and by the end of 1951, 104 banks had established 128 funds with assets valued at more than $800 million. Some of the largest trust companies in the country have set up such funds. Diversification and close supervision of investments can be secured only at high expenses per unit for small trusts. The common trust fund is an answer to this problem. Such funds, under the leadership of persons skilled in investment values, invest in a diversified assortment of bonds, preferred stocks, and common stocks. Any loss from an unfortunate commitment is, therefore, absorbed in the fund, thereby inflicting only a relatively slight loss upon each participant. The investment income is distributed among the fund participants. For example, one fund had, as of June 30, 1951, total assets slightly more than $47.7 millions. Of this amount 21.67 per cent was invested in United States Government bonds; 0.58 per cent in municipal bonds; 2.76 per cent in railroad bonds; 8.38 per cent in public utility preferred stocks; 1.62 per cent in railroad preferred stocks; 15.29 per cent in industrial preferred stocks; and the following percentages in the common stocks of these respective industries:

Electric utility	10.52%
Gas	3.28
Telephone	.86
Railroad	2.56
Automobiles and accessories	1.80
Chemicals and drugs	4.95
Electric equipment and television	1.19
Food-products and chains	1.74
Merchandising	1.35
Metals	2.25
Miscellaneous	1.00
Oil producing and refining	9.73
Paper	.54
Tobacco	1.32
Financial and insurance	5.02
Total common stocks	48.11%

The investments were 98.41 per cent of the principal sum in the fund. Common trust funds on the whole are increasing their holdings of common stocks. In 1952 considerably more than 40 per cent of their assets were invested in common stocks.

Investments are made almost entirely, as they are by life insurance companies, in tried and tested securities of established enterprises.

Funds are rarely committed to pioneer industries. Theoretical expectation and experience suggest that the returns on these funds, adjusted for capital gains and losses, will over a reasonably long period, say, a complete business cycle, exceed the return from bonds and mortgages. Discretionary funds have not gone through a depression, and the investment judgment of their managers remains to be tested by a period of business adversity.

Pension Funds.—Of the remaining institutions that invest the funds of others, one that has enjoyed a spectacular growth in recent years is the pension fund. Bargaining between employers and employees has, to an increasing degree, led to the establishment of pension arrangements. Some of the plans are insured, and to this extent the investment problems are taken over by the insurance companies. Others are turned over to corporate trustees, and the investment problems of such pension plans are, therefore, assumed by those institutions. Many funds, however, are administered by employers, or trade-unions, or jointly by both.

The volume of pension funds is rapidly increasing. It is estimated that, in 1949, insured and trusteed funds increased by about $1.2 billion. One study made in 1950 of trusteed pension plans of 114 large commercial and industrial plans disclosed an aggregate investment of about $2.250 billion, which, it was believed, constituted "a major portion of the trusteed pension funds" then in existence.[7] Of this group of companies, 53, or 46.5 per cent, at that time invested exclusively in bonds. The others had some stocks in their portfolios.

Another study made by the Federal Security Agency in 1951 indicated annual contributions to pension funds of about $2 billion. One of the investment services estimated that, of this amount, about $909 million was absorbed by premiums to life insurance companies and by pension payments of corporations. There was thus an estimated net annual increase of $1.091 billion in payments by employers and employees under pension plans.[8]

Investment of pension funds in stocks is small, but it is growing. The trend toward stocks was evidenced in 1951 by the establishment of a College Retirement Equities Fund by the Teachers Insurance and Annuity Association. The new fund would buy entirely common stocks and other equities. A maximum of half of the premiums paid for retirement purposes could go into this fund. Another illustration is afforded by the Retirement System of the Federal Reserve Banks. From an initial investment in common stocks of $1 million

[7] Survey made by S. L. Hall, vice president and secretary, Cleveland Electric Illuminating Co., Cleveland, Ohio.

[8] Estimated by Lionel D. Edie and Co.

in the year ending February 28, 1948, the amount had increased to $14.8 million, three years later. More and more trust companies, as pension fund trustees, are also buying common stocks.

Colleges and Universities.—Privately financed educational institutions (whose endowments approximate $2 billion) have, in recent years, invested increasing percentages of their funds in stocks. There are no data showing investment holdings of all of such institutions, but some special studies have been made from time to time, and the trend toward investment in common stocks is clear. One study indicates that a number of colleges with endowment investments averaging over $15 million invested less than 10 per cent in common stocks in 1926. In 1945, the percentage had increased to more than 25 per cent.[9]

TABLE 39

INVESTMENTS OF REPRESENTATIVE ENDOWED COLLEGES

(June 30, 1951)

Institutions	Total *	Per Cent of Total		
		Bonds	Pfd. Stocks	Com. Stocks
California, University of **	$ 53,000,750	61.16	11.49	27.35
Cornell University †	53,897,698	45.88	5.95	48.17
Dartmouth College **	22,357,698	38.14	5.62	56.24
Harvard University	252,450,256	43.86	6.74	49.40
Johns Hopkins University	41,032,870	44.57	9.78	45.65
Mass. Inst. of Technology	44,476,442	37.61	0.41	61.98
Oberlin College	28,153,635	47.12	9.00	43.88
Pennsylvania, University of **	34,006,580	42.98	14.72	42.30
Princeton University	60,091,952	37.71	12.75	49.54
Radcliffe College	7,653,405	39.43	9.24	51.33
Trinity College	6,071,352	25.91	6.75	67.34
Washington University	27,198,582	27.93	5.40	66.67
Western Reserve University	14,711,145	31.99	20.67	47.34
Williams College **	14,713,156	34.37	20.86	44.77
Average		43.51	8.41	48.08

Compiled by *Bevits*, issued by Vance, Sanders & Co., Boston, Feb. 11, 1952.
* At market values, unless otherwise indicated. Excluding real estate, mortgages, special endowments, etc.
** Book value.
† As of Dec. 4, 1951.

Another survey made in 1947 by Scudder, Stevens and Clark, a firm of investment advisers, discloses a similar increase in common stockholdings. It also revealed that endowment funds between 1931 and 1946 realized a substantially higher return than did the mutual

[9] Ray Morris, in *Trusts and Estates*, Oct., 1946, p. 357.

savings banks and life insurance companies that made only nominal stock commitments. Analysis of investment funds of colleges and universities in 1949, 1950, and 1951 discloses further stockholdings. As between stocks and bonds, omitting real estate and mortgages, the proportion of common stocks ranges from 35 per cent to 50 per cent and occasionally more. The investments of a representative list of private educational institutions showing by percentages the commitments in common stock, preferred stocks, and bonds is given in Table 39. It should be stressed that the experience of educational endowments in heavy stock investments, like those of the open-end funds, covers a period of prosperity for the most part. Final conclusions of the relative merits of the policy of stock and of bond-mortgage investment must await the chilling tests imposed by deflation, depression, and declines in profits.

Educational institutions, like insurance companies and savings banks, are usually fully invested and do not sell because of market fluctuations. There are some institutions, however, that follow formula plans and thus do sell stocks in response to price movements. (See Chapter 26, pp. 494-99.)

QUESTIONS AND PROBLEMS

1. Explain the major differences in the investment holdings of fire and casualty insurance companies as compared with the life insurance companies?
2. Explain how the principle of leverage operates in favor of the common stockholder of a property insurance company, even though such company has no preferred stock, or bonds, or any debt outstanding.
3. An open-end trust and a closed trust happen to own the same type of securities of other companies as investments. How is it possible that, under these conditions, the stock of the open trust will sell at a price equal to its asset value, while the stock of the closed trust might sell at a price representing a discount from its asset value of about 25 per cent.
4. Should the fact that an investment company is of the closed- or open-end type have any bearing on its investment policy?
5. Explain the statement, "investment companies also offer a variety of diversified and specialized funds."
6. A banker suggests that you buy a bond of power and light company X, because it is legal for investment for savings banks in the State of

New York. Would you follow that advice implicity without any further investigation? Explain.

7. Explain the forces that have been leading an increasing number of states to adopt the prudent man rule, wholly or partially, with respect to the investment of trust funds.

8. Show the major advantages of common trust funds to trustees and also to beneficiaries.

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CONCLUSION

The past generation has witnessed a revolutionary transformation in the investment field. Many rules have been discarded by harsh judgments learned in the school of experience. A bond, owing to the promise to pay both principal and interest, was long believed to be the only sound investment. A share of stock, carrying with it no promise to pay one or the other, was a speculation. Prior to World War I, a steady increase in the supply of good bonds and mortgages had made possible the preference accorded these securities in investment portfolios. The railroads—the major bond-issuing industry—had for many years been steadily expanding. For a number of reasons, some sound and some not sound, this industry had developed a pattern of financing most of its capital needs through the sale of bonds. Other publicly regulated industries, seemingly protected by Government regulation against intraindustrial competition, were also encouraged to sell bonds. Investors, accordingly, bought these bonds readily. The street railway, telephone, manufactured gas and water industries, to which was later added electric light and power, were major examples. A limited number of other industries also issued bonds. Timber, coal, and steel were notable examples.

