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CHAPTER VI

Internal and External Financing

In this part of the report, financial trends in manufacturing and in mining over the past half-century are reviewed. Attention is focused primarily on two aspects of the financial growth of these industries. In this chapter, long-run tendencies in internal and external financing are examined and compared. In the following chapter, the various debt and equity components of external financing are analyzed, and the trends in total debt and total equity (both from internal and external sources) are compared. At the outset, however, the basic concepts should be discussed and some technical terms defined.

Concepts and Definitions

It has become customary to refer to funds obtained through income retention as "internal financing." The amounts so designated will differ depending on the degree of netness or grossness desired. Here, "net income retention" (or net internal financing) will designate the undistributed net profit remaining in the business after dividend payments. "Gross income retention" (or gross internal financing) will denote the amount of undistributed net profit plus depreciation and depletion allowances.[1] "External financing," will refer to funds obtained through new capital stock issues (external equity financing) and through various types of loans, e.g., bond issues, mortgages, bank loans, trade credit, etc.[2]

The sum of internal and external funds from all sources represents the total new financing available for investment in business assets—both physical (land, buildings, equipment, and inventories) and financial (claims in the form of cash, government and corporate

[1] Funds obtained internally are sometimes called "corporate saving." Here again, one must distinguish between the net and gross amounts of corporate saving, depending on whether depreciation and depletion are excluded or included with the amount of net income retained.

[2] Current liabilities of corporations reporting net income include accrued income taxes. Since tax accruals represent a form of debt financing (the companies in question temporarily retain the money owed to the government), they are usually included in external financing (see, for example, *Economic Report of the President*, January 1956, Table D-55, p. 227). We shall, generally, adhere to this classification. However, since accrued taxes represent a part of the income stream, it is sometimes appropriate to include them in retained gross income. To avoid possible misunderstanding, specific indication will be given in the text when this, or any other, reclassification is made.

securities, and loans and advances to other firms and individuals). Although, in a closed economic system considered as a whole, financial claims and liabilities will necessarily cancel out, clearly, this is not true of an individual firm or industry. Therefore, to analyze changes in the invested capital of a firm (industry), changes in financial claims on other sectors of the economy must be studied along with changes in physical assets.

However, investment in different types of assets does not have the same effect on the balance of claims between the investing firm (industry) and the rest of the economy. Assume, for example, that a corporation obtains new funds, from various sources, totaling $100 million, and that $60 million is spent on physical-plant expansion, and the remaining $40 million is used to expand financial assets (accounts receivable, and loans to and investments in other firms). The liabilities of the company to its investors (including both the creditors and the stockholders) will then rise by $100 million, but the change will be partially offset by the $40 million increase in the claims of the company on other economic units. The net balance of claims between the firm and the rest of the economy will change by $60 million. However, if the expenditures on physical plant were $80 million and those on financial assets only $20 million, the change in total assets and total liabilities would still be $100 million; but the change in the net balance $80 million instead of $60 million.

Changes in the net balance of claims between a given sector and the rest of the economy have sometimes been called by economists "net inflow" or "net absorption" of capital funds by the sector in question.[3] Such a "net inflow" does not represent an accumulation of cash within the sector, because outpayments are involved in acquiring both physical and financial assets. But when physical assets are expanded, outpayments represent payments to factors used to produce new plant, equipment, inventories, etc.[4] In other words, to the recipients, such outpayments represent income, rather than capital funds. On the other hand, when financial assets are expanded, capital funds are transferred to other sectors as capital funds, not as payments for current productive services.

Net inflow of capital funds represents, then, the amount of new

[3] See, for example, George Terborgh, *The Bogey of Economic Maturity*, Machinery and Allied Products Institute, 1945, p. 141.

[4] Of course, if the physical-asset expansion does not involve new production but is merely a transfer of assets previously held by another sector, then the expenditures do not represent payments for current productive services. However, the expansion of physical assets owned by the entire manufacturing and mining sector over the period reviewed has been due mainly to new production, rather than to transfers from other sectors.

financing used for real capital formation within the sector. It is net of funds transferred to other sectors and used by them for real capital formation.

In addition to the net balance of all financial transactions for a given sector, one may wish to compute the net balance of claims and liabilities arising from a particular type of transaction. Thus, the amount of new security issues sold by the sector, less the amount of securities purchased by it, will represent the net balance of security transactions; the change in accounts payable, less the change in accounts receivable, the net balance of trade credits; and the change in bank loans, less the change in cash balances held in the banks, the net balance of bank financing.

Or, one may wish to analyze changes in the net balance of claims between the sector and the government by comparing the change in tax accruals with the change in government securities held by the sector. And changes in the net balance of claims between the firms concerned and their stockholders over a given period will be indicated by the amount of new stock issues plus the amount of retained profits, less the change, if any, in loans or advances by the firms to their stockholders.

The sum of changes in all the liabilities, representing various forms of external financing, adjusted for the sum of changes in the various claims represented by financial assets, can be called the net balance of external financing. This measure is useful because it indicates the total amount of funds obtained, on balance, from the money and capital markets. It has been developed and used by Terborgh in his analysis of financial trends in the United States.[5]

All major types of financial assets (cash, receivables, and government and corporate securities) represent logical counterparts of one or another type of external financing. Does this mean that our concept of net balance is applicable only to external financing? Actually, net internal financing, as defined above, already represents the net balance between the revenue and expenditure flows. But the expenditures involved do not usually result in any accumulation of financial assets that should be taken as an offset to the accumulation of earned surplus. In some statements of sources and uses of funds, the entire net profit is shown as a source of funds and dividends paid, as a use of funds. In such a statement, net internal financing is equal to the difference between a fund inflow (profit) and a fund outflow (dividends). However, this outflow represents an income payment, not a transfer of capital funds, and does not result in an expansion of any financial asset on the

[5] *Ibid.*, pp. 139–148.

balance sheet of the firm—the change in the earned surplus of the firm already represents the net balance between the two flows.

Admittedly, the type of analysis of capital fund flows outlined above has certain limitations. The available corporate financial statements do not, as a rule, show the exact items for which the funds obtained from a given source were spent. If a corporation raised $50 million in a given year through a new stock flotation and spent $30 million during the same year in expanding its holdings of the securities of other companies, we may conclude that the company, has, on balance, drawn $20 million from the security market. But the funds used to purchase securities do not necessarily represent part of the funds received through the stock flotation unless the latter was the only source of new financing during that year. If the firm retained $40 million from operations during the same year, the funds obtained from the stock sale may have been used to expand plant and equipment and the internal funds, to purchase securities.

Even more caution is required, of course, in drawing conclusions from aggregate data for groups of corporations (e.g., the entire manufacturing industry). If all companies combined show a negligible net balance of security financing in a given year, clearly, it does not mean that this type of financing was unimportant for each and every individual firm. Some may have relied heavily on the security market as a source of new funds while others may have been returning funds to the market through security purchases and retirements.

Internal funds of some corporations may be invested in new security issues of other companies, and the money may be used by the latter to expand their physical assets. The consolidated balance sheet for both groups of companies will show no external financing. Yet, the firms which expanded their physical assets clearly could not have done so if they had not received external financial help from the other companies. A study of such intercompany financial flows within an industry would be of considerable importance; unfortunately, our data are inadequate for this purpose.

Sources of Data

Our analysis of financial trends in manufacturing and in mining is confined to corporations, since almost no data are available for noncorporate establishments. However, in recent years, corporations have accounted for over 90 per cent of the total value of output. Even at the beginning of the century, when the relative share of corporations was somewhat smaller, it exceeded two-thirds of the total. Thus, in discussing the financing of corporations, we shall be dealing with a major

portion of the two industries in the early years and with practically the entire industry in the latter part of the period reviewed.

Even for corporations, our data on sources and uses of funds are far from complete. Annual series on corporate retained profits, depreciation and depletion allowances, and security issues are available for the entire 1900–1953 period.[6] We also have annual series on plant and equipment expenditures since 1900. But statistical information on external financing obtained from sources other than security issues is rather limited. Some sample data have been assembled for large manufacturing corporations, from which statements of sources and uses of funds have been prepared. These sample materials cover the entire period, although the samples are of different size and the data prior to 1914 are not sufficiently detailed to permit a complete flow-of-funds analysis.

The Department of Commerce has prepared statements of sources and uses of funds for all manufacturing corporations, but only for post-World War II, 1946–1953. However, the balance sheet and income data published in the *Statistics of Income* permit one to make rough estimates of the various types of financing used by all manufacturing and mining corporations over a considerably longer period, 1926–1953.

A rough indication of the relative importance of internal and external financing over the past half-century may be obtained by comparing corporate retained profits with corporate asset expansion. This is done in the next section. Later, we examine the various components of corporate financing in more detail, using such data as are available for different subperiods.

Asset Growth and Profit Retentions

During the first half of this century, the manufacturing and mining industries taken together were one of the fastest growing sectors of our economy. The combined output (in current prices) of manufacturing and mining rose from $11.7 billion in 1900 to $224 billion in 1948. Around 1900, slightly more than one-fifth of national income originated in these industries; in the twenties, their share rose to roughly one-quarter of the total; in recent years, it has been nearly one-third.

The growth in output obviously required a rapid expansion of capital facilities. As Table 38 indicates, the book value of corporate assets in manufacturing and mining rose from $6.8 billion in 1900 to

[6] These series are based on the data compiled by Raymond Goldsmith and W. Braddock Hickman. See Appendix C, section A for a more detailed description of these and other statistical materials used.

TABLE 38

Growth of Corporate Assets and the Relative Importance of External and Net Internal Financing, All Manufacturing and Mining Corporations, Selected Years, 1900–1953

(*dollars in millions*)

	Assets		*Retained Net Profit*	*New Security Issues*	*Annual Rate of Asset Growth*	*Retained Net Profit*	*Security Issues*
	Total[a] (*1*)	*Change from Prior Year* (*2*)	(*3*)	(*4*)	(*5*)	*As Percentage of Asset Change* (*Col. 3*) ÷ (*Col. 2*) (*6*)	(*Col. 4*) ÷ (*Col. 2*) (*7*)
1900	$6,769						
1909	16,446	$+9,677	$+3,992	$+3,029	+9.7%	41.3%	31.3%
1914	21,078	+4,632	+2,382	+1,410	+5.1	51.4	30.4
1919	41,990	+20,912	+10,978	+2,927	+14.8	52.5	14.0
1929	63,292	+21,302	+5,565	+9,175	+4.2	26.1	43.1
1937	52,322	−10,970	−10,646	−401	−2.4	n.c.	n.c.
1948	109,888[b]	+57,566	+30,809	+7,087	+7.0	53.5	12.3
1948	110,403[c]						
1953	155,530	+45,127	+22,191	+10,188	+7.1	49.2	22.6

n.c. = not computed; both numerator and denominator are negative.

[a] Book value. Total assets excluding investments in securities. Fixed assets are net of depreciation reserves.

[b] Excludes shipbuilding.

[c] Includes shipbuilding.

Column	Source
1	Appendix Table B-16, adjusted to exclude noncorporate enterprises on the basis of census ratios.
2	Appendix Table C-2, column 1.
3	Appendix Table C-1, column 3.

$155.5 billion in 1953.[7] The rate of change varied widely from decade to decade. A declining tendency can be observed over 1900–1937 (except during the World War I years, 1914–1919), but a reversal is evident during 1937–1953. The expansion rate for 1948–1953 was 1.7 times as high as that for 1919–1929, although still below the rate for 1900–1909.

Since the asset values given in Table 38 do not include investments in securities and no adjustments were made for revaluations, the net asset changes shown in column 2 do not measure accurately the total funds (internal plus external) used for expansion. Yet, by comparing the changes with net profits retained over corresponding periods, one can obtain a rough indication of the relative importance of net internal financing. Substantial profit retentions were made in every period except 1929–1937. The ratio of retained profit to asset change showed a rising tendency over 1900–1919. In 1919–1929, however, the ratio was relatively low,[8] while in 1929–1937 income retention gave place to net dissaving. The ratio reached a new high in 1937–1948, but declined once more in 1948–1953. Although the postwar figure is much higher than that for the twenties, it does not appear high when compared with the earlier ratios.

In general, then, the data presented in Table 38 reveal no definite trend in the relative importance of retained profit over the entire period, although, owing to their obvious limitations, they do not prove conclusively that there was no long-term trend. If more observations over a longer period were available, a significant trend might appear, although it could hardly be more than a mild one. But imperfect as they are, the figures can show the historical processes in broad outline. They indicate the existence of long swings, lasting more than one

[7] The data in Table 38 represent the book value of total assets *excluding* investments in government and corporate securities. The figures on total assets *including* investments in securities are available in *Statistics of Income* only since 1926. They are presented below for several selected years. Net profit data shown below are from Appendix Table C-1, column 3. Dollar amounts are in millions; the ratio was not computed for 1937 because both numerator and denominator were negative.

