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## INTRODUCTION

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**B**IGNESS CHARACTERIZES THE American nation. This is true, whether we are speaking of automobiles or skyscrapers, political campaigns or economic depressions. It is true, too, of the size of our business enterprises. In 1940 the United States Steel Corporation, for example, employed over a quarter of a million people, paid out wages which aggregated almost half a billion dollars, and sold products totaling over a billion dollars.

There are probably about 2½ million business enterprises in this country. Partnerships amount to roughly 10 percent; corporations, 20 percent; and individual proprietorships, 70 percent. Despite their small number, corporate enterprises are responsible for the lion's share of the business done in most industrial classifications: practically 100 percent in electric light and power, and manufactured gas, about 90 percent in manufacturing, mining, and transportation, and 60 percent even in trade. Corporations with total assets over \$5 million constitute only a little over 1 percent of the total number of corporations, but they are responsible for almost 50 percent of all business done.

Reasons for the growth of large-scale enterprise are not hard to find. In the first place, modern mechanical and chemical processes demand large capital outlays for their development. One continuous strip hot and cold rolling and finishing plant with its ancillary facilities may require an investment of \$60 million. The average ton of steel requires a capital investment of almost \$200. Du Pont's original plant expenditure for the production of the textile fiber Nylon was well over \$8 million, to say nothing of substantial continuing outlays for research on the product.

In financing, also, there are economies in large-scale operations. Recent studies by the Securities and Exchange Commission, for example, have indicated that the relative cost of flotation of securities decreases substantially both with size of issue and with size of issuing company.<sup>1</sup>

Aside from the technological and economic motives for the development of large enterprises, there have been legal and psycho-

logical ones. Psychology may explain the widespread gratification of human beings in size, as evidenced by the tone in which people speak of the biggest Idaho potato, the highest skyscraper, the biggest football crowd, the largest industry. Legally, the Sherman Act encouraged the intercorporate holdings of securities and thus the formation of large corporations by outlawing collective action among separate enterprises. The Clayton Act, in turn, encouraged the acquisition of actual physical properties by regulating intercorporate holdings of capital stock.

This growth in the size of enterprises has been a development of importance to many aspects of the American economy. It has brought with it such problems as arise out of the disappearance of the personal relationship between employer and employee and between producer and consumer, the separation of ownership and control, and the centralization of policy-making in a few hands. It has also brought with it important changes in business financial requirements and sources of capital and credit. The primary purpose of this study is to define and analyze these changing financial requirements and changing sources of capital and credit for large American business corporations.

#### SOURCES OF DATA

The analysis is restricted to large corporations in the fields of manufacturing, trade, transportation, communication, and electric light and power. Financial information for manufacturing covers 84 large manufacturing companies in 11 industries and for trade covers 14 large department stores and 13 large trading companies in 4 industries.<sup>2</sup> Data are drawn chiefly from published sources, although information on the 14 department stores was secured in collaboration with, and from the files of, the Harvard Bureau of Business Research. In addition, some of the tabulations for the years 1930-39 were furnished by the Board of Governors of the Federal Reserve System<sup>3</sup> and were based on the annual manuals of *Industrials* of Moody's Investors Service. The remaining tabulations for the period and all tabulations for the years 1921-29 were prepared by the National Bureau of Economic Research. The sources were standard investment manuals, New York Stock Exchange Listing Applications, the *Commercial and Financial Chronicle*, annual reports to stockholders, bond indentures, security description circulars, reorganization materials, letters to stockholders, and newspaper clippings.<sup>4</sup>

Data on railroads came largely from the testimony presented by John W. Barriger of the Railroad Division of the Reconstruction Finance Corporation before the Temporary National Economic Committee.<sup>5</sup> This material was based on the published records of the Interstate Commerce Commission,<sup>6</sup> which were in turn based upon the sworn statements of individual railroads. Statistics of telephone companies were drawn from the *Annual Reports to Stockholders* of the American Telephone and Telegraph Company and from original tabulations prepared by the Federal Communications Commission for its recent investigation of the telephone industry.<sup>7</sup> Financial data on electric light and power companies are more fragmentary. They were secured largely from the annual publications of the Edison Electric Institute<sup>8</sup> and such trade journals as *Electrical World* and *Public Utilities Fortnightly*.

