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CHAPTER VII

Debt and Equity Financing

SINCE most manufacturing and mining industries have been subject to wide cyclical fluctuations, it has, traditionally, been considered unwise for them to rely heavily on debt financing, especially if it is long-term. Some corporations, even in the largest size class, have never issued bonds. Some have also not used bank credit, confining their debt financing to an unavoidable minimum of accounts payable, accrued taxes, and a few other minor items. However, for all manufacturing and mining corporations combined, borrowed funds, both short-term and long-term, have been an important addition to equity capital.

Definitions

Before we examine debt-equity relationships in detail, some basic terms must be defined. Short-term liabilities include short-term bank loans (notes payable), trade credit (accounts payable), accrued items (mainly tax accruals), and other short-term liabilities (e.g., the portion of long-term debt payable within a year). Long-term liabilities consist of bonds, mortgages, and long-term bank credit (term loans). Total debt is the sum of all short-term and long-term liabilities. Equity (or net worth) includes capital stock, surplus, and capital reserves (but not reserves for depreciation and other valuation reserves).

Equity funds are obtained by corporations from external sources (through capital stock flotations) and from internal sources (through income retention). All debt funds, except for accrued liabilities, are obtained from external sources. Accrued liabilities are similar to retained earnings in that they represent funds derived from the revenue stream. But they are usually treated as short-term financing extended to the company by the payee (the government, in the case of tax accruals) and are included, along with other short-term liabilities, in external financing. We are following this procedure, except when our analysis requires a summing up of all the funds (short- and long-term) retained from the revenue stream.

Total Debt

For manufacturing, our data on total interest-bearing debt extend from 1890 through 1952, though the earliest figures are only rough estimates (Table 49).¹ The 1890 ratio of total interest-bearing debt to

¹ The 1890 census gives interest payments in manufacturing. The interest-bearing debt outstanding in 1890 was estimated by capitalizing interest payments at 5 per cent. The census also gives total operating assets in manufacturing. (The census definition of capital includes all operating assets but excludes investments in securities.)

TABLE 49
All Manufacturing and Mining Corporations: Ratios of Debt to Assets, Selected Years, 1890-1952
(dollars in millions)

Interest-Bearing Debt	(1)	(2)	Operating Assets ^a			Total Assets (book value) (5)	Interest-Bearing Debt as Per Cent of			Total Debt as Per Cent of		
			(book value) (3)	(current value) (4)	Operating Assets		Operating Assets		Total Assets (book value) (Col. 2) ÷ (Col. 3) (9)	Total Assets (current value) (Col. 2) ÷ (Col. 4) (10)	Total Assets (book value) (Col. 2) ÷ (Col. 5) (11)	
					(book value) (Col. 1) ÷ (Col. 3) (6)		(current value) (Col. 1) ÷ (Col. 4) (7)	(book value) (Col. 1) ÷ (Col. 4) (8)				(current value) (Col. 1) ÷ (Col. 5) (8)
1890 ^b	\$ 824	n.a.	\$ 5,697	\$ 5,627	n.a.	14.5%	14.6%	35.5%	28.0%	31.9%		
1919	n.a.	\$13,568	38,225	48,488	\$42,472	14.2		25.8	24.6	23.2		
1923 ^c	6,193	n.a.	43,644	n.a.	n.a.			31.4	29.6	26.0		
1929 ^c	n.a.	13,964 ^d	54,188	56,674	60,237	16.2	15.3	36.5	31.4	30.9		
1937	7,497	14,484	46,198	48,860	55,723	15.2	13.0	42.1	36.4	35.7		
1948	15,608	37,624	103,023	119,781	121,708	18.0	15.5					
1952	25,945	60,786	144,361	167,144	170,282							
MANUFACTURING												
1923 ^c	\$ 2,736	n.a.	\$13,941	n.a.	n.a.	19.6%		27.8%	26.0%	24.6%		
1929 ^c	n.a.	\$ 3,119 ^e	11,204 ^e	12,017	\$12,666	20.4	18.6%	34.1	31.1	27.6		
1937	1,511	2,523	7,409	8,119	9,146	19.7	15.7	39.2	31.3	30.2		
1948 ^e	1,425	2,840	7,243	9,087	9,394	20.6	16.6	40.8	32.7	31.7		
1948 ^f	1,449	2,864	7,019	8,755	9,042	22.6	18.0	42.4	33.8	34.1		
1952	2,186	4,102	9,685	12,135	12,034							
MINING												

n.a. = not available.

^a Total assets minus investments in government and corporate securities.

^b 1890: all establishments; other years: corporations with balance sheets.

^c Adjusted for deconsolidation.

Source: Columns 1, 2, 3, and 5: 1890: *Report on Manufacturing Industries in the United States at the Eleventh Census; 1890*, Part 1; 1919: Column 3 from Appendix A, section A1a and Table A-3. Column 5 estimated from sample data in a manner similar to that described in Appendix A, section A1a. Column 2 is the difference between total assets and net worth; the latter is given in Appendix A, section A1a and Table A-3.

1923: *Statistics of Income for 1924*. The figures for operating assets include an estimate of "other assets."

1929, 1937, 1948, and 1952: *Statistics of Income*.

Column 4: Data in column 3 deflated by an index of replacement cost computed by the National Bureau of Economic Research.

^d Includes "surplus reserves."

^e Comparable with 1937.

^f Comparable with 1952.

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total operating assets is nearly the same as the ratio for 1923 (around 14 per cent). But a moderate rise occurred in later years, and the ratio reached 18 per cent in 1952.

The data on total debt, including the non-interest-bearing items (accounts payable and accrued tax liabilities), are available since 1919. (Again, the figure for 1919 is only a rough estimate.) The ratios of total debt to operating assets and of total debt to total assets declined from 1919 to 1929, but they increased significantly thereafter. By 1952, total debt amounted to more than one-third of total assets and more than two-fifths of operating assets.

Generally similar tendencies are revealed by sample data on large manufacturing corporations. The ratio of total debt to total assets was 21 per cent in 1901 (see Chart 20 below). The ratio rose during World War I; but in the twenties, it dropped back to nearly the 1901 level and continued downward in the thirties. It rose substantially during and after World War II. In 1952, the ratio was 38 per cent.

While total debt before World War II was less important for large corporations than for all corporations, the reverse became true in the postwar period. For mining, the ratios of total debt to operating assets and of total debt to total assets, available only for 1923-1952, are closely similar to those obtained for manufacturing.

The above measures relate debt to assets as they are valued on the books. Somewhat different results are obtained when debt is related to assets in current (i.e., replacement) prices. When prices are rising, current values tend to exceed the original cost of durable assets. Since the amount of debt is not affected by price changes, net worth is increased by the entire amount of asset appreciation. As a result, the relative importance of the debt declines.³ The reverse tendency develops, of course, during periods of falling prices.

As Table 49 shows, the postwar ratios of debt to operating assets are higher than the prewar ones, even when the assets are expressed in replacement values, but the change is less.³ The ratio of interest-bearing debt to adjusted operating assets has changed only slightly (14.6 per cent in 1890, 15.5 per cent in 1952). The ratio of total debt to adjusted operating assets has changed somewhat more (28.0 per cent in 1919, 29.6 per cent in 1937, and 36.4 per cent in 1952).

Although, for total manufacturing, the ratio of debt to book value of capital declined between 1919 and 1929, the debt ratios rose in seven

³ On the one hand, the creditors lose, because the real value of the capital they have lent falls. On the other hand, they gain greater security for their loans: the greater the asset appreciation, the smaller the burden of the debt and the smaller the chance of default.

³ The indexes, prepared at the National Bureau, permit us to convert the book values of operating assets, but not total assets, into current values.

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of the ten industry groupings we can distinguish for this purpose (Table 50). The three industry groups in which the debt ratio declined

TABLE 50

Ratios of Total Debt to Operating Assets and Relative Change in Operating Assets,
by Manufacturing Industries, Selected Years, 1919-1948
(per cent)

	<i>Percentage Ratio of Total Debt to Operating Assets</i>			<i>Percentage Change in Operating Assets</i>	
	1919	1929	1948	1919-1929	1929-1948
Food and kindred products	33.6	26.2	32.5	+50	+64
Textiles and products	26.7	22.9	22.7	+36	+43
Leather and leather products	28.8	21.5	25.6	-3	+10
Rubber products	25.3	34.0	35.1	+34	+36
Forest products	21.1	24.8	24.7	+49	+7
Paper, pulp, and products	21.7	25.7	23.2	+115	+66
Printing and publishing	10.5	27.9	27.5	+204	+44
Chemicals and allied products ^a	14.4	18.4	27.6	+234	+96
Stone, clay, and glass products	9.3	18.6	21.3	+143	+24
Metals and their products	25.3	17.2	24.2	+36	+88

^a Includes petroleum refining.

Source: Underlying data for 1919 based on data in Appendix A, section A1a and Table A-3; for 1929 and 1948, *Statistics of Income*, Bureau of Internal Revenue (now Internal Revenue Service).

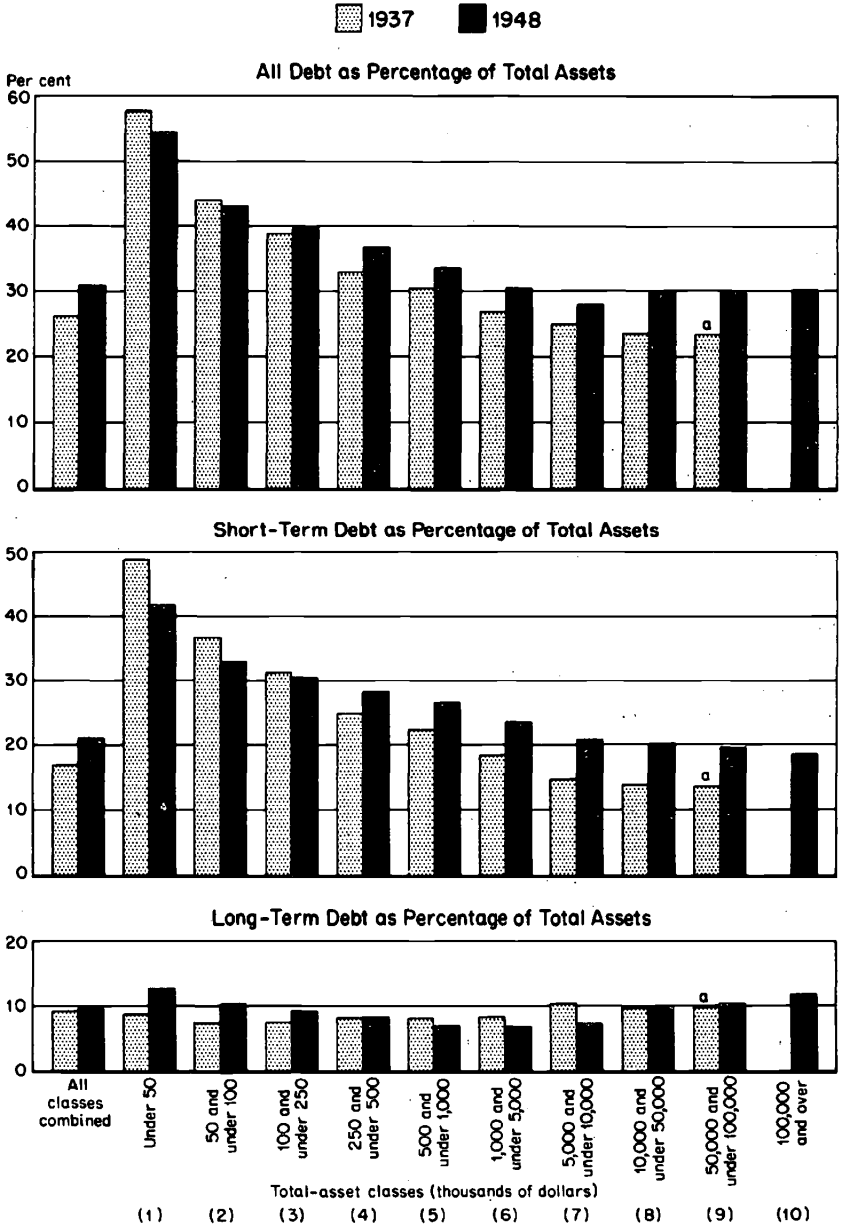
—food and kindred products, leather and leather products, and textiles and their products—had the three highest debt ratios in 1919. Furthermore, the rate of growth of operating assets of these groups between 1919 and 1929 was relatively low.