	Assets			*Retained Net Profit*	
	Total	*Change from Prior Year*	*Rate of Change per year (per cent)*	*Total since Prior Year*	*Ratio to Asset Change (per cent)*
1926	$ 68,272				
1929	72,903	$+4,631	+2.2%	$2,012	43.4%
1937	64,869	−8,034	−1.4	−10,646	–
1948	130,750	+65,881	+6.6	30,809	46.7
1953	188,966	+58,216	+7.6	22,191	38.1

[8] The low figure obtained for 1919–1929 is mainly the result of low profit retentions in the early part of the decade. For 1926–1929, the ratio of retained profit to asset change was 40 per cent—moderately below the figure for 1948–1953.

decade, in both the asset expansion rate and the ratio of retained profit to asset expansion. A downswing (or an upswing) that continues for two or three decades may look like a secular trend, and one may be tempted to take it as a basis for long-run projections. However, it may be just one phase of a long wave.

Table 38 also includes figures on new security issues. In general, security sales were much less important as a source of new financing than was net profit retention, especially during 1914–1919 and 1937–1948. The ratio of security issues to asset change have varied inversely with the ratio of retained profits to asset change: the security ratio was relatively low in 1914–1919 and 1937–1948 when the profit ratio was relatively high, and the security ratio rose in 1919–1929, while the profit ratio declined. However, although the security ratio for 1948–1953 is much lower than it was for 1900–1909 and 1909–1914, the profit ratio shows no counterbalancing upward shift in the postwar period. Other sources of funds must have gained in relative importance, and corporate income tax reserves are clearly a case in point. Income tax reserves are conventionally considered to be a part of short-term external financing. However, since they represent a portion of sales revenue earmarked for a specific purpose, they may also be considered as a kind of short-term income retention. Thus, changes in the relative importance of the combined long-term and short-term income retentions (i.e., retained profits plus additions to income tax reserves) may be relevant. The ratios to net asset changes of the sum of retained net profits plus net additions to tax reserves are as follows:

Period	*Ratio of Retained Net Profit plus Tax Accruals to Asset Change*[a] (*per cent*)
1900–09	41.3
1909–14	51.4
1914–19	59.1
1919–29	22.0
1929–37	–
1937–48	64.8
1948–53	51.9

[a] Retained net profits are from Appendix Table C-2, column 1; tax accruals are based on data in *Statistics of Income*; assets are from Appendix Table C-1, column 3. Since income tax reserves are not given as a separate item in the corporate balance sheets published in *Statistics of Income*, they had to be estimated on the basis of tax liability for different years. Considering how large corporate tax liability has been in recent years, the change in the ratios resulting from the inclusion of this item may appear to be surprisingly small. However, while the total annual amount of tax liability has often been much larger than the annual amount of retained profit, the *increase* in tax reserves from one year to the following has generally been much smaller than the increase in earned surplus.

Federal income tax, at the modest rate of 1 per cent of net income, was first imposed on corporations in 1909. The first substantial rise in

the tax liability—and, consequently, in the reserves made to meet it—occurred during World War I. In the interwar period, the tax liability declined, but it rose again during World War II. After a brief reversal in the immediate postwar period, the upward trend was resumed as a result of the outbreak of the Korean hostilities in 1951. Accordingly, adding net changes in the income tax reserves to the total amount retained considerably increases the ratio of retentions to asset changes in 1914–1919, 1937–1948, and 1948–1953. As a result, the total retention ratio shows something of an upward trend over the entire 1900–1953 period.

Accumulation of tax reserves has not been the only expanding source

TABLE 39

Growth of Corporate Assets and the Relative Importance of External and Net Internal Financing, Large Manufacturing Corporations, 1900–1954
(*per cent*)

Period	*Rate of Change per Year in:*		*External Financing*	*Retained Net Profit*
	Total Assets	*Physical[a] Assets*	*As Percentage of Total New Financing*	
1900–1910	+2.6	n.a.	43.1	56.9
		POSITIVE BUSINESS CYCLES[b]		
1914–1919	+12.8	+9.1	48.0	52.0
1919–1921	+1.4	+3.1	1.8	98.2
1921–1924	+4.9	+6.0	37.0	63.0
1924–1927	+4.3	+3.4	15.6	84.4
1927–1932	+1.1	+1.3	[c]	[c]
1932–1938	+0.6	+1.0	62.6	37.4
1938–1946	+5.4	+2.7	40.8	59.2
1946–1949	+10.8	+15.1	43.0	57.0
1949–1954[d]	+9.8	+10.3	49.4	50.6
		INVERTED BUSINESS CYCLES[b]		
1913–1918	+14.1	+9.2	49.7	50.3
1918–1920	+6.3	+7.1	28.3	71.7
1920–1923	−1.8	+0.3	[c]	[c]
1923–1926	+4.4	+3.6	23.9	76.1
1926–1929	+4.1	+3.5	6.0	94.0
1929–1937	−0.2	+0.6	33.8	66.2
1937–1944[e]	+8.5	+3.4	57.4	42.6
1944–1948	+4.5	+9.2	21.4	78.6
1948–1954[d]	+9.9	+10.2	46.9	53.1

n.a. = not available.

[a] Plant and equipment plus inventories.

[b] Based on National Bureau of Economic Research business cycle chronology.

[c] Ratios are not computed when numerator, denominator, or both, are negative.

[d] Underlying data cover 1949–1953.

[e] Underlying data cover 1938–1944.

Source: 1900–1938: National Bureau of Economic Research samples; 1938–1953: Federal Reserve Board sample of large manufacturing corporations.

of funds available to corporations. Another characteristic of the post-World War II period has been the substantial expansion of short-term notes and accounts payable to commercial banks and other creditors. Also, a new type of medium- and long-term credit (the "term" loan) has been developed. (These new developments are discussed in some detail in Chapter VII.)

The data for all manufacturing and mining corporations combined, presented in Table 38, are supplemented in Table 39 by the available sample data for large manufacturing companies. The sample materials include balance sheets and statements of sources and uses of funds, from which the rate of expansion of both total assets (including investment in securities) and physical assets (plant and equipment plus inventories) could be computed and the relative importance of total external, as well as internal financing measured. Annual data are available from 1914 on, although the sample does not remain identical over the entire period. Since we are interested in the long-run tendencies, rather than in short-run cyclical fluctuations, the figures in Table 39 are presented in the form of averages for both the positive (trough-to-trough) and inverted (peak-to-peak) business cycles.

Broadly speaking, the ratios for large corporations reveal a picture similar to that portrayed by the figures for all corporations. Tables 38 and 39 indicate that both external and internal funds were important in financing asset expansion during most of the period reviewed. The ratio of retained net profit to total new financing (Table 39) fluctuates widely from one business cycle to another, but here again, no clear and persistent trend may be discerned.

However, some important differences between the two sets of data do appear. The figures for large corporations show the clear predominance of internal funds during the twenties. In the 1923–1926 and the 1926–1929 peak-to-peak cycles, and also in the 1924–1927 trough-to-trough cycle, the ratio of retained net profit to total new financing rose sharply, while external financing became relatively insignificant. In contrast, the data on all corporations indicate a relatively heavy dependence on external financing during the twenties. In the postwar period, however, large corporations again used external funds on a substantial scale, and their ratios were not essentially different from those for all corporations.[9]

The ratios for large companies indicate that the relative importance of external funds varied with the rate of asset expansion. When assets

[9] Since the data for large corporations were not derived by the same method and are not, therefore, strictly comparable with the data for all corporations, one should be cautious in attaching significance to relatively minor differences between the ratios in Tables 38 and 39.

expanded at moderate rates, internal funds were generally sufficient to cover most capital requirements; external financing was little needed, even though retained profits were not especially high. When assets expanded more rapidly, profits were generally higher; but the rise in profits was less pronounced than the rise in capital requirements and, therefore, the need for external financing increased.

As Table 39 indicates, the rates of total asset growth and physical asset growth of large manufacturing corporations were much higher in the postwar cycles (1946–1949 and 1949–1954) than they had been during any of the interwar cycles. The ratio of external financing to total new financing was also higher after the war. The World War I cycle (1914–1919) was characterized by a more pronounced asset expansion than the World War II cycle (1938–1946). Accordingly, the ratio of external to total financing was higher during the first war.

Obviously, the relative importance of external financing was determined by a number of factors. The ratio of external to total financing was considerably lower in 1926–1929 than in the other cycles with comparable asset expansion rates because of the relatively high profitability and high retention ratios of the late twenties compared with the other parts of the interwar period. Also, the ratio of external to total financing was relatively high in 1932–1938, even though the asset expansion rate was very low during that cycle. However, the dollar value of external financing was quite small in 1932–1938, and its ratio to the total was high only because the amount of net internal financing was exceedingly small. Thus, the significance of the ratio is greatly reduced. In addition, corporate finance in 1936 and 1937 was affected by the undistributed profits tax, which markedly reduced the proportion of net profit retained.

The data on all corporations (Table 38) do not indicate any clear relation between the ratio of external funds to total financing and the rate of asset growth, partly, perhaps, because of imperfect data. The ratios for all companies could be computed only for relatively long periods. Thus, the effect of the expansion rate may have been obscured by the interference of other factors. However, it is probably also true that, large firms, which have generally had an easier access to the capital market, could increase the use of external funds more rapidly, when fast asset expansion was warranted by business conditions, than could smaller firms.[10]

[10] In Dobrovolsky's earlier study, *Corporate Income Retention, 1915–1943*, National Bureau of Economic Research, 1951, the following regression equations were obtained for 1921–1941:

Large companies: $R = +1.71 + .50G - .12t$

Small companies: $R = -1.01 + .65G + .02t$

where R is the annual rate of retained profit, G is the annual rate of total asset

Gross Internal Financing and Security Issues

As already mentioned, annual series on internal financing and security issues are available beginning 1900 (see Appendix Tables C-1 and C-2). But, since both series are characterized by strong cyclical fluctuations, the data are presented as cycle averages in Table 40. The average annual values are given for both trough-to-trough (positive) and peak-to-peak (inverted) business cycles.

The average amount of gross internal financing increased fifteen times in the half-century between the 1900–1904 and the 1949–1954 cycles.[11] The average amount of new plant and equipment expenditures showed a thirteenfold rise over the same period. In contrast, the average amount of new security issues showed only a fivefold rise.[12] However, although the three series differ widely from one another in the extent of growth, they show similar major swings. As Chart 10 and Table 40 indicate, cycle averages rose only moderately in 1900–1911. Pronounced upswings occurred during and after World War I. The averages remained high in the twenties, but substantial downswings took place in the thirties. Finally, all three series display exceedingly high upswings in the forties—both during and after World War II.

A closer look at the data reveals that major movements in the securities series tended to lag behind those in the gross internal financing series. Thus, while the gross internal financing cycle average rose sharply in the 1914–1919 trough-to-trough (or 1913–1918 peak-to-peak) cycle, the securities average advanced only moderately in the war cycle but much more sharply in the following cycle (1919–1921 or 1918–1920). Again, while the gross internal financing average showed a pronounced rise in the 1938–1946 (1937–1944) cycle and a further pronounced increase in the 1946–1949 (1944–1948) cycle, the securities series displayed a relatively small advance in the former, but a much larger one in the latter cycle.

Specific conditions created by the two major wars account for these lags. Each time, the wartime expansion in output was accompanied by a rise both in corporate profits (even after taxes) and in depreciation and depletion allowances. On the other hand, the market for corporate

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expansion and t represents time (both R and G are expressed as percentages of total assets at the beginning of the year).

The equation for large companies indicates that while R varied directly with G, the ratio of R to G decreased as G increased. The data for small companies, on the other hand, show a direct relationship not only between R and G, but also between R/G and G.

[11] Averages for the 1949–1954 positive cycle cover 1949–1953.

[12] These rates of change are obtained by comparing the first and the last trough-to-trough cycles. Almost identical rates are obtained when the first and the last peak-to-peak cycles (1899–1903 and 1948–1953) are compared with each other.

TABLE 40

All Manufacturing and Mining Corporations: Gross Internal Financing, New Security Issues, and Plant and Equipment Expenditures, 1900–1953

Period	*Gross Internal Financing* (1)	*New Security Issues* (2)	*Plant and Equipment Expenditures* (3)	*Gross Internal Financing* (4)	*New Security Issues* (5)	*Gross Internal Financing and New Security Issues* (6)
	Average Annual Amount[a] in Millions			*As Percentage of Plant and Equipment Expenditures*		
			POSITIVE BUSINESS CYCLES[b]			
1900–1904	$ 719	$ 412	$ 803	89.5%	51.3%	140.8%
1904–1908	781	256	1,002	77.9	25.5	103.5
1908–1911	962	317	1,066	90.2	29.7	120.0
1911–1914	1,101	271	1,187	92.8	22.8	115.6
1914–1919	3,138	488	2,041	153.7	23.9	177.7
1919–1921	2,230	1,242	2,706	82.4	45.9	128.3
1921–1924	2,281	668	2,097	108.8	31.9	140.6
1924–1927	3,024	873	2,557	118.3	34.1	152.4
1927–1932	1,318	587	2,285	57.7	25.7	83.4
1932–1938	1,206	−75	1,763	68.4	n.c.	64.2
1938–1946	4,765	206	3,171	150.3	6.5	156.8
1946–1949	9,770	1,935	8,382	116.6	23.1	139.6
1949–1954[c]	11,078	2,128	10,308	107.5	20.6	128.1
			INVERTED BUSINESS CYCLES[b]			
1899–1903[d]	705	416	791	89.1	52.6	141.7
1903–1907	756	256	951	79.5	26.9	106.4
1907–1910	893	288	774	115.4	37.2	152.6
1910–1913	1,074	328	875	122.7	37.5	160.2
1913–1918	2,659	365	1,722	154.4	21.1	175.6
1918–1920	3,435	1,060	2,861	120.1	37.0	157.1
1920–1923	1,695	848	2,169	78.1	39.1	117.2
1923–1926	3,012	753	2,400	125.5	31.4	156.9
1926–1929	2,995	1,008	2,813	106.5	35.8	142.3
1929–1937	754	10	1,736	43.4	0.6	44.0
1937–1944	4,051	107	2,695	150.3	4.0	154.3
1944–1948	7,637	1,346	6,434	118.7	20.9	139.7
1948–1953	10,869	2,101	9,703	112.0	21.7	133.7
			SELECTED PERIODS			
1900–1914	865	307	993	87.1	30.9	118.0
1919–1929	2,755	939	2,555	107.8	36.8	144.6
1936–1940	2,243	156	2,433	92.2	6.4	98.6
1946–1953	10,300	2,054	9,370	109.9	21.9	131.8

n.c. = not computed because numerator is negative.

