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Volume Title: Problems of Capital Formation: Concepts, Measurement, and Controlling Factors

Volume Author/Editor: Conference on Research in Income and Wealth

Volume Publisher: NBER

Volume ISBN: 0-870-14175-9

Volume URL: <http://www.nber.org/books/unkn57-1>

Publication Date: 1957

Chapter Title: Financing of Capital Formation

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Chapter URL: <http://www.nber.org/chapters/c5582>

Chapter pages in book: (p. 147 - 192)

## FINANCING OF CAPITAL FORMATION

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Since the end of the World War II, substantial additions have been made to the stocks of tangible capital owned by consumers, businesses, and state and local governments. This paper is concerned with the methods by which these additions to wealth have been financed, the effect of the financing on the financial structures of these groups, and, insofar as the data permit, some of the implications of the financial developments for maintenance of high rates of capital formation.

Patterns of financing have been extremely varied in this period. They have differed with respect to the economic group doing the financing and the type of capital formation being financed; in some sectors of the economy, there have been sharp year-to-year changes in patterns. The choice of financing methods is primarily a problem of the economic entity or transactor rather than of the type of transaction involved. Therefore major emphasis in this discussion will be on the differences in patterns as among major groups of transactors—consumers, corporations, and state and local governments—rather than among types of capital goods.

As in most quantitative investigations, available data are unsatisfactory in many respects. A brief review of the major statistical problems may indicate the necessity for some of the analytic treatments that follow.

First, inadequacies of the statistics pertaining to noncorporate business finance precludes any discussion here.<sup>1</sup> The discussion of business financing of capital formation in this paper will be restricted to the corporate sphere.

Note: The views expressed in this paper are those of the author and not necessarily those of the Board of Governors of the Federal Reserve System or of its Division of Research and Statistics. Much of the statistical material used was compiled in the course of a study of the private debt structure undertaken by the staff working on the Flow of Funds accounts in the Division of Research and Statistics. The author is indebted to his colleagues for use of the material and for their comments on early drafts of this paper, but bears sole responsibility for errors of omission or commission in the data or analysis.

<sup>1</sup>Data on financing of farm capital expenditures are available; the farm area has not been covered in this paper because of time limitations.

Even for corporations, the analysis must be restricted largely to long-term financing developments. Data on corporate short-term borrowing by industrial groups are far less adequate, and industrial differences appear to be among the most important factors explaining variations in corporate financing patterns.

In the consumer area, the principal problem is consistent definition of the group to which available statistics pertain. For longer-term comparisons of the aggregate statistics it is necessary to use the concept of individuals or persons, a concept which includes, in addition to consumers, the activities of personal trusts, unincorporated businesses, pension plans, and nonprofit organizations. For shorter-term comparisons of the aggregates—covering the period from 1939 to date—material is available which pertains only to consumers and personal trusts, excluding the other sub-components of the individuals' group. For distributive or cross-sectional analysis, it is necessary to use yet another concept, that employed in the Survey of Consumer Finances of the Board of Governors of the Federal Reserve System. As defined in the Survey, consumers include only natural persons; the assets and debts of personal trusts and unincorporated enterprises are excluded (to the extent that Survey respondents can make this distinction). These differences in definition are reflected in the statistics; therefore it is difficult to make direct comparisons between the aggregates for individuals and those for consumers or to compare either of the aggregates with the cross-sectional data.

In addition to problems concerning the coverage of transactors, there are two major statistical difficulties in dealing with the data on transactions: (1) the problem of relating specific financing activities to specific types of capital formation, and (2) that of obtaining estimates of gross rather than net financing. On the first point heroic assumptions are frequently involved. Loans secured by residential real estate must be considered as financing residential construction, despite the knowledge (which unfortunately cannot be quantified) that the proceeds of some of these loans are used for other purposes. Similarly, proceeds of security issues for plant and equipment financing must be assumed to be spent for these purposes, although the total amount of the issues so classified may include some amount borrowed for working capital purposes. Identification of specific sources with specific uses of funds is always hazardous.<sup>2</sup>

<sup>2</sup>Morris Mendelson has criticized the attempt in my paper to link specific financing and expenditures, particularly within short time intervals.

On the second point, net versus gross financing, the problem is one of availability of accurate data. Net borrowing (loans made less repayments) statistics tend to understate the importance of credit as a means of financing transactions. The gross data available tend to overstate their importance. Thus while estimates of gross new home mortgage loans are available for the period since 1925, only for recent years has any attempt been made to distinguish the borrowing for new home purchases from the loans incurred to refinance existing debt or to purchase existing properties, both of which are included in gross borrowing. Fluctuations in the refinancing component are apparently so wide that there is little value in attempting to relate directly the total of gross new loans to estimates of new capital formation in the residential dwelling area. However, these refinancings appear both in the new loans made and in the retirements; in the case of housing, therefore, the use of the net figures (new borrowing less repayments) may be preferable to the gross in relating financing and expenditures for new capital. Difficulties such as these require the analyst to shift from net to gross concepts from time to time, from sector to sector, and from expenditure to expenditure categories, with ensuing difficulties for the reader.

### *1. Financing Patterns*

#### *Consumers*

Some historical perspective on consumer financing in the postwar period is now afforded by the work done by Raymond W. Goldsmith in the course of his study of individuals' saving in the United States since 1897.<sup>3</sup> The materials used here for the period up to 1933 come, for the most part, from his data. From 1933 to date, the statistics cited come from the materials on saving compiled by the Securities Exchange Commission and published annually by the

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It is undoubtedly true that conditions in goods and services markets may differ from the state of financial markets, so that interim financing of capital outlays may differ in form and amount from the permanent financing of such projects. This has occurred at certain times in the postwar period in financing by utilities and, as is brought out at length subsequently in the paper, in a good deal of state and local financing. These disparities, however, do not preclude analysis of the relationship between forms of financing and capital expenditures based on statements by borrowers as to the ultimate or permanent source of the financing. It merely requires caution in attempting to relate the aggregate statistics in precise time patterns.

<sup>3</sup>Raymond W. Goldsmith, *A Study of Saving in the United States*, Princeton University Press, 1955.

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Department of Commerce in its reconciliation of personal and liquid savings.<sup>4</sup> The SEC series have been linked to the Goldsmith data with appropriate adjustments for conceptual differences.

The long-term comparisons indicate that the ratio of consumer net borrowing to purchases of homes and durable goods during the postwar period was at record rates for this century (Table 1). In the seven postwar years, net increases in home mortgages and consumer credit averaged about a quarter of expenditures for homes and durable goods, two and one-half times the average in immediate prewar years, almost twice the ratio of net borrowing to expenditures that prevailed in the early period of the 1920's, and about three times the average financing ratio before World War I. In the postwar period the ratio of net increase in home mortgage debt averaged over 60 per cent of one-to-four family homes constructed, and the increase in consumer credit was about 12 per cent of consumers' purchases of durable goods, as compared with 20 and 7 per cent respectively in immediate prewar years. The increasing volume of debt repayments tended to reduce the ratio of net borrowing to expenditures since the Korean War somewhat below the percentage in early postwar years, but even the recent relationship was substantially above pre-World War II experience.

Despite the high postwar proportion of financing to outlays, individuals added to their equities in tangible assets at high rates. Increases in net equities in homes and durable goods (purchases less net borrowing and depreciation) averaged about 5 per cent of disposable income in the postwar period, a proportion exceeded only in the early 1920's. This high rate of additions to equities in a period of extensive dependence on credit financing is attributable to the relatively slow movement of depreciation charges. In periods of rapid increase in prices and expenditures, depreciation charges—which are computed against the entire stock of goods, including the amounts bought at lower prices—do not keep pace with the rise in expenditures.<sup>5</sup> The relatively small rise in the volume of depreciation charges in such periods tends to offset the rapid rise in

<sup>4</sup>Table 6 in the July issues of *Survey of Current Business*, Dept. of Commerce.

<sup>5</sup>It should be emphasized that these estimates of depreciation are calculated on an original cost basis, in keeping with the practice in national income accounting and with the treatment of depreciation in the analysis of corporate finances in a subsequent section of this paper. If depreciation charges were calculated on a replacement cost basis, most—but not all—of individuals' postwar saving in the form of tangible assets would probably be eliminated (unless revaluations of assets were included in income and saving).

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TABLE 1  
Changes in Individuals' Equities in Tangible Assets,<sup>a</sup>  
Annual Averages, 1897-1952  
(dollars in billions)

	1897- 1906	1907- 1914	1922- 1925	1926- 1929	1930- 1933	1934- 1937	1938- 1940	1946- 1950	1951- 1952	1946- 1952
Purchases of consumer tangibles	\$1.8	\$3.3	\$11.5	\$12.7	\$ 5.8	\$ 6.6	\$9.4	\$29.8	\$36.7	\$66.5
Less:										
Borrowing, net	0.1	0.3	1.6	2.2	-1.2	0.9	1.0	7.8	8.4	16.2
Depreciation	1.3	2.2	6.1	8.3	8.7	7.3	7.6	12.9	17.1	30.0
Equals: Net change in equity	\$0.4	\$0.8	\$ 3.8	\$ 2.2	\$-1.6	\$-1.6	\$1.8	\$ 9.2	\$11.2	\$20.4
Per cent of purchases	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less:										
Borrowing, net	6.9	8.7	13.7	17.0	-21.0	12.9	10.4	26.1	22.9	24.4
Depreciation	73.3	67.2	53.3	65.6	149.1	110.7	81.2	43.1	46.6	45.0
Equals: Net change in equity	19.8	24.1	33.0	17.4	-28.1	-23.5	8.4	30.8	30.6	30.6

<sup>a</sup>Includes homes and durable goods.

Source: From 1897 through 1933, based on data compiled by Raymond W. Goldsmith, *A Study of Saving in the United States*, Princeton University Press, 1955. From 1933 to date, estimated from data compiled by Securities and Exchange Commission and Department of Commerce.

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borrowing; calculations of consumers' net additions to equities in capital goods therefore showed large increases after both World Wars I and II.

Insofar as financing of capital formation is concerned, however, it is difficult to conceive of individual consumers utilizing depreciation reserves as sources of funds, for it is not likely that the depreciation charges impinge clearly or systematically on the behavior of most consumers. (Besides, those possessing assets and theoretically accumulating depreciation reserves probably do not account for much of the capital formation in any one period, at least in the housing market.) A more important source of funds for—or at least a stimulus to—rising capital outlays is probably the excess of current market value over original cost, or anticipation of this excess.

The data on consumer debt and expenditures cited above are but rough guides to the relative importance of borrowing as a means of financing such capital formation. It is possible to make some rough adjustments in the short-term financing area in order to bring both the gross borrowing and expenditure figures into better conceptual alignment and more clearly measure the dependence on debt financing. Charge account and service credit can be eliminated, thereby limiting the consumer credit figures more closely to the durable goods area. Estimates of finance and insurance charges and renewal and duplicate financing can be eliminated from the credit figures, and the expenditure figures can be adjusted to include purchases of used cars and individuals' purchases of passenger cars for business use.

The adjusted statistics indicate a rapid rise in the proportion of credit financing of consumers' durable goods in the postwar period from about one-fifth of outlays just after the war to more than two-fifths in 1952. The rise was particularly rapid after Regulation W was suspended in May 1952; the average for 1952 was somewhat above the estimated ratio of credit granted to expenditures in immediate prewar years.