In the years between 1865 and the outbreak of World War I, the supply of Government bonds declined, occasional increases interrupting the major downward trend. The volume of bonds flowing from private industry, however, was sufficient to supply investors' demands. In addition to bonds, there was also an increase in the supply of mortgages, both urban and rural; some investors, particularly life insurance companies and savings banks, thought better of mortgages than they did of bonds. Investment in common stocks, especially after the distressing experiences of the mid-1890's, was left largely to the active businessman and, to a lesser degree, to the professional traders and their followers. These investment beliefs were reflected in the laws of the wealthier states, regulating the investments of savings banks, life insurance companies, and trustees.

The investor preference for bonds was challenged in the post-World War I period by two factors. First, was the rise in money rates from the mid-1890's to the third decade of the twentieth cen-

tury. The open market price of some of the best-grade bonds declined sharply. Bonds whose investment quality improved in this quarter century lost, nevertheless, about half of their market value. Take the Lake Shore & Michigan Southern 3½'s of 1998, for example. After the issue of these bonds in 1897, the company in 1913 was merged with the New York Central. As part of that prosperous system, the bonds earned their interest by a wider margin in the early 1920's than when they were issued. But in 1920, in the midst of the climactic rise in money rates, they sold down to a price of 55. The spectacular price declines of good-quality, long-term bonds led to a rash of investment thinking designed to save the investor from such heavy market losses. And out of the investment discussions that followed, there appeared literature advocating the purchase of common stocks by the conservative investor. The first notable presentation of this thesis was a book by Edgar L. Smith, entitled *Common Stocks as Long Term Investments.*

There had been other periods characterized by rising interest rates and declining bond prices. In these earlier years, however, there were few seasoned, dividend-paying corporations whose outstanding stocks represented an investment alternative to that of high-grade bonds.

By the 1920's, on the other hand, many companies had established an earning power that qualified or seemed to qualify their stocks as attractive investments. Such industries as petroleum refining, automobile manufacturing, manufactured gas, cotton and woolen textiles, refined sugar, railroads, nonferrous metals, steel, tin containers, biscuits, variety, food and drug chains, cigarettes, elevators, and electrical and farm equipment are typical.

The collapse in stock prices in the 1929 era did not bring to a sudden end the growing trend toward stock investment. The price break was accompanied by the largest volume of defaults in interest payments ever recorded. Steam railroads, street railways, hotels, apartment and office buildings, as well as municipalities and foreign governments, contributed to the stream of failures. The losses in real estate mortgages and bonds were particularly impressive. This tragic record impressed upon the investment community a lesson that experience had already taught in the railroad industry: a mortgage contract itself adds little to earning power. It is designed only to preserve existing earnings to the investor.

Except in publicly regulated industries, the mortgage contract as a *major* basis for investment security was largely abandoned. The complicated debt structure, characterized by a succession of interlacing liens on a given piece of property—a form of contract that

reached its classic climax on the Erie Railroad—became almost an obsolete feature in the American debt structure. Profitable corporations in dynamic industries sell relatively few bonds, and the bonds they do sell are largely debentures, secured only by earnings. Even some of the most conservative investors, such as life insurance companies, purchase entire issues of industrial debentures. That part of investment analysis associated with the study of mortgage contracts, therefore, becomes largely obsolete. It is thus unnecessary to devote space to the various classes of mortgage bonds. The nature of a lien, its incidence upon the different properties owned by the borrower, the elaborate provisions under which foreclosure can be effected, and other such features, are relatively unimportant. In fact, in the railroad industry, the reorganization of financial structures is now carried out under the supervision of the Interstate Commerce Commission. The contractual sacredness of mortgage priorities are weighed in the balance against the need for an adequate and efficient transportation mechanism. This volume has, therefore, paid only passing attention to the analysis of mortgage contracts.

The bond defaults in the 1930's produced an effect that was not entirely unanticipated, but was, nevertheless, of great investment significance. The speed with which one corporation after another was presented with problems growing either out of impending bond maturities or of interest payments that could not be honored led to a genuine fear of debts by American businessmen. In the railroad industry, the country's largest manufacturer of corporate debts, a program of wholesale debt reduction was carried out in the World War II boom years—the first such program in its long and checkered career.

In many other industries, debts were either not incurred or they were created in amounts small in relationship to earnings and to the market value of the common and preferred stocks. The supply of investment-quality bonds thus declined in the 1930's and in the 1940's up to the post-World War II period. While the supply of good private bonds declined, the demand increased. Major investment institutions are largely bond and mortgage buyers. The volume of savings pouring into their treasuries rapidly increased.

To the bond-minded investor, these developments posed a difficult problem, intensified as they were by Government policy of depressing interest rates. By deficit financing and the sales of bonds to the banks, the supply of bank deposits was increased and interest rates reduced. The return on Government, as well as on all high-grade, bonds declined to the lowest levels in history. The same forces and policies that reduced the yield on Government bonds reduced also

the purchasing power of the lowered interest income. The investor in Government and in all other good-quality, private and public bonds was thus hit in two ways. He received fewer dollars than ever before, and the dollars were worth less in goods and services.

Under these circumstances, the search for alternative investments yielding higher returns was inevitable. The growth of investment companies, though slowed up by the 1929 break in stock prices, was resumed in the late 1930's. Many other institutions turned increasingly to stocks as a means of bolstering their investment income. Investment in stocks by the most careful and conservative individual and institutional investors increased. The traditional cliché that a bond is an investment and a stock, a speculation—incorrect even in the hey-day of its popularity—was largely abandoned. Both bonds and stocks have a legitimate place in the investor's portfolio. They serve different purposes and fulfill varying investor needs.

The approaches to the purchase of high-grade bonds and stocks are in many respects, however, fundamentally different. A bond represents a contractual obligation, and as long as it retains its investment quality, little question is raised over the ability of the borrower to meet its obligations. Interest on bonds of a company in a stable industry—telephone, electricity, chemical, water—may be earned two to three times in prosperity, and in depression, only one and one-half to two times. In an industry in which earnings are less stable, such as automobile accessories, electrical equipment, refined oil or steel, for example, fixed charges on a high-grade bond may, in prosperity, be earned, say, ten times, and in depression, say, only four or five times. The investor can rest content with the thought that, although the margin by which earnings protect the fixed charges is reduced, the interest will, nevertheless, be paid. These high-grade bonds fluctuate in price largely in accord with changes in money rates. It is possible that a high-grade bond, due to mismanagement (comparatively rare) or to the decadence of the industry in which the company is engaged (the more general occurrence) may lose its high-grade quality. This, however, is a risk factor that flows not from the nature of the bond contract, but from social, economic, and other changes that have been examined in considerable detail in previous chapters.

The prices of stocks, however, respond only partly to changing money rates. The price pattern woven in the stock market reflects the complex of hopes and fears of economic progress and decay, of inter- and intra-industrial competition, of the changing burdens of taxation, and of other factors that determine profit levels. The rhythm of business expansion and contraction reveals the effects of

these factors far more extensively in changing dividends than in interest payments. Business conditions, adverse to the national economy as a whole or to a particular industry, may lead even the ablest management to reduce or to eliminate dividends. Indeed, the excellence of a management may frequently be measured by its courage in withholding dividends to stockholders. The short-run welfare of the investors may thus be sacrificed to their more permanent interests. Investors are thus forced to weigh the factors likely to direct management in the determination of dividend policies. In prosperity, investors hope too much, and in depression, they fear too much. Any pronounced change in general business conditions, leading to expansion or contraction, is accompanied or followed by increases or decreases in stock prices.

Investment in common stocks is more difficult than investment in bonds. The common stock investor is obliged to familiarize himself with the character of corporate management. He must understand enough accounting and corporation finance to be able to analyze financial statements and financial structures. He must grasp new concepts about governmental relations to the economy. He must master the intricacies of market values and of relationships between such values and earning power. Though the forces bearing on earnings and market values are dominant in both stocks and bonds, they are of more compelling importance for the former than for the latter.