[a] In computing averages for business cycle periods, 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] Based on National Bureau of Economic Research business cycle chronology.

[c] Averages cover 1949–1953.

[d] Averages cover 1900–1903.

Source: Column 1, Appendix Table C-3; Column 2, Appendix Table C-1; Column 3, Appendix Table C-3.

securities remained relatively inactive during the war years but became very buoyant after the end of hostilities.

CHART 10

Internal Financing, New Security Issues, and Plant and Equipment Expenditures, All Manufacturing and Mining Corporations, 1900–1953

(averages during positive business cycles)

Source: Table 40.

The securities series also lags the major downswings of the thirties. The gross internal financing average shows a pronounced drop in the 1927–1932 trough-to-trough cycle, followed by a further moderate decline in the 1932–1938 cycle. The securities average, on the other hand, shows a relatively small contraction in 1927–1932 but a much

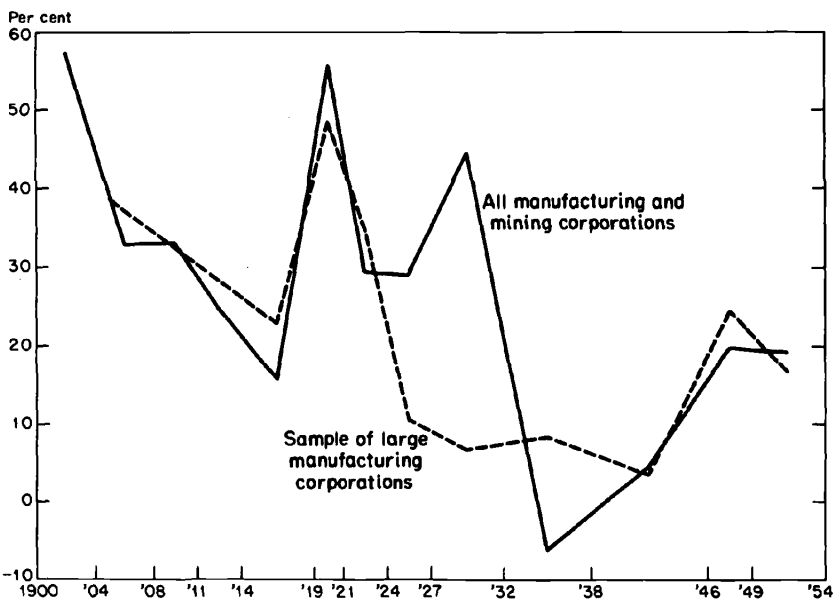
sharper one in 1932–1938. The data on the peak-to-peak cycles reveal this lag even more clearly. Gross internal financing has a mild contraction in 1926–1929 followed by a more pronounced drop in 1929–1937. But, in the securities series, the upswing of the twenties includes 1926–1929, and the sharp reversal does not occur until 1929–1937. Several factors accounted for the lag in the thirties. Corporate net profits had already declined substantially in the early years of the depression. Corporate retained profits declined even more sharply because many companies maintained dividends in excess of current earnings. On the other hand, the most pronounced decline in net security issues (new issues less retirements) occurred in the later stages of the depression, when large accumulations of inactive cash allowed substantial bond retirements (again, see Appendix Tables C-1 and C-2).

Generally similar trends and major swings are evident in the ratios of new security issues to gross internal financing for all manufacturing and mining and for the samples of large manufacturing concerns (Chart 11). However, there are some significant differences. Thus, in

CHART 11

Ratios of New Security Issues to Gross Internal Financing, All Manufacturing and Mining Corporations and Sample, 1900–1953

(averages during positive business cycles)



Source: Tables 40 and 44.

the twenties, when the security market was, in general, very active, security issues (net of retirement) of large manufacturing corporations were surprisingly low in relation to their internal financing (12 and 6 per cent for 1923–1926 and 1926–1929, respectively; the corresponding figures for all manufacturing and mining were 25 and 33 per cent; see Table 40). Apparently, the high profitability of large corporations during that period allowed them to meet most of their capital outlay requirements with funds obtained internally. Indeed, some large companies, notably the U.S. Steel Corporation, were able, in the late twenties, to retire large amounts of previously issued securities.[13]

The ratio of security issues to gross internal financing for all manufacturing and mining corporations dropped sharply from 1926–1929 to 1929–1937 (from 1927–1932 to 1932–1938, trough-to-trough) but the corresponding ratio for large corporations showed little change. In the World War II cycle (1938–1946 or 1937–1944) security issues were relatively unimportant both for the large corporations and for all corporations combined. In the first postwar cycle (1946–1949), the ratio of security issues to gross internal financing rose to 24 per cent for large companies and to 20 per cent for all companies combined.

Gross Internal Financing and Expenditures on Plant and Equipment

A comparison of gross internal financing with gross expenditures on plant and equipment is made in Charts 12 and 13. Internal funds are not, of course, always used exclusively for financing fixed assets, nor are fixed assets always financed internally. Yet, throughout 1900–1953, gross retained funds differed from plant and equipment outlays by only a small margin (total gross retentions were $180 billion, and total expenditures amounted to $163 billion—or 91 per cent of retentions). However, the differences are considerably larger for individual cycles (for example, in both world war cycles, gross internal financing was roughly 1.5 times as high as plant and equipment expenditures; see Chart 12 and Table 39). In all the nonwar cycles, the ratio was considerably lower. In the cycles before World War I, internal funds fell short of plant and equipment expenditures. In the interwar period, internal financing exceeded expenditures in cycles that included relatively mild recessions but fell short of expenditures in cycles that included major depressions (especially in the early thirties). Finally, in the cycles following World War II, internal funds were greater than expenditures by a considerable margin.

In contrast to the behavior of gross internal financing, the ratio of

[13] Cf. Albert R. Koch, *The Financing of Large Corporations, 1920–1939*, National Bureau of Economic Research, 1943, pp. 94–95. See also Table 42, below.

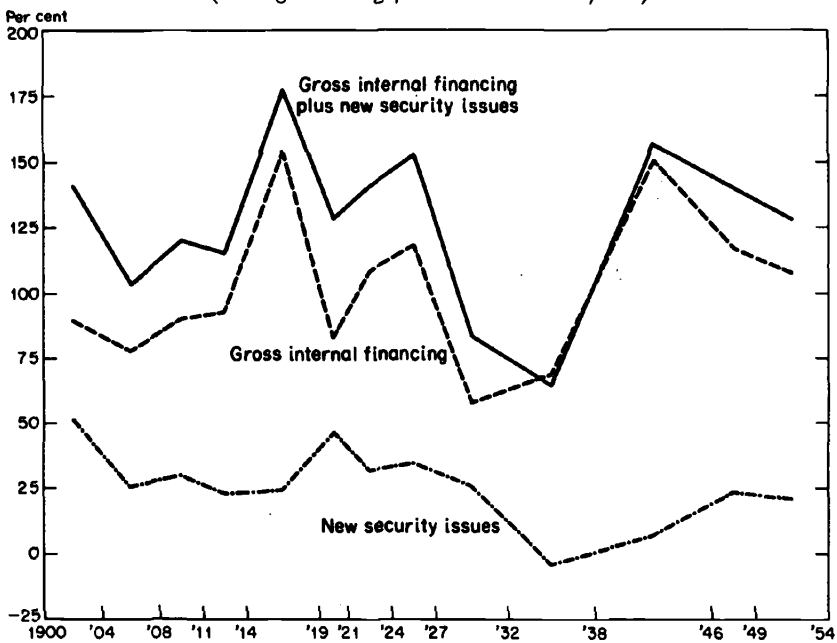
security issues to capital expenditures, measured either trough-to-trough or peak-to-peak, has declined. Security issues amounted to slightly more than 50 per cent of plant and equipment expenditures in the 1900–1904 (1899–1903) cycle. In 1926–1929, the ratio was only 35 per cent; in the two most recent cycles, only slightly over 20 per cent.

Charts 12 and 13 show that, in the pre-World War II cycles, the ratio

CHART 12

Gross Internal Financing and New Security Issues as Percentages of Plant and Equipment Expenditures, All Manufacturing and Mining Corporations, 1900–1953

(averages during positive business cycles)



Source: Table 40.

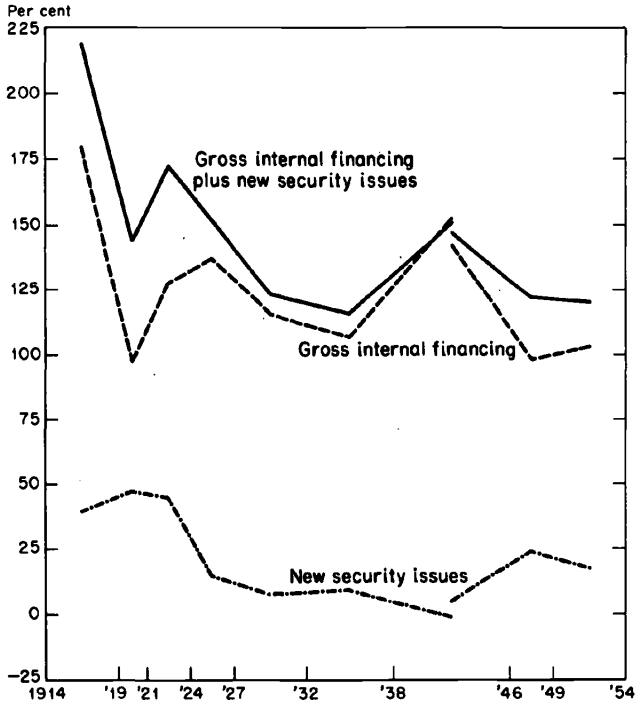
of gross internal financing to expenditures was much higher for large corporations than for all corporations. Gross internal financing of large corporations exceeded their plant and equipment expenditures by a considerable margin even during the thirties, when for all corporations, gross internal financing dropped to practically one-half of such expenditures. In the World War II cycle, the ratio for large corporations was approximately the same as that for all corporations; but in the postwar period, the ratio was lower for large ones.

New security issues of large corporations were higher in relation to their plant and equipment expenditures in the 1914–1919 and 1919–1921 cycles than were security issues of all manufacturing and mining,

CHART 13

Gross Internal Financing and New Security Issues as Percentages of Plant and Equipment Expenditures, Large Manufacturing Corporations, 1914–1953

(averages during positive business cycles)



Source: Table 44 for gross internal and security financing; for plant and equipment expenditures, see the source note to Table 43.

but the reverse was true in most of the later cycles. As already mentioned above, the relatively low level of security issues of large corporations in the late twenties is especially noteworthy. In the postwar periods, the ratio of security issues to plant and equipment expenditures was slightly lower for large firms than for the entire industry.

Since plant and equipment expenditures represent the main use of

long-term funds, one would expect the demand for long-term external financing to depend largely on how high such expenditures are in relation to the available internal financing. When the ratio of internal funds to plant and equipment outlays is high, the demand for long-term external funds should be low; when the ratio is low, the demand for long-term external funds should be stronger.

Our data confirm this expectation: the relation between the ratio of gross internal financing to plant and equipment expenditures and that of new security issues to total long-term financing (internal funds plus security issues) is clearly inverse (see Chart 14, panel A). The ratio of internal financing to expenditures was especially high in the two war cycles; the ratio of security issues to total financing was then lower than in any other cycle except that of 1932–1938. On the other hand, the ratio of security issues to the total was highest in the 1900–1904 and 1919–1921 cycles, both characterized by relatively low plant and equipment expenditures.