In 1953, dependence on credit abated somewhat; the ratio for the first half of 1953 was below the proportion of credit use in the first half of 1952, and the ratio remained relatively stable throughout most of the second half of the year. This development, which may signify an important shift in the composition of the purchasing population, must still be regarded with caution since the estimates are based on preliminary figures for both credit extensions and durable goods expenditures.

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The aggregate statistics may imply that the rising use of credit in the postwar period was an optional choice of financing means, for consumers as a whole, while borrowing for their purchases of capital goods, added substantially to their stocks of financial capital assets. In the seven-year period from the end of 1945 through 1952, consumers acquired \$37 billion in currency and bank deposits, United States government securities, and savings and loan shares, and almost \$49 billion in life insurance reserves, holdings of corporate and municipal bonds, and other financial

TABLE 2

Changes in Consumer Financial Assets, Annual Averages, 1939-1952

	1939- 1940	1941- 1945	1946- Mid-1950	Mid-1950- 1952	1946- 1952
<i>Billions of Dollars</i>					
Increase in financial assets <sup>a</sup>	3.6	21.9	10.2	16.0	12.3
Liquid assets <sup>b</sup>	2.6	19.1	4.5	6.8	5.3
Other financial assets <sup>c</sup>	1.0	2.8	5.7	9.2	7.0
<i>Per Cent of Disposable Personal Income</i>					
Increase in financial assets	5.0	17.1	5.7	7.1	6.3
Liquid assets	3.6	14.9	2.5	3.0	2.7
Other financial assets	1.4	2.2	3.2	4.1	3.6

<sup>a</sup>Excludes estimated asset holdings of unincorporated businesses.

<sup>b</sup>Includes currency and deposits, U.S. government securities, and savings and loan association shares.

<sup>c</sup>Includes corporate and municipal securities, credit union shares, mortgages, private insurance and pension reserves, and credit balances with security brokers.

Source: Estimated from data compiled by Securities and Exchange Commission, Department of the Treasury, and other sources.

claims. The average annual increase was almost three and one-half times the rate of liquid assets accumulation in immediate prewar years (see Table 2). The total acquisition of financial assets since the war was half again as large as the growth in consumers' debts.<sup>6</sup>

These aggregates, however, conceal disparate movements within the consumer sector, differences which are revealed in cross-

<sup>6</sup>These statistics refer to consumers and personal trusts only. They exclude (often by rough estimation) the asset balances and debts of unincorporated businesses, nonprofit organizations, and pension and welfare plans. Changes in holdings of securities represent purchases less sales; unrealized capital gains are not included, nor are realized gains unless the securities are sold outside the consumer sector.

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sectional data such as those provided by the Board's Survey of Consumer Finances.<sup>7</sup> The available cross-sectional data specifically relating to financial flows are not as detailed as those which relate to stocks of assets and debts. It is possible, however, to use the information on stocks to infer some of the characteristics of the flows.

Differences in age and family status have apparently exerted great influence on both the volume of expenditures and the way in which expenditures were financed. For example spending units in which the head of the family was under forty-five represented about half of the population in 1951 but accounted for almost 75 per cent of all used car purchases, 70 per cent of home purchases, and 60 per cent of the purchases of new automobiles, furniture, and major household appliances. Similar proportions obtained in earlier postwar years.

To finance these outlays, younger spending units both needed and were willing to use credit. Younger units, particularly those with children, tended to have smaller liquid asset balances and lower liquid asset-to-income ratios than older units, particularly those with no children. On the other hand, the Survey of Consumer Finances indicates that throughout the postwar period the younger units received income increases more frequently than older units, and in the recession of 1949 suffered fewer income declines. A more favorable income outlook, and the greater pressure of family needs, encouraged younger units to spend for homes and durable goods while a less favorable liquid asset position encouraged them to borrow to buy.

<sup>7</sup>Friend suggests that conclusions drawn from the Survey of Consumer Finances need to be qualified since "...the aggregate liquid assets estimates obtained from the Survey of Consumer Finances are very much lower than more reliable totals indicated by external data" (see comments below, p. 188). First I would suggest that the reliability of the external data (presumably he refers to such aggregates as the SEC liquid asset estimates) are open to some question, at least with respect to level if not change. Further, as Friend is undoubtedly aware, the process of comparing Survey results with these aggregates involves bridging some very great definitional gaps with shaky statistics. The establishment of greater or lesser reliability is not a simple matter.

Even if Survey aggregates were proven less reliable, this would not invalidate comparisons of characteristics as between different groups in the Survey population, particularly where the differences are as striking as in the case of the financial resources of debtors and nondebtors. It is not the medians for the entire population which are relevant here but rather comparison of medians for subsamples of the Survey sample. To affect the analysis at all, it would have to be demonstrated that Survey errors affect one group more than the other with respect to the asset, debt, and income characteristics considered.

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This concentration of purchasers and credit users in the younger age group is reflected in the current structure of consumer finances.<sup>6</sup> Surveys taken early in 1953 indicated that 65 per cent of the younger units—those where the head of the unit was under forty-five—owed personal, i.e. non-real-estate, debts; only 38 per cent of the older units owed such debts (Table 3).

TABLE 3

Characteristics of Consumers by Personal Debt Status,<sup>a</sup> Early 1953  
(percentage distribution)

	<i>All Consumers</i>		<i>Consumers With Personal Debts</i>	<i>Consumers Without Personal Debts</i>
	<i>With Personal Debts</i>	<i>Without Personal Debts</i>		
All spending units	52	48	100	100
Income:				
Under \$3,000	44	56	30	49
\$3,000-\$4,999	61	39	38	28
\$5,000 and over	56	44	32	23
Liquid assets:				
Under \$500	66	34	73	41
\$500 or more	33	67	27	60
Age:				
Under 45	65	35	68	42
45 and over	38	62	32	58
Family status:				
Married, children	73	27	58	23
Married, no children	43	57	22	35
Unmarried	34	66	19	42

<sup>a</sup>Excludes real estate debt.

Source: *Survey of Consumer Finances*, Board of Governors of the Federal Reserve System, 1953.

The pressure of family needs was also evident. Nearly three-fourths of the married couples with children were in debt as contrasted with less than one-half of the married couples without children. Finally, as noted above, younger consumers tended to have small liquid asset reserves. Considering all age groups, two-thirds of consumers with small liquid asset balances were in debt as contrasted with only one-third of those with larger balances.

Major characteristics of the half of the population owing short-term debts then may be summarized as follows: most debtors were young, they had families, and had relatively small liquid asset reserves.

<sup>6</sup>Data on assets and debts refer to nonfarm, nonproprietor spending units.

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Debtors could be found in almost every income group, but the largest concentration was in the middle-income brackets—\$3,000 to \$5,000 a year. Nearly two-fifths of the debtors were in this group (only a third of the total population was in this bracket). Consumers who were not in debt tended to have lower incomes. Almost half of the debt-free consumers received less than \$3,000 a year and less than a third of the debt-free consumers were in the middle-income group.

TABLE 4  
Age, Income, and Family Status of Consumers, Classified by  
Debt Status, Early 1953

	All Spending Units	Debt- free	Mortgage Debt Only	Personal Debt Only <sup>a</sup>	Mortgage and Personal Debt
Per cent of all spending units	100	38	10	34	18
Median income	\$3,420	\$2,780	\$4,730	\$3,450	\$4,590
Median liquid asset holdings	\$300	\$1 000	\$825	\$80	\$200
Median age	43	52	47	37	41
Per cent single	24	39	12	22	4
Per cent married	67	51	81	67	89
With children	40	19	58	49	65
Without children	27	32	23	18	24
Per cent not ascertained	9	10	7	11	7

<sup>a</sup>Includes real estate debt.

Source: *Survey of Consumer Finances*, Board of Governors of the Federal Reserve System, 1953.

Of the consumers who owed short-term debts, about a third were also indebted for mortgages on their homes. These consumers who bore the heaviest debt burden also tended to be younger and had higher incomes and lower liquid asset reserves than the debt-free. The median income of consumers owing both mortgages and short-term debts was more than 60 per cent higher than the average for consumers who were completely free of debt, but their liquid asset holdings averaged 80 per cent less. About two-thirds of the consumers obligated for both types of debt had children whereas less than one-fifth of the debt-free group had such family responsibilities (Table 4).

Survey information indicates the need for caution in interpreting aggregate statistics on consumer saving and borrowing. Certainly the cross-sectional data do not support an assumption that borrowing was an optional means of financing purchases of capital goods—

for most of the consumers buying, it was the only method short of radical changes in current consumption outlays.

The fact that credit filled a need for consumers who wanted to buy does not imply that the expansion of credit may not have adverse social consequences. The availability of financing may have carried expenditures for homes, automobiles, and other durable goods to unsustainable levels, compressing into a relatively short time the upswing of normally cyclical expenditures. The rapid rise to high rates of expenditures may have introduced serious distortions into the structure of production. Whether recent rates of consumer capital formation are sustainable in terms of existing stocks and prospective requirements is a question beyond the purview of this paper.

### *Corporations*

The postwar expansion in corporate fixed capital is impressive even after the high price levels prevailing in this period are taken into account. Average outlays for new plant and equipment in the first seven postwar years amounted to \$17.6 billion, three and one-half times the rate in immediate prewar years and almost three times the average for the 1920's. These outlays were both stimulated and in large part financed by the high postwar rates of corporate profits and depreciation charges. Despite large tax and dividend payments, the level of corporate profits was sufficiently high to permit retained earnings<sup>9</sup> to average \$19.6 billion, over three times the rate just before the war and almost four times the average from 1922 to 1929 (Table 5).

A large part of these earnings were plowed back into plant expansion programs, but the magnitude of the investment programs and the increased need for inventories (and the relative distribution of earnings and investment among individual companies) required substantial external financing. Gross corporate security issues for

<sup>9</sup>Throughout this paper the term "retained earnings" is used for the sum of retained profits plus depreciation charges. In arriving at this sum, tax payments rather than tax liabilities have been deducted from profits before tax, since it is the current flow of tax payments that affects the current availability of corporate funds.

One of the problems that has not been explored is whether the concept of income after tax liabilities provides a more significant basis for motivational analysis of the capital formation process. The definition of retained earnings used here tends to fluctuate more widely than the common definition wherein tax liabilities are deducted, since tax payments are made in any one year on the liabilities incurred for the previous year's income. When incomes change rapidly, retained earnings after tax payments fluctuate more widely than retained earnings after tax liabilities.