By 1948, the debt ratio in six of the ten industry groups exceeded, by a considerable margin, the ratios for 1929. In the other four, the 1948 figures were slightly below the 1929 ones. In most of the ten, the percentage change in the debt ratio between 1929 and 1948 is directly associated with the percentage increase in operating assets (the higher the relative expansion in operating assets, the higher the relative change in the debt ratio). This is, of course, consistent with the general trend of increased reliance upon debt to finance the acquisition of new assets.

The relative importance of debt and equity financing for different asset size classes in 1937 and 1948 can be seen in Chart 18.⁴ In both

⁴ The data underlying Chart 18 are presented in Appendix C, section D, and Appendix Table C-4. Statistics for different asset size classes of corporations have been published by the Internal Revenue Service since 1931. The years selected for our analysis, 1937 and 1948, are the last prewar, and the first postwar, cyclical peak years, respectively.

CHART 18
 Ratios of Debt to Total Assets, All Manufacturing and Mining
 Corporations with Balance Sheets, by Total-Asset
 Classes, 1937 and 1948



^a Last two classes combined.

Source: Appendix Table C-4.

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years the ratio of total debt to total assets was lower for large corporations than for small ones. In 1937, the ratio decreased consistently as the asset size increased. (It was 57 per cent for corporations in Class 1 but only 23 per cent for those in Class 9.⁵ In 1948, the ratio decreased from 54 per cent for Class 1 corporations to 28 per cent for Class 7. The ratio was slightly higher for Classes 8, 9, and 10 than for Class 7 but much lower than for all the lowest asset-classes.

Total debt was of greater relative importance in 1948 than in 1937 for all classes except the two lowest. The rise in the ratio was relatively small for medium-size corporations, but somewhat more pronounced for corporations with assets of \$10 million and over. For all classes combined, the ratio rose from 26 per cent in 1937 to 31 per cent in 1948 (and to 35 per cent in 1952).

In both 1948 and 1937, total debt was considerably less important for corporations with net income than for corporations without net income. This was true of all asset-size classes in manufacturing and mining industries alike. Both income and no-income companies, however, show a similar relationship between the ratio of debt to assets and asset size. For most classes, the relation is inverse: the ratio diminishes as assets increase. Only the highest asset-size classes deviate from this pattern (especially companies without net income, where the ratios for Classes 9 and 10 are considerably higher than are those for Classes 7 and 8). But, even though the ratios for the largest corporations show some rise, they remain well below the level observed for most of the smallest.

The income and the no-income groups are also similar in that both show a significant rise in the ratio of debt to assets from 1937 to 1948. This rise is found in most classes, notable exceptions being the two lowest net-income classes in manufacturing.

For all classes combined, the debt-asset ratio for manufacturing corporations with net income rose from 23 per cent in 1937 to 30 per cent in 1948. For those without net income, the corresponding figures were 42 per cent and 51 per cent. In mining, the ratio increased from 19 per cent in 1937 to 28 per cent in 1948 for corporations with net income, and from 43 per cent to 51 per cent for those without net income.

Long-Term Debt: New Bond Issues

Data on new bond issues of all manufacturing and mining corporations for 1900–1953 are given in Table 51. A more detailed industrial

⁵ This tendency was not confined to manufacturing and mining corporations (see Walter A. Chudson, *The Pattern of Corporate Financial Structure: A Cross-Section View of Manufacturing, Mining, Trade and Construction, 1937*, National Bureau of Economic Research, 1945).

TABLE 51

Security Issues, Retained Net Profit, and Net Plant and Equipment Expansion, ^aAll Manufacturing and Mining Corporations, 1900-1953
(dollar amounts are annual averages in millions)

Period	New Security Issues			Retained Net Profit		Net Plant and Equipment Expansion		New Stock Issues as Percentage of:			Total New Security Issues		Retained Net Profit		New Stock Issues Plus Retained Net Profit	
	Stocks (1)	Bonds (2)	Total (3)	(unad- justed) (4)	(ad- justed) (5)	(unad- justed) (6)	(ad- justed) (7)	(unadjusted) (Col. 1) ÷ (Col. 4) (8)	(adjusted) (Col. 1) ÷ (Col. 5) (9)	(Col. 2) ÷ (Col. 3) (10)	(unadjusted) (Col. 2) ÷ (Col. 4) (11)	(adjusted) (Col. 2) ÷ (Col. 5) (12)	(unadjusted) (Col. 2) ÷ (Col. 4) [(Col. 1) ÷ (Col. 5)] (13)	(adjusted) (Col. 2) ÷ (Col. 5) [(Col. 1) ÷ (Col. 5)] (14)		
POSITIVE BUSINESS CYCLES ^b																
1900-1904	\$158	\$254	\$412	\$459	\$439	\$543	\$503	34.4%	36.0%	61.7%	55.3%	57.9%	41.2%	42.5%		
1904-1908	143	113	256	417	357	638	566	34.3	40.1	44.1	27.1	31.7	20.2	22.6		
1908-1911	177	140	317	474	415	578	497	37.3	42.7	44.2	29.5	33.7	21.5	23.6		
1911-1914	212	59	271	463	506	571	554	43.7	41.9	21.8	12.2	11.7	8.5	8.2		
1914-1919	410	78	488	1,968	1,038	871	675	20.8	39.5	16.0	4.0	7.5	3.3	5.4		
1919-1921	815	427	1,242	618	1,475	1,094	436	131.9	55.3	34.4	69.1	28.9	29.8	18.6		
1921-1924	385	283	668	374	544	190	-71	102.9	70.8	42.4	75.7	52.0	37.3	30.5		
1924-1927	569	304	873	863	1,091	369	249	65.9	52.2	34.8	35.2	27.9	21.2	18.3		
1927-1932	733	-146	587	-988	-14	-21	-25	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.		
1932-1938	174	-249	-75	-683	-824	-126	34	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.		
1938-1946	234	-28	206	2,002	1,447	408	402	11.7	16.2	n.c.	n.c.	n.c.	n.c.	n.c.		
1946-1949	810	1,125	1,935	5,687	3,347	4,299	3,856	14.2	24.2	58.1	19.8	33.6	17.3	27.1		
1949-1954 ^b	691	1,437	2,128	4,497	3,220	3,727	3,102	15.4	21.5	67.5	32.0	44.6	27.7	36.7		
INVERTED BUSINESS CYCLES ^b																
1899-1903	167	249	416	461	434	547	507	36.2	38.5	59.9	54.0	57.4	39.6	41.4		
1903-1907	132	124	256	421	379	616	555	31.4	34.8	48.4	29.5	32.7	22.4	24.3		
1907-1910	164	124	288	444	340	325	243	36.9	48.2	43.1	27.9	36.5	20.4	24.6		
1910-1913	224	104	328	500	492	301	245	44.8	45.5	31.7	20.8	21.1	14.4	14.5		
1913-1918	295	70	365	1,671	1,019	734	655	17.6	28.9	19.2	4.2	6.9	3.6	5.3		
1918-1920	878	182	1,060	1,867	1,226	1,293	680	47.0	71.6	17.2	9.7	14.8	6.6	8.7		
1920-1923	442	406	848	-87	691	387	-20	n.c.	64.0	47.9	n.c.	58.8	114.4	35.8		
1923-1926	529	224	753	933	969	321	145	56.7	54.6	29.7	24.0	23.1	15.3	15.0		
1926-1929	953	55	1,008	662	851	480	383	144.0	112.0	5.5	8.3	6.5	3.4	3.0		
1929-1937	259	-249	10	-1,264	-824	-282	-154	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.		
1937-1944	133	-26	107	1,614	1,301	238	283	8.2	10.2	n.c.	n.c.	n.c.	n.c.	n.c.		
1944-1948	798	548	1,346	4,008	1,894	2,805	2,558	19.9	42.1	40.7	13.7	28.9	11.4	20.4		
1948-1953	707	1,394	2,101	4,817	3,739	3,651	3,076	14.7	18.9	66.3	28.9	37.3	25.2	31.4		

(continued)

TABLE 51 (continued)

	SELECTED PERIODS												
1900-1914	166	141	307	448	427	576	527	37.1	38.9	45.9	31.5	23.0	23.8
1919-1929	749	190	939	744	906	544	265	100.7	82.7	20.2	25.5	12.7	11.5
1936-1940	216	-60	156	241	350	431	541	89.6	61.7	n.c.	n.c.	n.c.	n.c.
1946-1953	772	1,282	2,054	4,889	3,091	3,959	3,429	15.8	25.0	62.4	26.2	22.6	33.2

n.c. = not computed when numerator, denominator, or both, are negative.

^a Based on National Bureau of Economic Research business cycle chronology. In computing averages, values for terminal years are weighted by one-half for complete cycles. For incomplete cycles, only values at peak or trough terminal years are weighted by one-half.

^b Averages cover 1949-1953.

Source: Columns 1, 2, and 3: Appendix Table C-1; columns 4 and 5: Table 41; columns 6 and 7: Plant and equipment expenditures in Table 40, column 3 minus depreciation in Table 41, column 1 (unadjusted) or column 2 (adjusted).