The investor in realizing his objective, be it maximum income, capital appreciation, or a judicious combination of both, can follow alternative policies. He can rely confidently on the dynamic power of the nation's economy and buy and hold securities in the certainty that any interruption to the forward march of the economy will be temporary. A depression will eventually be followed by new records in national income, national product, corporate earnings, and dividends. He need then only buy the securities of well-managed companies of growing industries. He must then vigilantly watch both, and though he can observe changes in the industry more effectively than changes in the management, losses from either source are likely—one may say, inevitable. His protection is in the diversification of investment among industries and among managements. That is his shield against ignorance, his protection against the infirmities of the human mind. A wise selection of industries and of corporations and sound diversification will afford him insurance against losses.

An investor following such a policy is not a market analyst; he needs no help from investing formulas; he requires no service from forecasters. He buys when he has funds. His cost price may be too

high; it may be higher than the "intrinsic value" at the time of purchase may justify; it may be higher than warranted by the past record of earnings, dividends, and market prices of the security. Eventually, however, the expansion in the national economy, the growth of the industry, and the ability of the management will create values that will lead to higher market prices. This has been the policy followed by the owners of the vast majority of the great American fortunes.

There are many investors to whom this policy is not acceptable. They seek higher returns than those realized from the pursuit of such a policy. Some think it profitable to take advantage of price fluctuations. They want to buy at low and sell at high prices. One school of thought suggests the purchase of securities at prices less than their "intrinsic value." Extensive differentials between intrinsic and market values are likely to appear in periods of profound economic and financial disturbances. Fear over the future and a desperate need of liquid funds may lead to wholesale liquidation of securities at excessively low prices. This occurred on a major scale in the 1930's. Price wars in an expanding industry, or the transformation of an industry from expansion to decay, may also provide such opportunities.

Then there are the cyclical investors. They are the master market analysts. The inevitability of market fluctuations is, to their minds, the cardinal characteristic of the investment market. They are the votaries of the investing formulas, of the buying power and selling pressure charts, and of a host of mechanical gadgets designed to realize the ideal of buying low and selling high.

There are successful and unsuccessful investors in all of these groups. But the policy that theoretically is the most profitable—the purchase of high-grade stocks at low prices and their sale at high prices—is the most difficult. The accomplishment of this feat is indeed an "art," and efforts along this line have led to spectacular profits and to even more spectacular losses. The policy of long-term investment in the pattern of a dynamic economy, growing industries, and able management is founded on considerations more susceptible of careful scientific analysis. Though theoretically it may not be as profitable as the other policy—the buy and sell—it is the one that is followed by the majority of investors. On the basis of the well-managed companies in the growing industries, over a reasonably long period including booms and depressions, the policy is likely to be most successful for the majority of investors. Formulas and mechanical devices can neither anticipate nor reflect the profitable expansion of the expanding sector of the surging American economy.

The policy aiming to realize theoretically maximum profits from the purchase and sale of securities at varying price levels normally misses the spectacular price rise associated with the most profitable phases of the expansion of the growing industries.

The conclusions, therefore, follow:

1. Buy into an expanding industry.
2. Buy the securities of a well-managed, dominant company in that industry.
3. Sell the securities when the industry stagnates and decays, or if management in a growing industry stagnates.
4. If the investor accomplishes these results, he is likely to be a successful investor.
5. If, in addition, he can buy these securities at low prices and sell them at high prices, he is an investment artist. He approaches genius.

INDEX

Accounting
  corporate income, 183-201
  depreciation, 192-93
  inventory, 193-97
Air conditioning equipment industry, 97
Air transportation industry, 61, 80, 108, 180, 205, *229*, *232*, 234, *277*
  American Airlines, *229*, *232*, *277*
  Capital Airlines, 66, *282*
  changes in demand, 53
  Eastern Airlines, *229*, 251, *263*, *277*
  public regulation, 251, 252-53
  ratios for measuring efficiency, 174-75
Aircraft manufacturing industry, 188
Aluminum industry, 101-2, 161-62, 193, *220*, *228*
American Appraisal Company, 190-91
American Institute of Accountants, 193
American Investors Service, 440, 444-45, 446
Amortization, mortgages, 20
Analysis
  comparative tax rates, 319
  economic, 312-13
  financial, state and municipal bonds, 313-14
  investment, 24
  market, 403-24; *see also* Market analysis
  measuring growth and decline in competitive industries, 55-62
Analysts, market, 404, 406
Argus Research Corporation, 430
Assets
  defined, 137-38
  inadmissible, 507
  net quick, 143
  ownership of, by family income groups, 382
Authorities
  bonds issued by, 18, *327-43*; *see also* Revenue bonds
  Chicago Transit, *338*
  defined, *328*
  Delaware River Joint Commission, *328*, *330*, *340*
  growth of, 328-30
  Pennsylvania, *330*, *334*, *335*
  Port of New York Authority, 328-29, *330*, *332-33*, *338*, *340-41*
  private enterprises compared with, 342-43
Automobile industry, 47, 65, 94, 111
  Chrysler Corporation, 65, 100, 139-40, 188, *263*, *283*
  debts of, 111
  Ford Motor Company, 100, *267-68*, *283*
  General Motors, 65, 98, 100, 111, 494
  price level, 84-85
Automotive accessory industry, 217-18
  Libbey-Owens-Ford, 98
Averages, Dow theory and, 417-21

Bakeries, 94
Balance sheets, 137
  definition of terms, 137-47
  net worth defined, 139-42
Bankruptcy
  affects marketability of stock, 13-14
  Missouri Pacific Railroad, 13-14
Banks
  commercial
    corporate bonds held by, 510-11
    Federal Reserve and Treasury policy, *299*, 506
    financial structure, 114-16, 393, 512
    Government securities, 298, 506, 511-12
    investments of, 505-13
    liquidity of investments, 15-18, 511-12
    maturity-spacing program of, 19, 512
    municipal bonds, 507
    price-earnings ratio of, 393
    profit margin, 216-17
    public debt management and earnings of, *298-99*
    real estate loans and bonds, 508-10
  country, spaced maturities of, 16-18
  investments of, stock prices and, 412-14
  mutual savings, investments of, 15, 513-17
  savings; *see* Savings banks
  trust companies; *see* Trust companies
Barron's (publication), 428, 429
Basic industries, changing importance of, 45-46
Basic Trends of the Harding Index, 433
Basing point system, 73-74
Biscuit and cracker industry, 94, *224-25*
  National Biscuit Company, *225*
Blast furnace index, 414, 493
Bond cycle, 368
Bonds
  assessment, 310-11
  buying, 373-74

Bonds—*Continued*
choice of, based on financial structure, 112-13
corporate, held by commercial banks, 510-11
debenture, 105-6, 309, 548
electric power and light, 360-61
first mortgage, 105, 154, 347
fixed-interest, 105
Government; *see* United States Government securities
high-grade, 121
income, 66, 105
inflation and, 8-9, 20
investing in, 4, 7-8, 546-47
kinds of, 309-11
maturities, 347
spaced or staggered, 18-19
municipal, 4, 11, 305-25; *see also* Municipal bonds
portfolio policies, 479-500; *see also* Portfolio management
pricing of, 11, 411-12, 481
private placement, 522
railroad, 88, 105, 154, 256, 360-63, 483
ratings of, 450-55
returns from, 1929-1951, 479-80
revenue, 18, 306, 327-43; *see also* Revenue bonds
"riskless," 374
sale of, 11
schedule book, 349-50
selling, 118
senior and junior, 154
sinking fund and serial, compared, 311-12
sources of investment information, 429, 430, 450-55
state and municipal, 4, 11, 305-25
debt limitations, 314-23
economic analysis for, 312-13
financial analysis, 313-14
held by commercial banks, 507
kinds of, 309-11
legal status, 307-9
limitation of, 314-23
private bonds versus, 324-25
record of, 324-25
serial, 312
sinking fund, 311-12
tax-exempt, 343, 351, 459, 473-76
tables, 349-50
tax-exempt, 343, 351, 473-76
"tax free" and "tax refund," 459
tax-secured differ from revenue, 333-39
trading, 3-4
United States Government; *see* United States Government securities
yield spreads, 348-67; *see also* Yield spreads
Book value, 203
Booms, 27-28, 37
financed by government debt, 35-36
1940's, 26
sales during, 71
Breadth index, 421-23
Break-even point, 53-54, 227-40
defined, 228
determination of, 237-38
effect on profits, 228-29
fixed and variable costs, 228
fixed costs and nature of industry, 229
importance of, 238-39
nature of industry effects, 229-30
production in excess of, 230-36
significance of, 236-39
to chemical industry, 236
to department stores, 236
to hotel industry, 236-37
volume and nonperformance profits, 231
Broker, functions of, 11
Building materials, 46, 51-52, 262
Bureau of Internal Revenue, 188
Bureau of Labor Statistics, 176
Bureau of Mines, 50-51
Bus transportation industry, 98-99
Business cycle, 38-39, 490
Business machine industry, 218
Burroughs Adding Machine, 284
International Business Machines, 218, 392, 393, 494
Buying power, selling pressure and, 436-41