The period selected for analysis was restricted to 1920–39 inclusive.<sup>9</sup> This two-decade span has been a memorable one in the annals of American economic life. It lies between the first and second World Wars and includes most of the business and financial conditions known to man, slight and prolonged depressions, mild recoveries and immoderate prosperities.

#### COVERAGE OF THE STUDY

The coverage of railroads, telephone, and electric light and power companies is practically complete. Large corporations dominate these industries. Although in the main the railroad data pertain only to Class I railroads and their lessor companies—that is, railroads with an annual gross revenue in excess of \$1 million—these roads accounted for about 98 percent of the gross revenue of the industry and carried about that proportion of the traffic of the country. Our study of the telephone industry is restricted to the Bell System which is dominant in the field of telephonic communication. In 1937, there were almost 20 million telephones in the United States, of which over 79 percent were in the Bell System.<sup>10</sup> Total telephone operating revenue in 1937 was \$1,180 million, of which \$1,051 million (89 percent) was attributable to the Bell System.<sup>11</sup> Most of our data on electric light and power companies are estimates for the entire industry, excluding Federal hydroelectric projects but sometimes including rural cooperatives.

Within manufacturing, coverage is over two-thirds in four industrial groups—meat packing, petroleum, rubber, and tobacco. In certain branches of manufacturing and trade, however, large cor-

porations are not dominant; coverage of food companies (other than meat packers) and of textile companies is low because of the presence in these industries of many small, often unincorporated, concerns. In trade, coverage is particularly high for variety stores (5 and 10 cent stores) and mail-order houses.<sup>12</sup> Over 90 percent of the sales of variety stores in 1935 were made by a small number of large chains.<sup>13</sup> Our coverage of total trade (9 percent) is much smaller than our coverage of manufacturing (26 percent) because of the great number of small, unincorporated enterprises that are engaged in trade.

In Table 1, the 1937 (in the case of petroleum, 1938) sales of

*Table 1*—SALES OF A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS COMPARED WITH THE VALUE OF PRODUCT OF ALL BUSINESS ENTERPRISES FOR 1935, 1937 OR 1938, BY INDUSTRY<sup>a</sup>  
(*dollar figures in millions*)

<i>Industry</i>	<i>Value of Product of All Business Enterprises</i>	<i>Sales of Manufacturing and Trade Sample</i>	<i>Sales of Sample as a Percent of Value of Product of All Business Enterprises</i>
Manufacturing	\$60,713	\$15,512	26%
Automobiles and trucks	5,176	2,699	52
Building materials and equipment	2,229	467	21
Chemicals	3,722	713	19
Food other than meat packing	8,479	287	3
Iron and steel	7,480	2,143	29
Machinery	6,299 <sup>b</sup>	1,154	18
Meat packing	2,787	2,179	78
Petroleum	5,000	3,744	75
Rubber	883	750	85
Textiles	7,062	197	3
Tobacco	1,273	864	68
Retail trade	33,161	2,853	9
Department stores, general merchandise mail-order houses	3,311	760	23
Grocery and combinations stores	6,352	1,250	20
Shoe and furniture stores	1,206	40	3
Variety stores <sup>c</sup>	1,007	803	80
TOTAL	\$93,874	\$18,365	20%

<sup>a</sup> Data on the value of product of all business enterprises in manufacturing industries except petroleum were estimated from the *Census of Manufactures, 1937*; those on petroleum (which pertain to 1938) are from Roy C. Cook, *Control of the Petroleum Industry by Major Oil Companies*, TNEC Monograph No. 39, p. 1; and those on trade are from "Retail Distribution," *Census of Business, 1935*, Vol. I. See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

<sup>b</sup> Includes electric cars and locomotives.