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TABLE 5  
Sources and Uses of Corporate Funds, Domestic Corporations, <sup>a</sup> 1922-1952  
(billions of dollars)

	1922- 1929	1930- 1933	1934- 1938	1939- 1940	1941- 1945	1946- 1952	1946- Mid-1950	Mid-1950 1952
Operating receipts:								
Profits before tax <sup>b</sup>	6.8	-0.1	3.6	7.3	22.6	31.7	27.2	39.7
Plus: Depreciation	3.0	3.7	3.2	3.4	4.9	7.0	5.9	9.1
Less:								
Profits tax payments	1.0	0.8	1.0	1.2	10.7	13.2	10.8	17.6
Net dividend payments and others <sup>c</sup>	3.9	3.3	3.2	3.3	4.7	6.0	4.9	7.5
Equals: Retained earnings and charges <sup>d</sup>	5.0	-0.5	2.6	6.2	12.1	19.6	17.3	23.8
Capital outlays:								
Plant and equipment	6.3	3.6	3.9	5.0	6.0	17.6	15.6	21.1
Other capital expenditures <sup>e</sup>	n.a.	n.a.	n.a.	0.8	0.3	1.4	1.3	1.5
Inventory change	n.a.	-2.1	0.6	1.4	1.3	5.4	4.6	6.9
Total capital outlays	n.a.	n.a.	n.a.	7.2	7.6	24.4	21.5	29.5
Financing:								
Gross security issues <sup>f</sup>	4.7	2.1	2.3	2.4	2.9	7.4	6.8	8.4
Issues for plant and equipment	n.a.	n.a.	0.3	0.3	0.4	4.0	3.4	5.0
Issues for working capital	n.a.	n.a.	0.2	0.1	0.3	1.3	1.2	1.5
Debt issues as per cent of total (%)	(64)	(71)	(91)	(92)	(83)	(74)	(77)	(74)
Net new issues	n.a.	n.a.	0.1	-0.4	-0.4	4.6	4.0	5.6
Long-term loans <sup>g</sup>	n.a.	n.a.	n.a.	0.7	-0.3	1.9	1.8	2.4
Notes and accounts payable, net of receivables	n.a.	n.a.	n.a.	-0.4	0.1	-0.7	-1.7	1.1
Short-term bank debt, net	n.a.	n.a.	n.a.	0.3	0.5	1.4	0.7	2.7
Short-term trade debt, net	n.a.	n.a.	n.a.	-0.7	-0.4	-2.1	-2.4	-1.6
Total loans, net	n.a.	n.a.	n.a.	0.3	-0.2	1.2	0.1	3.5

(continued on next page)

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TABLE 5 (continued)  
(billions of dollars)

	1922- 1929	1930- 1933	1934- 1938	1939- 1940	1941- 1945	1946- 1952	1946- Mid-1950	Mid-1950 1952
Liquid assets:								
Increase in cash and U.S. government securities	n.a.	n.a.	n.a.	1.7	5.5	1.3	0.5	2.7

<sup>a</sup>Excludes corporate banks, life insurance companies, and farms.

<sup>b</sup>National income concept (among other adjustments to the Bureau of Internal Revenue, it excludes capital gains and losses), except that profits subsequently eliminated through renegotiation of war contracts have not been deducted.

<sup>c</sup>Includes net dividends paid (dividends paid less dividends received) plus payments to government as a result of contract re-negotiations (in the year when paid) less tax refunds and insurance benefits.

<sup>d</sup>Figures do not necessarily add up to totals because of rounding.

<sup>e</sup>Multifamily and other rental residential construction by corporate builders plus change in work in process on residential units built for sale to consumers.

<sup>f</sup>Commercial and Financial Chronicle series to 1934, except that investment trust issues are excluded; after 1934, data come from unpublished Securities and Exchange Commission materials on gross security issues; investment company issues are excluded.

<sup>g</sup>Mortgage loans, other corporate long-term bank loans, and U.S. government loans to corporate business.  
n.a. = not available.

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plant and equipment financing averaged \$4 billion a year in the postwar period, or almost one-fourth of outlays for plant and equipment—a much higher ratio than in the immediate prewar years. Most of this security financing was through debt instruments; reliance on debt was, however, below what it was during most of the 1930's.

The extent to which investment was externally financed varied substantially among industries;<sup>10</sup> further, within some industry groups there were large year-to-year differences in financing, reflecting fluctuations in profits, taxes, dividend payments, depreciation charges, and capital outlays.

Industrial differences are most pointed in a contrast between manufacturing industries and public utilities. Public utility profits rose throughout the postwar period while manufacturing profits fluctuated widely. Utilities paid out more in dividends, relative to their profits, but their depreciation charges were also much greater relative to their incomes. On balance their retained funds—retained earnings plus depreciation charges—were a much higher proportion of profits before taxes than for manufacturing (see Table 6). Their expenditures for new plant equipment were also higher relative to retained funds. For the postwar period as a whole, fixed capital expenditures by the public utilities were two and three-fourths times retained earnings, while for manufacturing companies fixed capital outlays were one-sixth below retained earnings (Table 7). With this large excess of capital expenditures over internal funds, the utilities required external financing to a much greater extent than other industrial groups. Security issues for plant and equipment financing amounted to almost two-thirds of utility capital outlays since the war as compared with one-eighth of manufacturing outlays for plant and equipment.

The pattern of utility expenditures and financing appears to be characteristic of regulated industries, whose revenues are usually fixed with regard to the size of their capital base. The relationships between income, expenditures, and financing for corporations in the transportation and communication industries is similar, in many respects, to the developments in the electric, gas, and water group. The transportation and communication group also paid out a

<sup>10</sup>For this analysis rough statements of sources and uses of funds were constructed for four major industry groups: manufacturing, public utilities, transportation and communication, and trade. In some instances it was necessary to approximate the industry distribution of certain items by crude allocations of totals for all corporations.

TABLE 6  
Aggregate Corporate Profits and Retained Earnings, 1946-1952  
(dollars in billions)

	All Corporations		Manufacturing		Trade		Public Utilities		Transportation and Communication		Other	
	Dollars	Per Cent	Dollars	Per Cent	Dollars	Per Cent	Dollars	Per Cent	Dollars	Per Cent	Dollars	Per Cent
Corporate profits before tax	\$221.8	100.0	\$136.0	100.0	\$38.8	100.0	\$10.0	100.0	\$14.2	100.0	\$22.8	100.0
Tax payments	92.5	41.7	56.5	41.5	16.0	41.2	3.8	38.0	6.5	45.8	9.7	42.5
Net dividends paid	48.8	22.0	28.3	20.8	6.6	17.0	4.3	43.0	4.0	28.2	5.6	24.6
Net other payments	8.0	3.6	5.3	3.9	1.3	3.4	.1	1.0	.2	1.4	1.1	4.8
Retained earnings	\$ 88.5	39.9	\$ 56.5	41.5	\$17.5	45.1	\$ 2.0	20.0	\$ 3.9	27.5	\$ 8.6	37.7
Depreciation charges	49.1	22.1	22.2	16.3	5.5	14.2	4.6	46.0	8.2	57.7	8.6	37.7
Retained earnings and charges	\$137.6	62.0	\$ 78.7	57.9	\$23.0	59.3	\$ 6.6	66.0	\$12.1	85.2	\$17.3	75.9

Note: Corporate profits before tax is the Department of Commerce series (among other adjustments to Bureau of Internal Revenue, it excludes capital gains and losses) except that profits subsequently eliminated through renegotiation of war contracts have not been deducted. Tax payments are estimated from Department of the Treasury and Department of Commerce data. Net dividends paid are equal to dividends paid less dividends received by each industry group—data from Department of Commerce. Net other payments (renegotiation payments less tax refunds and insurance benefits) are estimated from Commerce and Treasury data.

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TABLE 7  
Corporate Retained Earnings and Expenditures for Plant and Equipment, 1946-1952  
(dollars in billions)

	1946	1947	1948	1949	1950	1951	1952	Average 1946-1952
<b>All corporations:</b>								
Retained earnings and charges <sup>a</sup>	11.7	20.2	21.1	14.0	28.0	24.9	17.7	19.7
Plant and equipment expenditures	11.9	16.6	18.5	16.0	16.7	21.2	22.3	17.6
Ratio, expenditures to earnings (%)	(102)	(82)	(88)	(114)	(60)	(85)	(126)	(90)
<b>Manufacturing:</b>								
Retained earnings and charges <sup>a</sup>	6.2	12.1	12.1	7.6	17.1	15.5	8.1	11.2
Plant and equipment expenditures	6.5	8.4	8.8	6.9	7.2	10.5	11.6	8.6
Ratio, expenditures to earnings (%)	(105)	(69)	(73)	(91)	(42)	(68)	(143)	(76)
<b>Trade:</b>								
Retained earnings and charges <sup>a</sup>	3.5	3.9	3.4	1.8	4.1	3.1	3.2	3.3
Plant and equipment expenditures	1.2	1.8	1.4	1.2	1.5	1.4	1.2	1.4
Ratio, expenditures to earnings (%)	(34)	(46)	(41)	(67)	(37)	(45)	(38)	(42)
<b>Public utilities:</b>								
Retained earnings and charges <sup>a</sup>	0.8	0.7	0.9	0.8	1.0	1.2	1.2	0.9
Plant and equipment expenditures	0.8	1.5	2.5	3.1	3.3	3.7	3.8	2.7
Ratio, expenditures to earnings (%)	(100)	(214)	(278)	(388)	(330)	(308)	(317)	(283)
<b>Transportation and communication:</b>								
Retained earnings and charges <sup>a</sup>	0.1	1.7	1.9	1.3	2.7	2.2	2.2	1.7
Plant and equipment expenditures	2.1	3.3	4.1	3.3	3.2	4.0	4.1	3.4
Ratio, expenditures to earnings (%)	(2,100)	(194)	(216)	(254)	(119)	(182)	(186)	(199)
<b>Other:</b>								
Retained earnings and charges <sup>a</sup>	1.3	2.1	2.6	2.2	3.2	2.9	3.0	2.5
Plant and equipment expenditures	1.3	1.6	1.7	1.5	1.5	1.6	1.6	1.5
Ratio, expenditures to earnings (%)	(100)	(76)	(65)	(68)	(47)	(55)	(53)	(62)

<sup>a</sup>See note to Table 6 for estimating procedures.

Source: Basic data from Securities and Exchange Commission and Department of Commerce.

larger than average share of their profits in the form of dividends, and also retained a larger than average share of profits through charges to depreciation reserves. As in the case of the utilities, these other regulated industries spent more for capital expansion than their retained earnings would cover; external sources financed about 30 per cent of their fixed capital outlays.<sup>11</sup>

The trade groups—wholesale and retail—financed most of their plant expansion internally. Security issues for plant and equipment financing averaged only 4 per cent of such expenditures for the postwar period.

The institutional factors affecting the financing patterns of regulated industries do not permit as clear a picture of the year-to-year interplay between availability of internal funds and the amount of external financing as is the case in manufacturing industries. Further, utility financing involves long-term capital for the most part whereas manufacturing needs are complicated by changes in inventories and trade credit. It may be profitable, therefore, to consider the postwar movements of incomes, outlays, and borrowing for the manufacturing group more closely.

The course of manufacturing profits and expansion has been irregular. Retained earnings increased sharply—almost doubled—from 1946 to 1947 and stayed at these high levels in 1948. The recession of 1949 resulted in a sharp drop in profits before taxes, and an even sharper drop in retained earnings, since in 1949 these corporations were paying taxes out of lower current incomes on the higher incomes of the preceding year (Table 8).

Until the 1949 recession, manufacturing capital outlays were at high levels, with rising expenditures for new plant and equipment offsetting declining rates of inventory accumulation. In 1949, with

<sup>11</sup>Friend objects to this grouping of transportation and communication companies on the ground that significant differences between telephone and railroad financing are obscured. His criticism is well taken, at least with respect to differences in dividends paid. In the postwar period as a whole, the transportation group paid out in dividends about the same proportion of profits before taxes as did manufacturing industries, and less than half the proportion for electric, water, and gas utilities or communication companies. However, in other respects the groupings may not be as inappropriate as Friend indicates. Depreciation charges relative to income were much higher for communication, transportation, and utilities than for manufacturing industries. Their retained earnings and charges were also much higher, and expenditures for capital outlays exceeded retained earnings and charges by substantial margins for all three of the "regulated" groups as compared with an excess of earnings over expenditures for the manufacturing group. It is this contrast the text intended to emphasize.