Capacity
industrial, operating above, 230-31
measuring productive, 161-70, 230-31
plant, 79-81, 152-53
reserve, 180
Capital
appreciation, 3, 4, 9, 484, 550
formation, 25-26
in boom and depression, 39
national product, 24-29
by private business, 29
gains, 4, 7
taxes, 469, 470-73
profit margins and return on, 202-4, 217
venture, 64, 65
working, 65, 142-43
expansion program and, 148-49
inflation and deflation effects, 148
liquidity ratios, 149
net income and, 156
ratio between sales and, 146-47
Capital goods industries, 48-53
basis for growth, 61
classification of, 48-49
demand trends and investment values, 53-54
expansion of production, 60
industrial fuels, 50-51
machinery and machine tools, 52
mechanical power, 52-53
metallic raw materials, 49-50

service industries, 53
synthetic materials, 51
taxes, 466-67
Capitalization, of expenditures, 184-88
Cash, ratio of current liabilities to, 147-48
Chain stores, variety, 76
Chemical industry, 51, 54, 60, 96, 192 216, 220, 236, 261, 393-94
Air Reduction Company, 112, 219
Allied Chemical and Dye, 8, 112, 167, 394, 467
American Cyanamid, 150-51
break-even point, 236
Dow Chemical, 127, 150-51, 213, 393, 494
du Pont, 112, 127, 150-51, 157, 213, 393, 494
growth related to Production Index, 60
Monsanto Chemical, 127, 150-51, 494
price-earnings ratio, 386, 393-94
Union Carbide & Carbon, 96, 112, 150-51, 213, 394, 511
Civil Aeronautics Board, 205, 252
Coal industry, 50, 80, 163
changes in demand, 55
depletion allowance, 464-65
economy of consumption, 50
plant capacity, 50
prices of, 83-84
wholesale price indexes, 83
Collective bargaining, 102
Colleges and universities, investments of, 7, 543-44
Commerce, Department of, 117
data on savings, 32
Inventory Valuation Adjustment, 196-97
Commercial banks; *see* Banks, commercial
Commodity prices, 5, 8-9, 479
stock and bond prices in relation to, 483
Common stocks; *see* Stocks
Communication industries, 216
Companies; *see also* Corporations
competitive position, 93-101
factors influencing choice of, 93
integrated, 172
investment-grade, 391-92
Competition
between companies, 93-101
between railroads, 243-44
changes in competitive positions, 100-2
comparison of competitive strength, 98, 99
during pioneering stage, 64, 67-68
factors in competitive success, 102
measuring competitive positions within an industry, 98-102
public utilities, 99, 243
unpredictability of the struggle, 95-96
Comptroller of the Currency, 453, 507
Concerns; *see* Companies, Corporations
Confidence, loss of investors, 111-12
Consolidations, 95
Construction, index of construction costs, 190-91
Construction materials; *see* Building materials
Consumer goods industries, 47-48
analyzing, 57-62
basis for growth, 61-62
comparison of production index with sales trends, 59-61
fluctuations in demand, 47-48
taxes, 465-66
Consumers Price Index of the Department of Labor, 479
Copper industry, 112, 163, 186, 469
expansion in, 68, 101
Corporations; *see also* Companies
competitive position, 93-101
diversification of output, 96-97
financial structure 104-18; *see also* Financial structure
income, 183-201; *see also* Income, corporate
industrial control by major, 94-96
investments of, 467-69
operating efficiency, 93-94
shift from declining to expanding line, 97
size of, 93
taxes on dividends and interest, 467-69
Cost
reducing, 235-36
of reproduction, 246
unit, declining sales and, 81, 239
variable, 231
Counselors, investment, 455-56
Counties, bonds issued by, 308-9
Cycles
business, 38-39
common stock, 407

Dairy industry, 96
Debentures, defined, 105
Debts
automobile companies, 111
chemical companies, 112
corporate, 34
creation, 112, 118
federal, 33-36, 291
asset and liability, 291-92
management of, 293-95, 300
financial structure with no-debts ideal, 106
long and short, 104
managerial ability and, 270
net quick assets and, 143
per capita, 316-19
plant capacity and, 169-70
postwar increases, 117-18
private, 33-35
railroad, forms of, 105
ratios, 316-19, 323-24

Debts—*Continued*
refunded, 107
self-sustaining, 315
short- and long-term, 104-7
state and municipal, 33, 305-25
limitations on, 314-15
variety of, 104-6
Decay, industrial, growth and, 79-90
Decline, industrial, price rises and, 81-85
Defense Production Administration, 193
Deficit financing, 319, 548
Deflation
debt liquidation effects, 34-35
working capital affected by, 148
Demand
comparison of expenditures with disposable income, 57-59
declining, 97
expanding, 54, 62
investment consequences of changes in, 47-55
investment values and, 53-54
measuring growth and decline in competitive industries, 55-62
percentages of business of subindustries, 55-57
replacement, 217-18
stationary, 74-77
Department store industry, 116, 236, 259 387
break-even point, 236
Federated Department Stores, 116
Gimbel Brothers, 116, 135, 232-33, 279
Marshall Field Company, 268-69
metropolitan and decentralized stores compared, 58-59
Montgomery Ward Company, 259, 276, 283
post-war price-earnings, ratio of, 387
sales trends, 58-59
Sears, Roebuck Company, 259, 269, 276, 286
Depletion allowances, income tax and, 464-65
Depreciation
accelerated, 192-93
corporate income tax and, 463-64
defense cost write-down, 193
original and replacement costs compared, 190-93
reserves for, 190-93
Depression
demand decreases, 71
investments and, 8, 40
plant capacity, 79, 275
Depression of the 1930's, 26, 27
Disposable income, 23-24
comparison of expenditures with, 57-59
relation to growth of ethical drug industry, 57-58
relation to sales expansion, 98
use in investment analysis, 24
Diversification,
of investments, 20-21, 485, 499
of output, 96-98
of products, 222
Dividends
corporate taxes on, 467-69
national income and, 23
net income and, 156-59
payment of, 156, 550
price-earnings ratios, 392-93
Dollar
averaging, 489-90
profit, 183-84
purchasing power of, 481, 482
value of, 479-80
Dow-Jones & Company, Inc.
bond index, 429
Industrial Averages, 428, 434, 436, 437, 440, 448, 489, 494-95, 496, 497
Industrial Stocks, 377-78
Dow theory, 417-21
breadth index, in relation to, 421
defects of, 419-21
Dow-Jones stock averages in relation to, 417
explanation of, 417-18
1949-1952 market, in relation to, 418
price-movements in, 417-18
Drug industry, 57-58, 100, 221, 269, 392
sales trends, 58

Earnings, 86; *see also* Income
available for interest, 153-56
financing corporation's needs from, 106
interest and, 153-56
nonrecurring, 200-1, 208, 231
per share, importance of, 108-12
preferred stock, 127-28, 132
price-earning ratios
by companies, 391-401
by industries, 373-90
public utility, 253-55
reinvested, 140-41, 157
reported, 186
"cash" and, 186-88
retained, 138
secular versus short-term, 253-55
stock prices and, 376
Economics
"maturity" school of thought, 26-27
trends, 23
values, 23-41
Economy,
dynamic, expansion and contraction in, 62
national
expansion of, 39-40
growth and decline, 29-36
normal and abnormal conditions, 36-40
population and, 30-31
private and federal debt, 33-36
savings and, 31-32

