Volume Title: The American Economy in Transition

Volume Author/Editor: Martin Feldstein, ed.

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-24082-7

Volume URL: http://www.nber.org/books/feld80-1

Publication Date: 1980

Chapter Title: Postwar Changes in the American Financial Markets

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Chapter URL: http://www.nber.org/chapters/c11295

Chapter pages in book: (p. 9 - 100)

1 Postwar Changes in the American Financial Markets

1. Benjamin M. Friedman

Financial markets are an integral part of the modern economy. The many and varied activities of financial markets both mirror and induce events in the economic system at large. Only rarely, however, do they serve as ends in themselves. Instead, they facilitate earning and spending, saving and investing, accumulating and retiring, transferring and bequeathing—all activities at the core of economic life. In principle people could do all of these things without financial markets. In practice well-functioning financial markets enable people to do them more efficiently, and few economic events take place without financial counterparts. Financial markets in fact constitute an essential vehicle through which the millions of different participants in the nonfinancial economy continually interact with one another.

The needs and resources, as well as the objectives and concerns, that people bring to financial transactions are always changing. Greater preferences for homeownership, reduced concerns for providing for one's own or one's children's future, or the desire to take advantage of a new production technology, will influence what people seek from the financial markets and hence what takes place there. New public-policy initiatives, and the persistent advance in the technology (especially communications technology) on which the financial markets rely in conducting

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I am grateful to Christopher Piros and Michael Burda for research assistance; to James Duesenberry, John Lintner, Sanford Rose, William Silber, Stephen Taylor, and James Tobin for helpful discussions and comments on an earlier draft; and to the National Bureau of Economic Research and the Alfred P. Sloan Foundation for research support.

their own business, may also effect change in the financial market. Moreover, because every transaction has two sides—a buyer and a seller, or a borrower and a lender—changes in what some people bring to the financial markets necessarily imply changes in what others find there. Hence financial markets act to transmit, not just absorb, the chain of events that originates in the nonfinancial economy, and in so doing they also importantly influence these events. Observing the financial markets therefore provides an additional perspective for understanding nonfinancial developments, even if the more basic origin of those developments is itself entirely nonfinancial.

The experience of the American financial markets in the era since World War II, when compared to the corresponding prewar experience, presents both continuities and contrasts. A time-traveler from 1940, or even 1900, would probably feel more nearly at home on first disembarking in the financial markets than in most other major arenas of 1980 American economic activity. He would immediately recognize major classes of financial market participants and their chief activities, including banks taking deposits and making loans, insurance companies spreading risk and investing in securities, corporations borrowing to finance capital spending, and individuals both saving for their retirement and borrowing to buy houses. The chief items issued and exchanged in these markets are still currency and deposits, stocks and bonds, bills and IOU's. Even the principal financial events that are news today—large government financings, episodes of tight money, stock market rallies, or bulges in the corporate underwriting calendar—are happenings that attracted attention forty and in some cases eighty years ago.

Much of this immediate familiarity, however, would pertain to the surface only. Behind the sameness of the players and their working vocabulary, in many respects the American financial markets are performing (or misperforming) their various functions differently today than they did years ago. Some changes have reflected the changing requirements placed on the financial markets by the nonfinancial economy, while others have reflected government actions, and in a few cases the primary impetus to change has been innovation within the financial markets themselves. The pace of change has not been uniform either. Some differences between today's financial markets and those of forty years ago represent a contrast between the prewar years and the postwar period as a whole, but others represent instead the ongoing process of change that has occurred throughout the postwar era.

The object of this essay is to gain an overview of developments in the American financial markets since World War II, with particular attention to changes that have occurred either between the prewar and postwar years or within the past several decades. Inevitably such an effort must be selective. The primary emphasis here is on the interaction between the financial markets and the nonfinancial economy, in the sense

of the demands that the nonfinancial economy has placed on the financial markets and the ways in which the financial markets have responded to these demands. In addition, much of this essay focuses on the evolving role of government in the financial markets and on the changes that it has brought about. Questions pertaining to the internal organization of financial markets and financial institutions, and to financial innovations per se, are also important, but they will receive less attention here.

Section 1.1 briefly sets the background for this analysis by reviewing some significant differences in the underlying economic climate between the prewar and postwar periods. Section 1.2 examines in detail the changes that have taken place in the financing of the economy's nonfinancial activity. Here the dominant trend of the postwar period has been the increasing tendency toward an economy financed by private rather than public debt. Section 1.3 explores changes in the ways in which financial markets have met these needs, with particular attention to the role of financial intermediaries and changes in patterns of intermediation. The dominant trend of postwar developments in this regard has been a continuing increase in the economy's reliance on financial intermediation which, together with a series of innovations, has reduced barriers and frictions interfering with efficient capital allocation. Section 1.4 focuses on changes in the role of government in the financial markets. The major expansion of the federal government's financial activities during the postwar years has been in guaranteeing and intermediating the private sector's debt, as well as in regulating private financial transactions. In addition, section 1.4 provides a brief qualitative account of the ways in which both the conduct of monetary policy and its perception by financial market participants have evolved during the postwar period. Finally, section 1.5 summarizes the principal conclusions of this survey and reemphasizes the interconnections among them.

1.1 Changes in the Underlying Economic Climate

Although the focus of this essay is on changes in financial markets, it is helpful to begin by noting briefly a few of the major changes that have taken place in the underlying climate of nonfinancial economic activity.[1] Three such changes are of particular relevance for understanding what has happened in the financial markets.