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TABLE 8  
Sources and Uses of Corporate Funds, Manufacturing, 1946-1952  
(billions of dollars)

	1946	1947	1948	1949	1950	1951	1952
<b>Operating receipts:</b>							
Profits before tax <sup>a</sup>	12.1	17.4	19.0	15.0	23.8	26.4	22.3
Plus: Depreciation charges	1.9	2.4	2.8	3.2	3.4	3.8	4.7
Less:							
Profits tax payments	6.3	4.9	6.7	7.2	5.9	10.6	14.9
Net dividend payments and other <sup>b</sup>	1.5	2.8	3.0	3.4	4.2	4.1	4.0
Equals: Retained earnings and charges	6.2	12.1	12.1	7.6	17.1	15.5	8.1
<b>Capital outlays:</b>							
Plant and equipment expenditures	6.5	8.4	8.8	6.9	7.2	10.5	11.6
Other capital expenditures	0	0	0	0	0	0	0
Inventory change	6.3	4.3	2.7	-2.6	4.9	8.6	0.7
Total capital outlays	12.8	12.7	11.5	4.3	12.1	19.1	12.3
<b>Financing:</b>							
Gross security issues	3.1	2.2	2.2	1.4	1.2	3.1	3.9
Issues for plant and equipment	1.0	0.8	0.8	0.5	0.3	1.8	2.2
Issues for working capital	0.8	0.7	1.0	0.3	0.4	0.8	1.2
Debt issues as per cent of total (%)	(55)	(64)	(81)	(86)	(73)	(74)	(84)
Net new issues	2.2	1.8	1.9	0.8	0.2	2.3	3.2
Long-term loans <sup>c</sup>							
Notes and accounts payable, net of receivables	1.0	-0.6	-0.4	-1.0	-1.0	2.9	-0.3
Short-term bank debt, net <sup>c</sup>	0	0	0	0	0	0	0
Short-term trade debt, net <sup>c</sup>	0	0	0	0	0	0	0
Total loans, net	1.0	-0.6	-0.4	-1.0	-1.0	2.9	-0.3
<b>Liquid assets:</b>							
Increase in cash and U.S. government securities	-4.2	0.6	0.3	3.0	3.8	1.7	-0.1

<sup>a</sup>National income concept (among other adjustments to Bureau of Internal Revenue data, it excludes capital gains and losses) except that profits subsequently eliminated through renegotiation of war contracts have not been deducted.

<sup>b</sup>Includes net dividends paid (dividends paid less dividends received) plus payments to government as a result of contract renegotiations (in the year when paid) less tax refunds and insurance benefits.

<sup>c</sup>No industry allocations available.

retained earnings sharply lower, capital outlays declined by an even greater amount. New plant expenditures dropped \$2 billion below the 1948 rate, and the reversal in the inventory situation—from net accumulation to net decumulation—represented a \$5 billion drop in uses of funds. The decline in total capital expenditures (inventory, and plant and equipment) was greater than the reduction in internal funds available for such purposes; as a result the excess of retained earnings over capital outlays increased substantially.

Profits picked up sharply after the Korean War began and although manufacturers added substantially to their inventories, it was some time before defense plant expansion really got underway. For the

year 1950 as a whole, the excess of retained earnings over capital outlays was substantially larger than in the preceding year.

Profits continued to increase in 1951, but the sharp rise in tax payments and the maintenance of dividend payments despite the pressure on corporate funds reduced retained earnings about 10 per cent below the rate in 1950. Plant expansion programs (largely associated with the defense program) increased by almost 50 per cent, and inventory accumulation continued at close to the high rates of the half-year after the outbreak of hostilities. Whereas retained earnings had exceeded capital outlays by \$5 billion in 1950, they were \$3.6 billion less than outlays in 1951.

The tight financial position continued in 1952, though for quite different reasons. Profits before taxes dropped by a sixth; higher tax payments and continued high dividend payments reduced retained earnings by almost one-half. Although the decline in earnings was offset by a sharp reduction in the rate of inventory accumulation, plant expansion continued at an increased pace; capital uses exceeded internal funds by over \$4 billion.

Fluctuations in the funds available to manufacturing corporations from operations and in capital outlays were reflected in changes in external financing. As the excess of retained earnings over total capital outlays (including inventories) diminished, external financing of plant and equipment expenditures increased both absolutely and relative to expenditures. Security issues for financing of plant and equipment expenditures had averaged less than 10 per cent of investment in the postwar period through 1950; in 1951 the ratio rose to 17 per cent and in 1952 to 19 per cent of expenditures, or almost twice the pre-Korean-War rate. (Table 7).

Despite this rise in the proportion of external financing, the absolute amount of investment to be financed out of internal funds increased. The volume of plant and equipment expenditures over and above that financed by plant and equipment security issues averaged about \$7 billion up to the Korean War. In the next two and one-half years the average was close to \$9 billion.

The drain on internal funds to finance short-term needs also increased after the Korean War began. In the first four and one-half postwar years, corporate inventory accumulation did not result in much of an increase in net short-term liabilities. Over this period, manufacturers added \$11 billion to their inventories; while security issues for working capital purposes totaled about \$3 billion, this was offset by a comparable decline in net payables (payables less receivables).

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After the outbreak of hostilities, inventories rose sharply and the proportion of external financing of these short-term requirements increased. Notes and accounts payable and working capital issues accounted for about one-fourth of the inventory accumulation in the last half of 1950 and about 40 per cent of the inventory rise in 1951. As in the case of long-term needs, however, the percentage rise in financing left a large absolute amount to be financed from internal funds. The excess of inventory accumulation over working capital issues and net payables was close to \$5 billion, or twice the pre-Korean-War average. In 1952 inventory accumulation was small, and although corporate receivables increased, the rise in payables and in security issues for working capital purposes offset the increase in short term needs. The pressure for external financing in 1952 was largely a reflection of the decline in incomes and the continued growth in plant expansion programs.

These year-to-year changes in financing patterns indicate (if all manufacturing companies can be treated as homogeneous with respect to these problems) the need for considering the whole statement of sources and uses of funds in projecting the nature and extend of demands for financing. The volume of expected outlays for either fixed or working capital alone is not an adequate basis for understanding the force of demands on capital markets or the banking system.

Available information that distinguishes financing patterns by size of company is extremely limited. Federal Trade Commission reports on manufacturing company finances are available only for recent years, and those for trade industries for an even shorter period.

One comparison that can be made for the whole postwar period to date is between the financing patterns for very large corporations and the average for all corporations in each major industry group.<sup>12</sup> The comparison indicates that large manufacturing and trade companies depend on external financing for capital expansion to about the same extent as the average for all corporations in each of these industry groups. The average for both large and other corporations and manufacturing and trade was substantially less than the ratio of external financing to capital outlays for large or other public

<sup>12</sup>The large corporation data refer to the materials on investment, expenditures, and security issues of three hundred large corporations for which the research staff of the Board of Governors regularly compile financial data from published sources. The averages for all corporations come from the data compiled by the SEC and the Dept. of Commerce.

utilities.<sup>13</sup> This information is not conclusive, of course, as to the influence of size of company on methods of financing capital formation, for a much more detailed classification by size, capacity situation, etc. is necessary. It is interesting, however, to note that the contrast between the utilities and the other industry groups holds both for the very large corporations and the average for all companies.

Given the extent of external financing of long-term needs, the form of such financing did not vary much among industries.<sup>14</sup> For all corporations combined, debt issues accounted for the bulk of security flotations (excluding investment company issues) in the postwar period—almost three-fourths of the total from 1946 through 1952. This was about the same proportion as in most of the 1920's (except for 1928 and 1929, when stock issues predominated) and less than the ratio of debt issues to total flotations during the 1930's and the war period (Table 9).

Utilities and other regulated industries tended to rely on debt issues in their postwar financing to a greater extent than manufacturing and trade; on the other hand, more of their debt issues were convertible into stock than was true for other groups. The miscellaneous industrial group used equity issues for most security flotations, but their issues accounted for less than 12 per cent of all corporate issues in the postwar period.

Dependence on debt for external financing reflected both lender and borrower preferences. High tax rates encouraged debt rather than equity issues, as deduction of interest charges in computing income taxes reduced effective interest cost. For companies in the excess profits tax bracket, the full interest cost might be substantially offset by tax saving.

<sup>13</sup>The comparisons here are between net security issues (gross issues less repayments) rather than gross issues and expenditures. The gross data which were used in previous parts of this paper are not available for the 300-company sample.

<sup>14</sup>With reference to Friend's question concerning industrial variation in the proportion of debt issues to total security flotations, the ratios for the major industry groups (average for the seven postwar years) were as follows:

	(per cent)
Manufacturing	74
Trade	73
Public utilities	73
Transportation and communication	77
Communication	61
Transportation	98

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TABLE 9  
Corporate Security Issues, 1919-1952  
(dollars in billions)

Year	Debt Issues	Total Security Issues	Debt Issues as Per Cent of Total Issues	Year	Debt Issues	Total Security Issues	Debt Issues as Per Cent of Total Issues
1919	\$1.1	\$2.6	42	1936	\$4.0	\$ 4.5	89
1920	1.7	2.8	61	1937	1.7	2.3	74
1921	2.0	2.3	82	1938	2.1	2.1	100
1922	2.3	2.9	79	1939	1.9	2.1	91
1923	2.4	3.1	78	1940	2.5	2.7	93
1924	2.7	3.5	77	1941	2.4	2.7	89
1925	3.0	4.2	72	1942	0.9	1.1	82
1926	3.3	4.5	66	1943	1.0	1.2	83
1927	4.7	6.3	75	1944	2.7	3.2	84
1928	3.3	6.1	54	1945	4.9	6.2	79
1929	2.5	7.2	35	1946	4.7	6.8	69
1930	3.3	4.8	69	1947	5.0	6.6	76
1931	2.0	2.4	83	1948	5.9	7.3	81
1932	0.6	0.6	100	1949	4.9	6.3	78
1933	0.2	0.4	50	1950	4.8	6.7	72
1934	0.4	0.4	100	1951	5.7	8.2	70
1935	2.3	2.3	100	1952	7.4	10.0	74

Source: From 1919-1933, from *Commercial and Financial Chronicle*, appropriate years, except that investment trust issues have been excluded. From 1934 on, from unpublished Securities and Exchange Commission data. Differs from published SEC series on new security issues sold for cash by numerous adjustments, e.g. inclusion here of securities sold to employees, private sales to foreigners, etc. Includes issues for refunding, other debt retirement and exchanges. Sales of investment company issues are excluded.

Also important was the large volume of funds available for investment in the form of debt. Individuals' saving through financial institutions, such as insurance companies, pension plans, and mutual savings banks, was at record rates and these institutions, which are primarily suppliers of credit rather than equity funds, became major sources of the external financing of corporate plant expansion. Over half of all corporate bond issues in the postwar period were placed through direct negotiations with institutional lenders (Table 10).

Almost all of the private placements were debt issues, and the largest share was received by manufacturing companies. Although manufacturing accounted for only a third of all corporate securities floated in the postwar period, they received about half of all private placements.

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Regulations requiring competitive bidding precluded the use of private placements by most utility holding companies; as a result, security financing by the utility group was for the most part (three-fourths of their total issues) through market offerings.