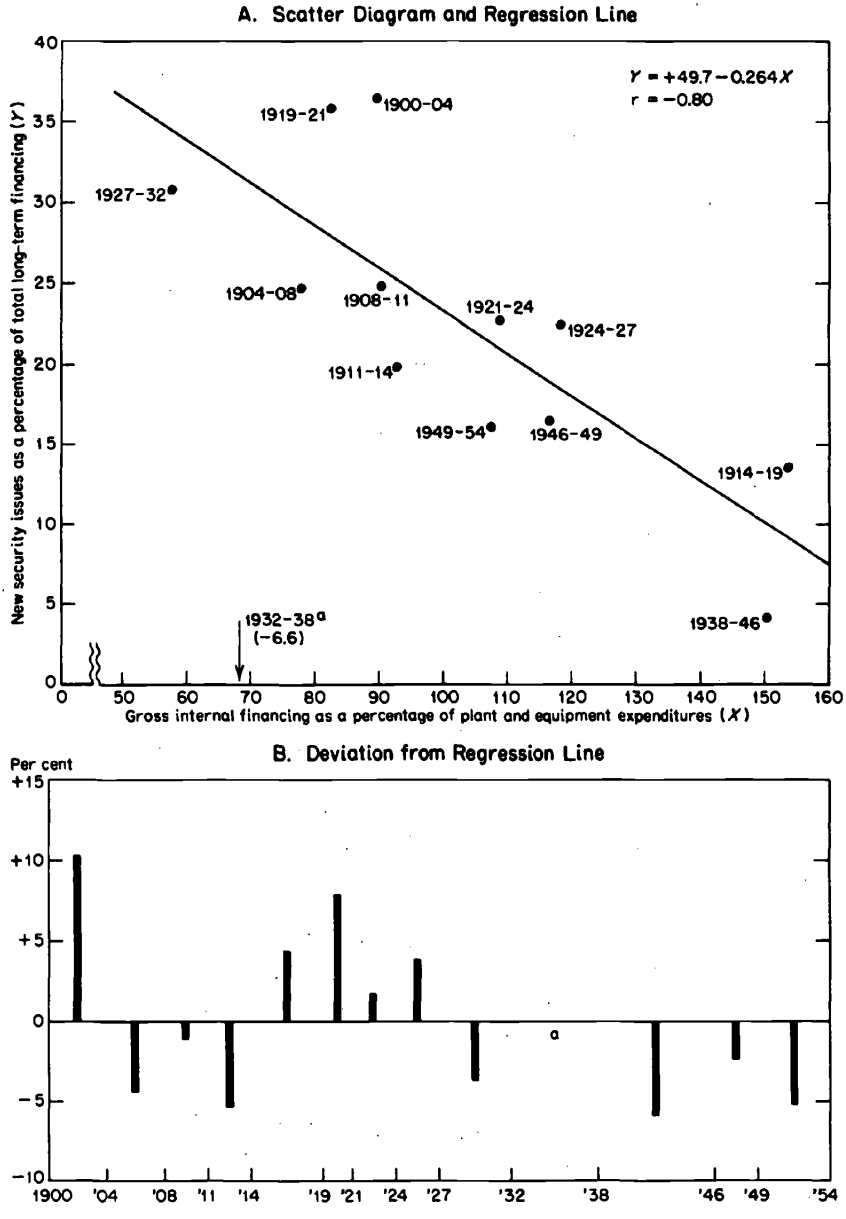
The cycle of the Great Depression (1932–1938) is the only one not conforming to the general pattern of relationship. Then, as Chart 14 shows, there was an *outflow* of external funds (retirements exceeding new issues), although gross internal financing fell far short of plant and equipment expenditures. This is accounted for by the substantial contraction and partial conversion into cash of such current assets as marketable securities, receivables, and inventories, which took place in that period. The cash enabled many companies with sharply diminished retained earnings to maintain a minimum of required plant and equipment expenditures without recourse to the securities market.

The regression line, fitted by the least squares method to all the cycles except 1932–1938, indicates that, on the average, security issues amounted to 30 per cent of the total long-term financing when internal funds were equal to three-fourths of plant and equipment expenditures; 23 per cent of the total, when internal funds were equal to the full amount of the expenditures; and only 10 per cent of the total, when internal funds were one and one-half times as large as the expenditures. Thus, new security issues represented an appreciable share of total new financing even when gross internal funds exceeded plant and equipment expenditures. Many individual companies had low retained income and had to rely largely on external financing even during cycles in which the ratio of retained income to expenditures was high for the industry as a whole. Furthermore, some companies with a high ratio of retained earnings to plant expenditures still needed substantial external financing to strengthen their working capital position or to make new investment in subsidiaries. For example, in the twenties, large corporations considerably expanded their financial interests (by

CHART 14

All Manufacturing and Mining Corporations: Relation between New Security Issues as a Percentage of Total Long-Term Financing and Gross Internal Financing as a Percentage of Plant and Equipment Expenditures, 1900–1953

(based on averages during positive business cycles)



investment and loan) in subsidiary companies; the relatively high ratios of security issues to internal financing reflect this activity.

Deviations from the regression line of the security issues-total long-term financing ratio show no persistent trend over 1900–1953 (see Chart 14, panel B). The deviations were negative from the 1927–1932 cycle on. However, there is a cluster of positive deviations during 1914–1924. The ratio of gross internal financing to plant and equipment expenditures was approximately the same for both war cycles, but the ratio of security issues to total long-term financing was much lower in the second. In the 1946–1949 and 1949–1953 cycles, the ratio of internal financing to expenditures was approximately the same as in the 1921–1924 and 1924–1927 cycles. But again, the ratio of security issues to the total was substantially lower in the recent cycles.

Since gross internal financing was high in relation to plant and equipment expenditures in the postwar cycles, security issues would be expected to represent a relatively small fraction of total financing. The actual ratio of security issues to the total was, however, even lower than the "normal" computed from the regression line fitted to the whole period, 1900–1953.

We conclude this section with a brief examination of changes in total long-term financing (the sum of gross internal financing and new security issues) over the whole period.[14]

As Charts 12 and 13 indicate, long-term financing exceeded plant and equipment expenditures by a substantial margin in almost all the cycles. The data for all manufacturing and mining corporations indicate that only in the thirties (the 1927–1932 and 1932–1938 cycles) did the inflow of long-term funds decline to a level far below that of the expenditures. For large manufacturing corporations, on the other hand, total long-term financing exceeded plant and equipment expenditures throughout 1914–1953.

For all manufacturing and mining corporations, no trend in the ratio of long-term financing to plant and equipment expenditures can be discerned for the entire period, 1900–1953, either in trough-to-trough or peak-to-peak cycle data. The ratio was highest in the World War I cycle (1914–1919 or 1913–1918) (long-term financing was 1.8 times as high as expenditures—see Table 40). During the World War II cycles (1938–1946 or 1937–1944), the ratio was approximately 1.5—about the same as the highest ratio attained during the interwar period.

[14] In recent years, the sum of internal financing and new security issues falls short of total noncurrent financing of corporations, because it does not include term loans (see Chapter VII for a discussion of term loans). Commercial banks began making long-term loans to industry on a significant scale in the middle thirties. However, the data on such loans are rather scant. The available estimates indicate that the amount has been small in relation to security issues in the postwar period.

In the two postwar cycles, the ratio declined moderately. However, the figure obtained for 1946–1953 (132 per cent) exceeded that found for 1900–1914 (118 per cent) although far short of that for 1919–1929 (145 per cent).

In general, total long-term financing showed no clear trend in relation to plant and equipment expenditures. But the relative importance of the internal and the external components shifted appreciably. Internal funds became relatively more important, while funds raised through security issues declined in relation to both total financing and plant expenditures.[15]

Although the ratio of new security issues to gross internal financing in the postwar period was lower than those for 1900–1914 and 1919–1929, it was much higher than the ratio for 1936–1940. Does the rise observed after World War II represent the beginning of a new long swing? Since the general institutional framework of our economy seems to foreshadow a continued heavy reliance by corporations on internal financing, a prolonged upward movement in the ratio of external to internal funds could hardly be expected. However, if the national economy continues to expand at a relatively high rate, the demand for new external funds will probably remain substantial. Only if further economic growth were retarded could a drop in the relative importance of new external financing be expected.

Components of Gross Internal Financing

Gross internal financing, as considered above, represents the sum of: (1) depreciation and depletion allowances and (2) undistributed net profit. We now turn to a separate examination of each.

DEPRECIATION AND DEPLETION. In a simple conceptual framework, depreciation and depletion allowances, if earned, represent funds retained from the gross revenue stream to make up for the loss incurred through capital consumption. But, of course, the allowances computed by conventional accounting methods may differ significantly from the actual loss of value through use. This occurs especially during periods of wide price fluctuations, when replacement costs deviate substantially from the original expenditures on durable capital goods.

In studies of real capital formation, depreciation data must be adjusted so as to represent, as accurately as possible, real capital consumption. On the other hand, these adjustments are unnecessary in an examination of the financial aspects of investment; the actual

[15] The figures on security issues considered in this section represent the gross inflow of funds through security transactions. Net inflow of external funds (adjusted for changes in financial assets) is discussed in the last section of this chapter.

TABLE 41

All Manufacturing and Mining Corporations: Depreciation and Depletion Allowances and Retained Net Profit, 1900–1953

Period	*Depreciation and Depletion*		*Retained Net Profit*		*Depreciation as Percentage of Depreciation Plus Retained Net Profit*	
	Unadjusted (1)	*Adjusted* (2)	*Unadjusted* (3)	*Adjusted* (4)	(*Col.*1) ÷ [(*Col. 1*) + (*Col. 3*)] *Unadjusted* (5)	(*Col.* 2) ÷ [(*Col. 2*) + (*Col. 4*)] *Adjusted* (6)
	(*average annual amount*[a] *in millions*)					
	POSITIVE BUSINESS CYCLES[b]					
1900–1904	$ 260	$ 300	$ 459	$ 439	36.2%	40.6%
1904–1908	364	436	417	357	46.7	55.0
1908–1911	488	569	474	415	50.7	57.8
1911–1914	616	633	485	506	55.9	55.6
1914–1919	1,170	1,366	1,968	1,038	37.3	56.8
1919–1921	1,612	2,270	618	1,475	72.3	60.6
1921–1924	1,907	2,168	374	544	83.6	79.9
1924–1927	2,161	2,308	863	1,091	71.5	67.9
1927–1932	2,306	2,310	−988	−14	175.0	100.6
1932–1938	1,889	1,729	−683	−824	156.6	191.0
1938–1946	2,763	2,769	2,002	1,447	58.0	65.7
1946–1949	4,083	4,526	5,687	3,347	41.8	57.5
1949–1954[c]	6,581	7,206	4,497	3,220	59.4	69.1
	INVERTED BUSINESS CYCLES[b]					
1899–1903[d]	244	284	461	434	34.6	39.6
1903–1907	335	396	421	379	44.3	51.1
1907–1910	449	531	444	340	50.3	61.0
1910–1913	574	630	500	492	53.4	56.1
1913–1918	988	1,067	1,671	1,019	37.2	51.2
1918–1920	1,568	2,181	1,867	1,226	45.6	64.0
1920–1923	1,782	2,189	−87	691	105.1	76.0
1923–1926	2,079	2,255	933	969	69.0	69.9
1926–1929	2,333	2,430	662	851	77.9	74.1
1929–1937	2,018	1,890	−1,264	−824	267.6	177.3
1937–1944	2,437	2,412	1,614	1,301	60.2	65.0
1944–1948	3,629	3,876	4,008	1,894	47.5	67.2
1948–1953	6,052	6,627	4,817	3,739	55.7	63.9
	SELECTED PERIODS					
1900–1914	417	466	448	427	48.2	52.2
1919–1929	2,011	2,290	744	906	73.0	71.7
1936–1940	2,002	1,892	241	350	89.3	84.4
1946–1953	5,411	5,941	4,889	3,091	52.5	65.8

[a] In computing averages for business cycle periods, 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] Based on National Bureau of Economic Research business cycle chronology.

(*continued*)

allowances, irrespective of whether they adequately cover replacement requirements, are the object of study. Of course, one may also wish to compare the actual allowances with the theoretically adequate ones.

The data for both reported and adjusted depreciation, 1900–1953, are presented in Table 41 and Chart 15. Reported depreciation[16] was lower than the adjusted amount in all the cycles except that of 1932–1938 (or 1929–1937, peak-to-peak), that is, the allowances were, generally, too low to cover actual capital consumption. However, the differences are not pronounced. Both exhibit an almost uninterrupted growth throughout 1900–1953. In contrast, retained net profit fluctuated markedly.

The unadjusted depreciation allowances were smaller than unadjusted retained net profit in 1900–1904 and 1904–1908 (prior to 1909, when the federal income tax on corporations was introduced, depreciation accounting was very imperfect), in the World War I cycle, and, once again, in 1946–1949. In all the other cycles, depreciation exceeded net profit retention. Throughout 1900–1953, the amount of depreciation was 1.7 times as great as the amount of net profit retained. This large difference is mainly due to the large amount of net corporate dissaving in 1921 and during the thirties. However, even when the years of net dissaving are omitted, depreciation for all the remaining years exceeds retained net profit by 19 per cent.

Adjusted depreciation is greater than net profit retention in all the cycles except those of 1900–1904 (trough-to-trough) and 1899–1903

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[c] Average covers 1949–1953.
[d] Averages cover 1900–1903.