TABLE 52
Net Bond Issues during Cycles in Business Activity, All Manufacturing and Mining Corporations and Major Manufacturing Industries,
1900-1943
(annual averages in millions of dollars)

Positive Business Cycles Periods	Mining		All		Food and Kindred Products	Textiles and Products	Forest Products	Paper	Printing	Chemicals	Petroleum and Coal Products		Rubber	Leather	Stone, Clay and Glass	Iron and Steel	Non- ferrous Metals	Mach- inery and Equip- ment	Trans- por- tation	Miscel- laneous
	Manu- facturing	All Mining	Manu- facturing	All Mining							Rubber	Leather								
1900-1904	253.9	35.7	218.2	50.2	5.5	2.4	2.1	0.0	1.7	0.5	3.2	1.0	0.5	142.4	4.4	0.9	3.2	0.1		
1904-1908	112.2	38.0	74.2	-1.4	-2.0	5.4	4.9	0.3	5.7	1.8	1.1	8.3	1.8	27.2	2.8	13.1	3.9	1.1		
1908-1911	140.0	45.4	94.5	26.1	3.7	9.4	-3.0	4.3	3.2	6.7	0.8	0.2	1.9	18.4	0.7	8.5	14.4	-0.9		
1911-1914	58.9	17.7	41.1	-11.0	1.4	10.4	5.9	0.0	7.2	11.6	-0.6	-2.0	8.7	17.8	-1.2	-4.3	0.8	-2.0		
1914-1919	78.9	1.4	77.5	43.7	-3.7	-8.0	-3.1	0.5	5.3	9.1	9.6	1.6	2.0	15.5	7.0	-1.2	-2.2	5.0		
1919-1921	426.4	23.2	403.2	95.0	20.4	0.5	6.5	1.3	18.4	120.9	55.0	6.0	7.5	2.9	22.5	50.0	9.5	1.8		
1921-1924	282.2	76.4	205.8	-1.6	24.6	21.1	10.2	0.0	22.0	46.6	11.0	-1.0	-1.0	68.7	0.8	14.7	16.4	2.9		
1924-1927	305.4	42.0	263.4	24.5	2.5	6.6	19.8	52.8	17.2	6.2	85.4	14.0	-6.0	23.9	-9.8	-3.0	-0.4	9.0	23.4	
1927-1932	-146.6	-67.6	-79.0	-41.7	2.6	16.9	-3.8	9.4	-15.6	29.5	-7.7	-2.7	-10.1	-63.9	11.0	-2.6	-9.7	-6.8		
1932-1938	-248.3	-41.2	-207.1	-29.5	-27.3	-31.7	-10.7	-9.4	-5.2	-40.2	-6.4	-0.4	-10.1	8.4	-15.6	-6.8	-14.8	-7.2		
1938-1946 ^b	-18.9	-29.4	10.5	29.9	7.2	-8.5	-3.2	-5.8	6.6	23.7	-5.8	-0.7	-8.6	-26.1	14.8	-4.8	-3.0	-5.0		

^a Based on National Bureau of Economic Research business cycle chronology. In computing averages, values for terminal years are weighted by one-half for complete cycles. For incomplete cycles, only values at peak or trough terminal years are weighted by one-half.

^b Averages cover 1938-1943.

Source: Based on unpublished tables of W. Braddock Hickman used for his study *The Volume of Corporate Bond Financing since 1900*, Princeton University Press for National Bureau of Economic Research, 1953.
Note: Detail may not add to totals because of rounding.

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breakdown of new bond issues (available for 1900–1943 only) is presented in Table 52. Cycle averages for manufacturing do not have close conformity with those for mining. Nevertheless, both series show the following general characteristics:⁶

1. There was a large inflow of funds through bond transactions in 1900–1929. This was followed by an outflow of funds (retirements in excess of new issues) during the thirties and early forties;

2. The highest peak reached by new bond issues, 1900–1943, was in the early twenties (1919–1921 in manufacturing and 1921–1924 in mining).

Most major manufacturing industries show an inflow of bond funds during 1920–1927, an outflow during 1927–1943. However, the relative importance of individual industries as bond issuers changed substantially over the period reviewed.

The large amount of new bond financing in 1900–1904 was mainly accounted for by the iron and steel industry (the U.S. Steel Corporation was organized in 1901). Food and kindred products ranked second in importance during that cycle. The average value of new bond issues was much smaller in the three cycles following (1904–1908, 1908–1911, and 1911–1914); the main bond issuers were the iron and steel, forest products, machinery, and transportation equipment industries.

In the World War I cycle (1914–1919), the largest bond issues in manufacturing were in the food, iron and steel, petroleum, and rubber industries. During the twenties (the 1919–1921, 1921–1924, and 1924–1927 cycles), the petroleum industry became by far the most important bond issuer, although the food, paper, forest products, and textile industries each accounted for a considerable fraction of the total. Iron and steel issues were important only in the 1921–1924 cycle.

In the 1927–1932 and the 1932–1938 cycles, retirements generally exceeded new issues by manufacturing industries. In 1927–1932, only petroleum, forest products, and nonferrous metals showed substantial positive averages. In 1932–1938, retirements exceeded new issues in all industries except iron and steel. However, in 1938–1943, petroleum, chemicals, nonferrous metals, food, and textiles began again to absorb funds through bond transactions.

Stock and bond issues during 1900–1919 showed divergent trends (the stock average rose from \$158 million in 1900–1904 to \$410 million in 1914–1919; the bond average declined from \$254 million to \$78 million—see Chart 19 and Table 51). From 1919 to 1949, the

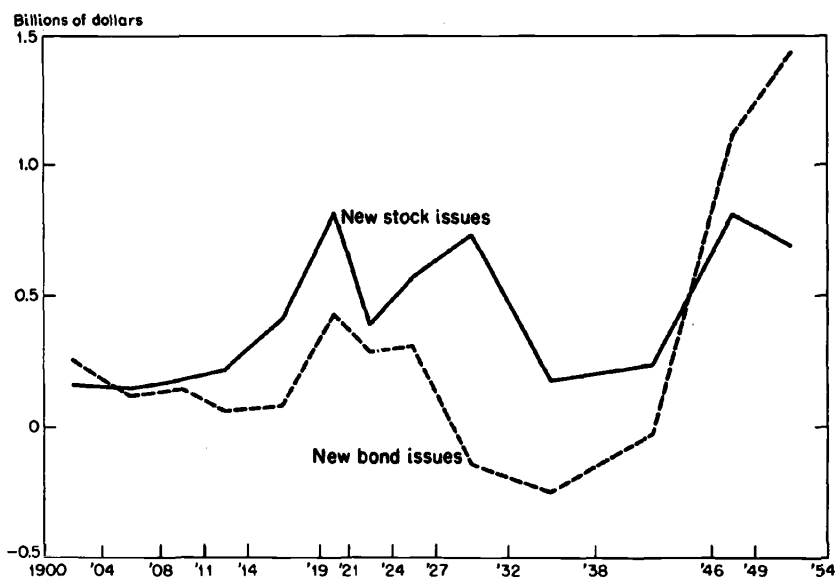
⁶ Since the value of bond issues in manufacturing greatly exceeded that in mining, fluctuations in the data for both industries combined reflect mainly the movements shown by manufacturing.

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CHART 19

New Bond and New Stock Issues, All Manufacturing and Mining
Corporations, 1900–1953

(averages during positive business cycles)



Source: Table 51.

stock and bond averages generally moved in the same direction, but the bond series fluctuated more widely.

In the 1919–1921, 1921–1924, and 1924–1927 cycles, both stock and bond issues were relatively high, but the stock average exceeded the bond average by a considerable margin. The stock average rose still higher in 1927–1932, but the bond average dropped sharply. In fact, bond financing showed a negative balance (retirements in excess of new issues).⁷

Bond financing remained negative in the 1932–1938 and 1938–1946 cycles. The stock average remained positive, although well below the high levels of the twenties. Finally, in 1946–1949 and 1949–1953, both stock and bond issues rose sharply. The bond average showed a much more pronounced rise and exceeded the stock average by a considerable margin in both cycles. Thus, the postwar cycles stand in sharp contrast

⁷ The 1923–1926 and 1926–1929 peak-to-peak cycles also have this divergent movement. The bond average contracted sharply in 1926–1929, although it remained positive, unlike the average for the 1927–1932 trough-to-trough cycle.

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to all the interwar cycles (and also to the cycles before World War I, except 1900–1904) in that bond financing provided much more funds than did stock financing.

There were a number of reasons for the heavier reliance on bond financing in the postwar years. Because the level of economic activity was high and relatively stable, corporate managements became more confident of the earning power of their companies and less hesitant to assume the risks associated with trading on equity. At the same time, several factors tended to reduce the cost of bond issues compared with stock flotations.

Bond yields were relatively low, mainly as a result of Treasury policy in regard to government obligations. In contrast, dividend yields were relatively high, reflecting the generally conservative and cautious attitude of investors towards "risk" securities. Also, the deductibility of interest, but not dividends, in computing taxable income assumed considerable importance owing to the high corporate income tax rates.

From a longer-run viewpoint, the persistent rise in the general price level also tended to make bonds (and loans in general) relatively more attractive to corporations. Although rising prices generally meant higher revenues and higher asset values (in current dollars), they had no effect on either the interest charges or the principal amount of loans outstanding. Consequently, for a given amount of debt, the ratio of fixed charges to profits as well as the ratio of debt to the current value of total assets tended to decrease with the passage of time.

Bond Issues and Equity Financing

However, a rise in bond financing relative to stock financing does not, necessarily, mean a shift from equity to debt capital, because equity funds are obtained internally as well as externally. It is important, therefore, to examine changes in bond financing relative not only to stock issues (external equity expansion), but also to income retention (internal equity accumulation).

The relevant data, 1900–1953, for all manufacturing and mining corporations show no clear trend in the ratio of bond issues to retained net profit (Table 51). This is true whether the ratios are computed from reported profit data or from adjusted profit data.⁸

The ratios of new stock issues to retained profit for the 1946–1949 and 1949–1954 cycles were considerably lower than any of the ratios prior to World War II. The three cycles preceding (1927–1932, 1932–1938, and 1938–1946) had shown an excess of retirements over new

⁸ See the section on net profit retention in Chapter VI for an explanation of the difference between unadjusted and adjusted profit data.

bond issues. However, in all of the earlier (pre-1927) cycles, new bond issues showed substantial positive balances (sometimes, the ratio of bond issues to retained profit was higher than in 1946-1949 or 1949-1953).

The ratios of new bond issues to total equity financing (new stock issues plus retained profits), also, do not show any definite trend (Table 51). However, although the postwar ratios are not the highest, they exceed most of the ratios for the cycles preceding World War II, especially when computed from adjusted profit figures. The adjusted figure for 1946-1953 exceeds the adjusted figure for 1900-1914 as well as that for 1919-1929.

We can use the available statements of sources and uses of funds for samples of large manufacturing companies to examine the importance of long-term debt financing (including bonds and other loans with maturity longer than one year) in relation to other types of financing and to the total flow of funds from all sources (Table 53).⁹

The inflow of long-term debt funds compared with new stock financing of large corporations, exhibits tendencies generally similar to those of new bond and stock issues of all manufacturing and mining companies combined, but with some significant differences.