TABLE 10  
Private Placement of Corporate Securities, 1934-1952  
(dollars in billions)

<i>Year</i>	<i>Total Private Placements</i>	<i>Total Debt Issues</i>	<i>Percentage Ratio, Private Placements to Total Debt Issues</i>
1934	\$0.1	\$0.4	25
1935	0.1	2.3	17
1936	0.4	4.0	10
1937	0.3	1.7	18
1938	0.7	2.1	33
1939	0.7	1.9	37
1940	0.8	2.5	32
1941	0.8	2.4	33
1942	0.4	0.9	44
1943	0.4	1.0	40
1944	0.8	2.7	30
1945	1.0	4.9	20
1946	1.9	4.7	40
1947	2.1	5.0	42
1948	3.0	5.9	51
1949	2.5	4.9	51
1950	2.7	4.8	56
1951	3.4	5.7	60
1952	4.0	7.4	54

Source: Securities and Exchange Commission.

External financing of short-term needs has of course been largely through debt—bank loans, trade credit, and working capital issues.<sup>15</sup> Of the \$38 billion increase in corporate notes and accounts payable from year-end 1945 to year-end 1952, almost \$10 billion, or more than one-fourth of the total, represented increased short-term debt owed to banks. In addition to this short-term borrowing, working capital security issues supplied \$9 billion of funds for short-term requirements.<sup>16</sup> The data on short-term bank debt by industrial

<sup>15</sup>No breakdown of working capital issues by type of security is available. It is presumed that most of these were debt instruments. Most of the issues were by manufacturing companies.

<sup>16</sup>This is the gross amount of such issues; data on securities retirements by type of issue are not available.

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group are not available for most of the postwar period; presumably the bulk of these loans were obtained by manufacturing and trade companies.

In the consumer area, demographic characteristics such as age and family status were important in determining the means used to finance consumer capital formation. In the corporate area, industrial differences may be the significant factors affecting the extent and form of external financing, but their importance may be overstated because this is the only basis of classification within the corporate sector. More adequate information on financing and investment by size of company and on balance sheet structures (particularly on liquidity and net worth positions) might prove these factors to be more significant than industrial differences, but they cannot be isolated in the aggregate information available.

### *State and Local Governments*

The financing of capital formation by state and local governments is included in this discussion largely as an illustration of the difficulty of relating capital expenditures to financing on any close timing basis. While these governmental units spent large sums for various types of community facilities in the postwar period, their expenditures were not as large as might be expected from the amount of external financing they obtained. As a result these governments (in the aggregate) accumulated substantial liquid asset balances. Because of differences in the nature of capital outlays and in the availability of sources of financing, local governments are considered separately from state governments.

Most local debt has been incurred to finance capital expenditures for schools, streets, water and sewage systems, and other community facilities. Such outlays increased from a rate of \$1 billion in 1946 to \$4.3 billion in 1952. The revenues of local governments also increased rapidly over this period, as rising retail sales and property values enlarged the tax bases these governments customarily depended on for their tax revenues. The increase in revenues was offset partially by rising operating expenditures, as increased payrolls and material costs boosted outlays on current account. Net revenues—gross receipts less current operating expenditures—increased only 50 per cent in the postwar period as compared with the 330 percent rise in capital outlays (Table 11).

The large volume of outlays which could not be covered out of revenues required extensive borrowing by local governments. In the seven years from the end of 1945 through 1952, local govern-

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TABLE 11

State and Local Governments:  
Net Revenues, Capital Outlays, Long-Term Security Issues, 1946-1952

(dollars in billions)

	1946	1947	1948	1949	1950	1951	1952
<b>State and local government:</b>							
Gross revenues	18.9	21.5	24.2	27.2	29.8	32.4	34.8
Less: Current expenditures	15.0	17.6	20.1	23.2	25.1	25.9	28.0
Equals: Net revenues	3.9	3.9	4.1	4.0	4.7	6.5	6.8
Capital outlays	1.7	2.9	4.2	5.5	6.1	6.8	7.1
Long-term security issues	1.0	1.7	2.1	2.5	2.7	3.2	4.1
Security issues as per cent of capital outlays	(58.3)	(57.9)	(49.7)	(45.8)	(45.1)	(45.5)	(57.2)
<b>States:</b>							
Gross revenues	9.2	10.6	11.9	13.2	14.7	16.2	17.3
Less: Current expenditures	7.2	8.6	10.0	11.8	12.7	12.9	13.5
Equals: Net revenues	2.0	2.0	1.9	1.4	2.0	3.3	3.8
Capital outlays	0.7	1.2	1.6	2.0	2.4	2.6	2.8
Long-term security issues	0.1	0.2	0.3	0.4	0.7	1.1	1.2
Security issues as per cent of capital outlays	(9.0)	(14.6)	(16.2)	(19.3)	(31.3)	(40.9)	(42.9)
<b>Local governments:</b>							
Gross revenues	9.7	10.9	12.3	14.0	15.1	16.2	17.5
Less: Current expenditures	7.8	9.0	10.1	11.4	12.4	13.0	14.5
Equals: Net revenues	1.9	1.9	2.2	2.6	2.7	3.2	3.0
Capital outlays	1.0	1.7	2.6	3.5	3.7	4.2	4.3
Long-term security issues	0.9	1.5	1.8	2.1	2.0	2.1	2.9
Security issues as per cent of capital outlays	(91.2)	(87.8)	(70.9)	(61.4)	(53.8)	(48.4)	(67.4)

Note: "Gross revenues" include taxes, intergovernmental revenue, pension assessments, unemployment taxes, earnings on property and investments, receipts from sales of goods and services by government enterprises, and miscellaneous receipts such as fees and donations. Receipts from issue of debt or liquidation of investments are excluded. Series is estimated by adjusting total Department of Commerce state and local receipts to include interest income and receipts from sales of government enterprises, state employment taxes, and state workmen's compensation assessments, and to exclude employer (government) contributions to retirement and cash sickness funds. Aid received by states from local units and vice versa are added to federal grants-in-aid. Adjustments not available from Department of Commerce are estimated from Bureau of the Census data.

"Current expenditures" are gross expenditures less capital outlays. Gross expenditures include expenses for current operations of governments

Notes continued on next page

## FINANCING OF CAPITAL FORMATION

### Notes to Table 11 (continued)

and their enterprises; capital outlays, including purchases of land, equipment, and existing structures; unemployment insurance, workmen's compensation and retirement benefits. Expenditures for retirement of debt and for investments are excluded. Adjustments are made to Department of Commerce series for total state and local expenditures for grossing of interest and current surplus of enterprises and for the inclusion of purchases of land, existing structures, unemployment compensation benefits, and aid paid by states to local units and vice versa. Adjustments not available from Department of Commerce are estimated from Bureau of the Census data.

"Long-term security issues" are from *Bond Buyer*. Series excludes issues for refunding, bonus, and other issues of minor importance in recent years not related to capital outlays.

Data for local governments were obtained as residual by deducting state series from total. Securities issued by special authorities have been assigned to the appropriate governmental level on the basis of the nature of the sponsoring government.

ments issued over \$13 billion of long-term security issues; these financed almost two-thirds of the capital programs undertaken by municipalities and other local governments in this period.

There was not, however, very close year-to-year coincidence of financing and expenditures. While the rise in capital outlays was much sharper than the increase in net revenues, long-term security issues declined as a percentage of these expenditures from 1946 through 1951.

The peculiar behavior of the financing-to-expenditure ratio is the result of several factors. Throughout the period there was apparently substantial financing in advance of actual construction expenditures, or even in advance of the granting of awards for construction. Security issues were often for the entire amounts of proposed projects, while expenditures out of the proceeds of the issues were spread over several accounting periods. It is not possible to determine the actual lag between financing and expenditures on each of the many individual projects undertaken by local governments, but it is possible to make certain comparisons at the aggregate level which infer a substantial time differential. For example, in 1952 the volume of contracts awarded for school construction was about the same as in the previous year, whereas long-term issues sold to finance school building were more than twice the amount floated in 1951.

Inferential evidence of extensive anticipatory financing is the rise in local government liquid asset holdings. Cash and security holdings increased about 70 per cent since 1945, almost keeping pace with the rise in local debt. Of course this is an aggregate for

all local governments combined, and the liquid asset holdings may be distributed differently from the distribution of debt.

Another factor which obscured the relation between expenditures and financing at the aggregate level was the method of financing housing projects subsidized under the housing act. Actual construction of these low-rental housing projects was financed through temporary short-term loans; customarily the permanent long-term financing was not undertaken until the construction was almost completed. Changes in the relative importance of such housing construction in the total of local government outlays could change the ratio of security issues to expenditures.

Finally the existence of controls on financing in part of the period must be taken into account. Under the voluntary credit-restraint program which was in existence from March 1951 to May 1952, proposed security issues by state and local governments were screened to minimize financing of construction activity which might have interfered with the flow of materials for the post-Korean-War defense program. In 1951, during most of which the Voluntary Credit Restraint program was in effect, local government contract awards for construction amounted to \$3.2 billion, an increase of 15 per cent over the 1950 total, but the volume of long-term security issues was about the same in both years.

In 1952 local government contract awards remained at about 1951 rates, but the volume of security issues increased almost 40 per cent. In the first half of 1953 the financing volume continued to rise, while the expenditure rate remained at about the 1952 rate.

For most of the postwar period, state net revenues exceeded capital outlays; dependence on external financing was much less for states than for local governments. For the 1946-1952 period as a whole, long-term securities issued by state governments provided funds for only 30 per cent of their capital outlays as compared with 63 per cent for local government units.<sup>17</sup>

As in the case of local governments, some postwar state financing was undertaken well before actual expenditures. For example over \$700 million of bonds for toll facilities (turnpikes, bridges, and other such projects) were sold in 1952 for which work just got underway in 1953. Partly as a result of this anticipatory

<sup>17</sup>While states borrowed proportionately less of the funds needed for capital expansion than did municipalities, state borrowing for refunding debt, veterans' bonuses, and other nonconstruction purposes was very large, accounting for almost two-fifths of the securities they floated in the postwar period.

financing, state liquid asset holdings increased as substantially as have those of local governments since the end of the Korean War.

## 2. *Changes in Financial Relationships*

The large volume of external financing of capital formation in the postwar period has resulted in substantial changes in balance sheet structures and in the proportion of incomes claimed by fixed charges for servicing debt—both factors which can influence future rates of capital formation. The extent of changes in liquidity, net worth, and fixed claims on incomes is sufficient to warrant some analysis, even though the data available on these changes are not adequate to provide explicit behavior relationships. The changes, and the quality of data describing them, differ from sector to sector; therefore discussion of these problems is organized as heretofore in terms of the major economic groups: consumers, corporations, and state and local governments.