First, the American economy in the postwar era has enjoyed much greater stability and prosperity than in the earlier decades of this century. Despite widespread early fears that "secular stagnation" would follow the country's demobilization after World War II, real output and incomes in the American economy in the postwar era turned out to be both stronger and steadier than in the corresponding prewar experience. As the first two columns of table 1.1 show, the postwar years—especially the 1960s—have displayed not only greater economic growth on

Table 1.1 Measures of United States Economic Conditions

	Growth of Real GNP		Change in Equity Prices		Rise in Consumer Price Index	
Years	Mean	S.D.	Mean	S.D.	Mean	S.D.
1911–20	1.7	5.2	−1.1	9.6	8.1	7.4
1921–30	3.1	7.9	11.5	17.0	−1.7	4.0
1931–40	2.6	8.8	−2.1	27.3	−1.6	5.0
1941–50	4.9	8.2	6.3	14.8	5.6	4.8
1951–60	3.3	3.2	12.4	12.6	2.1	2.3
1961–70	4.0	2.2	4.6	10.1	2.8	1.8
1971–78	3.4	3.1	2.6	13.6	6.7	2.5

Sources: U.S. Department of Commerce, Standard and Poor's, and U.S. Bureau of Labor Statistics. This table is in part adapted from Baily (1978).
Note: Data are means and standard deviations, in percentage per annum.

average (as measured by real gross national product) but also a smaller variability of that growth. The pattern of the business cycle, indicated in table 1.2 by the peak-to-trough decline in real gross national product for the thirteen cycles that occurred during the past sixty years, also highlights the increased stability of the postwar period. On the whole, the economy's downturns have been both shorter and shallower.[2] Furthermore, not only has the economy during the postwar period experi-

Table 1.2 Timing and Severity of United States Business Cycle Downturns

Peak	Trough	% Decline in Real GNP
1918: *Q3*	1919: *Q1*	3.6
1920: *Q1*	1921: *Q3*	8.7
1923: *Q2*	1924: *Q3*	0.2
1926: *Q3*	1927: *Q4*	0.1
1929: *Q3*	1933: *Q1*	29.4
1937: *Q2*	1938: *Q2*	4.1
1945: *Q1*	1945: *Q4*	15.9
1948: *Q4*	1949: *Q2*	1.4
1953: *Q2*	1954: *Q2*	3.3
1957: *Q3*	1958: *Q1*	3.2
1960: *Q1*	1960: *Q4*	1.2
1969: *Q3*	1970: *Q4*	1.1
1973: *Q4*	1975: *Q1*	5.7

Source: U.S. Department of Commerce.
Notes: Peak and trough dates from National Bureau of Economic Research reference cycles; real GNP decline in first seven recessions shown based on annual National Income and Product Accounts data (comparison of 1946 over 1944 for 1945 recession); real GNP decline in last six recessions shown based on quarterly National Income and Product Accounts data.

enced less severe recessions on average, but until 1973 the trend appeared to be toward progressively less severity. After the recessions of 1953–54 and 1957–58, a decade-and-a-half elapsed before another downturn amounted to as much as half of their fairly modest magnitudes.

This enhanced stability of the real economy has both affected and been reflected by financial values. As columns 3 and 4 of table 1.1 show, equity prices in the postwar period, especially until the 1970s, have been less variable than in the prewar period. There have also been fewer nonfinancial corporate bankruptcies since World War II. There have been far fewer bank failures, and—until 1974—essentially no failures at all of large banks.

The realization that the postwar American economy had entered an era of stability and prosperity, instead of returning to the years of chaos and depression, gradually altered both business and consumer thinking in important ways. In addition, the emergence of the United States as the world's dominant military superpower, with attendant responsibilities and privileges in the political and economic spheres, only contributed further to the sense of confidence and expanding horizons. The resulting new perceptions of growth opportunities and new attitudes toward risk-bearing in turn played a major role in bringing about the changing patterns of corporate finance and personal saving that are the subject of section 1.2 below, as well as some aspects of the changing patterns of financial intermediation that are the subject of section 1.3.

A second major feature of the postwar American economy that has importantly affected developments in the financial markets has been price inflation. Whether by cause or by accident, the economy's newfound real prosperity and stability did not come without costs, and among these costs the most readily apparent to almost all of the economy's participants has been the acceleration and increasing volatility of inflation during the second half of the postwar period (see cols. 5 and 6 of table 1.1). The postwar period at first brought an improvement in the stability of prices as well as real incomes, as the rapid and volatile inflation of the immediate postwar years gave way to price movements that were on balance both slower and steadier, especially in the early 1960s. The improvement, however, proved only temporary. Beginning in the mid 1960s prices (and wages) rose more rapidly, leading in time to two episodes of double-digit inflation in the 1970s. Moreover, the faster average rate of price increase during the most recent decade has itself been more volatile.

It is not the purpose of this essay to analyze the reasons for the accelerating postwar American inflation. The focus here is rather on the effects of this new development on the financial markets. Because the greatest acceleration of inflation has come only within the past decade,

many key substantive questions about the effects of inflation remain unresolved. Even so, it seems clear already that some of the important financial changes discussed in sections 1.2 and 1.3 below have been due at least in part to the increasing awareness on the part of individuals and businesses of inflation per se, as well as to the rising average interest rate levels that inflation has brought. In addition, several changes in the role of government discussed in section 1.4 have also come about largely as a result of either or both inflation and high nominal interest rates.

Finally, a third feature of the postwar American economic climate that is useful to bear in mind in analyzing this era's financial market changes is the shifting character of the international equilibrium (or disequilibrium). From the beginning of World War I onward, the Western world's international economic balance was highly precarious, and international mechanisms were important in propagating economic disturbances as well as in heightening their severity.[3] In the early years after World War II it looked as if the world economy was at last—or, in the opinion of some who recalled conditions before World War I, again—relatively free from this source of instability. After World War II the world had accepted a de facto dollar standard, and it maintained this convenience even after the return to convertibility of key European currencies in 1958. In addition, until the early 1960s the recovering European economies continually sought both more dollars and more American goods, so that the United States enjoyed not only a strong balance of payments but also the confidence that came from knowing that other countries would gladly absorb dollars in payment for their goods if the American payments balance were not in balance.

This situation changed as the postwar period advanced. America's trading partners increasingly became competitors, and tough competitors at that. Balance-of-payments surpluses changed to deficits. Discussions of how the United States could satisfy the familiar "dollar shortage" disappeared, to be replaced by questions of what, if anything, the United States could do to relieve the "dollar overhang." In the 1970s volatility in the foreign exchange markets again became a major concern, this time with a weak rather than a strong dollar as the center of attention. Questions about the future of the dollar's role in international trade and finance became widespread, especially after the abandonment of dollar-gold convertibility in 1971 and the gradual move to a de facto system of "floating but managed" exchange rates during the next several years. The effective cartelization of the world oil supply in 1973 brought a new wave of payments imbalances and highly skewed accumulations of international reserves, this time far greater in magnitude than any recent experience. On balance, the trend toward ever greater stability in the international economic environment in the first half of the postwar period reversed itself in the second half, although even in the 1970s the

situation was far from what it was in the interwar years, and the continuing presence of institutions such as the International Monetary Fund provide a measure of safety that was not there before. This advance and then retreat in the stability of the international economic system, and simultaneously in the strength of the American position in it, have also helped to mold a number of the major changes that have taken place in the American financial markets during this period.