<sup>c</sup> Includes J. C. Penney.

our sample of 84 large manufacturing corporations in 11 industries and the 1935 sales of 27 large trade corporations in 5 industries are compared with the value of product of all manufacturing and trade enterprises.<sup>14</sup> Although the classifications are not strictly comparable, the table gives a rough indication of the coverage of this sample. Since the Census data on value of product are for "establishments" regardless of ownership, intercompany sales are included. As our sample excludes such sales, its coverage is probably underestimated.

In Table 2 the total assets of our sample of large manufacturing

**Table 2—TOTAL ASSETS OF ALL CORPORATIONS, ALL LARGE CORPORATIONS, AND A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS, 1933, BY INDUSTRY<sup>a</sup>**  
(dollar figures in millions)

Industry	TOTAL ASSETS				
	All Corporations	All Large Corporations <sup>b</sup>	Manufacturing and Trade Sample	Sample as a Percent of All Corporations	Sample as a Percent of All Large Corporations
Manufacturing	\$57,753	\$36,912	\$16,588	29%	45%
Automobiles and trucks	3,155	2,241	1,261	40	56
Building materials and equipment	1,866	816	528	28	65
Chemicals	5,014	3,302	1,152	23	35
Food including meat products	6,251	3,866	1,108	18	29
Iron and steel including machinery	15,403	10,937	4,759	31	44
Petroleum	8,182	8,084	6,292	77	78
Rubber	1,183	968	619	52	64
Textiles	4,598	1,353	192	4	14
Tobacco	1,033	901	677	66	75
Trade	15,654	4,463	1,205 <sup>c</sup>	8	27
<b>TOTAL</b>	<b>\$73,407</b>	<b>\$41,375</b>	<b>\$17,793</b>	<b>24%</b>	<b>43%</b>

<sup>a</sup> Data on all corporations were computed from *Statistics of Income for 1933*, Part 2. See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

<sup>b</sup> Corporations with total assets over \$10 million.

<sup>c</sup> Retail trade only.

and trade corporations are compared (1) with those of all manufacturing and trade corporations, and (2) with those of all manufacturing and trade corporations with total assets over \$10 million.

Our combined sample, responsible for at least one-fifth of the sales of all business enterprises engaged in manufacturing and trade (Table 1), possessed almost one-quarter of the assets of all corporations, and more than two-fifths of the assets of all big corporations in these two industrial groups.<sup>15</sup> Again the industrial classifications are not strictly comparable, but the table gives a rough indication of coverage.<sup>16</sup> Comparison is made for 1933, the last year in which the Bureau of Internal Revenue permitted the filing of consolidated returns. A comparison of the sample with *Statistics of Income* data for subsequent years would necessitate the use of inflated industry balance-sheet totals as compared with the totals of the consolidated balance sheets which make up our sample.

Within manufacturing, the total assets of our sample comprised 29 percent of the total assets of all corporations, and 45 percent of those of all corporations with assets over \$10 million. In general, the individual industries in which the coverage was highest were the same as in Table 1. *Statistics of Income* does not classify retail trade corporations separately by size of corporation. However, our sample had 8 percent of the total assets of all trade corporations and 27 percent of those of all trade corporations with assets over \$10 million.

The sample is dominated not only by large corporations but also by profitable corporations in heavy industries. Moreover, they have experienced greater relative growth during the past two decades than smaller concerns or concerns in other industries. In Table 3 the percentage changes in sales of those corporations for which sales data are available in 1923 and 1937 are compared to the percentage changes in value of product of all business enterprises, by industry. The behavior of our sample is in sharp contrast with that of manufacturing and trade as a whole. Sales were 67 percent greater in 1937 than in 1923, while for all business enterprises in these two industrial categories value of product increased but 6 percent. For manufacturing, increases for the sample and for the universe were 53 and 4 percent respectively, while for trade our sample's sales increased 161 percent and total retail trade sales (as measured by the flow of goods to consumers) increased only 8 percent.