Efficiency
data, 171-72
fuel, 175-76
measurement of, 172-76
operating, 170-76
Electric light and power industry, 60, 203, 244-46, 257
bond prices between 1934-39, 361
fuel efficiency, measuring, 175-76
measuring productive capacity, 165-67
ratio between capacity and sales, 180-81
saturation point for, 69
Electrical equipment industries, 46, 47, 96, 261
General Electric Company, 96, 157, 392, 403
Westinghouse Electric, 96, 265, 391, 392
Endowments, investments, 7
Equipment
expenditures for, 25, 28 29
machine tools, 52
obligations, 105
specialized-equipment industry, 53
trust obligations, 11-12
Equity ratio, price-earnings ratio and, 396-400
Errors
administrative, 281-82
managerial, 267-68
Estate taxes, 476-77
Ethical drug industry; *see* Drug industry
Excess profits tax, 461-63; *see also* Taxes
Exchanges, 11
Expanding industries
demand and, 54
managerial success in, 262
measurement of growth in, 54-62
Expansion, industrial, 45-63
large-scale, 273
management and, 262-63, 272-87
necessity of, 272-76
pioneering stage of, 64-67
profits and losses from, 275-76
raw materials and extractive industries, 273-74
repeated stages of, 68-71
saturation of market and, 68-69
temporary over-expansion, 276
transition from expansion to decline, 71-77
waves of, 153
working capital, 148-49
Expenditures
capitalizing, 184-88
fixed, 227
government, 35-36
for plant and equipment, 25, 28-29, 149-52
Extractive industries, 162-65
plant expansion, 273-74
Factors
load, 180
utilization, 180
Failure, corporate, 108
Farm
income, 57
prices, 208-10
Farm, equipment industry, 56-57
International Harvester, 189
Federal Home Loan Bank System, 535-36
Federal Housing Administration, 508-10, 516-17
mortgages insured by, 509-10
Federal National Mortgage Association, 510
Federal Power Commission, 107, 165, 166, 203, 247
Federal Reserve Board
common trust funds and, 540
Index of Production, 29, 36-37, 58, 59-60, 380
Federal Reserve System
banking and credit data, 432, 434
commercial banks and, 299, 506, 513
open market operations, 371
U.S. Government bonds supported by, 15, 293, 297-98, 348, 352-55, 414
Federal Savings and Loan Insurance Corporation, 535
Federal Security Agency, 542
Federal Trade Commission, 204
Fertilizer industry, 57
Financial policies
corporations, 104-18, 183-201
reserves, 188-93
Financial ratios, 137-60
Financial structure, 104-18
choice of bonds based on, 112-13
choice of stock based on, 113-14
commercial banks, 114-16
debt creation, 112, 118
effects of a poor era, 110-11
government regulation and, 255-57
importance of earnings per share, 108-12
leverage, 107-8
loss of investor confidence, 111-12
no-debt structure ideal, 106-7
short- and long-term debts, 104-7
Fire and casualty insurance companies, 526-29
investment policies, 527-29
Fiscal policy, government, 36
Food
changes in consumption of, 45-46
changes in demand, 47-48
Food industry, 266
General Foods, 221
government regulation of, 242
Great Atlantic and Pacific Tea Company, 146, 266
Jewel Tea Company, 266-67

Food industry—*Continued*
profit margin, 221
Standard Brands, 221, 268
Flour milling industry, 97-98
Forecasting, 403-24; *see also* Market analysis
bank investments and stock prices, 412-14
banking and credit trends, 432-33
blast-furnace index, 414
business of 1950-51, 405
buying power, selling pressure and, 436-40
by economic series, 407-8
errors, 405-6
individual stocks, 446
money rates, stock prices and, 410-11
new offerings and, 414-15
public market interest and, 423-24
security forecasting services, 431-50
security prices and, 411-12
stock prices
by prior movement of bank investments, 412-14
by prior movement of bond prices, 411-12
trading volume and, 424, 441-46
yield differentials and, 408-10
Foreign concerns
investment in, 469
taxes on dividends of, 467
Formula plans
advantages and disadvantages of, 497, 499
basis of, 494-95
constant dollar fund, 495
dollar averaging and, 494
National Securities and Research Corporation, 497
variable ratio plan, 495
Foundations, investments of, 7, 9
Franchise, 242-43
Freight rates, 82-83
freight revenues and, 82
Freight traffic
competition among rival agencies, 56
increase and decrease, 1882-1950, 76
Fuel
efficiency ratios, 175-76
industrial, 50-51
Funds, sinking, 132-35

Government expenditures, 35-36
Government regulation and control
of industry, 74, 86-87, 94
profit margins affected by, 208-10
public utilities, 241-59
railroads, 241-59
Government securities, 291-303; *see also* United States Government securities
Grants-in-aid, federal and state, 322-23
Gross national product, 23
capital formation, 25-26
relation to interest, 28
relation to profits, 28
Growth, industrial
decay and, 79-90
measurement of, 55
relation to disposable income, 57
management, 264-70

Habits, social, effect on industries, 73
Harvard Economic Service, 410, 457
Home Loan Bank Board, 535-36
Hotel industry, 236-37
Housing industry, 74

Ice cream industry, 62
Incentive program, 284
Income
bonds, 105
corporate, 183-201
external forces affecting, 198-201
internal forces affecting, 184-98
inventory expenditures, 193-97
low-cost reserves of resources, 198-200
maintenance expenditures, 197
nonrecurring earnings, 200-1
profit dollar, 183-84
reserve policy, 188-93
service, royalty and rental revenues, 197-98
disposable; *see* Disposable income
investments as a source of, 3
national
debts and, 34-35
interest related to, 28
measurement of, 23-24
population and, 30-31
profits and, 27-28
rise in, 27
net, 156-59, 188
as an objective of investments, 7-10
statement; *see* Statement, income
stocks purchased for, 4-5
supernumerary, 59
Income taxes; *see also* Taxes
corporate taxes
averaging of, 465-67
depletion, 464-65
depreciation allowance, 463-64
dividend and interest income, 467-69
double taxation, 465
excess-profits tax, 461-62
normal, 461
individual
capital gains, 470-73
stock buying, effects on, 469-72
tax brackets, 469
Indexes
breadth, 421-23
construction costs, 190-91
prepared by investment services, 426-56
of production, 29
wholesale price, 83

Industrial integration, 210-13
Industries; *see also* Names of Industries
changing importance of basic, 45-46
choice of, for investment, 87
declining, price rises in, 81-85
expanding, 494
expansion and decline, 45-63
extractive, 162-65
government regulation and control, 74
growth and decline in pioneer stages, 54-55
management, 264-70
improved technology affects, 74
industrial maturity, 68
latent obsolescence, 71-77
life cycle of, 64-77
location, 73-74
management, 259-71
measuring competitive position within, 98-102
measuring growth and decline in competitive, 55-62
period of industrial growth, 65, 68
pioneering stage, 64-67
causes of losses in, 67-68
preferred stock, 125-28
publicly regulated, 241-59
repeated expansion stages and saturation, 68-71
selecting one for investment, 87-89
signs of growth and decay, 79-90
stationary demand, 74-77
tests for sound, 89
transition from expansion to decline, 71-77
Inflation
common stocks as a hedge against, 481-85
Federal Reserve policy in relation to, 354
government fiscal policy and, 36, 294-97
interest rates versus, 294-97
investments and, 5, 8-9
natural resources industries stock and, 484-85
railroad bonds in relation to, 483
working capital affected by, 148
Inheritance taxes, 476-77
Institutional investments, 536-44
Insurance companies, 5
fire and casualty; *see* Fire and casualty insurance companies
life; *see* Life-insurance companies
Integrated companies, 172
profit margin of, 210-13
Interest
corporate taxes on, 467-69
earnings pay, 153-56
national income and, 23
rents and, 116-17
Interest rates
bond cycles, 368
changes, causes of, 368-72
investment policy and, 368-70
defined, 347
Federal Reserve and, 28, 371
Government monetary and fiscal policy and, 370-71, 548-49
importance of, 347
level of, 352, 479
short-term government securities, 295-96, 411
stock prices and, 371-72, 410-11
structure of, 352
supply and demand for money, in relation to, 370
Internal Revenue Code, 542
International Bank for Reconstruction, 36
Interstate Commerce Commission, 117, 172, 185, 250, 257, 520
Inventory
as carried on balance sheet, 143
excessive, 87
FIFO method, 195
fluctuations, 148, 193-97
LIFO method, 194-96
turnover, 146
Investment companies, 505, 529-35, 549
balanced funds, 534
Bond Fund of Boston, 533
Bond Investment Trust of America, 533
Canadian Investment Fund, 533
Carriers and General, 532
Central States Electric Corporation, 531
Century Shares Trust, 531
Chemical Fund, 532
Eaton and Howard Balanced Fund, 531, 534
federal regulation of, 530-31
General American Investors, 531
Growth Industry Shares, 532
history of, 529
institutional ownership of shares in, 534
Keystone Custodian Funds, 533
Lehman Corporation, 531
Manhattan Bond Fund, 533
Massachusetts Investors Trust, 533
mutual funds, 530
National Aviation Corporation, 532
National Investors' Corporation, 532
open and closed companies, 15, 21, 423, 529-30
record of, 534-35
State Street Investment Corporation, 532-33
Texas Fund, 533
Union Trusteed Funds, 533
varieties of, 531-33
Investment counselors, 455-56
Investment-Grade Companies, 391-92
Investment services, 416, 426-56
bond rating agencies, 450-55