In sum, real economic stability and prosperity, accelerating price inflation, and a more stable but somewhat deteriorating international equilibrium have lain behind much of the development of the American financial markets in the postwar era. Just within the past half decade, however, public confidence in the continuation of the first of these three factors has weakened noticeably. In part this reduced confidence has reflected the growing awareness of inflation and international events, together with a mounting sentiment that these processes must not continue unabated. To whatever extent conditions fostering inflation and a weak dollar had been a source of rapid economic growth, the public has inferred that actions taken to curb them will probably trim the economy's average real performance too. The unanticipated magnitude of the 1973–75 recession, coming as it did after two decades of damping of the economy's business cycle, also exerted a major impact on people's thinking. So too did the series of oil price increases imposed by the cartel. To whatever extent the reliance on inexpensive and plentifully available energy supplies had been a source of rapid growth, the public has feared that both price and quantity actions taken by the foreign oil producers would limit and disrupt future growth. Even simple extrapolations of economic growth on the basis of purely domestic developments such as labor force and productivity also suggested slower growth ahead, since by the 1970s the postwar baby boom had matured, the birthrate had fallen sharply, and the trend rise in productivity had suffered at least one downward shift.[4]

Moreover, economic events have probably not been the sole cause of the decline in confidence in America's economic prospects that set in during the 1970s. Loss of the Vietnam War, apparent erosion of American influence in world affairs, failure to meet domestic social objectives set in the 1960s, increased emphasis on pollution and other intangible costs typically associated with the economic process, and the political trauma of Watergate all contributed to the feeling, widely reported in surveys of business and consumer opinion, that the future looked less bright than the postwar past.

The chief reason why it is useful to emphasize here this most recent apparent shift in attitudes toward the nation's economic climate and prospects is that it provides a clear warning against projecting, as a forecast, any simple continuation of the postwar financial developments

described in the remainder of this essay. Within only a decade—a relatively brief interval in the context of the overview attempted here—the American public has sharply changed its perception of the stable growth and prosperity that have been perhaps the central features of their economy's postwar experience. Events may yet prove them right or wrong, but financial behavior responds powerfully to attitudes and perceptions as well as realities. Especially for changes in financial markets, analyzing the past is not equivalent to predicting the future.

1.2 Changes in the Financing of Economic Activity

Individuals, businesses and governments sometimes engage in financial transactions directly with one another, although more often one or more intermediaries stand between them. Nevertheless, because the needs of nonfinancial entities to borrow and lend, to issue liabilities and hold assets, to render and receive payments, constitute the essential raison d'etre of financial markets, in assessing changes in financial markets over a long period of time it is useful to begin by abstracting from the financial intermediation process and directly examining changes in the liability issuing and asset holding behavior of the economy's nonfinancial participants.

1.2.1 The Postwar Rise of the Private Debt Economy

The single development in the American financial markets since World War II that has been most striking from this perspective has been the rise of the private debt economy. Individuals and especially businesses have almost continually increased their degree of reliance on debt in relation to their basic nonfinancial activity. Corporations have relied more on both negotiated loans and market debt issues, in comparison to equity either issued externally or retained internally, to finance their ownership of productive assets and working capital. Individuals have relied more on mortgage credit to finance their houses, and on consumer credit to finance their ownership of durables and even their current consumption. As a result, the indebtedness of the American economy's private sector has risen substantially.

It is essential to ask at the outset whether this pervasive increase in private indebtedness that has taken place during the postwar period has also represented a change in the nonfinancial economy's total propensity to issue debt liabilities (and hold debt assets). The answer is a straightforward negative. The total amount of debt issued by nonfinancial borrowers in the American economy has in fact remained remarkably stable in relation to economic activity throughout the postwar period.[5] Hence the great rise in private debt has mirrored a substantial decline, relative to economic activity, in public debt. Although state and local

governments have increased their debt somewhat, an enormous decline (again, relative to economic activity)—in the federal government's outstanding debt has predominated. Hence the postwar rise of the private debt economy has come largel yas the counterpart of a falling off of federal indebtedness.

Figure 1.1 and table 1.3 indicate the general dimensions of the postwar movement to private debt.[6] Figure 1.1 plots, for the years 1918–78, the total outstanding credit market debt issued by the economy's nonfinancial borrowers, scaled as a percentage of nonfinancial economic activity as measured by gross national product. The figure also plots the respective components of this total debt ratio according to major categories of nonfinancial borrowers in the economy: the federal government, state and local governments, businesses, and households. Table 1.3 presents for closer inspection the underlying data for the postwar years, further distinguishing between corporate and noncorporate businesses and also including, as a memorandum item, debt issued in American markets by foreign borrowers.[7]

The key aspect of the American nonfinancial economy's use of financial markets that stands out sharply in figure 1.1 is the relative stability of its total debt outstanding despite the wide variation of the several components that together comprise the total. Apart from a one-time adjustment associated with the fall of prices at the end of World War I, the nonfinancial economy's reliance on debt, scaled in relation to economic activity, has shown essentially no trend over the past sixty years. At 143 percent as of year-end 1978, the debt ratio was virtually unchanged from 142 percent in 1921. Nonfinancial borrowers' outstanding

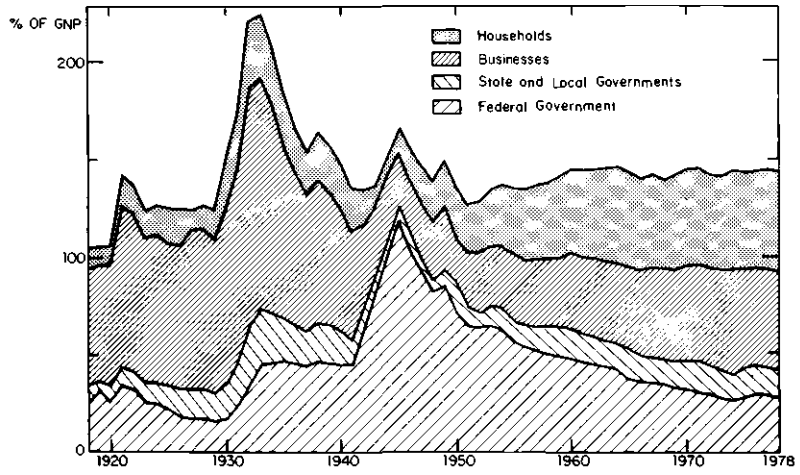

Fig. 1.1 Outstanding debt of United States nonfinancial borrowers.