In the major manufacturing industries, the growth of our sample was greater than the growth of the entire industry in all

divisions except food and meat packing. In the automobile and truck, chemical and petroleum industries the growth in sales for our sample was much greater than for these industries as a whole.

### METHODS OF ANALYSIS

Two different but complementary methods of analysis were utilized in studying the financial data of these large corporations. First, aggregate and median balance-sheet and sales ratios were

Table 3—PERCENTAGE CHANGES IN VALUE OF PRODUCT OF ALL BUSINESS ENTERPRISES AND IN SALES OF A SAMPLE OF LARGE MANUFACTURING AND TRADE CORPORATIONS FROM 1923 TO 1937, BY INDUSTRY<sup>a</sup>

Industry	Change in Value of Product of All Business Enterprises	Change in Sales of Manufacturing and Trade Sample
Manufacturing	4%	53%
Automobiles and trucks	-2	146
Building materials and equipment	-11	64
Chemicals	20	213
Food other than meat packing	27	b
Iron and steel	10	14
Machinery	14	28
Meat packing	8	8
Petroleum	42	133
Rubber	-8	45
Textiles	-26	-13
Tobacco	22	47
Retail trade	8	161
TOTAL	6%	67%

<sup>a</sup> Data on the value of product of all business enterprises in manufacturing industries are estimated from the *Census of Manufactures* for 1923 and 1937. Since no sales or value of product data are available on total retail trade for 1921, the percentage increase in total flow of consumers' commodities from 1923 to 1937 as estimated by Kuznets is used to indicate the approximate growth of total retail sales. See National Bureau of Economic Research, *National Income and Capital Formation, 1919-1935*, by Simon Kuznets (1937) p. 56 and by the same author, *Bulletin 74, Commodity Flow and Capital Formation in the Recent Recovery and Decline, 1932-38* (June 25, 1939) p. 2. See Appendix A for coverage of the sample. Data for some corporations were not available in the earlier years.

<sup>b</sup> Less than .5 percent.

computed. Second, these ratio studies were checked and supplemented by the results of what accountants call a "source and application of funds analysis." This accounting analysis is explained in greater detail in Appendix B. Briefly, its purpose is to

indicate the source and volume of funds received, and use and volume of funds expended by business concerns when such movements of funds affect major balance-sheet items between two fiscal year ends. The analysis excludes all balance-sheet changes which are the result of purely bookkeeping transactions, for example asset revaluations and stock dividends, which do not in fact involve a flow of funds. Account is also taken of non-cash charges and credits to income which conceal or indicate factitious flows of funds. In general such an analysis affords an integrated statement of the absolute and relative importance of different sources and expenditures of funds as well as an indication of their relationships.

#### COMMENTS ON THE NATURE OF THE DATA AND THEIR ANALYSIS

Certain peculiar characteristics of the data and their analysis should be noted at the outset. First, the study is based primarily upon data appearing on the books of business corporations. Although account has been taken of all purely bookkeeping transactions since 1920, the data at the beginning of the period (usually at December 31, 1920) were taken as reported by the individual concerns even though they may have been affected by previous revaluations. Therefore analysis of changes in financial requirements is undoubtedly more accurate than analysis of the absolute level of balance-sheet proportions at any given point of time.

Second, in the case of the National Bureau's original tabulations of large manufacturing and trade corporations, consolidated rather than unconsolidated financial statements were used whenever available. As a result, all flows of funds between parent and subsidiaries and among subsidiaries are eliminated. However, since one of the primary interests of this study is the relationship between business enterprises and financial institutions, this combining of enterprises with common ownership and control in one company is desirable.

An inherent characteristic of the data themselves is their variation due to the differences in accounting and bookkeeping practices of individual concerns. When these differences were apparent and important, they have been noted in the text. For example, the greater importance of maintenance as contrasted to depreciation accounting in public utilities, particularly railroads, has been pointed out. Another case that comes to mind is the difference in

methods of recording expenditures on retail stores utilized by the two large mail-order houses, Sears, Roebuck & Co. and Montgomery Ward & Co. The former records such expenditures as increases in property while the latter records them as investments in a subsidiary which was organized solely to handle its retail store business.