In 1946-1949, the inflow of long-term debt funds into large corporations was 2.6 times as high as the inflow of funds through stock sales; in 1949-1953, even higher (4.6 to 1). Before World War II, new long-term debt financing was never more than a small fraction of new stock financing. In the thirties, there was a net outflow of long-term debt funds, while stock transactions showed a net inflow. In the twenties, the inflow of debt funds, even at its highest (in 1919-1921), was only 22 per cent of the inflow of equity funds. The relative importance of long-term debt financing was considerably higher in 1900-1910 than in the interwar period. Yet the ratio of such financing to stock financing (1.3) was not nearly so high as after World War II.

Long-term debt financing in the postwar period included substantial amounts of bank loans (term lending). If these loans are excluded, the remainder may be taken to represent, fairly closely, the amount of bond financing. For large corporations, the inflow of this remainder, new bond issues, was 2.6 times as large as the inflow of funds from stock sales in 1946-1949 and 4.6 times as large in 1949-1953. For all manufacturing and mining corporations, the ratio of new bond issues to new stock issues was less (1.4 in 1946-1949 and 2.1 in 1949-1953).

⁹ Since the samples vary in size and composition, caution is required in using these data for an analysis of long-run trends. This must be borne in mind especially when comparing 1900-1910 with later periods, because the 1900-1910 sample is much smaller than the other samples, and the figures represent changes over a decade rather than over business cycle periods.

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TABLE 53

Ratios of New Stock Issues and New Long-Term Debt Financing to Retained Net Profit, Large Manufacturing Corporations, 1900-1953
(per cent)

Period	New Stock Issues as Per Cent of Retained Net Profit	New Long-Term Debt Financing as Per Cent of—		
		New Long-Term Debt plus New Stock Issues	Retained Net Profit	New Stock Issues plus Retained Net Profit
1900-1910	30.1	56.7	39.4	30.3
POSITIVE BUSINESS CYCLES ^a				
1914-1919	24.7	19.1	5.8	4.7
1919-1921	68.8	18.2	15.3	9.1
1921-1924	77.8	b	b	b
1924-1927	17.2	13.5	2.7	2.3
1927-1932	62.9	b	b	b
1932-1938	56.1	b	b	b
1938-1946	2.8	b	b	b
1946-1949	9.7	72.2	25.2	23.0
1949-1954 ^c	5.3	82.2	24.6	23.3
INVERTED BUSINESS CYCLES ^a				
1913-1918	17.6	25.8	6.1	5.2
1918-1920	57.6	9.6	6.1	3.9
1920-1923	88.1	31.6	40.7	21.6
1923-1926	27.6	b	b	b
1926-1929	20.3	b	b	b
1929-1937	171.9	b	b	b
1937-1944	b	b	0.2	0.2
1944-1948	12.6	63.4	21.9	19.5
1948-1953	5.5	80.2	22.2	21.0

^a Based on National Bureau of Economic Research business cycle chronology.

^b Percentage not shown when either numerator or denominator is negative.

^c Underlying data cover 1949-1953.

Source: Same as Table 43.

In the interwar period, the reverse was true. For large corporations, the highest ratio was 22 per cent in 1919-1921; for all manufacturing and mining, the ratio was as high as 42 per cent in 1919-1921 and went up to 74 per cent in 1921-1924. Thus, it was the large-corporation sector that showed an especially pronounced change in the relative importance of new stock and bond financing since 1919.

However, when we examine the importance to large companies of long-term debt financing in relation to retained profits and to total financing from all sources, we see a substantially different picture. The ratio of long-term debt funds to retained net profit, 1900-1953, shows no clear trend in either direction. The ratios for 1946-1949 and 1949-

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1953 were lower than the figure for 1900–1910 but substantially higher than the other ratios.

Long-term financing in relation to total new financing (the sum of all external and internal funds including depreciation) likewise shows no clear trend over the half-century reviewed. Here, again, the ratio displays a long downswing in the first three decades followed by an upswing in the following twenty years. The ratios in the postwar period are considerably below the ratio for 1900–1910, but exceed those for the interwar cycles. (However, the ratio for 1919–1921 is only slightly lower than that for 1949–1953.)

The ratio of new stock financing to total financing is characterized by a strong downward trend from 1900 through 1953. It was this decline, rather than an increase in long-term debt financing, that was primarily responsible for the rising ratio of long-term debt funds to funds obtained through stock sales.

Total Bond Debt Outstanding

In manufacturing, total bond debt outstanding has never been large in relation to total invested capital. As Table 54 indicates, all manufacturing corporations had \$208 million of bonds outstanding in 1900, i.e., only 3.9 per cent of their combined operating assets.¹⁰

Presumably, the continuing wave of mergers through 1909 is mainly responsible for the rise in bond debt to \$1.5 billion (11.4 per cent of operating assets of all manufacturing corporations). By 1929, the amount outstanding had reached \$4.1 billion, but this was only 7.7 per cent of operating assets.

Bond debt increased substantially between 1909 and 1919, and again between 1919 and 1929, but the debt-to-assets ratio declined from the 1909 peak. In 1937, the dollar amount as well as the ratio declined from the 1929 levels. Finally, in the postwar period, a pronounced rise occurred in the amount of bond debt, but the debt-to-assets ratio shows no definite trend. In 1948, the ratio was lower than in any previous year except 1900. In 1952, the ratio rose considerably but was still below the 1929 level and much below the 1909 level. No clear trend in the ratio may be discerned throughout 1900–1952.

¹⁰ *Census of Manufactures, 1900*, Volume VII, p. lxxix. The Census reports that "combinations" in existence as of June 1, 1900 had issued bonds valued at \$216 million. We may infer from this that almost all bonds issued by manufacturing firms at the beginning of this century had been issued by "combinations." When related to capital invested in "combinations" as defined in that census, bonds outstanding are found to have represented approximately 14 per cent of the total. But when taken in relation to operating assets of all manufacturing corporations, bonds outstanding amounted to only 3.9 per cent. Total invested capital as defined in the census is equal to the sum of all operating assets, i.e., total assets less investments.

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TABLE 54

Operating Assets and Par Value of Bonded Debt Outstanding, All Manufacturing Corporations, Selected Years, 1900-1952
(dollars in millions)

Par Value of Bonded Debt Outstanding (1)	Operating Assets of Manufacturing Corporations		Bonded Debt as a Per Cent of Operating Assets		
	Book Value (2)	Replacement Value (3)	Book Value (Col. 1) ÷ (Col. 2) (4)	Current Value (Col. 1) ÷ (Col. 3) (5)	
1900	\$ 208	\$ 5,309 ^a	\$ 5,648	3.9%	3.7%
1909	1,531	13,380 ^a	14,143	11.4	10.8
1919	2,188	38,225	48,488	5.7	4.5
1929	4,149	54,188 ^b	56,674	7.7	7.3
1937	2,570	46,198	48,860	5.6	5.3
1948	5,460	103,023	119,781	5.3	4.6
1952	10,560	144,361	167,144	7.3	6.3

^a Adjusted to corporate level.

^b Adjusted to deconsolidated basis.

Column	Source
1	1900-1937: Unpublished tables of W. Braddock Hickman, <i>The Volume of Corporate Bond Financing since 1900</i> , Princeton University Press for the National Bureau of Economic Research, 1953; 1948: Estimated from data on par value of all industrial bonds given in Hickman, <i>ibid.</i> , p. 255; 1952: Estimated by adding annual net changes in par value of manufacturing bonds outstanding, given in an unpublished table of the Securities and Exchange Commission, to the 1948 figure.
2	1900-1919: Appendix Table A-8; 1929-1952: <i>Statistics of Income</i> , Part 2.
3	Data in Col. 2 deflated by an index of replacement cost computed by the National Bureau of Economic Research.

If bond debt is related to operating assets expressed in current values the postwar ratios become considerably lower. However, the major tendencies remain similar to those discussed in the preceding paragraph, and the ratio still does not show any definite trend.

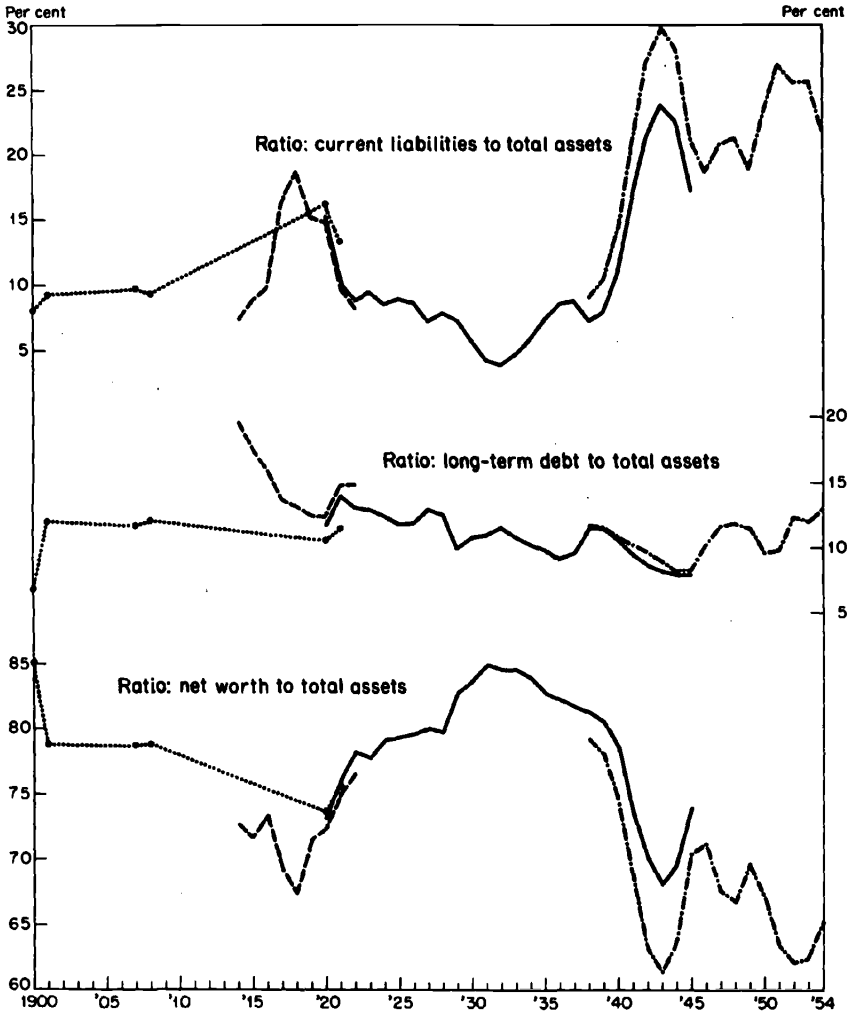
Essentially similar tendencies are shown by sample data for large manufacturing corporations (Chart 20). The ratio of total long-term debt outstanding to total assets rose sharply from 7 per cent in 1900 (12 per cent in 1901) to 20 per cent in 1914, the highest point of the entire 1900-1954 period. The ratio declined in the years following and was down to 12 per cent in 1919. Thereafter, it remained remarkably stable during most of the interwar period. A further decline was registered during the World War II years (in 1945, the ratio was as low as 8 per cent), but the trend was reversed in 1946. In 1952-1954, the ratio was slightly more than 12 per cent—close to what it had been in the early twenties.