debt rose significantly in relation to gross national product only during the depression years 1930–33, when gross national product itself not only was well below trend but also was falling too rapidly for the pay-

Table 1.3 Outstanding Debt of United States Nonfinancial Borrowers

Year	Total	Federal Government	State & Local Government	Business Corps.	Other Businesses	Households	Memorandum: Foreign
1946	155.8	103.5	7.0	22.4	7.0	16.0	3.6
1947	145.7	90.6	6.9	23.3	7.0	18.0	5.0
1948	138.4	81.0	7.2	23.7	7.0	19.6	5.2
1949	149.5	84.9	8.4	25.2	7.6	23.5	5.4
1950	133.3	70.8	8.2	23.3	7.4	23.7	4.6
1951	126.9	63.8	8.1	23.5	7.4	24.1	4.3
1952	128.1	61.6	8.7	24.2	7.5	26.1	4.2
1953	134.7	63.0	9.7	25.1	7.5	29.3	4.5
1954	137.0	61.5	11.0	25.5	7.7	31.3	4.4
1955	134.1	56.1	11.3	25.4	7.8	33.4	4.0
1956	133.8	52.0	11.6	26.6	7.9	35.6	4.0
1957	136.2	50.1	12.3	28.1	8.2	37.5	4.2
1958	137.4	49.6	12.9	28.5	8.3	38.2	4.5
1959	141.3	48.3	13.5	29.0	8.7	40.7	4.3
1960	144.0	46.8	14.3	30.5	9.1	43.3	4.6
1961	142.4	45.0	14.3	30.4	9.2	43.5	4.7
1962	143.7	43.8	14.5	30.9	9.6	45.0	4.9
1963	144.0	41.7	14.6	31.0	10.2	46.5	5.1
1964	145.9	40.4	14.8	31.4	10.9	48.5	5.5
1965	141.8	36.8	14.4	31.3	11.1	48.2	5.3
1966	139.7	34.5	14.2	32.1	11.4	47.6	5.1
1967	141.1	34.1	14.3	33.6	11.7	47.5	5.3
1968	139.9	32.7	14.2	34.2	11.6	47.1	5.1
1969	141.5	30.3	14.5	35.8	12.0	47.8	5.1
1970	143.6	30.2	15.0	37.8	12.4	48.3	5.2
1971	143.8	29.8	15.3	37.5	12.8	48.3	5.1
1972	141.9	27.9	14.9	37.4	13.1	48.5	5.0
1973	141.7	25.8	14.3	38.5	13.5	49.6	5.0
1974	144.0	24.8	14.4	41.3	13.7	49.8	5.6
1975	142.7	27.9	14.0	39.4	13.1	48.3	6.0
1976	143.6	29.4	13.6	38.7	12.8	49.2	6.5
1977	144.3	29.0	13.1	38.4	12.8	51.0	6.5
1978	143.3	28.0	12.6	37.8	12.7	52.1	7.4

Source: Board of Governors of the Federal Reserve System.

Notes: Data are year-end credit market debt totals as percentages of fourth-quarter gross national product, seasonally adjusted, at annual rate. Detail may not add to totals because of rounding.

down of debt to keep pace.[8] Otherwise the economy's total nonfinancial debt ratio has remained roughly steady throughout this period. Indeed, as table 1.3 documents in greater detail, the debt ratio has been especially steady during the most recent quarter-century, exhibiting only a slight upward trend and a small amount of cyclicality due to fluctuations of gross national product around its growth trend.[9] From this overall perspective, therefore, the years since World War II have largely represented a continuation of the prewar era.

It is interesting to speculate about the underlying economic behavior that has held the economy's total outstanding nonfinancial debt so steady in relation to its nonfinancial activity. Several different kinds of behavior, not mutually exclusive, may have contributed to this phenomenon. First, the risk of default typically prevents either individuals or businesses from borrowing much in excess of their ownership of (explicit or implicit) collateral, and physical assets constitute the only such collateral that most nonfinancial borrowers can provide. To the extent that private wealth holders in the economy seek to maintain their net worth in relation to their incomes by accumulating more physical assets as they own fewer government-issued financial assets, their ability to issue their own debt will rise as the predominance of government-issued debt declines. Alternatively, some private borrowers may be able to issue as much debt as they want in relation to their incomes, but may also recognize that their liability for future tax payments to support the government's debt service obligations makes the government's debt in some ways equivalent to their own. As their indirect obligations to help service government-issued debt decline, therefore, they become willing to incur an increasing amount of direct obligations for their own debt. Finally, since financial intermediaries must issue their own liabilities approximately in proportion to whatever assets they hold, the amount of debt liabilities that the nonfinancial economy, in total, issues and the amount of financial assets that the nonfinancial economy, in total, holds must be about equal. If private wealth holders in the economy have steady demands for financial assets in relation to their incomes, then the decline of government-issued debt will clear the way for the market as a whole to absorb more private debt, so that this apparent stability on the borrowing side of the financial markets in reality simply mirrors a more fundamental stability on the lending side. Regardless of the relative importance of these (and possibly other) kinds of economic behavior in explaining the stability of the economy's nonfinancial debt ratio, however, that stability has now remained one of the major regularities of the economy's performance over a long period of time.[10]

In sharp contrast to the steadiness of the American nonfinancial economy's overall reliance on debt, the debt issuing behavior on the part of specific categories of nonfinancial borrowers has shown widely diver-

gent patterns. Here the ongoing postwar trend toward ever less federal government debt and ever more private debt in relation to gross national product marks a sharp break from the immediately preceding years. During the 1920s the government was gradually repaying the debt burden it had assumed during World War I,[11] and in these years the private sector was increasing its relative indebtedness. During the 1930s, however, the ratio of the government's debt to gross national product increased by a factor of two-and-a-half (from 18 percent in 1930 to 45 percent in 1940), and during World War II it increased by yet another two-and-a-half (to 119 percent in 1945). The financial system absorbed this rapid relative growth of government indebtedness at first by a temporary increase in the total nonfinancial debt ratio, and then by a sharp reduction in outstanding private debt in relation to economic activity. Since World War II, however, the federal government has again been "repaying" its debt—not by actual repayment from budget surplus, but by the growth (in recent years, mostly the inflation) of economic activity—so that in 1978 the ratio of its debt to gross national product was again down to 28 percent, almost identical to the value in 1918. From the perspective of its total absorption of resources from the financial markets, therefore, the government's posture during the bulk of the post-World War II period has mostly resembled that of the 1920s and has stood in contrast to that of the 1930s and the war itself.