Investment services—*Continued*
Buying Power vs. Selling Power, 440, 442-43
Canadian Trembolgraphs, 433, 436
Commercial and Financial Chronicle, 426
Composite Equity Index, 436, 438-39
Dow-Jones Company, 429
Dow-Jones Industrial Averages, 428, 434, 436, 437, 440, 448
Duff and Phelps, 429, 430
Edie, Lionel D., and Company, 431
fact-finding, 426-30
Factual Analyses, 427
Fitch Publishing Company, 427, 450, 452
Harding Index, 433, 434
Institutional Utility Service, 429
interpretative, 430-31
investment counselors, 455-56
Investograph Corporation, 428, 441, 447
Journal of Commerce, 426
Kerr & Company, 430
Lowry's Reports, Inc., 440, 442-43, 446
Market Trend Analysis, 440
Moody's Bond Survey, 430
Moody's Investors Service, 421, 427, 429, 430, 450, 452, 490
Moody's Stock Survey, 430
National Securities and Research Corporation, 497
New York Herald Tribune, 428
New York Times, 428
Poor's Investment Advisory Survey, 489
Poor's Manual of Railroads, 426
Ray Signals, 448-51
Savings Banks Trust Company, N.Y., 429
security forecasting, 431-50
Security Research Bureau, 429
Standard and Poor's Corporation, 426, 427, 428, 429, 450, 452, 489
Stock Market Credit Indicator, 434, 437
Studley, Shupert & Company, 427
Townsend-Skinner & Co., 433, 435
Trend Reports, Townsend-Skinner, 433, 435
Value Line Rating, 446-49
Wall Street Journal, 426
Investments
concepts of, 5-6
defined, 3-6
diversification of, 20-21
gross, 150
income as an objective, 7-10
institutional, 536-44
liquidity; *see* Liquidity
marketability; *see* Marketability
objectives, 6-21
policies, 9-10
portfolio management, 479-500
principles and objectives, 3-22
program, 6-7
prudent, concept of, 246, 534, 538, 539-40
speculation and, 3-6
Investor
defined, 4
loss of confidence of, 111-12

Kilowatt-hour sales, Production Index and, 60
Kitchen equipment industry, 284-85

Labor
costs, 50, 72-73
capital equipment to reduce, 53, 60-61
profit margin and, 215-17
Latent obsolescence, 71-77, 492
government regulation, 74
high labor costs, 72
location of industry, 73-74
social habits, 73
stationary demand, 74-77
trade-marks, 73
Leadership; *see* Management
Leather industry, 45-46
Legal list, 515, 537-39
Leverage, 107-8
of commercial banks, 115-16
defined, 107
rents and, 116-17
reversed, 108
in years of declining earnings, 108-9
Liabilities
on balance sheet, 138
current, ratio of cash to, 147-48
Life insurance companies, 470
investments of, 720, 480, 517-25
common stock, 524-25
corporate bonds held by, 510-11
current problems of, 523-24
Government securities, 519-20
industrial bonds, 521-22
legal regulation of, 518-19
mortgages, 519
policy governing, 519-22
real estate, 519, 523
return on, 523
Lines, shift from declining to expanding, 97-98
Liquidity, 15-20
commercial banks, 15-19, 512
defined, 7, 15
managerial ability and, 270
mortgage portfolio, 20
Load factor, 180
Location, of industries, 73-74
Losses, investment, 108
Lumber industry, 51
Luxury industries, 59

Machinery and machine tool industry, 52
Maintenance
expenditures, 197
operating efficiency and, 170-76

Management, 259-71
business leaders, 262
changes in policy, 284-86
changing, 278-82
administrative errors, 281-82
declining industry, 280-81
complexity of the managerial problem, 259-60
continuity of, 278-80
corporate policies and, 259-60
debt and liquidity, 270
errors, 267-68
excessive conservatism, 283-84
expanding industries and managerial success, 262-63
improvident, 62
policies compared, 269, 276, 278-79
qualities for success, 260, 263-64
strategy versus tactics, 286-87
successful, 259-62
measuring productive capacity, 167-68
Manufacturing industries, 29, 40
Margin, trading on, 423
Marketability, 10-15
changing, 14-15
defined, 7, 10
of listed securities, 11-12
real estate mortgages, 509-10
safety of principal and, 12-14
U.S. Government bonds, 10
Market
primary trading, 11
saturation of, 69-71
secondary, 11
sellers, 220
"strong" or "firm," 10
supported, 15
"weak" or "poor," 10
Market analysis, 403-24, 551
blast furnace index, 414
breadth index, 421-23
Dow theory, 417-21
forecasting by economic series, 407-8
forecasting errors, 405-6
nature of, 406-15
new offerings and, 414-15
security prices and, 411-12
stock prices and money rates, 410-11
stock yields and, 408-10
"technical," 415-25
economic approaches compared with, 415-17
volume of trading, 424
short-term, 18-19
spaced or staggered, 18-19
commercial banks, 19
"Maturity" School of Thought, 26-27
Meat packing industry, 96, 144, 215, 279, 282
Men's wear manufacturing industry, 139
Mergers, 95
Metals, 49-50
Milk distributing industries, 209, 242
Mining industries, 40
American Smelting and Refining, 189
index of production, 29
International Nickel, 223
Modernization, plant, 152, 235, 279-80
Money
changes in supply and demand for, 370
supply of, 33, 35-36
Moody's Investors Service, 421, 427, 429, 430, 450, 452, 490
Mortgages
amortization, 20
Federal Housing Administration insured, 508-10
federal regulations and, 20
held by commercial banks, 508-10
held by savings banks, 514-17
as an investment, 7-8
marketability of, 509
portfolio, liquidity of, 20
savings and loan associations, 535-36
Veterans Administration, 510
Motion picture industry, 281-82
Municipal bonds, 305-25
assessment bonds, 310-11
commercial banks investments in, 507
debt limitations, in relation to, 314-15
economic analysis of, 312-13
financial analysis of, 313-14
kinds of, 309-11
legal status, 307-8
life-insurance companies investments in, 521
record of, 324-25
sinking fund and serial compared, 311-12
tax-exempt status, 473
Municipalities
debt ratios, 314-23
to assessed values, 316-17
debt service to revenue from all sources, 323
per capita, 317-18
taxes to assessed value, 319
debt structures, 315-16
districts increased, 316
gross debt and sinking funds, 316
self-liquidating, 315-16
taxes, 319, 320-22
assessed values, 319
general property, 319, 320-21
personal property, 321-22
tax limitations, 319-20
Mutual funds, 5, 530

National economy; *see* Economy, national
National income; *see* Income, national
National product; *see* Product, national
Natural gas industry, 80, 107, 163, 164, 178, 242, 252, 253, 257, 484
demand for, 50-51
depletion allowance, 464-65
expansion, 273-74

Natural gas industry—*Continued*
Hope Natural Gas Doctrine, 247-49, 254
labor costs, 72
prices of, 83-84
wholesale price index, 83
Natural resource industries, 484
depletion allowance, 464-65
profit margin and quality of, 223
Net income, proportion paid in dividends, 156-59
Net worth, 139-42, 204
earnings on, 140-42
New product development, 490
New York Port Authority, 328-29, 330, 332-33, 338, 340-41
New York Stock Exchange, 421, 429, 441
Newsprint and kraft industry
International Paper, 111, 127, 283
Nonrecurring earnings, 200, 208, 231
Normal and abnormal conditions, 36-37, 39

Obsolescence, latent, 71-77
Odd-lot buying, 423-24
Offering, secondary or special, 11
Oil; *see* Petroleum
Operating efficiency, 170-76
Output
diversification of, 96-97
per man hour, 238
"Over the counter," 12
Overexpansion, 275
losses from, 276
mistaken policies and, 282-83
Overhead, 53