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CHART 20

Ratios of Selected Liabilities to Total Assets, Large Manufacturing Corporations, 1900-1954

- NBER spot year samples; 21 corporations, 1900-01; 143 corporations, 1907-08; 219 corporations, 1920-21
- NBER sample of 81 corporations, 1914-22
- NBER sample of 84 corporations, 1920-45
- - - - - Federal Reserve Board sample of 200 corporations, 1938-54



Source: Same as Table 43.

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The 1937 and 1948 data for different asset size classes show no clear and consistent relation between the size of assets and the relative importance of long-term debt (Chart 18). In 1937, the ratio shows a slight tendency to increase with asset size. In 1948, the ratio decreases as the asset size increases up to the \$1 million to \$5 million asset class. Thereafter, although it increases with size, the ratio for the highest class remains slightly lower than that for the lowest. The relative importance of long-term debt was higher in 1948 than in 1937 for the first four classes and also for the last two classes. In contrast, long-term debt declined in relative importance for medium-sized corporations. For all classes combined, the ratio increased from 9.3 per cent in 1937 to 9.9 per cent in 1948.

The ratio of long-term debt to total assets was much lower for corporations with net income than for those without net income. This is true of all classes in both years except Class 9 in 1948 (see Appendix Table C-4).

In 1937, the ratio for corporations without net income shows a strong tendency to increase with size. No such tendency, however, is revealed by the data for 1948. In both income and no-income groups, the ratio rose sharply from 1937 to 1948 for the smaller corporations (Classes 1-5). Among the larger corporations, the 1948 ratio was sometimes higher, sometimes lower, than the 1937 ratio. For all classes combined, the ratio was moderately higher in 1948 than in 1937, in the income and no-income categories alike.

New Types of Long-Term Financing

Important new types of long-term business financing have been developed since the early thirties. A brief review of two major new developments—private placement of corporate securities and term lending by commercial banks—follows.

PRIVATE PLACEMENT OF SECURITIES. The recent increasing reliance on debt coincides with an increasing concentration of loanable funds under the control of financial intermediaries, particularly life insurance companies.¹¹ It has become possible to negotiate for large sums of money from a single one or a small group of financial intermediaries. No longer is it necessary to subdivide claims into many small parts (for example, in the form of a bond issue) to facilitate sale to a wide public.

Securing funds directly from financial intermediaries is called "private placement," as opposed to the public sale of stock and bond

¹¹ See Raymond W. Goldsmith, *The Share of Financial Intermediaries in National Wealth and National Assets*, National Bureau of Economic Research, Occasional Paper 42, 1954.

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issues after registration with the Securities and Exchange Commission. Owing to the growth of financial intermediaries, the added cost of floating public issues which results from the registration requirement, and for other reasons, private placements have come to be an important mechanism for channeling funds into manufacturing enterprises.

The growing importance of private placement of corporate securities is indicated by estimates prepared by the Securities and Exchange Commission (Table 55). Since World War II, about two-fifths of all

TABLE 55
All Corporate Securities, Total and Private Placements, 1934-1951
(dollars in millions)

	<i>All Issues</i>	<i>Privately Placed</i>	
		<i>Value</i>	<i>As Per Cent of All Issues</i>
1934	\$ 397	\$ 92	23.2%
1935	2,332	387	16.6
1936	4,572	373	8.2
1937	2,309	330	14.3
1938	2,155	692	32.1
1939	2,164	706	32.6
1940	2,677	765	28.6
1941	2,667	813	30.5
1942	1,062	420	39.5
1943	1,170	372	31.8
1944	3,202	787	24.6
1945	6,011	1,022	17.0
1946	6,900	1,917	27.8
1947	6,577	2,235	34.0
1948	7,078	3,087	43.6
1949	6,052	2,502	41.3
1950	6,362	2,680	42.1
1951	7,741	3,415	44.1

Source: *Privately Placed Securities—Cost of Flotation*, Securities and Exchange Commission, September 2, 1952, p. 3 (processed).

corporate securities issued for cash were privately placed. Between 1934 and 1951 nearly 98 per cent of all privately placed securities were debt issues; 2 per cent were stocks, mostly preferred. Of the publicly offered securities, 73 per cent were debt issues, and the remainder was stock, equally divided between common and preferred.¹²

The dominant role of the life insurance companies in the private

¹² *Hearings* before a Subcommittee of the Committee on Interstate and Foreign Commerce, House of Representatives, Eighty-second Congress, Second Session, part 2 (1952), Table 7, p. 957.

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placement of securities is revealed by Table 56. In 1947, they absorbed 93 per cent of the total amount of corporate bonds and notes privately

TABLE 56
Distribution of Privately Placed Corporate Debt, by Type of Investor, 1947, 1949,
and 1950
(per cent)

	1947	1949	1950
Life insurance companies	93.0	90.5	83.4
Other insurance companies	0.1	0.4	0.7
Banks	2.7	4.9	12.1
Other institutions	2.5	0.5	0.5
Individuals and corporations ^a	0.4	3.6	2.5
Unknown	1.3	0.1	0.8
Total	100.0	100.0	100.0

Note: Debt includes bonds, notes, and debentures.

^a Includes purchases by private pension funds in 1949 and 1950.

Source: Based on data from Securities and Exchange Commission as taken from *Hearings* before a Subcommittee of the Committee on Interstate and Foreign Commerce, House of Representatives, 82nd Congress, 2nd Session, part 2 (1952), Table 5, p. 956.

negotiated. By 1950, their relative share declined somewhat, while the shares of pension funds and banks rose considerably. But the insurance companies still accounted for 83 per cent of the total.¹³

The importance to manufacturing and mining of this method of financing can be shown in another way. The Securities and Exchange Commission estimates that gross proceeds from cash sales of new corporate securities (debt and equity) by industrial corporations (including, in addition to manufacturing and mining, trade and services) for 1934-1949 amounted to \$21.7 billion. Of this, an estimated \$9.2 billion (42 per cent) was raised by private placements.¹⁴ Private placement has been even more important for manufacturing during the postwar years. Between 1948 and 1951, for example, 65 per cent of

¹³ Private sales were made mainly to a small group of large life insurance companies. According to E. Raymond Corey, direct placements acquired by the eighteen largest insurance companies (out of over 580 life insurance companies in the United States) represented almost 90 per cent of the dollar value of all directly negotiated securities. Case studies made by Corey lead him to the conclusion that "the large life companies exercise an involuntary leadership in the direct placement market in two ways. First, they frequently are active in distributing to other institutional investors portions of the direct placements they have negotiated. Second, the decision on the part of a large insurance company to buy a part of a direct placement will almost invariably ensure its success. Similarly, rejection of an issue by a large company may seriously jeopardize the success of an issue." (E. Raymond Corey, *Direct Placement of Corporate Securities*, Harvard University Press, 1951, pp. 6, and 106-107).

¹⁴ *Hearings, op. cit.*, p. 960.

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TABLE 57
Distribution of Privately Placed Securities, by Major Manufacturing Industries, during 1951-1952

	Notes	Mortgages	Debentures	Preferred Stock	Common Stock	Not Specified	All Security Issues
Food and kindred products	5.2%	5.9%	3.4%	1.7%	n.i.	4.7%	4.9%
Textiles and products	6.2	0.5	0.6	14.5	55.9%	18.8	4.7
Leather and products	1.5	0.1	0.2	n.i.	n.i.	n.i.	1.1
Forest products	1.2	0.2	0.7	8.7	12.4	n.i.	1.1
Paper, pulp, and products	6.8	6.8	1.5	3.7	10.9	63.4	6.0
Printing and publishing	0.7	1.4	0.4	1.5	n.i.	1.4	0.7
Chemicals and allied products	17.7	4.8	10.0	31.7	20.8	n.i.	14.6
Petroleum refining	4.9	6.7	2.7	0.9	n.i.	n.i.	4.7
Rubber and products	5.7	n.i.	0.9	n.i.	n.i.	n.i.	3.9
Stone, clay, and glass products	3.5	0.3	1.4	1.7	n.i.	n.i.	2.6
Iron and steel and products	6.4	29.6	24.5	11.4	n.i.	8.6	13.0
Nonferrous metals and products	1.9	38.0	n.i.	n.i.	n.i.	n.i.	6.8
Machinery, excluding transportation	27.2	1.2	51.2	9.5	n.i.	3.1	27.1
Transportation equipment	9.7	4.4	1.7	14.7	n.i.	n.i.	7.5
Miscellaneous	1.5	0.3	1.0	n.i.	n.i.	n.i.	1.2
All manufacturing	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Millions of Dollars	\$1,411	\$364	\$510	\$39	\$20	\$4	\$2,348

n.i. = none issued.

Note: Detail may not add to totals because of rounding. The dollar amounts represent totals for 1951 and 1952.
Source: E. V. Hale, 1952 and 1953 Yearbooks of Private Placement Financing, E. V. Hale and Company, Chicago, Ill.

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all securities (as much as 82 per cent of debt) issued by corporate manufacturing was placed privately.¹⁵

Because of the prime importance of private placement to manufacturing firms and the likelihood of its continued importance, we prepared a cross-section analysis of private placements by manufacturing corporations during 1951 and 1952, using the listing of private placements compiled by E. V. Hale.¹⁶ While his listing makes no claim to completeness, there can be no doubt that its coverage is comprehensive and accounts for more than 90 per cent of all private placements.

During 1951 and 1952, years of industrial mobilization for the Korean War, manufacturing firms raised \$2.3 billion by private placement of securities. All major industry groups used this method of financing (Table 57). The largest amounts were obtained by the machinery group (excluding transportation equipment), chemicals and allied products, and iron and steel products (55 per cent of all private placements during 1951 and 1952—no other group accounted for even as much as 10 per cent). Printing and publishing, leather and its products, and forest products made the least use of private placement.

TABLE 58
Manufacturing Industries: Distribution of New Plant and Equipment Expenditures
and of Privately Placed Loans, during 1951-1952
(per cent)

	<i>Expenditures for New Plant and Equipment^a</i>	<i>Loans Privately Placed^b</i>
All manufacturing	100.0	100.0
Food and kindred products	7.4	4.9
Paper, pulp, and products	3.4	6.0
Chemicals and allied products	11.8	14.6
Petroleum and coal products	20.6	4.7
Rubber products	1.3	3.9
Machinery, excluding transportation	9.6	27.1
Transportation equipment	9.7	7.5
Stone, clay, and glass products	3.1	2.6
Iron and steel and products plus nonferrous metals and products	19.4	19.8
All other manufacturing industries	13.7	8.9

^a *Survey of Current Business*, Department of Commerce, September 1953, p. 4.

^b See Table 57.

¹⁵ *Privately Placed Securities—Cost of Flotation*, Securities and Exchange Commission, 1952, p. 6.

¹⁶ *The 1952 and 1953 Yearbooks of Private Placement Financing*, E. V. Hale and Company, Chicago, Ill.