The postwar rise of the private debt economy, following as it did the decline in reliance on private debt during the 1930s and the war years, has mirrored the change in the federal government's behavior. Both businesses and individuals have participated in this postwar resurgence of private debt. The outstanding debt of businesses, which declined in relation to gross national product from 123 percent in 1932 to 29 percent in 1946, has risen in the postwar years to 50 percent in 1978 (in comparison with 84 percent in 1921). The debt ratio for households, which first rose from 15 percent in 1921 to 34 percent in 1932 and then declined to 11 percent in 1944, has risen to 52 percent in 1978. On a short-run basis the data, especially for businesses, exhibit modest cyclical variation in a direction which partly offsets the cyclicality of the government's indebtedness. Nevertheless, over the postwar period as a whole, the trend toward increasing reliance on debt by the private sector has been clear.

In sum, the sustained large-scale turn toward private debt has been one of the principal ways in which the American financial markets in the postwar period have changed, at least in comparison to their more immediate prewar experience. An important question, which this essay leaves unresolved, is whether this resurgence of private debt has primarily constituted merely a return to "normality" after the aberration of the depression and the war or, instead, a shift to a greater "normal"

indebtedness than that which prevailed half a century ago. Both factors have no doubt contributed at least to some extent. That the years 1930–45 constituted an aberration, and that a large part of the postwar trend has represented a reversal of that aberration, is certainly plausible enough. Moreover, as the discussion below brings out, after the war the relative indebtedness of some categories of nonfinancial borrowers rose steadily for one or two decades but then reached a plateau for some time, perhaps indicating a completion of the reversal process and reattainment of the relevant prewar (and pre-depression) norms. Nevertheless, the plateauing of businesses' relative indebtedness in the past few years may have been a reflection of cyclical factors rather than longer run forces, and, after a hiatus of over a decade, households have begun to increase their relative indebtedness once again. Even apart from the evidence of experience itself, there are a priori reasons for believing that the progressive development of intermediation in the American financial markets, discussed in section 1.3 below, may have created an environment that is indeed consistent with a higher "normal" private debt ratio than that which characterized the prewar economy.

1.2.2 Specific Nonfinancial Borrowers' Debt-Issuing Behavior

Before going on to examine changes in patterns of intermediation and in asset-holding behavior, it is useful to consider the way in which private debt has come to play this greater role in the financing of economic activity by focusing briefly on the postwar borrowing experience of the principal specific groups whose needs the American financial markets serve.

Businesses

Table 1.4 provides an indication of the changing absolute and relative magnitudes of American nonfinancial corporate businesses' financial needs by presenting data, in dollars and as a ratio to gross national product, showing the average volume of corporations' uses of funds during successive five-year segments of the postwar period to date (and the three-year average for 1976–78). On the whole, the experience of unincorporated businesses has been roughly similar to that of corporations in this regard. Corporate businesses' total uses of funds have grown not only absolutely but also in comparison to the overall scale of the nation's economic activity, although this increase has entirely come in the 1960s and 1970s. Corporations' uses of funds for all purposes first declined from an average 9.9 percent of gross national product during 1946–50 to 9.2 percent during 1956–60 and then rose by more than one-fourth, reaching 11.9 percent during 1971–75. As the memorandum item in the table shows, the nonfinancial activity of the corporate sector, as measured by its gross domestic product, has risen almost continuously

Table 1.4 **Uses of Funds by United States Nonfinancial Corporate Businesses**

Years	Total Uses	Capital Expenditures		Net Acquisition of Financial Assets		Memorandum: GDP of Nonfinancial Corporate Business
		Total	Plant and Equipment	Total	Liquid Assets	
			Billions of Dollars			
1946–50	25.0	18.7	15.5	6.4	1.0	128.4
1951–55	34.2	27.1	23.3	7.1	1.9	192.2
1956–60	42.3	35.1	31.8	7.2	−0.4	250.6
1961–65	62.1	47.7	40.2	14.4	2.3	335.2
1966–70	98.5	78.1	66.6	20.4	1.3	496.8
1971–75	152.6	108.8	97.3	43.8	11.5	741.7
1976–78	224.8	168.3	144.8	56.5	8.7	1113.7
			Percent of GNP			
1946–50	9.9	7.5	6.2	2.4	0.3	51.4
1951–55	9.4	7.5	6.4	1.9	0.5	53.1
1956–60	9.2	7.6	6.9	1.5	−0.1	54.3
1961–65	10.3	7.9	6.6	2.4	0.4	55.7
1966–70	11.4	9.1	7.7	2.3	0.1	57.3
1971–75	11.9	8.4	7.5	3.4	0.9	57.2
1976–78	11.7	8.8	7.6	2.9	0.5	58.6

Source: Board of Governors of the Federal Reserve System.
Notes: Data are averages of annual flows, in dollars and as percentages of annual gross national product. Detail may not add to totals because of rounding.

throughout the postwar period, so that at least a part of this greater relative use of funds in recent years may have reflected greater relative nonfinancial activity. Within the overall total, use of funds for purposes of physical investment—including plant, equipment, real estate, inventories, and other real investments—has consistently dominated use of funds for purposes of acquiring financial assets, and has also accounted for most of the increase in total use in relation to gross national product. Nonfinancial corporations have also consistently used some funds to acquire (mostly nonliquid) financial assets, thereby acting in part as financial intermediaries.