Panic of 1907, 514
Paper industry, 56
Passenger traffic, competition of railroads, airlines, and busses, 55
Patents, 101
Peace, investments in time of, 25-26
Pension funds, 537, 542-43
investment of, 542-43
reserves, 188, 189-90, 505
volume of, 542
Petrochemistry, 51
Petroleum industry, 96, 97, 101, 139, 164, 199, 212, 213, 220, 223
Amerada Petroleum Corporation, 187
depletion allowance, 464-65
foreign investments of, 469
fuel oil, 50
government regulations, 86
increasing consumption, 50
oil refining, 61, 64, 67
reserves, 162-63, 164
search for oil, 80, 186, 273-74
Shell Oil Company, 187
Socony Vacuum Oil Co., 212
Standard Oil, 64, 266
Standard Oil of New Jersey, 212, 220
transportation costs compared, 83
Phonographic record industry, 86
Pioneer stages of growth, 54, 64-68
causes of losses in, 67-68
investments compared with, 264
management during, 264
passing of, and purchase of securities, 64-67
Pipe lines, 50
labor costs, 72, 215-16
Plants
capacity, 79-81, 161-70
coal, oil, and natural gas compared, 80
debts and, 169-70
rayon and cotton compared, 79
in relation to expanding and declining industries, 81
expansion, 272-76
large-scale, 273
profits and losses from, 275-76
expenditures for, 25, 28-29
measuring productive capacity, 161-70
modernization, 152
new capacity and technology, 152-53
sales per dollar of plant investment, 149-52
utilization from investor's point of view, 176-81
Population, national economy and, 30-31
Port Authority of New York, 328-29, 330, 332-33, 338, 340-41
Portfolio management, 479-500
buy and hold policy, 486-90
arguments for, 487
Keynes views on, 485, 487
value of a stock, determination of, 488
buy and sell policy contrasted with buy and hold, 491
common stocks, 480-81
inflation and, 481-485
conclusions on, 499-500
defensive and aggressive policies, 491
dollar averaging, 489-90
formula planning, 494-99; *see also* Formula plans
investment companies, 534
philosophies of, 485-500
Power
electric light and, 60, 165-67
mechanical, 52-53
water, 50
Preferred stocks; *see* Stocks, preferred
Price and prices
commodity; *see* Commodity prices
controls, 86
cutting, 64, 86, 252
in expanding industries, 87
increases, 234-35
resistance, 207
rises in declining industries, 81-85
securities, determining price of, 9, 373-76
support program, 208-10

wars, 68, 85-87, 274, 276
causes of, 87
explanation of, 85-86
industries featured by, 86
Price-earnings ratio
accounting policies, in relation to, 394-95
in boom and depression, 376-89
changes over the years, 379-80
chemical industries, 386
commercial banks, 393
companies, 391-401
department stores, 387
dividends and, 392-93
Dow-Jones Industrial Stocks, 377-78, 380
equity ratio and, 396-400
in expanding or declining industries, 388-89
fluctuations in, 395-96
industries, 373-90
investment-grade companies, 391-92
Moody's 125 industrial stocks, 1900-1950, 379
past financial record and, 393-95
postwar, 380-83
railroad and chemical industries, 384-86
railroad stocks, 385
summary of controlling factors of, 400-1
time lags, 389
"Private placement," 11, 522
Product, national
capital formation and, 24-29
measurement of, 23-24
population effects, 30-31
profits and, 27-28
Production
batch or continuous, 168
Federal Reserve Board Index of, 29, 59-61
sales trends compared with, 59-61
Productivity
profit margins, 222-25
unit, 223-25
Profit margins, 202-26
capital costs, 217
defined, 204
factors bearing on, 202, 219-21
government regulation and, 208-10
indicator of efficiency, 204-5
industrial integration, 210-13
industries with low and high, 219-25
labor costs determine, 215-17
new products and, 221-22
quality of natural resources, 223
raw material costs and, 206-15
replacement demand, 217-18
return upon capital, 202-4
sales and, 204, 213-15
unit productivity and, 223-25
Profits
break-even point and, 228-29
corporate
federal income taxes on, 459-63
increase in, 27
national product and income, 27-28
use of, 25
margin; *see* Profit margin
nature of profit dollar, 183-84
nonrecurring, 231, 387
rapid sales changes and fluctuating, 232-34
undivided, 139
Promotions, industrial, 265
Property, taxes on, 319, 320-21
Prosperity, plant capacity and, 79
Proxy, machinery, 278
"Prudent Man Rule," 246, 534, 538, 539-40
Public Housing Administration, 509
Public interest, in the stock market, 423-24
Public Utility Holding Company Act of 1935, 94, 360
Public utility industry, 80
bonds, 515, 521
concentration of control, 94, 99-100
Electric Bond and Share, 476
financial structure, 255-57
government regulation and profits of, 251-55
Hope Natural Gas doctrine, 247
preferred stock, 122-25
price-earnings ratio and equity ratio, 396-400
public regulation of, 241-58
railroads differ from, 242-51
rate base, 244-51, 254-55
securities, 241-59
sources of investment information, 429
valuation and fair return, 244-49
Purchasing power, debt liquidation and, 34

Railroad equipment industry
American Brake Shoe, 146, 208, 392
Railroad industry, 231, 259-61
Railroads
Atchison, Topeka and Santa Fe, 108-9, 243, 395-96
balance sheet surplus, 138-39
Baltimore and Ohio Railroad, 116-17
bonds of, 88, 105, 154, 256, 362, 483, 546-48
life-insurance companies holdings of, 519, 520-21
savings banks holdings of, 514
second-grade, 360-63
Chesapeake and Ohio Railroad, 185-86, 243
Chicago, Rock Island & Pacific, 179
competition, 243-44
decrease in demand, 53, 54-55, 60, 72
expenditures capitalized, 185
financial structure, 108-10, 116-17, 255-57

Railroads—*Continued*
freight rates, 82-83
freight traffic, 55-57
government regulations
on financial structure, 255-57
on profits, 251-55
measuring efficiency of, 172-76
measuring productive capacity, 167
Missouri Pacific Railroad, 13-14, 110
New York Central Railroad, 116-17, 141-42, 233, 250, 259, 279, 395
New York, Chicago and St. Louis, 110, 251
ownership of, 467
Pennsylvania Railroad, 116-17, 155, 243, 259, 459
preferred stock, 121-22
price-earning ratio of leading stocks, 385, 395-96
public regulation of, 241-58
public utilities differ from, 242-51
rate base, 244-51, 255
St. Louis and San Francisco, 108-9
sales, measuring, 178-79
securities of, 11, 108-10, 241-59
Southern Pacific Railroad, 243
stationary demand, 75
traffic density and funded debt, 179
Transportation Act of 1920, 255
valuation and fair return, 244-46
weak and strong roads, 250-51
Railroad ton-miles
Production Index, 60
Rates
Hope Natural Gas doctrine, 247-49, 254
methods of rate base determination by states, 248-49
railroad, 244-46, 255
utility, 244-46, 254-55
Rating agencies, bond, 450, 452-55
Ratios
airline, 174-75
cash-current liabilities, 147-48
debt service, 323-24
debt to assessed values, 316-19
equity, 396-400
financial, 137-60
fuel efficiency, 175-76
margin by which earnings protect interest charges, 153-56
net income and dividend payments, 156-59
operating, 171
plant and operating, 161-82
price-earnings
companies, 391-401
industry, 373-90
sales and profit, to plant investment, 153
sales per dollar of plant investment, 149-52
"times interest earned," 154
ton-miles per train hour, 173-74
transportation, 172
volume of traffic, 172-73
working capital, 144-45
working capital per share, 145-46
Raw material
plant expansion, 273-74
profit margin affected by cost of, 206-15
Raw sugar industry; *see* Sugar industry
Real estate loans and bonds
commercial banks investments in, 508-10
life insurance companies investment in, 519, 523
marketability of government insured mortgages, 510
mortgages on homes, 508-9
mortgages on rental projects, 509
public housing bonds, 509
savings and loan associations' investments in, 536
savings banks' investments in, 514-16
Rental income, 197-98, 218
Rents, financial structure and, 116-17
Reorganization plans, 105, 122, 155, 180
Replacements, profit margin and demand for, 217-18
Research programs, 208, 222, 282, 284, 392
Reserves
balance-sheet, 189-90
depreciation, 190-93
accelerated, 192-93
financial policy, 188-93
natural resources
low cost reserves and profits, 198-200
reserves and price wars, 274
pension, 189-90
Resources, low-cost reserves of, 198-200
Revenue Act of 1951, 471
Revenue bonds, 18, 306, 327-43
airport bonds, 332-33
bridge bonds, 330-31
"cushion" to protect investors, 340-41
defined, 328
double-security, 334
electric light and power plant, 333
exempt from income taxes, 343, 473-76
financial analysis, 339-43
funds to protect, 340-41
growth of, 327-28
held by commercial banks, 507
highway bonds, 331-32
legal aspects of, 335-37
local economic geography affects, 338-39
managerial ability in relation to, 339
private enterprises compared with, 342-43
purposes of, 330-33
selling prices and maturities, 339-40
tax-secured bonds differ from, 333-39
water plants, 333