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The value of securities placed privately by industries can be compared only approximately to the interindustry distribution of new capital employed (Table 58). For a list of major industries shorter than Hale's, the table shows the percentage distribution of private placements including refunding issues and the Department of Commerce estimates of expenditures for new plant and equipment. If we take the latter to indicate the demand for total new capital, we can say that in eight of the ten groups the percentage shares of new capital and of private placements were similar. In petroleum and coal products, private placements were relatively small compared with capital expansion, and in machinery (excluding transportation equipment), relatively large.

For the two years, debt issues represented more than 98 per cent of all private placements (Table 59).¹⁷ Notes accounted for about two-thirds of the debt and mortgages and debentures for about one-sixth each. The predominance of notes is found in each industry group except iron and steel and their products and nonferrous metals and their products. In the former, the distribution among notes, mortgages, and debentures was equal; and in the latter, mortgages were four-fifths of the total, notes one-fifth. Only in two groups—textiles and their products and forest products—did equities amount to more than 5 per cent of total placements.

The predominance of notes supports the contention that flexibility in the arrangement of terms is the chief advantage of private placement. That is, the debt claim can be tailored to fit the needs of the particular borrower. The note as a debt instrument is eminently suited to provide this flexibility.

On the length of the term between issue and maturity of debt, our tabulation of Hale's figures yields the following distributions:

Number of Debt Issues Placed Privately During 1951
and 1952, Classified by Years to Maturity

<i>Years to Maturity</i>	<i>Number of Issues</i>
5 or less	85
6 to 7	36
8 to 10	202
11 to 15	354
16 to 20	141
Over 20	42
Not specified	25

Total (excluding "not specified") 860

Median number of years 13

¹⁷ This is something of an overstatement, since common stocks privately placed in 1952 were not completely listed by Hale "because of difficulties involved in obtaining accurate information." Other evidence suggests, however, that the inclusion of all privately placed common stocks would have little effect on the distribution.

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TABLE 59
Manufacturing Industries: Distribution of Privately Placed Securities, by Type, during 1951-1952
(per cent)

Industry	Notes	Mortgages	Debentures	Preferred Stock	Common Stock	Not Specified	All Security Issues
All manufacturing	65.9	14.6	17.5	1.3	0.5	0.2	100.0
Food and kindred products	69.8	17.5	12.0	0.5	n.i.	0.2	100.0
Textiles and products	86.1	1.6	2.1	3.9	5.3	0.9	100.0
Leather and products	96.1	0.7	3.2				100.0
Forest products	71.3	3.1	10.7	9.9	5.0	n.i.	100.0
Paper, pulp, and products	75.0	16.5	4.4	0.8	0.8	2.5	100.0
Printing and publishing	61.1	26.7	9.2	2.6	n.i.	0.5	100.0
Chemicals and allied products	79.9	4.8	11.9	2.8	0.6	n.i.	100.0
Petroleum refining	68.6	21.0	10.2	0.2	n.i.	n.i.	100.0
Rubber and products	96.0	n.i.	4.0	n.i.	n.i.	n.i.	100.0
Stone, clay, and glass products	87.9	1.8	9.5	0.9	n.i.	n.i.	100.0
Iron and steel and products	32.5	33.4	32.9	1.1	n.i.	0.2	100.0
Nonferrous metals and products	18.3	81.7	n.i.	n.i.	n.i.	n.i.	100.0
Machinery, excluding transportation	66.0	0.6	32.9	0.4	n.i.	n.i.	100.0
Transportation equipment	85.0	8.6	3.9	2.5	n.i.	n.i.	100.0
Miscellaneous	81.6	3.8	14.6	n.i.	n.i.	n.i.	100.0

n.i. = none issued.
Source: See Table 57.

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The median of thirteen years is practically equal to the term of 12.2 years for industrial bonds during 1930-1939. On the other hand, it is considerably lower than the 1900-1929 median.¹⁸ Thus, while there has been a trend toward shortening the maturity term of bonds, the development of private placements does not appear to have further reduced the average duration of long-term credit.

BANK TERM LOANS. In recent decades, the demand of business enterprises for short-term credit failed to keep pace with increases in the general volume of business. Large corporations, having ample liquid resources, required little, if any, short-term bank credit. On the other hand, many firms—both large and small—developed a need for medium-term credit (i.e., loans with a maturity of more than one year but much less than the term of a typical bond issue). In response to this growing demand, commercial banks have changed their traditional policy of making only short-term “self-liquidating” loans and have developed a new type of financing called “term lending.”

A term loan has a maturity of more than one year. It is usually redeemed by serial or installment repayments. It may be secured or unsecured, and may be obtained to expand the firm's current assets, fixed assets, or both.

Estimates of short-term and long-term bank loans to corporations (all industries combined) have been prepared for 1932-1952 by Irwin Friend (Table 60).¹⁹ The volume of long-term loans outstanding has risen substantially (from \$0.1 billion at the end of 1933, to \$4.62 billion in 1952. Although the ratio of long-term loans to all bank loans was only 2 per cent in 1933, it rose to 36 per cent by 1948. In the years following, the ratio declined somewhat. However, long-term loans still accounted for 24 per cent of the total in 1952.

Friend's estimates cover loans to all industries. But, from the survey conducted by the Federal Reserve Board in 1947, we know that term loans by member banks to manufacturing and mining industries accounted for slightly more than one-half of the total amount of such loans outstanding near the end of 1946. The survey also showed that the ratio of term loans to all bank loans was higher in these two industries than in most of the others. In 1946, term loans were 42 per cent of the total in manufacturing and mining, while the figure for all industries was only 34 per cent.²⁰

The ratio of long-term loans to total bank loans was higher for large manufacturing concerns (the FRB sample of 200 companies, 1938-1954),

¹⁸ W. Braddock Hickman, *The Volume of Corporate Bond Financing since 1900*, Princeton University Press for National Bureau of Economic Research, 1953, p. 76.

¹⁹ *Individuals' Saving, Volume and Composition*, Wiley, 1954, p. 37.

²⁰ Duncan Mc. C. Holthausen, “Term Lending to Business by Commercial Banks in 1946,” *Federal Reserve Bulletin*, May 1947, pp. 498-517.

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than for all corporations (Friend's estimates). For large concerns, term loans represented 65 per cent of all bank loans outstanding at the end of 1949. The relative importance of long-term credit, however, declined somewhat in the following years; indeed, by the end of 1954, long-term and short-term bank loans outstanding were almost equal.

TABLE 60
Corporate Short- and Long-Term Loans Outstanding held by Commerical Banks,
All Corporations, 1932-1952
(dollars in billions as of end of year)

	<i>Loans</i>			<i>Long-Term as Per Cent of Total</i>
	<i>Short-Term</i>	<i>Long-Term</i>	<i>Total</i>	
1932	\$ 4.68	\$0.00	\$4.68	0.0%
1933	4.04	0.10	4.14	2.4
1934	3.84	0.20	4.04	5.0
1935	3.65	0.37	4.02	9.2
1936	3.96	0.56	4.52	12.4
1937	4.68	0.68	5.36	12.7
1938	3.43	0.89	4.32	20.6
1939	3.64	1.32	4.96	26.6
1940	4.02	1.78	5.80	30.7
1941	5.21	2.22	7.43	29.9
1942	3.95	2.12	6.07	34.9
1943	4.36	1.86	6.22	29.9
1944	4.77	1.78	6.55	27.2
1945	5.03	2.24	7.27	30.8
1946	7.18	3.29	10.47	31.4
1947	8.62	4.47	13.09	34.1
1948	9.16	5.09	14.25	35.7
1949	7.51	3.84	11.35	33.8
1950	9.56	3.28	12.84	25.5
1951	13.44	3.85	17.29	22.3
1952	15.07	4.62	19.69	23.5

Source: Irwin Friend, *Individuals' Saving: Volume and Composition*, Wiley, 1954, p. 37.

The FRB survey revealed that, as of the end of 1946, 82 per cent of all term loans by member banks were made to corporations, 18 per cent to unincorporated businesses. In manufacturing and mining, corporations were even more important—91 per cent of the total.

Unsecured term loans accounted for 59 per cent, secured term loans for 41 per cent, of the total outstanding. The most important types of collateral used were plant or other real estate, chattel mortgages (particularly on equipment), and stocks and bonds including securities of

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affiliated companies. These three types were used for 72 per cent of the volume of secured loans.

A distribution of term loans according to the date of final payment is presented in Table 61. As of November 20, 1946, loans maturing

TABLE 61
Business Term Loans Outstanding Held by Member Banks, by Year of Final
Payment, as of November 20, 1946

	<i>Loans</i>			
	<i>Value^a</i> <i>(millions of</i> <i>dollars)</i>	<i>Number</i> <i>(thousands)</i>	<i>Percentage Distribution</i>	
			<i>Value</i>	<i>Number</i>
Loans past due	\$ 13	0.8	0.3%	0.6%
Loans with final payment due in:				
1946	32	2.7	0.7	1.9
1947	437	39.0	9.6	27.0
1948	460	32.6	10.1	22.6
1949	326	19.1	7.2	13.2
1950	454	10.0	10.0	6.9
1951	577	14.4	12.7	9.9
1952	261	4.3	5.7	3.0
1953	327	3.1	7.2	2.1
1954	214	2.8	4.7	1.9
1955	691	4.3	15.2	2.9
1956	675	9.7	14.8	6.7
1957 or later	90	1.7	2.0	1.2
All term loans	4,558	144.4	100.0	100.0

Note: Detail may not add to totals because of rounding.

^a Balance outstanding on November 20, 1946 on loans whose final payment falls due in the year indicated.

Source: Duncan McC. Holthausen, "Term Lending to Business by Commercial Banks in 1946," *Federal Reserve Bulletin*, May 1947, p. 499.

within five years, accounted for four-fifths of the total number, and more than one-half of the total dollar amount, of loans outstanding. In contrast, only 1.2 per cent of the total number and 2 per cent of the total dollar amount had a term to maturity exceeding ten years. Most term loans, then, represented credit of much shorter duration than the prevalent type of corporate bonds. Small and medium-sized enterprises have needed this medium-term type of credit most, since, for many, the traditional sources of long-term credit have not been

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readily available. But large corporations, also, have made a significant use of term loans, along with the older types of long-term credit.

Short-Term External Financing

Except for recent years, our data on the flow of short-term funds are confined to samples of large manufacturing corporations. The statements of sources and uses of funds indicate that the relative importance of short-term financing, 1900–1953, fluctuated widely.

During 1900–1914, the inflow of short-term funds was only a small fraction of total new financing. But in 1914–1919, its relative importance rose sharply. The rise was largely due to a pronounced increase in accrued tax liabilities during the war; however, there was also a substantial rise in notes and accounts payable.

The inflow of all short-term funds was 26 per cent of total new financing (internal plus external) during the World War I cycle (see Table 44, above). In contrast, in the four cycles following, there was an outflow of short-term funds. In 1919–1921, tax accruals and accounts payable dropped sharply. The amount of notes payable (mainly short-term bank loans) was substantially reduced in the 1921–1924, 1924–1927, and 1927–1932 cycles. The contraction of short-term financing was especially significant in 1927–1932, when all major components—accruals, notes payable, and accounts payable—showed negative balances. The trend was again reversed in 1932–1938, when a considerable inflow of short-term financing was registered (all three components were positive).