Against this background of corporate businesses' needs for funds in their ongoing ordinary nonfinancial activity, table 1.5 presents five-year average data, in dollars and as percentages of total sources of funds, showing how corporations have financed these needs.[12] After World War II the balance of corporate financing first shifted toward internally generated funds including both depreciation allowances and undistributed profits. Beginning in the early 1960s, however, it shifted back toward external funds, including both debt and equity issues. Internal funds

provided an average 67 percent of corporations' total funds requirements during 1951–55 and 69 percent during 1956–60, but then fell to only 55 percent during 1971–75. Also over these years depreciation allowances increased in importance, and retained earnings (in other words, internal additions of common equity) decreased in importance, among the sources of internal funds themselves. To the extent that depreciation allowances represent genuine consumption of the capital stock rather than merely a way of redefining profits so as to render them exempt from corporate income taxes, therefore, the decline in the contribution of internally generated funds to the growth of the corporate sector has been even more pronounced than these data suggest.[13] During 1974–77 the effects of the severe business recession and recovery temporarily reversed the trend toward external finance, so much so that corporations' outstanding indebtedness fell from 41 percent of gross national product to 38 percent. Since then, however, corporations have apparently resumed the financing patterns that had predominated for a decade-and-a-half before the unusually deep recession.

A further feature of corporate financial behavior that emerges clearly from table 1.5 is the increase in importance of debt and the correspond-

Table 1.5 **Sources of Funds to United States Nonfinancial Corporate Businesses**

		Gross Internal Funds			Net Increase in Liabilities		
Years	Total Sources	Total	CCA	Undistributed Profit	Total	Equity Issues	Credit Market Debt
				Billions of Dollars			
1946–50	30.3	18.6	6.7	11.4	11.8	1.1	5.5
1951–55	35.3	23.5	13.2	9.5	11.8	1.9	6.6
1956–60	47.0	32.6	21.6	10.0	14.4	2.0	10.0
1961–65	69.1	46.0	31.3	13.1	23.1	0.7	14.0
1966–70	111.2	64.5	46.7	16.1	44.7	2.5	30.7
1971–75	182.7	99.7	70.9	25.8	83.0	8.8	50.4
1976–78	267.6	156.3	102.5	49.0	111.2	5.3	73.2
				Percentage of Total Sources of Funds			
1946–50	100.0	61.2	22.2	37.4	38.8	3.7	18.0
1951–55	100.0	66.5	37.2	26.8	33.5	5.4	18.5
1956–60	100.0	69.4	46.0	21.1	30.6	4.3	21.1
1961–65	100.0	66.6	45.3	19.0	33.4	0.9	20.2
1966–70	100.0	59.0	42.8	14.8	41.0	2.3	28.1
1971–75	100.0	54.6	38.8	14.1	45.4	4.8	27.6
1976–78	100.0	58.4	38.3	18.3	41.6	2.0	27.3

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of annual flows, in dollars and as percentages of total sources. Detail may not add to totals because of rounding.

ing decline in importance of equity (until the early 1970s) among corporations' external sources of funds. New issues of equity (net of retirements) accounted for an average of nearly 15 percent of corporations' external funds sources during the 1950s but then less than 5 percent during the 1960s, and in three years out of ten during the 1960s equity retirements actually exceeded new issues. Moreover, the data shown in table 1.5 importantly understate both the magnitude and the persistence of the shift to debt finance. What little equity issuance took place during the 1960s typically represented initial public offerings of speculative new ventures aimed at a segment of the investing public that was willing to bear substantial risk. Established corporations largely avoided the equity market. In addition, the bulge of equity offerings during the early 1970s primarily represented only one sector of American industry (public utility companies), and it consisted in large part of preferred shares which are in many respects simply bonds that receive special tax treatment for corporate investors.[14]

Businesses' increasing reliance on debt financing has probably reflected several influences on corporate financial decision-making. To begin, most American businesses emerged from World War II carrying debt that was, in relation to their volume of production and profits, very small in comparison with their prewar experience. As figure 1.1 shows, nonfinancial business indebtedness in relation to gross national product peaked in 1932 and then fell slowly during the remainder of the 1930s. The most rapid decline, however, came during the war years, as the overall business debt ratio fell from 63 percent in 1940 to 27 percent in 1945 (40 percent to 17 percent for corporations). It is at least possible, therefore, that the entire subsequent increase to 55 percent at the 1974 peak (37 percent for corporations) simply represented a slow restoration—which may not yet be complete—of a perceived normal indebtedness that has remained unchanged since before the war. Indeed, by comparison with the standard of the 1920s, the postwar rise in corporate indebtedness has been modest thus far.

Other, more specific explanations are also available, however. First, any private borrower's willingness to incur debt liabilities presumably reflects confidence in the ability to meet these obligations under a wide range of plausible circumstances, including both those particular to the borrower and those general to the economy. As business decision makers became aware of the American economy's distinctly greater stability and prosperity in the postwar era, they probably associated a smaller risk with any given level of indebtedness in relation to either balance sheet or income reference points. Second, the secular acceleration of inflation and rise of nominal interest rates has provided a further incentive for taxable borrowers to increase their indebtedness. As figure 1.2 shows, on average nominal interest rates have about kept pace with inflation,

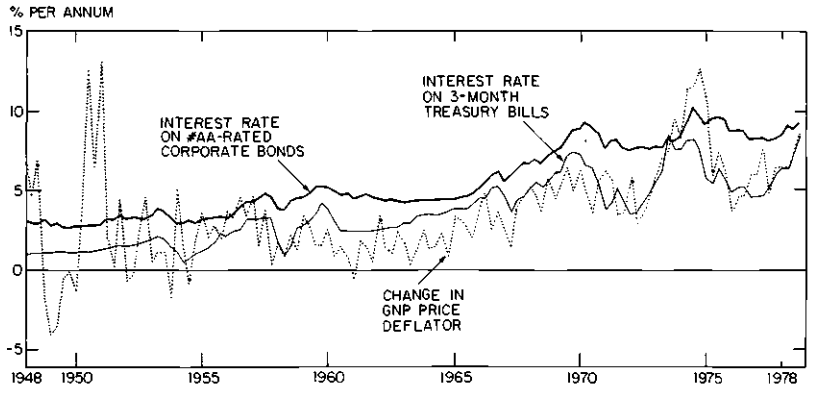

Fig. 1.2 Interest rates and price inflation.

so that "real" interest rates have remained roughly unchanged during the postwar period. Given the deductibility of interest payments against income for tax purposes, however, after-tax "real" interest rates faced by corporate borrowers have been negative almost throughout this period, and have become progressively more negative since the early 1960s —exactly the period of greatest increase in the debt share of total sources of funds.[15] Finally, at least throughout the 1960s, corporate financial decision makers appear to have operated almost continually under the opinion that equities were somehow "undervalued." Especially during the 1960s the belief that equities were undervalued on a widespread basis led not only to the paucity of new equity issues by major corporations but also to such developments as a wave of conglomerate mergers largely financed by debt. In fact, as figure 1.3 shows, equity prices on average had risen sharply during the 1950s and 1960s, both nominally and on a price-adjusted basis. Since then there has been little trend movement nominally and a large decline in real terms, so that any re-