### *Consumers*

Consumers' borrowing in the postwar period boosted their aggregate debt from \$29 billion at the end of 1945 to \$86 billion at the end of 1952. As noted earlier, the increase in debt was more than offset by consumers' acquisition of all types of financial assets during this period. However, the postwar structure of additions to financial assets was substantially different from prewar patterns. Liquid assets, defined here as currency and deposits, United States government securities and savings and loan shares,<sup>18</sup> accounted for about 70 per cent of additions to financial asset balances in 1939 and 1940. During World War II, pressure to buy savings bonds and the small volume of new issues of other securities boosted the liquid component of the total to about seven-eighths. On the other hand, since the war less than half of all financial asset accumulation has been in these liquid categories. Therefore the sharp declines in conventional liquidity measures, such as ratios of debt to liquid assets or to income, from the high peaks at the end of the war do not reflect the large postwar volume of financial saving. Estimates of the aggregate value of assets which many consumers may consider as part of their liquid reserves—cash values of insurance policies, "blue chip" stocks or bonds, or even some minimum value attributed to equities in homes, jewelry, or other durable goods—are too poor to permit analysis. Considering the

<sup>18</sup>The scale of liquidity is too continuous to permit of any but an arbitrary distinction between liquid and other financial assets.

postwar growth in consumer holdings of such assets, their inclusion would undoubtedly temper the decline shown in conventional liquidity ratios.

Even if adequately measured, the significance of these liquidity changes on capital formation is suspect. Survey data for recent years indicate that intentions to purchase capital goods are highest in the groups already carrying the largest volume of debt and with the lowest liquidity positions.

Given the availability of credit, the aggregate volume of consumer capital expenditures would thus appear to depend more on the age and family composition of the group than on aggregate liquidity ratios. More specifically it is probably dependent on the current income, and the income and price expectations of the younger married families with children. Of course there are minimum levels at which consumers desire to maintain their liquid reserves or liquidity ratios or at which they would be required to maintain them to obtain credit, but these standards do not appear to have been very restrictive on those consumers with the greatest propensities to purchase capital goods.

Consumers' flexibility rather than liquidity may be a more important influence on their future expenditure rates. The large volume of debt consumers have incurred—and the increased popularity of certain forms of saving—have increased the proportion of incomes tied up in contractual payments for debt service, insurance, and other relatively fixed charges.<sup>19</sup> Rough estimates of debt service payments indicate that scheduled amortization and interest charges took about 13 per cent of disposable income in 1952, more than twice the proportion in 1946, and about a fifth more than before World War II. One factor underlying the rise in debt service was the rapid increase in home ownership, which substituted mortgage and

<sup>19</sup> Again some comments on methodology are necessary. Required repayments of debt are difficult to distinguish from prepayments or from debt liquidations associated with sale of the collateral assets. These factors are more important in mortgage debt repayments than in consumer credit. Rough estimates of required mortgage amortization have been made by the author and colleagues by adjusting the gross retirements of mortgage debt on the basis of assumptions about the terms of the debt outstanding at the beginning of each postwar year. No adjustments have been made to the consumer credit figures. The interest components of debt service charges are those used in the national income accounts. Since estimates for even recent years entail very crude techniques, it was impossible to extend the analysis of debt burden back to the 1920's, as Friend suggests would be desirable. Most analyses of this period have relied on interest charges alone as a comparative measure of the debt burden.

other payments for rent payments. Another factor has been more widespread regular debt amortization—most of the mortgages now outstanding require regular monthly repayment of principal (Table 12).

Although effective interest rates (interest payments as a percentage of debt outstanding) are well below prewar levels—currently they are estimated at 4.5 per cent as compared with 6 per cent in 1939—the interest component of total mortgage debt service is high. This is probably attributable to the fact that most home mortgages outstanding are relatively young and have been written for relatively long maturities; in the early periods of such debts, most of the scheduled payments are for interest rather than reduction of principal.

The effective interest rate on consumer short-term debts is now higher than before the war, partially reflecting the shift in composition of short-term liabilities. Security and policy loans, which generally carry relatively low interest rates, are now a much smaller proportion of the total; most of the short-term debt is now in relatively expensive installment sales credit.

Contractual payments for amortization and interest are not the only fixed claims against consumer income. Contractual obligations for rent, insurance, and property taxes on homes<sup>20</sup> also reduce consumers' flexibility in the use of current income. The total of all of these charges, including debt service, increased rapidly in the postwar period.<sup>21</sup> The rise was modified by the continued existence of rent controls, but total fixed charges have increased from 15 per cent of disposable income in 1946 to 23 per cent in 1952. The current ratio is almost as large as in 1939.

These aggregates lump together the incomes of debtors and nondebtors and thereby understate the importance of debt service charges for the groups which have accounted for most of consumers' postwar capital formation. Distributive data on debt service are not available. Some information on contractual payments in 1948 was collected in the Board's Survey of Consumer Finances in

<sup>20</sup>Not included in personal taxes in the calculation of disposable income by the Dept. of Commerce.

<sup>21</sup>In this calculation, premiums on insurance in force at the beginning of the year—life and nonlife—have been included as contractual obligations. This may be an overstatement of the volume of fixed claims on incomes since policyholders are usually free to allow the insurance to lapse. However, such premium payments are usually "sticky" with respect to income fluctuations; furthermore, some of them, such as automobile or home insurance premiums, may have to be maintained under specific provisions of debt instruments.

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TABLE 12  
 Rough Estimates of Consumers' Payments for Debt Service, 1939-1952

	1939	1946	1947	1948	1949	1950	1951	1952
Total debt service	\$ 7.8	\$9.7	\$13.7	\$17.1	\$19.7	\$22.9	\$27.7	\$30.1
Interest	1.4	1.6	2.0	2.5	2.9	3.4	3.9	4.3
Amortization	6.2	8.1	11.7	14.6	16.8	19.5	23.8	25.8
Other net repayment <sup>a</sup>	0.2	0	0	0	0	0	0	0
Mortgage debt service	1.9	2.9	3.5	3.8	4.2	4.6	5.3	5.6
Interest	0.7	0.9	1.2	1.4	1.6	1.8	2.1	2.3
Amortization	1.2	2.0	2.3	2.4	2.6	2.8	3.2	3.3
Installment debt	5.7	6.8	10.2	13.3	15.5	18.3	22.4	24.5
Interest <sup>b</sup>	0.7	0.7	0.8	1.1	1.3	1.6	1.8	2.0
Amortization	5.0	6.1	9.4	12.2	14.2	16.7	20.6	22.5
Percentage ratio of:								
Debt service to disposable income	11.1	6.1	8.1	9.1	10.5	11.1	12.2	12.8
Interest payments to disposable income	2.0	1.0	1.2	1.3	1.5	1.7	1.7	1.8
Mortgage interest payments to mortgage debt outstanding	6.0	4.6	5.1	5.0	4.9	4.7	4.7	4.4
Other interest payments to other debt outstanding	5.7	6.0	5.8	6.5	6.5	6.7	6.8	6.8

<sup>a</sup>Net repayment of consumer debts other than mortgage and installment consumer credit.

<sup>b</sup>Total interest on all consumer debts other than mortgages; interest on installment debts probably accounts for the bulk of it.

Source: Estimated from basic data compiled by Department of Commerce, Housing and Home Finance Agency, and others.

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1949, but since then aggregate debt has increased substantially faster than aggregate incomes, and the distributions may have changed.

One analysis made of these earlier Survey data<sup>22</sup> concluded that consumers could devote a maximum of 13 to 15 per cent of disposable income for repayment of installment debts. However, such conclusions required rather specialized assumptions about spending and price patterns. Any particular debt service ceiling may be inappropriate if changes in patterns of spending for current consumption or differences in relative price changes free more funds for carrying a larger volume of debt. Such changes, or easing of credit terms, could sustain a larger volume of capital expenditures with a given volume of income. The debt service criterion may be more significant than the liquidity ratio, but it is not subject to too rigid application.

### *Corporations*

Dependence on debt as a means of financing capital outlays externally has resulted in substantial changes in corporate balance sheets. Debt is now about 43.5 per cent of assets, an increase of 5 per cent since 1945.<sup>23</sup> The relationship in 1952 of debt to assets (used here in preference to the more volatile debt-to-net-worth ratio) is the highest for the twenty-three-year period examined (Table 13).

Short-term debts other than tax liabilities have contributed most to the postwar rise in the total debt-to-asset ratio. Of the 5 per cent increase in the ratio since 1945, long-term liabilities contributed 1 per cent, the rise in tax liabilities 1 per cent, and the remaining 3 per cent was the result of the sharp rise in short-term bank and trade debts.

Changes in the debt-to-asset ratio for all corporations tends to conceal widely divergent movements among the major components of

<sup>22</sup>"More Credit for Consumer Spending," *Business Record*, National Industrial Conference Board, March 1953.

<sup>23</sup>Data on assets and debts are difficult to obtain or to use. Tabulations of balance sheets filed with tax returns suffer from definitional incomparabilities over time. Changes in the degree of consolidation of corporation reports, changes in the definitions of particular items in the balance sheets, and changes in industrial classification and in the extent of consolidation affect principally the utilities and the transportation and communication group; most of the balance sheet analysis will therefore be restricted to the manufacturing industry group, for which the data are more consistent over time. *Statistics of Income* balance sheet data for this group are available only through 1949; for subsequent years the movements have been estimated from a variety of sample data.

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TABLE 13

Corporate Debt as a Percentage of Assets, by Industry Group, 1926-1952

Year	All Corporations <sup>a</sup>	Manufacturing	Public Utilities <sup>b</sup>	Transportation and Communication <sup>b</sup>	Trade and Other
1926	0.41	0.29		0.54	0.43
1927	0.40	0.27		0.51	0.42
1928	0.39	0.25		0.50	0.42
1929	0.38	0.25		0.50	0.38
1930	0.37	0.25		0.49	0.40
1931	0.39	0.25		0.49	0.41
1932	0.40	0.26		0.50	0.41
1933	0.40	0.25		0.51	0.43
1934	0.40	0.27		0.51	0.40
1935	0.41	0.29		0.51	0.40
1936	0.41	0.29		0.52	0.41
1937	0.39	0.26		0.50	0.39
1938	0.39	0.25	0.50	0.50	0.40
1939	0.39	0.25	0.49	0.51	0.40
1940	0.40	0.27	0.48	0.53	0.40
1941	0.41	0.31	0.48	0.54	0.42
1942	0.42	0.35	0.48	0.51	0.44
1943	0.42	0.36	0.48	0.51	0.42
1944	0.41	0.34	0.47	0.48	0.43
1945	0.38	0.30	0.46	0.46	0.44
1946	0.39	0.30	0.46	0.46	0.46
1947	0.40	0.31	0.48	0.46	0.47
1948	0.40	0.31	0.50	0.46	0.46
1949	0.39	0.28	0.50	0.45	0.46
1950	0.42	0.31	0.50	0.45	0.46
1951	0.43	0.35	0.51	0.50	0.47
1952	0.44	0.35	0.51	0.44	0.47

<sup>a</sup>Excludes corporate banks, insurance carriers, and farms.<sup>b</sup>Public utilities and transportation combined before 1938.Source: *Statistics of Income*, Bureau of Internal Revenue, through 1949; estimated thereafter from a variety of sources.

the corporate sector. The debt-to-asset relationship for public utilities rose sharply from 1946 to 1948, and has tended to stabilize since then. In transportation and communication industries, the ratio has had a slight downward drift over most of the period. For trade and miscellaneous industries, the ratio rose sharply just after World War II and has fluctuated within a narrow range since 1946. In manufacturing, which accounts for most of the level of corporate assets and debts outstanding, the ratio was irregularly downward until 1949; then it increased sharply, and by the end of 1951 returned to the peak reached in the early war years.