Rights, subscription, 11
Risks
  common stock, 375-76
  high-grade bonds and preferred stocks, 374-75
  "riskless" bonds, 374
Royalty income, 197-98
Rubber tire industry, 218
  United States Rubber, 261, 283

Sales
  decline,
    cost reductions, 235-36
    solutions to, 234-36
  dollar, 177-78
  per dollar of plant investment, 149-52
  profit margin affected by, 204, 213-15, 232-36
  ratio between working capital and, 146-47
  in relation to plant capacity, 162
  trends, 177-78
    production index compared with, 59-61
Saturation, repeated stages of, 68-71
Savings
  disposable income and, 32
  economic significance of, 31-32
  fluctuations in, 31-32
  liquid, 23, 32
  personal, 23, 32, 505, 513, 514
Savings and loan associations, 470, 535-36
  investments, 7, 535-36
    liquidity of, 19-20
Savings banks, 5, 470
  investments of, 7, 15, 20, 88, 513-17
    Government securities, 516
    laws regulating, 514-17
    legal list, 515
    mortgage holdings of, 514-17
Savings Banks Trust Company, 429, 515, 517
"Secondary offering," 11
Secular trends, 29-30
Securities; *see also* Bonds; Investments; Stocks
  "blue chip," 395
  contractual or conditional, 374-75
  determining price of, 373-76
  exchanges, 11
  factors influencing choice of, 93
  interest rates, 347-72; *see also* Interest rates
  listed, 11-12
  marketability of, 11-12; *see also* Marketability
  maturities of, 16-18
  prices of, factors influencing, 347, 400-1
  senior, 143-46
  when to buy, 64-67
  yields on, 347-72; *see also* Yield
Securities and Exchange Commission, 171, 427, 428-29, 522
  data on personal savings, 32
  investment companies, 533-34
  regulations, on short-term trading, 12
Sellers' market, 220
Selling, when to sell stocks and bonds, 118
Service revenues, 198, 218
Services
  investment, 426-56; *see also* Investment services
Sherman Antitrust Act of 1890, 94
Shipping industry, 387
Shoe industry, 75-76
  International Shoe, 212
Shortages, in various industries, 68
Sinking funds, 132-35
  revenue bonds, 340
  state and municipal bonds, 311-12
Size of a company
  advantage of large size, 93
  relation to efficiency, 93-94
Social habits, affect industries, 73
Social Security Act, 322
Soft-drink industry, 69, 100, 396
  Coca-Cola and Pepsi-Cola compared, 396
  Pepsi-Cola, 232-33, 396
Solvents industry, 81
Sources of information
  investment services, 426-56; *see also* Investment services
  personal savings data, 32
Spaced maturities, 18-19
Spare-parts business, 217-18
Speculation, investments and, 3-6, 546
Speculators, defined, 3-4, 65
Split-up, stock, 14
Standard and Poor's Corporation, 426, 427, 428, 429, 450, 452
Standard of living, expanding production and, 45
Standard-Poor's Statistics service, 421, 489, 497
Statement
  income, 118, 137
    definition of terms, 137-47
  earnings available for interest, 153-56
State government
  bonds of, 305-25; *see also* Bonds
  debt limitation, 314-23
Steel industry, 49-50, 67, 94, 168, 169, 185
  expansion of, 69-71
  United States Steel Corp., 101, 192-93, 203, 265
Stock cycles, 407
Stock market
  1929 collapse, 492-93
  postwar price-earnings ratio, 380-83
  price patterns, 378-80
  price trends, forecasting, 403-24

Stock market—*Continued*
public interest in, 423-24
volume of trading, 424
Stocks
"active," 417
bank, 114-16
capital, 138
choice of, based on financial structure, 113-14
common, 8, 9, 11, 546-47
buy and hold policy, 486-89
college and university investments in, 543-44
fire and casualty insurance companies investments in, 527-28
life-insurance company investments in, 524-25
maturity date, 347
pension funds investment in, 542-43
relation of inflation to, 481, 482
risk, 375-76
savings bank investment in, 517
determining value of, 488
fire and casualty insurance companies investment in, 527-28
growth, 489
for income, 4-5, 8-10
inflation and, 5, 8-9, 20, 481-85
life-insurance company investments in, 524-25
pension funds investment in, 542-43
portfolio policies, 479-500; *see also* Portfolio management
preferred, 8, 120-36
convertible, 128-32
earnings coverage, 127-28, 132
industries issuing, 121-28
investment quality industrials, 121-22
investment value of, 120-21
maturity date, 347
no-debt companies, 125-27
public utilities holding companies, 123
railroads, 121-22
sinking funds, 132-35
varying views on, 120-21
prices of, 411, 549-50
controlling factors, 400-1
earnings and, 376
forces relating to, 403-4
interest rates and, 371-72
problems, 373-76
purchased to reduce taxes, 4
sale of, 11, 118
selling high and buying low, 404-5, 431-32
split-up, 14
subscription rights, 11
with long dividend records, 8
Street railway industry, 80, 483-84
Sugar industry, 144, 209-10
Supernumerary income, 59
Surplus, nature of, 138-39
Synthetic materials, 51

Tax exemptions
bonds, 343, 351, 381, 459, 473-76, 507, 509
private securities, 473-76, 507
"Tax selling," 472
Taxes; *see also* Income tax
capital gains, 469, 470-73
effect on stock market, 473
corporate income, 293, 459-63
averaging, 465-67
on dividends and interest, 467-69
stockholder and, 465
depletion allowances, 464-65
depreciation allowances, 463
double taxation, 465
effect on investment portfolio, 458, 465, 469-70
estate and inheritance, 476-77
excess profits tax, 461-63
general property, 319, 320-21
individual income, 469-70
nonproperty, 321-23
personal property, 458-60
securities and, 458-60
revenue bonds and, 327-43
state and municipal, 319-23
income taxes, 321-22
limitations on, 319-20
stocks purchased to reduce, 4
Treasury bill to pay, 295-96
Technological progress, 61
Technology
improved, 74, 224, 238
new capacity and, 152-53
Television industry, 67, 96
Textile industry, 79, 152-53, 192, 208, 213-14
changes in, 45, 48
Time deposits, 513
Tobacco industry, 100-1
Trademarks, 73, 101, 102, 268
Traders, 4; *see also* Speculators
Trading, volume of, 424, 441-46
Traffic, volume of, 172-73
Transportation
airline, 53
basing point system, 73-74
costs, 51
freight traffic, 55-57
ratio, 172
Transportation Act of 1920, 255, 520
Trends
measuring, 433; *see also* Investment services
stock prices, forecasting, 403-24
Trucking industry, 72
Trust companies, 536-44
common trust funds, 540-42
legal list, 537-39
regulation of trust investments, 537-42

Trust funds, 505
common, 540-42
prudent man rule, 539-40

United States
Bureau of the Census, 313
Department of Labor, 479
Government securities, 291-303
commercial bank investments in, 506, 511-12
E Bond, 300-2
disadvantages, 301-2
modified, 302
Federal Reserve support of, 15, 291-303, 348, 352-55, 414
held by life insurance companies, 519-20
individual investors, 300 3
interest rates on, 4, 294-97, 348, 352-58
J and K bonds, 302-3
kinds of, 293-94
marketability of, 10
ownership of, 292
short-term treasury bills, 511
supply of, 546
taxes on, 467, 468
yield spreads on, 352-58
Supreme Court, 244, 246, 247, 253, 254, 343
Treasury department
commercial banks and, 506, 511-12, 513
Government securities and, 293, 295-303

Utilities; *see* Public utilities
Utilization factor, 180

Value, of securities, 551
Variety chains, 76
Veterans Administration, mortgages guaranteed by, 510
Volume of sales, price trends and, 415
Volume of trading, 424, 441-46

Wages, 238
as a factor in latent obsolescence, 72-73
minimum, 74
Warrants, 309
Welfare legislation, 102
Welfare services, 322-23
Wholesale price index, 83
Woolen industry, 75
World War I & II, domestic investment and, 28

Yield,
basic, 352
curve, 353-55
factors affecting, 479-80
spreads, 348-67, 480
bond maturities and, 351-56
bond tables, 349-50
bonds and common stock, 364-65
bonds and stocks compared, 351
callable and convertible provisions, in relation to, 363-64
definition of, 348-49
forecasting and, 408-10
Government and corporate bonds, 356-57, 359
Government and municipal, 357-58
high- and medium-grade bonds, 358-63
high-grade bonds and preferred stocks, 366
to maturity, compared with coupon and current return, 348-49
premium and discount bonds, 367
risks reflect, 350-51, 374
tax-exempt bonds, 351, 357-58
Treasury bonds, 352-53