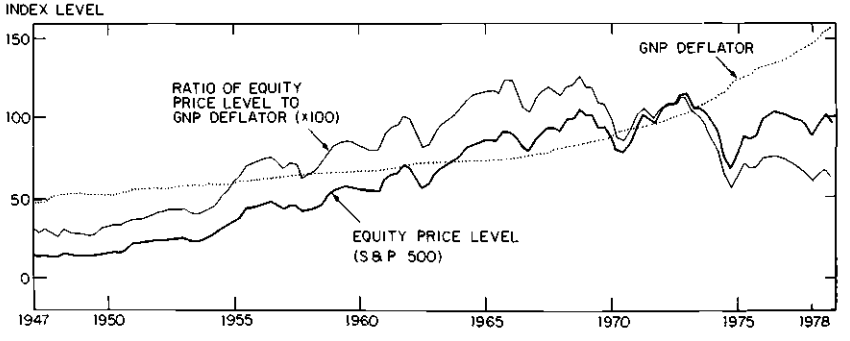

Fig. 1.3 Equity prices and the GNP price deflator.

luctance to issue new equities in the late 1960s because of undervaluation appears (with the benefit of hindsight) to have been misplaced.

Whatever its cause, the shift by corporations from internal funds generation to external financing and from equity to debt within that external financing total, together with similar trends among nonincorporated businesses, has been a major feature of the postwar American financial markets. Table 1.6 presents data showing the total accumulation and also the maturity composition of corporate businesses' outstanding debt. These data show clearly that the large shift to debt financing beginning in the mid 1960s also brought a slow increase in the short-term share of the debt, thereby breaking away from the virtually fixed maturity composition that had prevailed since the end of World War II.[16]

Individuals

The substantial postwar increase in households' relative indebtedness, shown in figure 1.1 and table 1.3, has probably reflected behavioral influences analogous to those identified above as likely causes of the rise

Table 1.6 **Outstanding Debt of United States Nonfinancial Corporate Businesses**

Years	Total Credit Market Debt	Long-Term	Short-Term
		Billions of Dollars	
1946–50	60.9	48.6	12.4
1951–55	91.5	72.7	18.7
1956–60	133.9	106.8	27.1
1961–65	191.3	151.9	39.5
1966–70	309.3	238.3	71.0
1971–75	523.4	396.7	126.8
1976–78	760.3	568.8	191.5
		Percentage of Total Debt	
1946–50	100.0	79.7	20.3
1951–55	100.0	79.5	20.5
1956–60	100.0	79.8	20.2
1961–65	100.0	79.4	20.6
1966–70	100.0	77.0	23.0
1971–75	100.0	75.8	24.2
1976–78	100.0	74.8	25.2

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of year-end credit market debt outstanding, in dollars and as percentages of the annual total. Detail may not add to totals because of rounding. Long-term debt, with a maturity of over one year, is measured approximately as bonds, multifamily and commercial mortgages, and 40 percent of bank loans. Short-term debt is all other credit market borrowings, including mostly finance company loans, commercial paper, and the remainder of bank loans.

in businesses' reliance on debt. Initially just the return to borrowing standards that had prevailed before the war, then a changing perception of tolerable debt levels as confidence in the economy's stability and prosperity became widespread, and finally the growing after-tax incentive for those in higher tax brackets to borrow as price inflation and nominal interest rates rose together,[17] all contributed to individuals' greater willingness to borrow.

Unlike businesses, however, individuals during the postwar period have increased their outstanding debt well beyond the relationship to gross national product that prevailed during the prewar years. Households' outstanding debt gradually rose from 15 percent of gross national product in 1921 to 24 percent in 1929, then temporarily rose somewhat further in the early 1930s (when gross national product was well below trend), but then stabilized again at an unvarying 25 percent throughout 1936–40. When individuals emerged from World War II with a debt ratio of only 13 percent in 1945 (the low had been 11 percent a year earlier), they presumably felt ample room to borrow heavily. Individuals pushed their indebtedness relative to gross national product past the 25 percent prewar norm as early as 1952, however, and continued to increase it virtually without interruption until 1964 when it reached 48 percent—a level at which it remained almost constant through 1975. Hence it appeared that individuals had reached a new postwar capacity level of tolerable debt. Just during the late 1970s, however, individuals once again began to increase their relative indebtedness. All of these changes in households' indebtedness in relation to gross national product have also represented changes in relation to personal disposable income, which has claimed a steady average of 69 percent of the gross national product, with no trend at all, throughout the postwar period.

Tables 1.7, 1.8, and 1.9 present data for households comparable to that shown in tables 1.4, 1.5 and 1.6 for nonfinancial corporate businesses. First, table 1.7 indicates households' changing financial needs by showing their total uses of funds for all purposes, divided between current consumption of nondurable goods and services and all "investment" type uses—including new residential construction, outlays for durable goods, and financial investment. Whether the evolution of individual behavior documented in table 1.7 constitutes a case for change or continuity within the postwar period is largely a matter of emphasis. Nondurable consumption has remained a steady five-eighths of gross national product, without any trend, since the early 1950s. Households' total nonconsumption uses of funds remained roughly steady at one-fifth of the gross national product until 1970, but has risen sharply since then. Within this total, both durables purchases and residential construction have held a steady relation to overall economic activity throughout, but the net acquisition of financial assets has approximately

Table 1.7 **Uses of Funds by United States Households**

Years	Total Uses	Nondurable Consumption	Investment Uses of Funds				Memorandum: Personal Disposable Income
			Total	Durable Expenditure	Residential Construction	Net Acquisition of Financial Assets	
				Billions of Dollars			
1946–50	209.7	162.0	47.7	23.0	10.4	14.3	181.4
1951–55	294.1	223.0	71.2	32.4	17.1	21.8	248.2
1956–60	383.8	294.0	89.8	40.0	20.1	29.8	320.2
1961–65	496.2	376.7	119.5	51.8	20.9	46.9	411.7
1966–70	698.4	529.1	169.3	77.5	23.4	68.4	591.9
1971–75	1093.0	805.4	287.5	117.3	40.8	129.4	903.4
1976–78	1670.3	1197.9	472.5	178.8	75.3	218.4	1316.0
				Percentage of GNP			
1946–50	84.2	65.2	19.1	9.1	4.1	5.8	72.9
1951–55	81.2	61.6	19.6	8.9	4.7	6.0	68.6
1956–60	83.2	63.7	19.5	8.7	4.4	6.5	69.5
1961–65	82.5	62.8	19.8	8.6	3.5	7.7	68.5
1966–70	80.5	61.0	19.6	8.9	2.7	7.9	68.2
1971–75	84.3	62.0	22.2	9.1	3.2	10.0	69.6
1976–78	87.4	62.8	24.7	9.4	4.0	11.4	68.9