One inherent analytical difficulty concerns the interpretation of financial statement items as reported by business concerns. For example, the major part of the notes payable reported by these large corporations have been assumed payable to banks. A study of recent industry reports of the Federal Trade Commission, in which breakdowns of notes payable to banks and to others are available, indicates that this assumption is valid.<sup>17</sup> Certain other more or less arbitrary interpretations of financial statement items are made throughout the analysis.

Another difficulty concerns the treatment of variation in individual company behavior within industries as commonly defined. When business enterprises become as large as those in our sample, their activities are often so diverse that it is difficult to classify them into single industrial categories. In addition, when we have only a few cases in any industrial grouping, references to "typical behavior" are of dubious propriety. The emphasis in most of the following discussion is therefore placed upon aggregate, rather than upon representative, behavior of large corporations within industries. However, whenever there does appear to be a surprising similarity or dissimilarity of individual company behavior within industrial groups, the similarity or dissimilarity is noted.

Finally, mention should be made of the method of handling mergers, consolidations, and acquisitions. Acquisitions of other companies were considered expenditures of funds even though such acquisitions often involved merely the exchange of securities. In order to get a complete coverage of such expenditures it was sometimes necessary to make adjustments to reported balance sheet changes. For example, when General Motors acquired Fisher Body in 1926 and immediately consolidated it in financial statements, the expenditure was reflected on the balance sheet by changes in the specific assets acquired and liabilities assumed rather than as an investment in a subsidiary. In this case an adjustment was made to show the expenditure as an acquisition of a subsidiary.<sup>18</sup> On the other hand, when a merger took place—as for example the

merger of American Radiator Company and Standard Sanitary Manufacturing Company in 1929 to form the American Radiator-Standard Sanitary Corporation—no expenditure on the acquisition of a subsidiary was recorded. In such cases it was sometimes necessary to construct an estimated consolidated balance sheet for the year prior to the merger. When acquisitions and mergers were important, the financial data were included for years prior to the acquisition or merger as well as for subsequent years.

#### THE EFFECT OF SIZE AND PROFITABILITY ON CORPORATE FINANCIAL STRUCTURE

The financial structure of a given business concern is affected not only by the type of industry in which it is engaged but also by its size and profitability. Some of the effects of these two variables, not discussed elsewhere in this study, should be noted briefly.

The importance of cash plus receivables and of inventory relative to total assets varies inversely with size of corporation. In the case of cash plus receivables, in 1937 the proportion decreased from 27 percent for small corporations to 18 percent for medium-sized corporations and to 10 percent for large corporations. In the case of inventory, it decreased from 20 to 15 to 8 percent, respectively, for the three size classes.<sup>19</sup>

On the other hand, property (land, buildings and equipment less depreciation and depletion) and "other assets" (including marketable and other security investments) as a percent of total assets varied directly with the size of corporation.

Notes and accounts payable in 1937 made up a smaller portion of total liabilities as size of corporation increased. Notes payable decreased from 11 to 6 to 2 percent, and accounts payable from 16 to 9 to 5 percent, respectively, in the three size classes. Long-term debt and the sum of common stock and surplus, on the contrary, showed a positive variation with size.<sup>20</sup>

The percentage distributions of the total assets and liabilities of all income and deficit corporations reporting to the Bureau of Internal Revenue also differed significantly in 1937. Profitable corporations had a greater proportion of their assets in a liquid (current) form than unprofitable corporations. Among the liabilities, unprofitable enterprises had a greater proportion of short-term and long-term indebtedness and a smaller proportion of net worth. Thus in spite of their relatively greater fixed assets, deficit corpora-

tions had more indebtedness and less net worth than income corporations.

Since this study is restricted to large, and for the most part profitable, corporations, and since financial structure and capital and credit requirements vary with size and profitability, its findings are not applicable to all business enterprises. Companion studies of the National Bureau's Studies in Business Financing are concerned with other segments of the American business economy.