## FINANCING OF CAPITAL FORMATION

Although corporations as a group maintained a relatively high ratio of current to total assets in the postwar period, the proportion of current assets held in liquid form (but not the absolute amount held) has declined sharply from the extraordinary peaks reached at the end of World War II (Table 14). Corporate cash and holdings of marketable securities increased about \$10 billion since 1945, but the rise in other current assets, mainly inventories and receivables, was much greater. Liquid assets are still a substantially greater proportion of all current assets than in prewar periods. Liquid assets are also higher in relation to current liabilities than before the war, although much below the unusual liquidity position at the war's end. Of course, higher levels of postwar activities, higher prices, increased tax liabilities, and the acceleration of tax payments under the Mills plan all undoubtedly require that corporations maintain higher liquid balances than before the war. There is no evidence in the aggregate statistics, however, of a

TABLE 14  
Corporate Liquidity,<sup>a</sup> 1938-1952  
(dollars in billions)

Year	Liquid <sup>b</sup> Assets	Current Assets	Percentage Ratio,		
			Liquid to Current Assets	Current Liabilities to Current Liabilities	
1938	\$10	\$41	0.24	\$30	0.33
1939	13	51	0.25	31	0.41
1940	15	57	0.26	34	0.44
1941	17	68	0.26	42	0.42
1942	26	78	0.33	48	0.54
1943	35	87	0.40	52	0.67
1944	39	90	0.43	52	0.75
1945	39	89	0.44	46	0.86
1946	35	101	0.35	52	0.69
1947	37	116	0.31	61	0.60
1948	39	127	0.31	64	0.61
1949	42	127	0.33	60	0.70
1950	46	149	0.31	77	0.60
1951	49	163	0.30	91	0.54
1952	50	173	0.29	97	0.51

<sup>a</sup>Includes all corporations except banks and trust companies, insurance carriers, and agriculture.

<sup>b</sup>Cash and marketable securities.

Source: *Statistics of Income*, Bureau of Internal Revenue, and Securities and Exchange Commission.

liquidity squeeze that (apart from adverse income developments) would threaten expansion programs.

While debt rose faster than assets throughout most of the postwar period, the relationship of debt to income has been more erratic. When the Korean War began, the ratio increased sharply (Table 15). For all corporations combined, the ratio of debt to income in 1952 was twice that in 1950, and a third above the relationship in 1946.

As in other aspects of postwar corporate financing, industrial differences are marked. For most of the postwar period, the ratio of debt to income<sup>24</sup> in manufacturing industries was lower than in the 1920's or 1930's, but the drop in income in 1952 brought the ratio above prewar levels. In contrast, the debt-to-income ratio for the electric, water, and gas utility group rose more gradually in the postwar period, and at the end of 1952 was only about one-sixth above prewar levels. Debts of the communication and transportation group and the trade group were well below the 1939 relationship to income (Table 15).

The increase in debt has resulted in a substantial rise in aggregate corporate interest payments, but these payments are still a much lower percentage of income than in prewar periods. The effective interest rate (interest paid as a percentage of debt outstanding) in postwar years has been about half of the rate in the 1920's. Current interest rates on new borrowing, despite recent advances, are still below those of the 1920's, and furthermore the recent advanced rates have not yet permeated the entire debt outstanding. For the postwar period as a whole, interest payments have been earned on the average nearly eight times, as compared with an average of 4.5 times in immediate prewar years and less than twice in most of the 1930's. The burden of these payments is further reduced if considered in conjunction with the higher current level of tax rates.

Not much is known about the maturity distribution or amortization schedule of corporate debt. The rising proportion of current to total liabilities has increased the amount that would exert an immediate pressure on corporate funds in the event of a widespread downturn in the economy. It is also possible that more of the long-term debt would be an immediate claim on these funds, for much of the postwar increase in debt has been through private placements

<sup>24</sup>All comparisons are between corporate debt, including current tax liabilities, and corporate profits before deducting tax liabilities on current year's income, before payment of current interest or dividends but after payment of taxes on prior years' incomes. This is an approximation of income available for debt service.

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TABLE 15  
Corporate Debt<sup>a</sup> and Income,<sup>b</sup> by Industry, 1939-1952  
(dollars in billions)

	1939	1946	1947	1948	1949	1950	1951	1952
<b>All corporations:</b>								
Debt	74	94	109	119	120	142	162	173
Income	7	13	22	23	15	30	27	18
Ratio, debt to income (%)	(9.93)	(7.25)	(4.93)	(5.25)	(7.86)	(4.70)	(6.08)	(9.71)
<b>Manufacturing:</b>								
Debt	14	29	35	38	35	47	59	64
Income	4	6	13	13	8	19	17	8
Ratio, debt to income (%)	(3.94)	(4.70)	(2.69)	(2.91)	(4.15)	(2.52)	(3.60)	(8.05)
<b>Trade:</b>								
Debt	7	13	16	17	16	19	21	22
Income	1	4	4	4	- 2	4	3	3
Ratio, debt to income (%)	(9.13)	(3.42)	(3.74)	(4.51)	(8.53)	(4.50)	(6.50)	(6.97)
<b>Public Utilities:</b>								
Debt	10	10	11	12	14	15	17	19
Income	1	1	1	1	1	1	2	2
Ratio, debt to income (%)	(10.67)	(9.50)	(10.60)	(11.00)	(10.38)	(10.64)	(11.20)	(12.47)
<b>Transportation and communication:</b>								
Debt	21	20	21	23	23	24	25	25
Income	1	2	2	2	1	3	2	2
Ratio, debt to income (%)	(20.80)	(14.27)	(14.27)	(11.89)	(19.00)	(9.23)	(11.27)	(11.50)
<b>Other:</b>								
Debt	n.a.	26	28	32	34	39	42	46
Income	n.a.	2	3	3	3	4	4	33
Ratio, debt to income (%)	n.a.	(13.42)	(10.85)	(9.29)	(11.69)	(10.41)	(11.53)	(13.38)

<sup>a</sup>Debt outstanding at end of year.

<sup>b</sup>Income before interest payments and tax liabilities, but after current tax payments.

n.a. = not available.

Source: Estimated from data compiled by Securities and Exchange Commission and Department of Commerce.

and a large share of these require regular amortization. However, until more is known about the maturity schedule of these debts, it is impossible to estimate the change in principal repayment load.

Without information on debt amortization requirements and data on individual units to permit cross-classification between balance sheet positions and expenditures, such as are available to a limited extent in the consumer area, it is difficult to generalize about the effects on capital outlays of postwar corporate financing. Obviously the special stimuli to expansion given by unusually favorable balance sheet structures and low fixed charges for debt service have been partly used up. On the other hand the current situation, as pictured in the aggregate statistics, does not indicate that present financial relationships (at present income rates) would put particular limits on other factors tending to sustain expansion rates.

#### *State and Local Governments*

As noted in the earlier discussion of financing patterns of states and local governments, the excess of borrowing over capital outlays permitted these units (in the aggregate) to add substantially to their liquid asset holdings since the war. In fact local governments are unique in that their liquidity (liquid-asset-to-debt ratio) is almost as high as it was at the end of the war.

For governmental units, liquidity ratios are far less significant than the elements of the ratio considered separately—the amount of debt outstanding relative to constitutional debt limits, the costs of servicing debt relative to revenues, and the size of asset reserves relative to the magnitude of projected expenditure programs.

Partial information on these factors is available. Local government debt outstanding is now over 7 times net revenues (gross receipts less current operating expenditures) as compared with less than 6 times revenues at the end of the war, but over 15 times revenues in the late 1930's. Changes in debt amortization schedules are not known, but statistics on interest indicate that the interest component of debt service is far less of a drain on revenues than before the war. Interest payments now take less than one-sixth of revenues available for debt service (net revenues before interest payments as compared with two-fifths before the war. Similar changes have occurred in the relation of debt and interest to the net revenues of state governments. These comparisons suggest that at present levels of tax and other receipts, neither liquidity positions nor debt-carrying costs would bar maintenance or expansion of capital outlay rates.

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Constitutional debt limits may prove a more serious problem (studies on the relation of debt limits to debt outstanding have not been completed). The growing popularity of revenue bonds—issues primarily secured by the income from operation of specific facilities rather than the general revenues of the governmental unit—may indicate pressure to circumvent these restrictions on the borrowing capacity of municipalities and states. Of the \$21 billion of security issues by state and local governments since the end of the war, \$4.5 billion have been revenue and other limited obligation bonds.

Apparently about half of these have been issued by state governmental authorities. Aggregate data on security issues do not distinguish state issues from those of local authorities, but this can be inferred from other information. At mid-1945 not fully guaranteed debt outstanding—not strictly synonymous with revenue issues, but roughly comparable—amounted to about \$300 million, or 13 per cent of total state long-term debt. By mid-1952 the amount owed increased to \$1.8 billion, and the proportion to 27 per cent. Over this period local nonguaranteed debt increased from \$1.8 billion to \$3.2 billions, or from 13 per cent of long-term local debt in 1945 to 15 per cent in 1952.

The high rate of economic activity in postwar years enabled many of the projects financed by revenue bonds to earn substantial profits, and this successful showing encouraged other governmental units to use the same financing technique, although interest rates on these nonguaranteed issues tended to be higher than those backed by the “full faith and credit” of the sponsoring government.

### 3. *Conclusion*

We have emphasized the wide diversity of financing patterns in the postwar economy and the need for more data on the subject, presumably to uncover even more diversity. It would be self-defeating, therefore, to attempt sweeping conclusions. To the extent that the data warrant, some inferences as to the significance of postwar financial developments on capital formation were drawn in the account of developments for each major sector.

If there is a common thread to the experience of these groups, it is probably their continued credit-worthiness despite the large volume of debt already incurred. For almost all of the groups considered, liquidity is down and fixed charges on incomes are up as compared with the early postwar situation. Yet neither the aggregates nor the distributive data available indicate that the financing to date has seriously impaired ability to continue financing

capital outlays so long as high levels of activity are maintained throughout most of the economy.

The qualification is all important. Present amortization and interest charges can rapidly become onerous if incomes decline, and higher levels of liquidity soon become an objective when prices begin to slip.<sup>25</sup> In a downturn these financial relationships may become increasingly important determinants of behavior, cumulating the downward pressures as defaults mount, stimulating expansion in cash accounts rather than plant accounts.

## COMMENT

IRWIN FRIEND, University of Pennsylvania

Daniel H. Brill's paper presents in convenient form a wide variety of data relating to the financing of capital formation by consumers, businesses, and state and local governments, both in the postwar and prewar periods, and analyzes the effect of postwar developments on the financial position of these groups and on the prospects for maintenance of high capital formation. I do not plan to discuss the data presented, except incidentally, since where they are not taken from published materials they cannot be appraised on the basis of information contained in the paper.

I would like first to consider Brill's general conclusion and second to comment on a number of specific points in his analysis. In his conclusion, Brill states that "...neither the aggregates nor the distributive data available indicate that the financing to date has seriously impaired ability to continue financing capital outlays so long as high levels of activity are maintained throughout most of the economy. The qualification is all important. Present amortization and interest charges can rapidly become onerous if incomes decline...." It seems to me that the qualification is almost tautological. What, however, is the significance of the statement that postwar developments in the financial position of the various groups have not seriously impaired their ability to continue financing capital outlays? To be meaningful, it might imply that the economic units involved will not want, in aggregate, to cut down on their present rate of capital expenditures because of their reaction

<sup>25</sup>Friend's contention that this qualification is tautological fails to distinguish between a situation of stable or rising incomes, in which the debt burden might still grow with sufficient rapidity so as to become onerous, and one in which present debt-income relationships become onerous only if incomes decline.

to deterioration in financial position over the postwar period and that the suppliers of funds will also not be adversely affected to any appreciable extent by these financial developments.