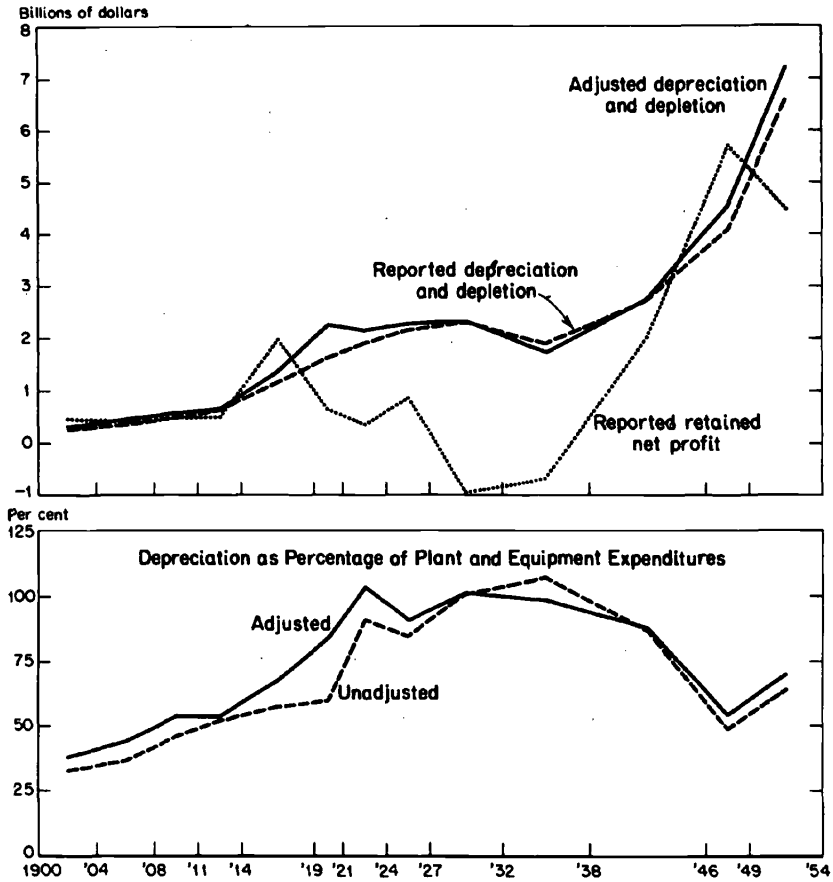
Column	Source
1 and 3	Appendix Table C-2.
2 and 4	Depreciation and depletion adjustments in column (2) include conversion from the original to a replacement cost basis and, in 1940–1947, elimination of excess depreciation resulting from accelerated write-offs of war facilities. Retained net profit adjustments in column (4) include the depreciation and depletion adjustments plus adjustments for inventory gains and losses, excess development cost in mining, excess capital expenditures charged to current expenses, and capital gains and losses. The adjustments are based on data in Raymond W. Goldsmith, *A Study of Savings in the United States*, Princeton University Press, 1955, Vol. I; *Statistics of Income*, Bureau of Internal Revenue (now Internal Revenue Service), Part 2; and *National Income, 1954 Edition, A Supplement to the Survey of Current Business*, Department of Commerce.

[16] "Depreciation" will designate the total of depreciation and depletion. Depletion allowances are a major component of internal financing in mining but are of lesser importance in manufacturing. For both industries combined, depletion has, in recent years, amounted to approximately 29 per cent of the total amount of depreciation and depletion accruals and approximately 15 per cent of gross internal financing.

CHART 15

All Manufacturing and Mining Corporations: Depreciation and Depletion Allowances, and Retained Net Profit, 1900–1953

(averages during positive business cycles)



Source: Depreciation and retained net profit (reported and adjusted) from Table 41; plant and equipment expenditures from Table 40.

(peak-to-peak). Throughout 1900–1953, adjusted depreciation was 2.4 times as great as the adjusted retained net profit.

The ratios of depreciation to plant and equipment expenditures show wide fluctuations. As Chart 15 reveals, the ratio rose substantially during the first two decades, but the reverse tendency set in during the thirties. Other things being equal, a rise in the ratios indicates that a greater proportion of total expenditures represents replacement, and

correspondingly less represents net expansion, of fixed assets (on the assumption that depreciation is a rough measure of actual capital consumption). Conversely, a decline indicates the reverse tendency.

Owing to lack of data, we could not compute the rates of growth of fixed assets for successive business cycles, or even successive decades. However, we do have average rates of expansion of all assets other than securities for several consecutive periods (in Table 38). When the ratios of depreciation to plant and equipment expenditures are computed for these periods, the following results are obtained:

Period	*Rate of Asset Change per Year*[a]	*Ratio of Depreciation to Plant and Equipment Expenditure*[b]
1900–09	+9.7%	36.7%
1909–14	+5.1	51.0
1914–19	+14.8	56.6
1919–29	+4.2	81.5
1929–37	−2.4	115.4
1937–48	+7.0	69.0
1948–53	+7.1	64.0

[a] See Table 38. Assets are net of depreciation reserves.

[b] Depreciation data (unadjusted) are from Appendix Table C-2, and plant and equipment expenditures data are from Appendix Table C-3.

As expected, the depreciation-expenditures ratios were highest (1919–1929 and 1929–1937) when the asset expansion rates were lowest. Depreciation accruals exceeded plant and equipment expenditures in 1929–1937—a period of net contraction rather than expansion of assets.

Although depreciation-expenditures ratios were higher in 1937–1948 and 1948–1953 than in 1900–1909 and 1909–1914, asset expansion rates in both recent periods were above those in the early periods. Depreciation was high in relation to expenditures in 1937–1948 and 1948–1953 not because expenditures were low, but because the rates at which depreciable fixed assets were written off rose considerably after World War I. In fact, the expenditures on new assets have been so large in recent years that, even with faster write-offs, the net amount of assets increased at relatively high rates.

NET PROFIT RETENTION. Conceptually, the retained part of net profit represents funds available for *net* asset expansion, i.e., expansion after replacement requirements have been taken care of. But an accurate computation of net asset expansion is difficult. Any inaccuracy in computing depreciation results in a corresponding inaccuracy in the amount of net profit. For example, if the depreciation allowance in a given year were lower than actual replacement requirements by

$1 billion, then net profit and retained profit in that year would be overstated by $1 billion.[17]

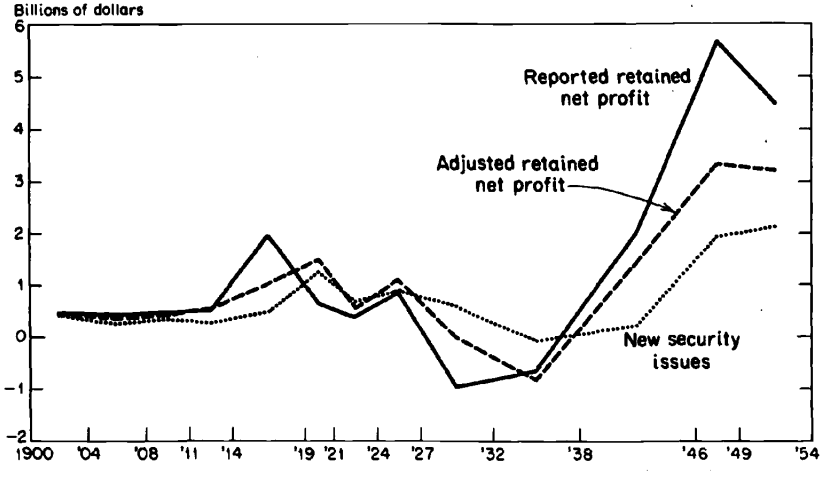
Furthermore, the question arises whether net profit and retained profit should include such items as capital gains (or losses) and inventory profits (or losses) resulting from price changes. In any analysis of real investment and saving, it is appropriate to eliminate these gains. From the financial standpoint, on the other hand, capital gains represent a real source of funds to the business firms concerned, and sales from inventories at higher prices also provide additional funds—though not necessarily additional physical stocks if the costs are also rising. For the sake of comparison, both the adjusted and the unadjusted data are presented here.

In contrast to depreciation, retained net profit (both reported and adjusted) exhibits very wide intercycle variation over the period

CHART 16

All Manufacturing and Mining Corporations: Retained Net Profits and New Security Issues, 1900–1953

(averages during positive business cycles)



Source: Retained net profit, reported and adjusted from Table 41; new security issued from Table 40.

[17] Of course, if the depreciation had been increased by $1 billion in that year, and if the higher amount had been accepted by the government for tax purposes, net profit after taxes would have been reduced by less than $1 billion because the tax liability would have been lowered. But when depreciation data, reported by corporations, are later adjusted by economists, the amount of the tax payment remains unchanged. Therefore, any such adjustment of depreciation calls for an adjustment of net profit by the same amount but in the opposite direction.

(Table 41).[18] The cycle averages were relatively stable before World War I, rose steeply in 1914–1919, and declined in the interwar period (Chart 16). In the twenties, retentions were substantial. On the other hand, net corporate dissaving characterized the 1927–1932 and 1932–1938 cycles. The upswing that unadjusted net retentions registered in the World War II and the postwar cycles was less pronounced, but still substantial, in the adjusted profit data.

Net retentions (both adjusted and unadjusted) have a far greater amplitude of fluctuation than new security issues. However, most of the movements from one cycle to the following were in the same direction in both series: a rise in net profit retention was associated with a rise in new security issues, and vice versa. The conformity between the two series is closer when adjusted profit data are used.

Even though changes in the dollar amounts were generally in the same direction, the relative importance of internal and external funds showed wide variation owing to differences in the degree of change from one cycle to the next. The ratio of new security issues to unadjusted profit retention was especially low in the World War I and World War II cycles (see Table 42): in 1914–1919 (trough-to-trough cycle) security financing amounted to only one-fourth of retained net profit; in 1913–1918 (peak-to-peak cycle), slightly more than one-fifth. During the second war cycle, new security issues were even less important: 10 per cent in 1938–1946 (trough-to-trough) and 7 per cent in 1937–1944 (peak-to-peak) of net profit retention.

If war cycles are omitted, security issues compared with unadjusted profits exhibit the following general tendencies:

1. In all the cycles preceding World War I, the amount of new security issues was lower than the amount of net profit retained (unadjusted data). For the entire 1900–1914 period, security financing was 68 per cent of net profit retention.

2. In the twenties, security financing showed a considerable gain in relative importance. New security issues exceeded retained net profit in 1919–1921, 1921–1924 and 1924–1927 (trough-to-trough cycles) and in 1926–1929 (peak-to-peak cycle).[19] Over the entire 1919–1929 period, security financing amounted to 126 per cent of net profit retention.

3. In the thirties, net corporate profit retention gave place to corporate dissaving (net profit after taxes and dividends were

[18] The year-to-year variation is even wider. We use cycle averages and thereby eliminate the differences between the expansion and the contraction years within the business cycles.

[19] In 1923–1926 (peak-to-peak cycle) the amount of new issues was lower than the amount of retained net profit, but the ratio of security financing to net profit retention was higher than the corresponding ratio in all prewar cycles except that of 1899–1903.

TABLE 42

Ratio to Net Plant and Equipment Expansion[a] of Retained Net Profit and of New Security Issues, and Ratio of New Security Issues to Retained Net Profit, All Manufacturing and Mining Corporations, 1900–1953

(*per cent*)

Period	*Unadjusted Retained Net Profit* (1)	*New Security Issues* (2)	*New Security Issues as per Cent of Unadjusted Retained Net Profit* (3)	*Adjusted Retained Net Profit* (4)	*New Security Issues* (5)	*New Security Issues as per Cent of Adjusted Retained Net Profit* (6)
	As per Cent of Unadjusted Net Plant and Equipment Expansion			*As per Cent of Adjusted Net Plant and Equipment Expansion*		
POSITIVE BUSINESS CYCLES[b]						
1900–1904	84.5	75.9	89.8	87.3	81.9	93.8
1904–1908	65.4	40.1	61.4	63.1	45.2	71.7
1908–1911	82.0	54.8	66.9	83.5	63.8	76.4
1911–1914	84.9	47.5	55.9	91.3	48.9	53.6
1914–1919	225.9	56.0	24.8	153.8	72.3	47.0
1919–1921	56.5	113.5	201.0	338.3	284.9	84.2
1921–1924	196.8	351.6	178.6	n.c.	n.c.	122.8
1924–1927	217.9	220.5	101.2	438.2	350.6	80.0
1927–1932	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
1932–1938	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
1938–1946	490.7	50.5	10.3	360.0	51.2	14.2
1946–1949	132.3	45.0	34.0	86.8	50.2	57.8
1949–1954[c]	120.7	57.1	47.3	103.8	68.6	66.1
INVERTED BUSINESS CYCLES[b]						
1899–1903[d]	84.3	76.1	90.2	85.6	82.1	95.9
1903–1907	68.3	41.6	60.8	68.3	46.1	67.5
1907–1910	136.6	88.6	64.9	139.9	118.5	84.7
1910–1913	166.1	109.0	65.6	200.8	133.9	66.7
1913–1918	227.7	49.7	21.8	155.6	55.7	35.8
1918–1920	144.4	82.0	56.8	180.3	155.9	86.5
1920–1923	n.c.	219.1	n.c.	n.c.	n.c.	122.7
1923–1926	290.7	234.6	80.7	668.3	519.3	77.7
1926–1929	137.9	210.0	152.3	222.2	362.2	118.4
1929–1937	n.c.	n.c.	n.c.	n.c.	n.c.	n.c.
1937–1944	625.6	41.5	6.6	459.7	37.8	8.2
1944–1948	142.9	48.0	33.6	74.0	52.6	71.1
1948–1953	131.9	57.5	43.6	121.6	68.3	56.2
SELECTED PERIODS						
1900–1914	77.6	53.2	68.5	81.0	58.3	71.9
1919–1929	136.8	172.6	126.2	341.9	354.3	103.6
1936–1940	55.9	36.2	64.7	64.7	28.8	44.6
1946–1953	123.5	51.9	42.0	90.1	59.9	66.5

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

[a] Net plant and equipment expansion equals plant and equipment expenditures less adjusted or unadjusted depreciation.