In the 1938–1946 cycle, as in the 1914–1919 one, we find a pronounced rise in accrued tax liabilities. But the second war cycle differed from the first in that it showed no significant rise in short-term bank loans. Accounts payable, on the other hand, rose at a similar rate in both cycles. The inflow of all short-term funds amounted to 22 per cent of total new financing.

In the postwar cycles (1946–1949 and 1949–1954), large corporations continued to absorb short-term financing, mainly as accounts payable and income tax accruals. In this respect, the situation after World War II was essentially different from that observed after World War I, when the net outflow of short-term funds was substantial.

As a result of these fund flows, the balance sheet structure of large corporations changed significantly over the years from 1900 to 1953; the trend in the ratio of current liabilities to total assets is clearly upward (Chart 20).

Prior to 1914, current liabilities were about 10 per cent of total assets. The ratio increased sharply (to nearly 20 per cent) during World War I. It reversed during the twenties and the early thirties (in 1932,

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the ratio was as low as 4 per cent). The ratio began to increase again after 1932 and shot up to a new high during World War II (29 per cent in 1943). After the war, the ratio dropped to around 20 per cent—a level twice as high as that in the years following World War I.

A comparison between the 1937 and 1948 data for different asset-size classes shows that in both years the ratio of total current liabilities to total assets varied inversely with asset size (Chart 18). The range of variation in the ratio was, however, considerably greater in 1937 than in 1948. In every class except the two lowest the relative importance of short-term liabilities increased materially over the eleven years. For all classes combined, the ratio rose from 17 to 21 per cent.

As with long-term debt, the ratio is considerably lower for companies with net income than for companies without net income. This is true in both 1937 and 1948.

But there were certain differences in the behavior of the major components of short-term debt (Chart 21). The ratio of accounts payable to total assets shows a pattern of variation generally similar to that displayed by the ratio of total short-term debt to total assets. (Since accounts payable were roughly one-half of total current liabilities, variation in this component was largely responsible for variation in the total.)

Notes payable²¹ differed from the other two components of short-term debt in that they rose more slowly between 1937 and 1948 than did total assets. As a result, in every class, the ratio of notes payable to total assets was lower in 1948 than in 1937.

The ratio of other liabilities to total assets showed a pronounced rise from 1937 to 1948, especially in the highest classes. Although, in 1937, the ratio showed a strong tendency to decline as asset size increased, in 1948, it remained remarkably stable for most classes.

In 1948, "other liabilities," unlike the other components of short-term debt, were more important for corporations with net income than for those without net income. This was true of most classes in mining as well as in manufacturing. In manufacturing, for all classes combined, the ratio of other liabilities to total assets was 8.8 per cent for profitable concerns, 7.2 per cent for unprofitable concerns. (In mining, the corresponding figures were 8.5 and 8.3 per cent.) In 1937, on the other hand, "other liabilities" were less important for corporations with net income than for those without net income—a pattern similar to that found for the other components of short-term debt.

This difference between 1937 and 1948 is accounted for by a difference in the relative importance of income tax accruals included here under "other liabilities." In 1948, corporations with net income

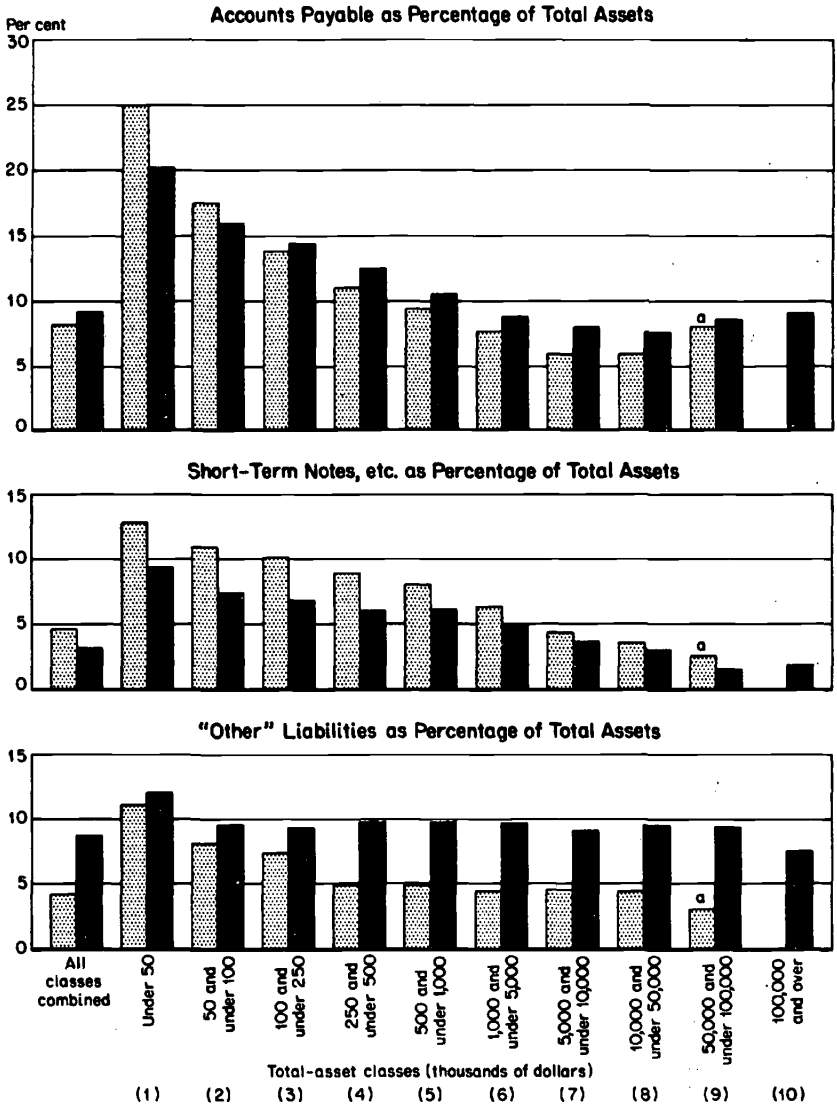
²¹ Primarily loans due to commercial banks. See Chudson, *op. cit.*, p. 46.

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CHART 21

Ratios of Short-Term Debt to Total Assets, All Manufacturing and Mining Corporations with Balance Sheets, by Total-Asset Classes, 1937 and 1948

1937 1948



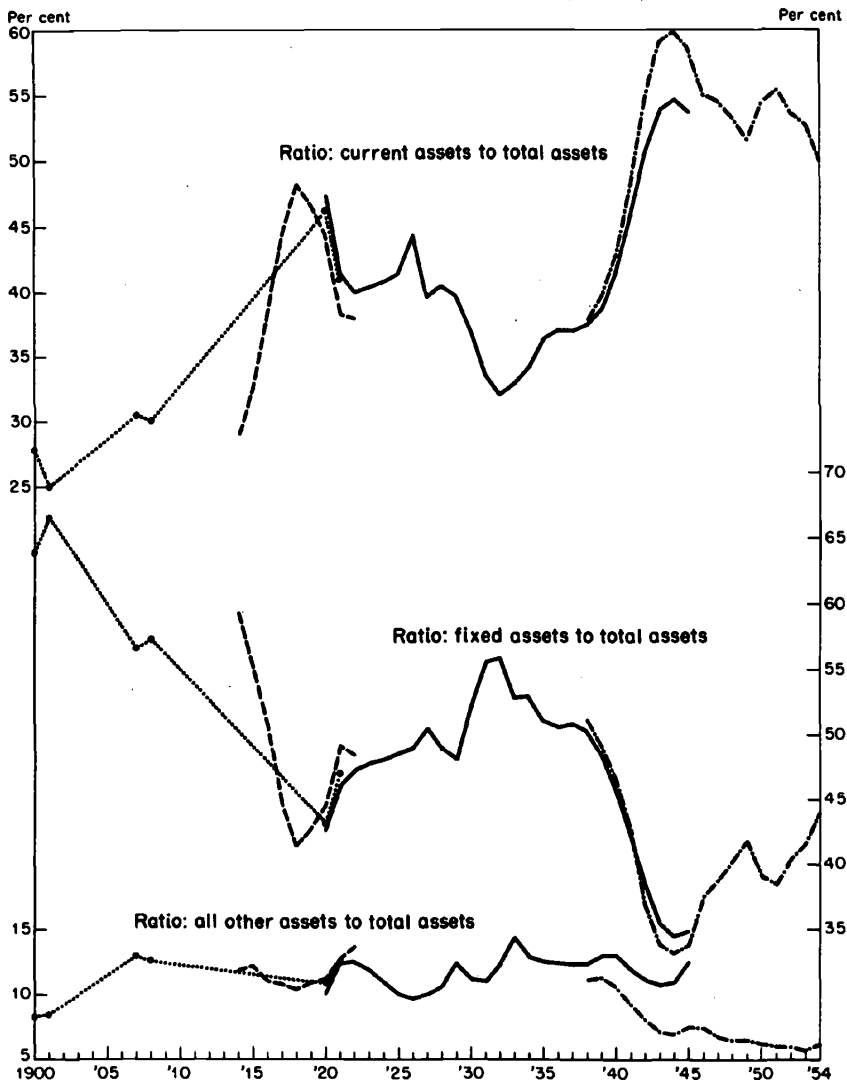
* Last two classes combined.
Source: Appendix Table C-4.

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CHART 22

Ratios of Selected Assets to Total Assets, Large Manufacturing Corporations, 1900-1954

- NBER spot year samples; 21 corporations, 1900-01; 143 corporations, 1907-08; 219 corporations, 1920-21
- NBER sample of 81 corporations, 1914-22
- NBER sample of 84 corporations, 1920-45
- Federal Reserve Board sample of 200 corporations, 1938-54



Source: Same as Table 43.

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had to accrue substantial amounts for tax purposes. These accruals were primarily responsible for the large total of "other liabilities" reported by such corporations. In 1937, tax accruals made by corporations with net income were smaller because of lower income tax rates, and their effect on the total of "other liabilities" was weaker. Other items included in "other liabilities" were much larger among corporations without net income, and this difference more than counterbalanced the difference in tax accruals.

The rise between 1900 and 1953 in the relative importance of current liabilities was accompanied by a similar tendency on the part of current assets. Sample data for large manufacturing corporations indicate that the ratio of current assets to total assets rose from less than 30 per cent at the beginning of the century to over 50 per cent around 1950 (Chart 22). The ratio increased during the first two decades, reaching a peak during World War I. The wartime rise was mainly accounted for by a large accumulation of liquid assets—cash and marketable securities. The ratio declined after the war, but the level at which it remained throughout most of the twenties was much higher than before the war. A further decline occurred during the early thirties, principally because of a contraction in inventories and accounts receivable. The ratio began to rise once more after 1932 and reached a new high during World War II, mainly on account of a pronounced expansion of liquid assets. After World War II (as after World War I), the ratio declined from its wartime peak but remained much higher than it had been before the war.