Now it is reasonably clear that other things remaining equal, as the debt burden rises, there is less room for further increases to bolster expenditures and the economy is more vulnerable to a downturn. What Brill in effect does, in assessing the burden of existing debt, is what most of us do. We look at a couple of key balance sheet and income account ratios and decide whether they are or are not excessive both in the light of preconceptions about appropriate levels, but more importantly in historical perspective. Brill finds, as do various other Department of Commerce and Federal Reserve studies, that the debt burden is higher currently than at the end of World War II but that it is not too high in comparison with prior periods. Thus, for corporations, it is well known that the various liquidity ratios are not now too different from the prewar period and that interest payments are a much smaller proportion of income before taxes than in the 1920's, indicating a relatively favorable debt burden. Brill points out, on the other hand, that the current relationship of corporate debt to book assets is the highest for the period covered (since 1926), which to the extent that this relationship is meaningful suggest a worsening in the debt position. For individuals, he presents data only on the relative amounts of consumers' payments for debt service and certain other "contractual obligations" in the period from 1939 on, suggesting that in relation to income, consumer debt is about as high now as in the immediate prewar period. Brill does not present corresponding data for the 1920's, nor does he make use of liquidity measures or other balance sheet ratios for any of the years covered.

Assuming that the findings he presents plus other data which might be adduced imply that the burden of the debt for each of the private sectors in the economy as measured by some composite of financial ratios is no greater now than in prior periods of boom, what does this prove in terms of Brill's general conclusion quoted earlier? Perhaps expansion in previous boom periods used as a basis of comparison, e.g. the late 1920's, was limited by the financial condition of consumers and firms. Perhaps the expenditure decisions of consumers and firms are more influenced by a comparison of their current position with ratios of recent years than with ratios in the 1920's and 1930's. Actually to substantiate the kind of conclusion quoted it seems to me that we must depart from Brill's basic framework of reference and, from other types of data,

assess the effect of changes in financial position on the demand for and supply of funds. This can be done to some extent by direct surveys of samples of the economic units involved.

Brill does point out on the basis of recent survey data that, as we might have guessed, whether a consumer now possesses capital goods is likely to be more important than financial ratios in determining the demand for capital goods. This of course does not tell us the nature of the relationship between these financial ratios and demand and does not indicate the effect of changes in these ratios on the supply of funds.

I have probably belabored my doubts as to the usefulness of Brill's framework of analysis to the conclusion drawn in the final section (as well as elsewhere) in his paper. I think this type of analysis is a desirable starting point for assessing the possible impact of trends in financial position on the course of economic activity, but that it does not go very far in this direction.

I shall devote the rest of my comments to specific points in Brill's paper, considering them in the order in which they appear and paying particular attention to material or inferences which are either presented for the first time or depart somewhat from similar discussions or analyses which have appeared elsewhere. One interesting point I would have liked to have seen expanded was further exploration of the ratio of consumer net borrowing to purchases of homes and other durable goods, which reached a record rate in the postwar period. To some extent this high ratio simply reflected the dearth of expenditures on such goods in the 1930's and the World War II period so that repayments were relatively low, though they have been increasing rapidly in recent years. It also reflects the long-term acceptance and growth of installment credit and, in recent years, the low down payments on certain types of homes backed by various types of government guarantees. On the other hand an important offset to the effect of these trends on the ratio of borrowing to purchases might exist in the current provisions for regular amortization of mortgage loans as against the periodic renewals of earlier years. Since I am not too familiar with the derivation of the borrowing estimates for earlier years, I wonder to what extent they miss, either statistically or conceptually, open-book credit and the extension of mortgage loans by one individual to another, both of which were relatively much more important in past periods than they are now.

Another point which might be qualified is the use of cross-sectional data from the Survey of Consumer Finances to show that

most consumers buying durable goods did not have sufficient liquid assets to defray the debts incurred. This inference seems quite plausible on the basis of general considerations and the data presented, though it would have been desirable to show the debt as well as liquid assets for consumers classified by debt status. However, I think it should at least be noted that the aggregate liquid assets estimates obtained from the Survey of Consumer Finances are very much lower than more reliable totals indicated by external data. I hasten to add that the median estimates used by Brill would probably not be affected to the same extent and that the margin of error is not likely to be sufficient to affect his analysis too seriously.

The only other part of the paper's discussion of changes in the financial patterns and position of consumers on which I shall comment is the absence of an attempt to compare roughly the burden of carrying charges on debt (including amortization or repayment) in recent years and in the 1920's. Brill notes that the current ratio of these charges including closely related contractual obligations to disposable income has increased rapidly in recent years and "is almost as large as in 1939." Whether this is supposed to be large or not is difficult to say. I have the impression, unsupported by figures, that for the average occupant of a home, including both owners and renters, the necessity of meeting fixed charges would not be more onerous currently in relation to disposable income than in the 1920's and 1930's generally. This would not be true for shorter-term consumer installment debt. It may also be relevant to point out that one major form of debt in the 1920's—on securities—is negligible today. The basic difficulty, of course, in adequately analyzing changes in the financial patterns and condition of consumers is the lack of the type of data on sources and uses of funds and on their balance sheet position which is available for corporations both in aggregate and by groups.

In Brill's rather extensive discussion of corporate sources and uses of funds and financial position, most of the analysis follows orthodox lines and arrives at familiar conclusions, but I am inclined to question the significance of a number of the findings he presents as well as some of the points of departure from the analysis of others in this field. Thus the observation that gross securities issues for plant and equipment in the postwar period represented a much higher ratio than in the immediate prewar years may be quite misleading without an explanation that this ratio is

highly correlated with the volume of economic activity and the finding is almost a necessary consequence of cyclical influences.

Brill's observation that the postwar proportion of debt issues to total security financing was lower than in the 1930's requires a similar qualification. I agree with a somewhat different evaluation Brill makes in another section, that the proportion of debt to total issues was about the same in postwar years as in most of the 1920's except for 1928-1929. However, I disagree that this ratio "did not vary much among industries." I would like to have seen the basis for this statement as well as an evaluation of the trends within industries. For example, railroads, which have for many decades used a lower proportion of stock issues than other corporations, were a more important part of over-all security financing in the 1920's than they have been in recent years; within this industry group stock issues have gone from a small to a negligible proportion of the total of new issues. Knowing the complication of industrial composition, the margin of error in the data, particularly in the early period, the problems involved in the use of gross versus net issues in periods marked by wide differences in the use of stocks to retire debt as well in refundings generally, the growth of long-term bank debt as a partial substitute for bond issues, changes in the relative importance of internal financing, etc., I feel that statements made about the over-all trend in debt-to-equity ratios should be suitably qualified. In analyzing this trend, Brill enumerates all the familiar ways in which debt has been stimulated in recent years but does not explain why the ratio of new debt to equity has not risen.

In presenting selected financial data for a few major groups of corporations to illustrate industrial differences, the paper introduces unnecessary confusion by classifying together the transportation and communication companies. It should not be too difficult to present the data separately for transportation and communication; but if this could not be done, it might be better to omit this entire class in any analysis of financial characteristics by industry. Thus Brill makes a number of misleading statements implying that transportation and communication companies have a financing pattern closely akin to electric and gas utilities. For example he states: "The transportation and communication group also paid out a larger than average share of their profits in the form of dividends..." What actually happened, I suspect, is that the telephone system paid out virtually all their reported profits in the form of dividends while railroads distributed a smaller than average

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proportion of profits. Incidentally I think that Brill overlooks or understates the usefulness of the vast amount of sample financial data available on corporations when he seems to imply that useful generalizations on financing of investment by size and other characteristics of corporations cannot be made except for industry groups.

Finally it may be appropriate to add to Brill's discussion of trends in the relation of corporate debt to assets, which he notes is now the "highest for the twenty-three-year period examined," that the present book value of assets is much more understated in current dollars than it was in the 1920's as a result of rising capital goods costs not reflected in book value, the effects of accelerated depreciation, and less important, the influence of LIFO. If an adjustment were introduced for these factors, the current ratio of debt to assets might well be below the prewar proportions. Moreover the effect of changes in the degree of consolidation of corporation reports as reported to the Bureau of Internal Revenue may, even for the manufacturing group, so affect this ratio over time as to make the indicated changes not too impressive. It seems to me that the only way in which meaningful results of this type can be obtained is to work with samples of company reports, though I would not be inclined to expend much effort on this particular ratio.

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Daniel H. Brill's paper is both interesting and enlightening. Although certain difficulties arise, our different points of view may be more apparent than real. At one point Brill states that "Identification of specific sources with specific uses of funds is always hazardous." This seems to imply that such an identification is at least conceptually possible. This is misleading. While it is true that in some instances such identification is possible, and that there are sometimes statistical difficulties in making such identification, at other times the difficulties are basically conceptual. One may venture to say that these difficulties are closely related to the problem of timing.

For example consider the case of a large corporation about to expand its productive facilities. Let us assume that the corporation starts with a cash balance of \$2 million and plans to issue \$10 million worth of securities. Although it feels that it will encounter an unfavorable market for the type of securities that it is willing to offer, it also feels that the market will improve. Because it wants to proceed with construction, it decides to utilize the cash balance to carry it over until the time when the market will be more

favorable. Before the cash balance is exhausted, the securities are marketed and the proceeds deposited along with whatever has been left of the original cash balance. The construction continues. While it is true that the corporation may have specified to the SEC that this particular project was to be financed with the \$10 million issue, is this actually true? If the corporation retains a cash balance of \$2 million when the construction is completed, was the \$10 million project financed by the security issue or by \$2 million of cash balance plus \$8 million of the proceeds from the sale of the securities? Conceptually neither is correct, and unfortunately perhaps this is not just quibbling.

Let us suppose that the construction began in the second quarter of the year and the securities were issued in the third quarter. Although the sources-and-uses-of-funds statement for the second quarter will indicate that the project was financed by drawing down the cash balance, the annual statement covering this period will show inconsistently that the same construction was financed by the issue of securities.

This is not to deny the validity of arguing, as Brill does, that in a given time period there were specific sources and uses of funds. The objection raised here is to the tying together of specific components from the two sides of the table. The danger of thinking in such terms is that one may get a distorted picture of the economy which in turn may lead to serious errors.

Although Brill could hardly have done otherwise within the scope of his paper, it is regrettable that certain side issues were not pursued further. His paper is pregnant with significant implications for economic theory. First he notes: "Patterns of financing . . . have differed with respect to the economic group doing the financing and the type of capital formation being financed . . ." This implies that it is quite possible for a given volume and composition of capital formation to be financed in a number of different ways. Each pattern of financing would presumably be associated with a different structure of the interest rates. The damage this does to the Keynesian concept of the marginal efficiency of investment function is obviously great. Furthermore it adds credence to the proposition that interest rates help determine not so much the quantity of capital formation but rather the type and timing of financing. Again it raises the question of the relationship between the pattern of redistribution of currency and deposits that result from ordinary moneyflows and the structure of interest rates. There is the possibility that the financial market is not as homogeneous as interest

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theory seems to imply. If this is so, the whole area calls for serious reconsideration.

Lastly, the relationship between the structure of families and their willingness to buy durable goods and to incur debts is clearly brought out in Brill's paper. This has significant implications in the study of the life cycle of consumer expenditures and calls for further investigation.