[b] Based on National Bureau of Economic Research business cycle chronology.

[c] Underlying data cover 1949–1953.

[d] Underlying data cover 1900–1903.

Source: Tables 40 and 41.

negative). New security financing showed a small negative balance (retirements being larger than new issues) in 1932–1938 (trough-to-trough cycle) but a small positive balance in 1929–1937 (peak-to-peak cycle).

4. In the cycles following World War II, new security issues were much lower in relation to net profit retention than in any previous nonwar cycle. For 1946–1953 (one full and one incomplete cycle), security financing was only 42 per cent of net profit retained.

The relative behavior of external and internal funds was substantially different in years when the excess profit tax was in effect compared to years when it was not. During 1946–1950, when the tax was not in effect, security issues were only 28 per cent of retained net profit. During 1951–1953, when the tax was again imposed, retentions contracted sharply; and the ratio of security issues to retentions rose to 72 per cent. Clearly, changes in the corporate tax load have been—and doubtless will be in the future—a significant factor in the determination of the relative importance of internal and external corporate financing.

The trend in the ratio of security issues to retained net profit for large manufacturing corporations is generally similar to that for all corporations (Table 43). However, there are some significant differences between the two series. For large corporations, the ratio was very high in the early twenties (1920–1923) and relatively low in the late twenties. In contrast, the ratio for all corporations reached an all-time high in the 1926–1929 cycle. In the thirties, net profits of large corporations dropped substantially but remained positive, and this enabled them to continue net profit retention; however, all corporations showed net dissaving. New security issues of the large concerns also remained positive in the 1932–1938 cycle, but all corporations combined had a negative balance. In the postwar period, the ratio of security issues to retained net profit was somewhat lower for large corporations than for all corporations.

When adjusted profit figures are substituted for the unadjusted ones, the relative importance of internal and external funds changes (see Table 42). In both war cycles, the ratio of new security issues to retained net profits rose substantially because of our downward profit adjustments. However, it was still much lower than the ratios for all the nonwar cycles.

On the nonwar cycles, the following general observations may be made:

1. Before World War I, small downward profit adjustments were made, and the ratio of new security issues to retained net profit is, therefore, slightly increased. For the entire 1900–1914 period, the value

TABLE 43

Ratio to Net Plant and Equipment Expansion[a] of Retained Net Profit and of New Security Issues, and Ratio of New Security Issues to Retained Net Profit, Large Manufacturing Corporations, 1900–1954
(*per cent*)

Period	*Retained Net Profit*	*New Security Issues*	*New Security Issues as per Cent of Retained Net Profit*
	As per Cent of New Plant and Equipment Expansion		
	SELECTED PERIOD		
1900–1910	330.1	229.4	69.5
	POSITIVE BUSINESS CYCLES[b]		
1914–1919[c]	259.4	79.1	30.5
1919–1921	94.7	79.7	84.1
1921–1924[d]	209.8	159.8	76.2
1924–1927	210.4	41.8	19.9
1927–1932	182.9	39.9	21.8
1932–1938	176.3	94.2	53.5
1938–1946[e]	284.2	5.8	2.0
1946–1949	96.8	33.8	34.9
1949–1954[f]	105.5	31.6	29.9
	INVERTED BUSINESS CYCLES[b]		
1913–1918[g]	286.5	68.1	23.8
1918–1920	147.5	93.9	63.7
1920–1923[h]	78.2	100.6	128.7
1923–1926	269.9	62.9	23.3
1926–1929	218.4	24.9	11.4
1929–1937	157.5	71.7	45.5
1937–1944[i]	323.2	33.2	10.3
1944–1948	100.9	34.9	34.6
1948–1953	109.8	30.4	27.7

[a] Net plant and equipment expansion equals plant and equipment expenditures less depreciation.
[b] Based on National Bureau of Economic Research business cycle chronology.
[c] Underlying data cover 1915–1919.
[d] Underlying data cover 1922–1924.
[e] Underlying data cover 1939–1946, Federal Reserve Board sample.
[f] Underlying data cover 1949–1953.
[g] Underlying data cover 1915–1918.
[h] Underlying data cover 1920–1922.
[i] Underlying data cover 1937–1943, National Bureau of Economic Research sample.

Source: 1900–1910: Sample of 14 large manufacturing corporations; 1915–1922: Data Book of Financial Research Program, National Bureau of Economic Research, Section A, Table 87, p. 154; 1922–1943: *ibid.*, Section A, Table 120, pp. 278–279; 1939–1953: *Federal Reserve Bulletin*, July 1953 and August 1954.

of security financing is 72 per cent of the adjusted amount of retained net profit.

2. In 1919–1929, our adjustments raise both net profit and retained profit. Consequently, the relative importance of security financing compared with adjusted retentions declines. (But security issues over this period still exceed—by 4 per cent—retained net profit.)

3. The amount of net corporate dissaving during the thirties is reduced by profit adjustments. However, the adjusted data still show a substantial negative balance of net internal financing and a small positive balance of security financing.

4. In the postwar period, retained net profit is substantially lower because of profit adjustments. Yet the ratio of new security issues to adjusted profit retention is considerably lower for the postwar cycles than for most other nonwar cycles. For the entire 1946–1953 period, security financing was 66 per cent of retained net profit—much less than for 1900–1914 and 1919–1929.

In conclusion, examination of the relations between retained net profit and new security issues, on the one hand, and net expansion of plant and equipment (total expenditure less depreciation), on the other, shows that the adjusted ratios differ significantly from the unadjusted ones in some of the cycles. However, both series have generally similar long-run tendencies (Table 42). Before World War I, the ratios of retained net profit (unadjusted and adjusted) to plant expansion and of new security issues to plant expansion were relatively low. Both ratios rose substantially during the war and the twenties .The thirties were characterized by net corporate dissaving as well as net contraction of plant and equipment. In the World War II cycle, the profit retention ratio was again very high (the security ratio was relatively low) and then dropped sharply in the postwar period. The postwar ratios were much lower than those for the twenties, although higher than those for cycles before the first war.

The difference between the recent cycles and those before 1914 is considerably larger in the unadjusted than in the adjusted series, although the change is in the same direction. The ratio of security issues to plant and equipment expansion showed a slight increase in the postwar period, although the level remained well below that reached in the twenties and was no higher than in the cycles preceding World War I.

Most of the variables considered in this section display exceedingly wide fluctuations from one cycle to another. Major long-term changes in their relationships show more clearly when averages are computed for periods containing several business cycles (see Table 42). The relative magnitudes of retained net profit, security issues, and plant

expansion for 1946–1953 were closer to those for 1900–1914 than to those for either 1919–1929 or 1936–1940, especially if the ratios based on adjusted profit data are compared. The ratio of retained net profit to plant and equipment expansion was higher in 1946–1953 than in 1900–1914, although not nearly so high as in 1919–1929. The ratio of new security issues to retained net profit was lower in 1946–1953 than in 1900–1919. It was relatively high in 1919–1929 owing to an unusually large volume of new security flotations.

Total Short-Term and Long-Term External Financing

We now turn to the available data on total external financing, which includes funds obtained through security sales plus several other important components. Balance sheets and profit and loss statements are available for samples of large manufacturing corporations for the entire period, 1900–1953. However, the size and composition of the samples differ substantially in different periods: 1900–1910 includes only 14 large corporations; 1915–1922, 50; and 1922–1948, 44. (These three samples were compiled at the National Bureau.) For 1939–1953, a sample of about 200 corporations, compiled by the Federal Reserve Board, is used.

The statements of sources and uses of funds prepared for the samples permit an analysis of new financing absorbed by large manufacturing corporations. Although the samples are not identical, some conclusions about major financial trends can be reached by inspecting changes in the *ratios* of different types of funds to total financing.

Gross External Financing

In their usual form, statements of sources and uses of funds indicate the inflow (or outflow) of funds from various sources (gross of changes in the financial assets). For example, a statement for a given company shows an inflow of $100 million through stock and bond issues. This means that new issues exceeded retirements (and purchases of own stock to be held in the treasury) by this amount over the period concerned. If, during the same period, the company purchased $50 million worth of securities of other corporations, the amount will be shown as a use of funds on the other side of the statement. The net inflow of funds through security transactions (funds received from the capital market through security sales less the amount released to the capital market through security purchases) is the remainder after the $50 million on the "uses" side is subtracted from the $100 million on the "sources" side.

We consider, first, the relation between internal and external financing, without an adjustment for financial asset acquisitions. No clear trend is evident in the relative importance of internal and external financing of large corporations during the period (Table 44). In

TABLE 44

Internal and External Sources of Funds, Large Manufacturing Corporations, 1900–1954
(dollars in millions)

Period	Total Financing (1)	Internal Financing			External Financing		
		Total (2)	Undistributed Net Profit (3)	Depreciation (4)	Total (5)	Short-Term (6)	Long-Term (7)
			SELECTED PERIOD				
1900–1910	$1,207.0	$850.0	$472.0	$378.0	$357.0	$ 29.0	$328.0
			PER CENT OF TOTAL FINANCING				
1900–1910	100.0%	70.4%	39.1%	31.3%	29.6%	2.4%	27.2%
			POSITIVE BUSINESS CYCLE AVERAGES[a]				
1914–1919[b]	$ 743.5	$447.1	$322.4	$124.6	$296.5	$194.7	$101.8
1919–1921	371.8	367.8	212.5	155.2	4.0	−174.3	178.2
1921–1924[c]	502.4	395.2	182.3	212.9	107.2	−30.0	137.2
1924–1927	705.8	644.2	332.9	311.5	61.4	−5.8	67.2
1927–1932	507.1	574.4	170.5	403.9	−67.3	−104.9	37.7
1932–1938	623.4	495.6	76.5	419.1	127.8	86.9	40.9
1938–1946[d]	3,093.0	2,348.0	1,083.0	1,265.0	745.0	664,0	81.0
1946–1949	6,066.0	4,145.0	2,550.0	1,595.0	1,920.0	908.0	1,012.0
1949–1954[e]	8,635.0	5,675.0	3,036.0	2,639.0	2,959.0	2,013.0	947.0
			PER CENT OF TOTAL FINANCING				
1914–1919[b]	100.0%	60.1%	43.4%	16.8%	39.9%	26.2%	13.7%
1919–1921	100.0	98.9	57.2	41.7	1.1	−46.9	47.9
1921–1924[c]	100.0	78.7	36.3	42.4	21.3	−6.0	27.3
1924–1927	100.0	91.3	47.2	44.1	8.7	−0.8	9.5
1927–1932	100.0	113.3	33.6	79.7	−13.3	−20.7	7.4
1932–1938	100.0	79.5	12.3	67.2	20.5	13.9	6.6
1938–1946[d]	100.0	75.9	35.0	40.9	24.1	21.5	2.6
1946–1949	100.0	68.3	42.0	26.3	31.7	15.0	16.7
1949–1954[e]	100.0	65.7	35.2	30.5	34.3	23.3	11.0
			INVERTED BUSINESS CYCLE AVERAGES[a]				
1913–1918[f]	$ 782.3	$450.7	$336.1	$114.6	$331.6	$246.6	$ 85.0
1918–1920	557.9	444.7	286.7	158.0	113.2	−67.6	180.8
1920–1923[g]	174.1	240.8	86.3	154.5	−66.7	−177.7	111.0
1923–1926	672.3	576.0	305.8	270.2	96.3	25.1	71.2
1926–1929	804.4	779.2	395.3	383.9	25.2	−22.9	48.1
1929–1937	464.1	445.4	36.7	408.7	18.7	2.2	16.5
1937–1944[h]	1,412.2	897.5	381.7	515.9	514.6	465.9	48.7
1944–1948	3,625.0	3,171.0	1,663.0	1,508.0	454.0	−252.0	706.0
1948–1953	8,110.0	5,433.0	3,027.0	2,406.0	2,676.0	1,785.0	892.0

(continued)

TABLE 44 (*concluded*)

Period	Total Financing (1)	Internal Financing			External Financing		
		Total (2)	Undistributed Net Profit (3)	Depreciation (4)	Total (5)	Short-Term (6)	Long-Term (7)
	PER CENT OF TOTAL FINANCING						
1913–1918	100.0%	57.6%	43.0%	14.6%	42.4%	31.5%	10.9%
1918–1920	100.0	79.7	51.4	28.3	20.3	−12.1	32.4
1920–1923	100.0	138.3	49.6	88.7	−38.3	−102.1	63.8
1923–1926	100.0	85.7	45.5	40.2	14.3	3.7	10.6
1926–1929	100.0	96.9	49.1	47.7	3.1	−2.8	6.0
1929–1937	100.0	96.0	7.9	88.1	4.0	0.5	3.6
1937–1944	100.0	63.6	27.0	36.5	36.4	33.0	3.4
1944–1948	100.0	87.5	45.9	41.6	12.5	−7.0	19.5
1948–1953	100.0	67.0	37.3	29.7	33.0	22.0	11.0

[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] Underlying data cover 1915–1919.