Current assets of large manufacturing corporations showed a more pronounced rise from 1900 to 1929 than did current liabilities (the current ratio—current assets divided by current liabilities—increased from 3.5 in 1900 to 4.0 in 1914, and to 5.4 in 1929). From 1930 on, however, the tendency was reversed (the current ratio declined to 4.2 in 1937, 2.5 in 1948, and 2.1 in 1952).

In 1937, the ratio of current assets to total assets showed the same tendency as the ratio of current liabilities to total assets: both varied inversely with size; the range of variation, however, was considerably smaller for current assets (Chart 23). Consequently, the current ratio was substantially stronger for the larger corporations than for the smaller ones.

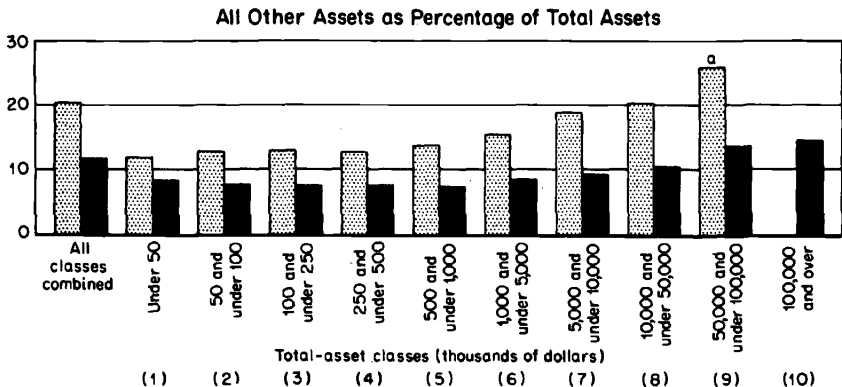
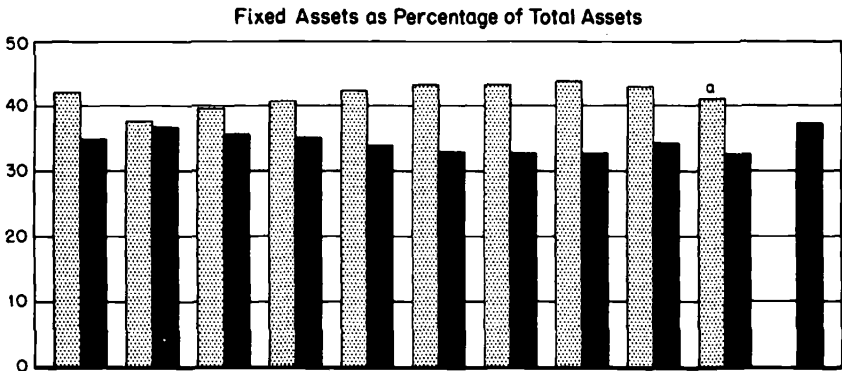
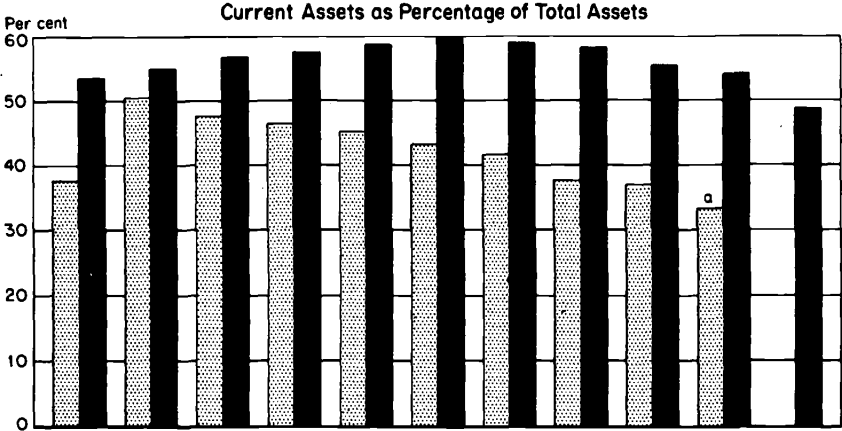
The ratio of fixed assets to total assets did not show much variation with size in 1937. As expected, the ratio of all other assets to total assets was much higher for large corporations than for medium-sized and small ones, because "other assets" of the large concerns included substantial investments in subsidiaries.

In 1948, the ratios of current assets to total assets were generally

CHART 23

Ratios of Selected Assets to Total Assets, All Manufacturing and Mining Corporations with Balance Sheets, by Total-Asset Classes, 1937 and 1948

▨ 1937 ■ 1948



^a Last two classes combined.

Source: Appendix Table C-4.

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TABLE 62
Debt Excluding Tax Liability and Total Assets Excluding Government Securities, All Manufacturing and Mining Corporations
Selected Years, 1929-1952
(dollars in millions)

	Total Assets		Type of Debt		Debt Less Tax Liability as Percentage of Total Assets Less Government Securities			Debt as Percentage of Total Assets	
	(1)	(2)	Total (3)	Less Tax Liability (4)	Current (5)	Total Debt (Col. 4) + (Col. 2) (7)	Current Debt (Col. 6) + (Col. 2) (8)	Total (Col. 5) + (Col. 1) (9)	Current (Col. 5) ÷ (Col. 1) (10)
1929	\$ 82,114	\$79,876	\$20,601	\$20,013	\$14,114	\$13,526	25.1%	25.1%	17.2%
1937	64,869	63,564	17,007	16,308	10,978	10,279	25.7	26.2	16.9
1943	100,201	90,674	35,623	25,025	28,472	17,874	27.6	35.6	28.4
1948	130,750	122,308	40,488	33,320	27,554	20,386	27.2	31.0	21.1
1952	182,316	169,535	64,888	53,037	43,684	31,833	31.3	35.6	24.0

Source: Statistics of Income, Bureau of Internal Revenue (now Internal Revenue Service), Part 2.

higher than they had been in 1937, but the extent of inter-class variation was smaller. Only for the largest corporations (Class 10) was the ratio considerably below the general level. The ratios for small corporations were a little lower, rather than higher, than the ratios for the medium-sized ones (Classes 5 and 6).

As in 1937, the current ratio increased with size in 1948. However, the range of variation was narrower in the later year, owing to a considerable improvement in the ratios for the smaller corporations.

In all classes, fixed assets were less important in 1948 than in 1937. The postwar ratios, like the prewar ones, show no clear relation to size. The ratio of "other assets" to total assets, also, declined between 1937 and 1948 in all classes. In both years, this ratio has tended to increase with increasing asset size.

The growth in assets and liabilities that represents claims between corporations and the government has had an impact on the balance sheet structure. On the asset side, there was a pronounced rise in corporate holdings of government securities—both in relation to other balance sheet items and absolutely. On the liability side, there was an even more pronounced increase, both absolutely and relatively, in corporate income tax accruals. These changes were largely responsible for the shifts in the debt-to-assets ratio. If government items are omitted from the balance sheet, its structure appears much more stable. This is illustrated in Table 62 where two sets of debt-to-assets ratios are presented. For all manufacturing and mining, the ratio of total current liabilities to total capital (total assets) rose from 17 per cent in 1929 to 21 per cent in 1948 and to 24 per cent in 1952. But if current liabilities are adjusted to exclude tax accruals, and total assets, to exclude government securities, the ratio is practically the same in 1948 as in 1929 and 1937. The adjusted ratio for 1952 is higher than the prewar one, but by a much smaller margin than that shown by the unadjusted ratio. Also, the ratio of total debt to total assets was higher in 1948 than it was before the war or in 1952, whether the adjusted or the unadjusted data are used. Again, the exclusion of government items considerably reduces the differences.

Summary of Findings

1. In general, manufacturing and mining corporations have not relied heavily on debt financing—especially of the long-term type. However, total debt outstanding expanded considerably over the past half-century, not only in absolute volume, but also in relation to total capital invested. In manufacturing, the ratio of interest-bearing debt to total operating costs rose from approximately 14 per cent in 1890 to

18 per cent in 1952.²² The ratio of total debt (long-term and current liabilities) to total assets increased from 23 per cent in 1923 to 36 per cent in 1952. Similar tendencies are revealed by the data for mining.

The debt-to-assets ratio rises even when the current values of assets are substituted for book values. However, the degree of change is much smaller when adjusted asset values are used.

The corporate asset-size data for 1937 and 1948 indicate that in both years the ratio for total debt to total assets was higher for large companies than for small ones. The data also show that in both years the relative importance of total debt was smaller for companies with net income than for companies without net income.

2. The ratio of bond debt outstanding to total capital invested in operating assets shows no clear trend over the period reviewed. In 1952, bond debt of all manufacturing corporations amounted to approximately 7 per cent of their combined operating assets. This figure is higher than the one for 1937, but lower than those for 1929 and some earlier years.

After World War II, the importance of new bond issues relative to new stock issues rose sharply. Low bond yields, the deductibility of interest charges in computing taxable income, and certain other factors were responsible for this change. On the other hand, new bond issues were not especially high in relation to the postwar accumulation of internal funds. In fact, the ratio of new bond issues to retained net profit, 1900-1953, shows a downward trend. The ratio of new bond issues to total inflow of equity funds (new stock issues plus net profit retention) also declined slightly in the same period.

3. Short-term debt rose substantially in relation to total assets over the period reviewed. Sample data for large corporations show that, before 1914, current liabilities represented approximately 10 per cent of total assets. The ratio increased sharply during World War I (up to nearly 20 per cent), but then declined in the twenties and the first half of the thirties (in 1932, it was as low as 4 per cent). It began to rise again in the second half of the thirties and reached a new high during World War II (29 per cent in 1943). After the war, the ratio dropped to around 20 per cent—still twice as high as the post-World War I figure.

The 1937 and 1948 data for different asset-size classes show that the ratio of current liabilities to total assets varies inversely with asset size. In both years, the ratio was lower for companies with net income than for companies without net income.

4. The rise, 1900-1953, in the relative importance of current liabilities was accompanied by a similar tendency on the part of current

²² Operating assets are defined as total assets less investments in securities.

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assets. The rise in current assets, however, was less pronounced. As a result, the current ratio (current assets divided by current liabilities) declined. For our samples of large manufacturing companies, the current ratio first rose (from 3.4 in 1900 and 1914, to 5.4 in 1929), but then declined (4.2 in 1937, 2.5 in 1948, and 2.1 in 1952).

5. Accrued tax liabilities represented the fastest growing component of total current liabilities. Accumulation of tax accruals on the liability side was accompanied by an expansion of corporate holdings of government securities on the asset side. If these items, representing transactions with the government sector, are omitted from the balance sheet, its structure shows considerable stability. Thus, the ratio of current liabilities, exclusive of tax accruals, to total assets, exclusive of government securities, is practically the same for 1948 as for 1937 or 1929. The ratio for 1952 is higher than the prewar ones, but the difference is much smaller when the above items are omitted than it is when they are included.