[c] Underlying data cover 1922–1924.

[d] Underlying data cover 1939–1946, Federal Reserve Board sample.

[e] Underlying data cover 1949–1953.

[f] Underlying data cover 1915–1918.

[g] Underlying data cover 1920–1922.

[h] Underlying data cover 1937–1943, National Bureau of Economic Research sample.

Source: Same as Table 43.

fact, the ratio of gross internal to total new financing during 1948–1953 (67 per cent) was close to the corresponding ratio during 1900–1910 (70 per cent). However, considerably higher ratios are obtained for the interwar period. In the 1920–1923 cycle, gross internal financing amounted to 138 per cent of the total, indicating that the inflow of internal funds was accompanied by a substantial outflow of external funds through repayment of loans, retirement of securities, etc. In 1926–1929 and 1929–1937, gross internal financing represented almost 100 per cent of the total (external financing was of negligible relative importance). The ratio of gross internal to total financing declined in the World War II cycle, and the postwar ratios compared with the interwar ratios remained relatively low. However, the ratio for the World War II cycle was higher than that for the World War I cycle.

The ratio of retained net profit to total new financing likewise lacks a definite trend. During the twenties, net profit retention was especially high relative to the other components but dropped to a very low level in the thirties. The ratio for the World War II cycle was substantially lower than that for the World War I cycle. The ratios for 1946–1949

and 1949–1953 were considerably below the highest ratios for the twenties but fairly close to the figure for 1901–1910.

The significance of the changes that took place over the half-century can be seen more clearly if the short-term and long-term components of external financing are examined separately. The short-term component represents the sum of changes in current liabilities: mainly, short-term bank loans, accounts payable, and accrued items. The long-term component is equal to the sum of changes in long-term loans and securities outstanding (both stocks and bonds).

Short-term external financing was substantial only in the two war cycles (1914–1919 and 1938–1946) and the two cycles following World War II (1946–1949 and 1949–1954). In contrast, during 1901–1910, the inflow of short-term funds was relatively unimportant, and in the interwar period, most cycles were characterized by negative balances (net decreases in current liabilities).

As the following table indicates, the rise in the relative importance of short-term funds in the war and postwar cycles was largely accounted for by increased accruals for income tax purposes:

Positive Business Cycle Averages
(*dollars in millions*)

Period	*Total Short-Term Financing*[a] (*1*)	*Increase in Tax Liability*[b] (*2*)	(Col. 2) *as per Cent of* (*Col. 1*) (*3*)
1914–1919	$ 195	$ 90	46
1938–1946	664	220	33
1946–1949	908	396	44
1949–1954[c]	2,013	1,084	54

[a] Average from Table 44, column 6.
[b] Sources same as those in Table 44.
[c] Underlying data cover 1949–1953.

The rise in tax accruals during the two war cycles was due partly to higher taxable income and partly to higher tax rates. Corporate profits before taxes expanded along with the general volume of production. At the same time, the corporate income tax rates were raised and special wartime excess profit taxes were imposed in both periods. The increase in tax liability in the 1946–1949 cycle, on the other hand, was due entirely to profit expansion. The wartime excess profit tax was repealed at the end of 1945, and the income tax rate for corporations remained unchanged (at 38 per cent, including the surtax) during 1946–1949. Finally, in the 1949–1954 cycle, which included the years of the Korean conflict, both factors were at work again: profits expanded and the tax rates were increased once more. A new excess profit

tax was imposed in 1950, and the income tax and surtax rate were raised to 42 per cent in 1950 and to 52 per cent in 1951.

Although changes in the tax liability were important, other components of short-term financing (mainly bank and trade credit) also showed substantial increases in all four cycles. In fact, even if the tax accruals are excluded from short-term financing, the ratio of the remaining short-term components to total financing is higher for these cycles than is the ratio of all short-term components (including tax accruals) to total financing for most of the remaining cycles.

The ratio of long-term external financing to total new financing has a downward trend throughout 1900–1953. Although the relative importance of long-term external financing rose substantially after World War II, the ratio remained well below the peak levels reached in 1919–1924.

The data on long-term external financing include new stock issues, bond issues, and other types of long-term loans (see Table 44). Until the mid-thirties, corporate long-term debt consisted almost entirely of bond issues. Since then, however, types of long-term loans other than bond issues have become significant components of total new financing.[20] Substantial amounts of such loans have been made to industry by commercial banks and other lending institutions and, also, by life insurance companies.

Unfortunately, the sample data for large manufacturing corporations do not permit the separation of the bond issues from all the other types of long-term lending. Separate figures on long-term loans received from commercial banks are available since 1939. The amounts and the relative importance of these loans as a component of long-term external financing are indicated below:

Positive Business Cycle Averages
(*dollars in millions*)

Period	*Total Long-Term Financing*[a] (*1*)	*Increase in Long-Term Bank Loans*[b] (*2*)	(*Col. 2*) *as per Cent of* (*Col. 1*) (*3*)
1938–1946	$ 81	$ 59	73
1946–1949	1,012	123	12
1949–1954[c]	947	36	4

[a] Averages from Table 44, column 7.
[b] Sources same as in Table 44.
[c] Underlying data cover 1949–1953.

Bank long-term lending was only moderately important as a source of new funds for large manufacturing corporations in the war and postwar cycles. The percentage figure shown above for 1938–1946 is

[20] See the section on term-lending in Chapter VII.

misleading, because all long-term external financing was then only 2.6 per cent of total new financing (external plus internal). In the 1946–1949 and 1949–1954 cycles, long-term financing in the form of new security issues greatly expanded. In contrast, long-term bank lending increased only moderately.

Data on the sources and uses of funds for all manufacturing corporations are available only for 1946–1953 (Table 45). The behavior of the

TABLE 45

Internal and External Sources of Funds, All Manufacturing Corporations, 1946–1953
(*dollars in billions*)

Period	Total Financing	Internal Financing			External Financing		
		Total	Retained Net Profit	Depreciation	Total	Short-Term	Long-Term
		POSITIVE BUSINESS CYCLE AVERAGES[a]					
1946–1949	$12.1	$8.7	$6.1	$2.6	$3.4	$1.3	$2.1
1949–1954[b]	16.3	9.8	5.6	4.2	6.5	4.2	2.3
		PER CENT OF TOTAL FINANCING					
1946–1949	100%	72%	50%	22%	28%	11%	17%
1949–1954[b]	100	60	34	26	40	26	14

[a] Based on National Bureau of Economic Research business cycle chronology. In computing averages, values for terminal years are weighted by one-half.

[b] Underlying data cover 1949–1953.

Source: *Survey of Current Business*, Department of Commerce, December 1954, p. 14.

ratios based on these data is not materially different from that of the ratios for large corporations. In 1946–1949, gross internal financing relative to total new financing was slightly more important for all companies; in 1949–1953, it was a little more important for large corporations. In 1946–1949, the ratio of short-term external financing to total financing was considerably smaller for all corporations than it was for large firms; but in 1949–1954, the ratios for all corporations were higher. Finally, the ratio of long-term external financing to total financing was slightly higher for all corporations than for large ones in both the 1946–1949 and 1949–1954 cycles.

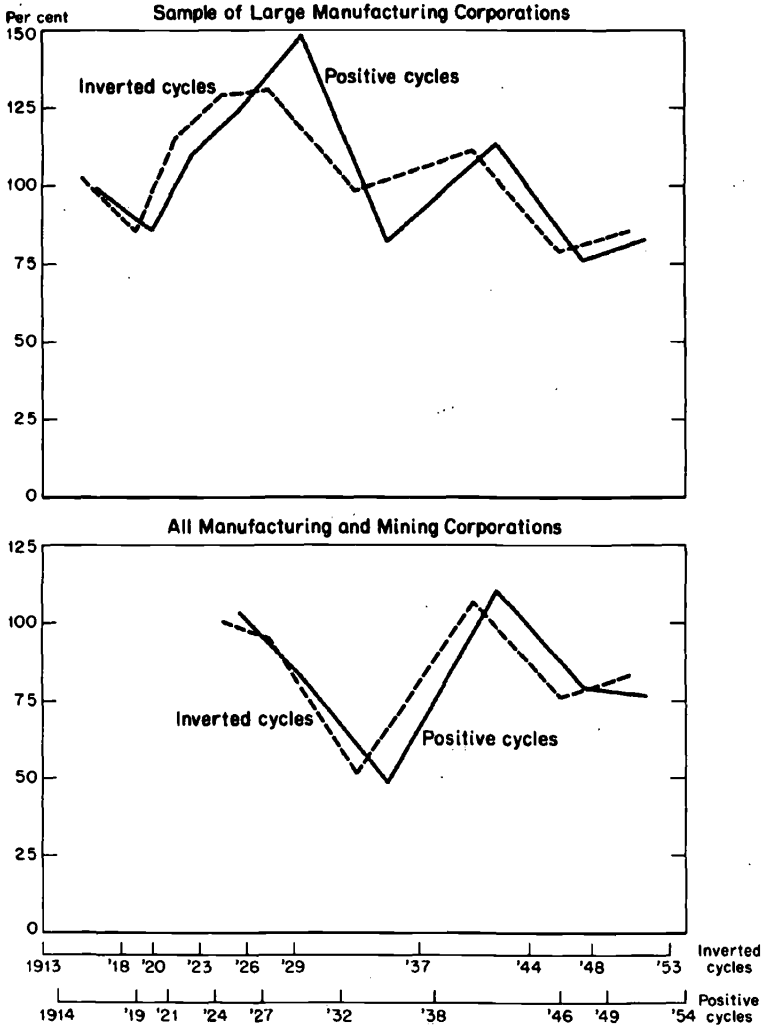
Net Balance of External Financing

The *net* balance of external financing is the inflow of external funds adjusted for changes in financial assets. The data on large manufacturing corporations indicate a net release, rather than absorption, of external funds in four out of nine positive cycles and in five out of

CHART 17

Ratios of Gross Internal Financing to Capital Expenditures on Physical Assets, All Manufacturing and Mining Corporations and Sample, 1913–1954

(*averages during business cycles*)



Source: Tables 46 and 47.

TABLE 46

Capital Expenditures on Physical Assets, Gross Internal Financing, and Net Balance of External Financing, Large Manufacturing Corporations, 1913–1953
(*dollar amounts are annual averages in millions*)

Period	*Capital Expenditures on Physical Assets* (*1*)	*Gross Internal Financing* (*2*)	*Ratio of (Col. 2) to (Col. 1)* (*per Cent*) (*3*)	*Net Balance of External Financing (Col. 1) minus (Col. 2)* (*4*)
		POSITIVE BUSINESS CYCLES[a]		
1914–1919[b]	$ 450.6	$ 447.1	99.2%	$ 3.5
1919–1921	428.5	367.8	85.8	60.7
1921–1924[c]	359.6	395.2	109.9	−35.6
1924–1927	520.0	644.2	123.9	−124.2
1927–1932	388.0	574.4	148.0	−186.4
1932–1938	603.9	495.6	82.1	108.3
1938–1946[d]	2,070.0	2,348.0	113.4	−278.0
1946–1949	5,453.0	4,145.0	76.0	1,308.0
1949–1954[e]	6,860.0	5,675.0	82.7	1,185.0
		INVERTED BUSINESS CYCLES[a]		
1913–1918[f]	438.8	450.7	102.7	−11.9
1918–1920	518.1	444.7	85.8	73.4
1918–1920	518.1	444.7	85.8	73.4
1920–1923[g]	208.6	240.8	115.4	−32.2
1923–1926	445.5	576.0	129.3	−130.5
1926–1929	596.0	779.2	130.7	−183.2
1929–1937	452.5	445.4	98.4	7.1
1937–1944[h]	807.5	897.5	111:1	−90.0
1944–1948	4,022.0	3,171.0	78.8	851.0
1948–1953	6,345.0	5,433.0	85.6	912.0

[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] Underlying data cover 1915–1919.

[c] Underlying data cover 1922–1924.

[d] Underlying data cover 1939–1946, Federal Reserve Board sample.

[e] Underlying data cover 1949–1953.

[f] Underlying data cover 1915–1918.

[g] Underlying data cover 1920–1922.

[h] Underlying data cover 1937–1943, National Bureau of Economic Research sample.

Source: 1915–1943, National Bureau of Economic Research samples; 1938–1953, Federal Reserve Board sample of large manufacturing corporations.

nine inverted cycles during 1913–1953 (Chart 17 and Table 46).[21] In the World War I cycle, the amount of gross internal financing was close to that of physical asset expenditures (the sum of plant and equipment expenditures and inventory changes), and the net balance

[21] The sample data for 1900–1910 are incomplete and do not permit computation of the net balance of external financing.

of external financing was relatively insignificant. In the first postwar cycle—1919–1921 (trough-to-trough) or 1918–1920 (peak-to-peak)—the net inflow of external funds was considerable, but a substantial net outflow was characteristic of the cycles following in the twenties. The balance was positive in the 1932–1938 cycles, negative in the World War II cycle, and positive again (substantially so) in the two postwar cycles. Over the entire period, the ratio of gross internal financing to physical asset expenditures shows a slight downward trend, while the ratio of net external financing to such expenditures shows an upward tendency.

The net balance of short-term external financing for large manufacturing corporations was negative in most cycles from 1913 through 1946. In 1946–1949 and 1949–1953, however, substantial positive balances were registered, mainly as a result of large tax accruals. The net balance of long-term external financing was positive in the World War I cycle and the two immediate postwar cycles. But the remaining part of the interwar period was characterized by a net outflow of long-term external funds. The negative balance was especially large in the 1926–1929 cycle when large corporations made substantial investments in securities of other companies. In the second war, we find a small net inflow of long-term external funds. Much larger positive balances are found in the two postwar cycles.

From the balance sheet and profit and loss data published in *Statistics of Income* since 1923, together with the available estimates of plant and equipment expenditures, we derived the net balance of external financing for all manufacturing and mining corporations combined. In making the derivations, we followed the method developed by Terborgh[22] which may be summarized as follows:

1. Net inflow of all (short- and long-term) external funds is obtained by subtracting the amount of gross internal financing from the amount of expenditures on new physical assets (plant and equipment outlays plus inventory changes). A negative balance shows a net outflow of external funds.[23]

The net inflow (or outflow) thus obtained is equivalent, in terms of balance sheet items, to the algebraic sum of all changes in current liabilities, noncurrent debt, and capital stock (adjusted for book transfers, such as stock dividends) less the algebraic sum of all changes in nonphysical, or financial, assets (cash, accounts and notes receivable, and government and corporate security holdings).

[22] Terborgh, *op. cit.*, p. 45.

[23] In his own derivations, Terborgh includes changes in cash with capital expenditures. He indicates, however, that one may wish to consider cash (mainly bank deposits) as a form of credit extended by corporations to banks. The latter approach seems preferable to us and is used in this study.

TABLE 47

Capital Expenditures on Physical Assets, Gross Internal Financing, and Net Balance of External Financing, All Manufacturing and Mining Corporations, 1923–1953
(*dollar amounts are annual averages in millions*)

Period	*Capital Expenditures on Physical Assets* (*1*)	*Gross Internal Financing* (*2*)	*Ratio of* (*Col. 2*) *to* (*Col. 1*) (*per cent*) (*3*)	*Net Balance of External Financing* (*Col. 1*) *minus* (*Col. 2*) (*4*)
		POSITIVE BUSINESS CYCLES[a]		
1924–1927	$2,607	$ 2,692	103.3%	$ −85
1927–1932	2,190	1,806	82.5	384
1932–1938	1,985	960	48.4	1,025
1938–1946	3,626	4,008	110.5	−382
1946–1949	9,209	7,273	79.0	1,936
1949–1954[b]	12,607	9,665	76.7	2,942
		INVERTED BUSINESS CYCLES[a]		
1923–1926	2,554	2,559	100.2	−5
1926–1929	3,067	2,915	95.0	152
1929–1937	1,724	883	51.2	841
1937–1944	3,365	3,597	106.9	+ 232
1944–1948	6,907	5,258	76.1	1,649
1948–1953[c]	11,631	9,657	83.0	1,974
		SELECTED PERIODS		
1923–1929	2,975	2,806	94.3	169
1936–1940	2,996	2,120	70.8	876
1946–1952	10,941	8,175	74.7	2,766

[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] Underlying data cover 1949–1952.

[c] Underlying data cover 1948–1952.

Column	Source
1	Plant and equipment expenditures (from Appendix Table C-3) reduced to balance sheet levels *plus* inventory valuation adjustment (from *National Income Supplement, 1954, Survey of Current Business*, Department of Commerce, Table 23 for 1935–1952, and extrapolated by data from George Terborgh's worksheets for 1923–1934) *plus* change in inventories of balance sheet corporations (from *Statistics of Income* for 1935–1952 and extrapolated by data from Terborgh's worksheets for 1923–1934).
2	Net retained profits for balance sheet corporations (from *Statistics of Income* for 1935–1952 and extrapolated by data from Terborgh's worksheets for 1923–1934) *plus* inventory valuation adjustment (described above) *less* net capital gains for all corporations (from *Statistics of Income* for 1935–1952 and extrapolated by data from Terborgh's worksheets for 1923–1934) *plus* unadjusted depreciation, depletion, and amortization for corporations with balance sheets (from *Statistics of Income* for 1935–1952 and extrapolated by data from Terborgh's worksheets for 1923–1934).

2. The total inflow of external funds is then broken down into short-term and long-term components. In our derivations, the net balance of short-term financing equals the sum of changes in current liabilities less the sum of changes in cash, marketable securities, and accounts receivable. The net balance of long-term financing equals the sum of changes in long-term debt and capital stock (adjusted) less the sum of changes in long-term investments in financial assets. Since long-term debt includes loans that do not involve security issues (mortgage loans made by a single creditor, and term loans by banks), the net balance of long-term financing obtained by this method is not equivalent to the net balance of corporate security transactions alone.

Since the available data for all companies combined are far from exact, they must be interpreted broadly. In most cycles, 1923–1953, the ratio of gross internal financing to capital expenditures on physical assets (plant and equipment expenditures plus inventory changes) for all manufacturing and mining companies was lower than the ratio for large manufacturing concerns (Chart 17 and Tables 46 and 47). However, both series exhibit generally similar intercycle fluctuations.

In 1923–1926 (or 1924–1927), the ratio for all manufacturing and mining was close to 100 per cent, i.e., the net balance of external financing was negligible. However, the relative importance of net external funds increased substantially in the following two cycles. In 1929–1937, gross internal financing amounted to only 51 per cent (net external financing being 49 per cent) of the total amount spent on physical assets. During the World War II cycle, external funds were, on balance, released to other sectors. But after the war, there was again a considerable net inflow of external financing.

Ratios computed for periods longer than a single business cycle show that the net inflow of external funds was larger in relation to internal financing in 1946–1952 than in 1923–1929 but smaller in 1946–1952 than in 1936–1940 (Table 47). This is true whether net external financing is related to net profit retentions or to gross retentions and whether adjusted or unadjusted profit data are used.[24]

The net balance of short-term external financing was negative in all three periods. In Table 48, short-term financing of all manufacturing and mining corporations is broken down into two parts. One part represents the change in income tax liability less the change in government security holdings, i.e., the change in the net balance of claims between the corporations and the government. As the table

[24] The adjusted profit figures discussed in this section differ from the unadjusted ones by the sum of the depreciation, inventory valuation, and capital gain adjustments.

TABLE 48

All Manufacturing and Mining Corporations: Components of Net External Financing Related to Gross and Net Internal Financing, Selected Periods, 1923–1952
(*per cent*)

Period	Type of External Financing									
	As Percentage of Gross Internal Financing					As Percentage of Net Internal Financing				
	Short-Term					Short-Term				
	Private	Government	Total	Long-Term	Total	Private	Government	Total	Long-Term	Total
					UNADJUSTED DATA					
1923–1929	−10.0	−2.1	−12.0	14.0	2.0	−37.5	−7.8	−45.3	52.7	7.4
1936–1940	−30.4	+13.6	−16.8	55.5	38.7	−243.3	+109.0	−134.2	443.4	309.2
1946–1952	−8.1	+6.3	−1.8	25.0	23.1	−15.9	+12.3	−3.6	49.1	45.5
					ADJUSTED DATA					
1923–1929	−10.0	−2.1	−12.0	18.1	6.0	−45.1	−9.4	−54.5	81.9	27.4
1936–1940	−32.0	+14.4	−17.7	58.9	41.3	−245.7	+110.1	−135.6	452.3	316.7
1946–1952	−10.0	+7.7	−2.3	36.1	33.8	−29.8	+23.1	−6.7	107.7	101.0

Source: External financing data for corporations are from *Statistics of Income*, Part 2 (returns with balance sheets) and are extrapolated by data taken from George Terborgh's worksheets. Adjusted gross internal financing and retained net profit data (described in source note to Table 41) are reduced to the level of corporate returns with balance sheets.

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

shows, the net amount owed to the government decreased in 1923–1929. In 1936–1940 and 1946–1952, on the other hand, the net liability to the government rose.

The other part of short-term financing represents the net change in the balance of short-term claims between the companies in question and other private sectors of the economy (the change in notes and accounts payable less the change in cash and accounts receivable). As the table indicates, the net liability to private short-term creditors declined throughout 1923–1952.

In contrast, the net balance of long-term external financing was positive during all three periods. New funds obtained through security issues and long-term loans exceeded the funds invested in corporate securities and long-term advances to other business units. However, the relative importance of long-term external financing varied widely. Its ratio to gross internal financing was highest in 1936–1940. The ratio for 1946–1952, while considerably lower than that for 1936–1940, was much higher than the ratio for 1923–1929. Its ratio to retained net profit was also exceedingly high in 1936–1940. The unadjusted ratio for 1946–1952 is slightly lower than the ratio for 1923–1929; but when the adjusted profit data are used, the 1946–1952 ratio exceeds the one obtained for 1923–1929.[25]

In general, then, our data do not indicate any clear trend in the relative importance of the net external and the internal components of total new financing. Net external funds were relatively less important in the postwar period than they had been in the late thirties. On the other hand, net external funds were of greater relative importance in the postwar years than they had been in the twenties.

Since there are no data on inventory changes prior to 1923, we could not compare gross internal financing with total capital expenditures and thus determine the net inflow of external funds in the earlier periods. However, the ratio of gross internal financing to plant and equipment expenditures (Table 40) was somewhat lower in 1946–1953 than in 1923–1929, but much higher in 1946–1953 than in 1900–1914. Probably, the ratio of gross internal financing to total capital expenditures on physical assets was also higher (and the relative importance of net external financing correspondingly lower) in 1946–1953 than in 1900–1914.[26]

[25] The ratio to internal financing of new security issues less retirements was substantially higher in 1923–1929 than in 1946–1952 (see Table 40 and Chart 11). However, the inflow of funds from the security markets was largely offset by the pronounced expansion of financial assets in the twenties. This is why the *net* balance of long-term external financing was relatively low in 1923–1929.

[26] Sample data for large manufacturing corporations indicate substantial increases in inventories in 1900–1910.

Summary of Findings

1. In manufacturing and mining, internal funds represented a much greater proportion of total new financing than did external funds. Net profit retained by all corporations in these industries was roughly twice as large as their new security issues, net of retirements, during 1900–1953. Their gross internal financing (the sum of retained profit and depreciation and depletion allowances) was more than five times as large as their new security issues. Sample data for large manufacturing corporations indicate that gross internal funds represented around 70 per cent and total external funds (both long- and short-term) only around 30 per cent of total new financing during the same period.

2. The relative importance of internal and external funds varied considerably from one part of the period to another. The relative share of internal financing tended to be smaller, and the relative share of external financing correspondingly greater, in periods of rapid asset expansion than in those of moderate asset-growth.

3. While the data do not permit the exact determination of relative trends in internal and external financing over the entire period, some broad tendencies emerge when the available figures are examined. The ratio of internal funds to funds obtained through new security issues rose considerably. However, owing to a rapid rise in short-term external financing in the latter part of the period, the ratio of internal to total external financing shows no upward trend. Thus, for all companies, the approximate relative share of net profit retentions in financing the expansion of assets was (in percentages): 1900–1909, 41; 1909–1919, 52; 1919–1929, 26; 1937–1948, 54; 1948–1953, 45. For large manufacturing companies the comparable figures are: 1900–1910, 39; 1913–1918, 43; 1923–1929, 47; 1944–1953, 42. The ratios of gross internal financing to total new financing of the large companies are (in percentages): 1900–1919, 70; 1913–1918, 58; 1923–1929, 91; 1944–1953, 73.

Income tax accruals represented the fastest growing component of short-term financing. If these accruals were treated as a kind of short-term retention and included in internal financing, the ratio of internal to total financing would show a moderate upward trend over the period.

4. In most parts of the period reviewed, depreciation and depletion allowances provided a considerably greater amount of internal funds than did net profit retention. The ratio of depreciation and depletion allowances to gross internal financing was (in percentages): 1900–1914, 48; 1919–1929, 73; 1936–1940, 89; 1946–1953, 53. When valuation adjustments are made, the figures become 52, 72, 84, and 66, respectively.

Over the entire period, gross internal financing provided approximately a tenth more funds than the amount required to finance total plant and equipment expenditures (gross of depreciation). The ratio of gross internal financing to such expenditures, 1900–1953, shows an upward trend.

5. External financing adjusted for changes in financial assets, so as to obtain net inflow of capital funds from other sectors of the economy, is considerably smaller than the gross (unadjusted) amount in most parts of the period reviewed.

Only a rough estimate of net external financing can be made for the years before World War I. Apparently, the net inflow of external funds was then considerable. The data available for the interwar period indicate that the net balance of external financing was very small in relation to total financing during the twenties, but assumed greater relative importance during the thirties. (In the depression years, the net inflow of external funds resulted mainly from liquidation of financial assets.) During World War II, the net balance of external financing was negative: funds were released to other sectors through large accumulations of financial assets. Finally, in the postwar period, the net inflow is again substantial.