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of annual flows, in dollars and as percentages of annual gross national product. Detail may not add to totals because of rounding.

doubled over the postwar years, rising from an average of 6 percent of gross national product during the late 1940s and 1950s to 10–12 percent in the 1970s. While it is important not to lose sight of the distribution of assets and liabilities—the people who borrow are often not the same ones who accumulate assets—on an aggregated basis the notion that individuals have increased their borrowing (relative to economic activity) either to finance investment in houses and durables or to finance current consumption turns out to be false. Instead, they have borrowed more and simultaneously held more financial assets.

A comparison of households' total uses of funds versus personal disposable income, shown as a memorandum item in table 1.7, indicates that individuals have had to be net borrowers throughout the postwar period. After showing little trend for a quarter-century, the shortfall of disposable income from total uses of funds has increased sharply in the 1970s. The data in table 1.8 show how households have financed their growing needs for funds.[18] Here again the data suggest a long period of stability, followed by some change in household behavior either at the beginning of the 1970s or perhaps the 1960s. Until then the balance of saving and borrowing as sources of funds remained largely unchanged.

Table 1.8 Sources of Funds to United States Households

	Gross Personal Saving				Net Increase in Liabilities		
Years	Total Sources	Total	Net Personal Saving	Capital Consumption Allowances	Total	Home Mortgages	Installment and Consumer Credit
				Billions of Dollars			
1946–50	45.4	36.9	21.1	15.7	8.5	4.8	3.6
1951–55	68.2	54.7	27.2	27.5	13.6	8.3	3.9
1956–60	85.9	69.3	29.2	40.1	16.6	10.8	4.0
1961–65	114.6	88.4	39.6	48.8	26.2	15.4	7.6
1966–70	166.6	138.0	71.2	66.8	28.5	15.2	8.0
1971–75	277.3	217.5	110.9	106.6	59.8	37.7	16.0
1976–78	442.1	303.8	141.2	162.6	138.3	86.1	38.9
				Percentage of Total Sources			
1946–50	100.0	81.3	45.6	34.7	18.7	10.6	7.9
1951–55	100.0	80.1	39.8	40.3	19.9	12.1	5.8
1956–60	100.0	80.6	34.0	46.6	19.4	12.6	4.6
1961–65	100.0	77.2	34.6	42.6	22.8	13.5	6.7
1966–70	100.0	82.9	42.8	40.1	17.1	9.1	4.8
1971–75	100.0	78.4	40.0	38.4	21.6	13.6	5.8
1976–78	100.0	68.7	31.9	36.8	31.3	19.5	8.8

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of annual flows, in dollars and as percentages of total sources. Detail may not add to totals because of rounding.

More recently individuals have relied more heavily on borrowing, including both mortgages and consumer credit (primarily installment credit[19]). Table 1.9 indicates the accumulation and also the relatively stable composition of this expanding individual debt by type of borrowing. Subject to some variation primarily associated with the pace of homebuilding activity and the movement of house prices, home mortgages have accounted for a fairly steady five-eighths of total household indebtedness throughout the postwar period. Consumer credit has gradually shrunk in relation to the total, while the relatively small amount of borrowing in all other forms has gradually grown.

State and Local Governments

State and local government units gradually increased their outstanding debt from 7 percent of the gross national product at the end of World War II to just over double that in 1971 before allowing it to decline somewhat in the 1970s. Once again, a major portion of this increase in indebtedness constituted a return to prewar norms after the aberration of the wartime years. During the 1920s the state and local government debt ratio had slowly risen from 10 percent to 13 percent, and after some fluctuation in the early 1930s it stood at 13 percent in 1941 also.

Table 1.9 Outstanding Debt of United States Households

Years	Total Credit Market Debt	Home Mortgages	Installment and Consumer Credit	Other
		Billions of Dollars		
1946–50	52.7	31.2	17.9	3.6
1951–55	107.2	64.1	36.0	7.1
1956–60	183.3	114.8	56.0	12.5
1961–65	286.6	181.1	84.0	21.5
1966–70	423.0	259.0	126.6	37.4
1971–75	657.0	400.3	195.2	61.5
1976–78	1010.5	637.6	292.7	80.2
		Percentage of Total Debt		
1946–50	100.0	59.2	33.9	6.9
1951–55	100.0	59.8	33.6	6.6
1956–60	100.0	62.6	30.5	6.8
1961–65	100.0	63.2	29.3	7.5
1966–70	100.0	61.2	29.9	8.8
1971–75	100.0	60.9	29.7	9.4
1976–78	100.0	63.1	29.0	7.9

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of year-end credit market debt outstanding, in dollars and as percentages of the annual total. Detail may not add to totals because of rounding.

At least until 1960, therefore, the postwar increase was merely a restoration of the previous relative debt level. For the next decade outstanding state and local government debt grew little further in relation to the economy's nonfinancial activity, and in the 1970s it again declined to well within its prewar range.

As table 1.10 shows, the leveling of the state and local government debt ratio in the 1960s and its decline in the 1970s stand in some contrast to the relative size of state and local governments' nonfinancial activity, which continued to grow vigorously through both the 1950s and the 1960s, and leveled off but did not decline in the 1970s. State and local government spending has been the single most rapidly growing component of the nation's total spending since World War II. The great surge in the provision of local public services during this period, much of which was associated with the needs created by the postwar baby boom, more than doubled state and local governments' purchases of goods and services as a share of the gross national product. Only in the 1970s has this growth in spending leveled off, as the demographics have shifted markedly and an increasing number of communities have all but completed their basic social capital installations including schools, hospitals, roads, and sewers.

Table 1.10 Budget Summary for United States State and Local Governments

Years	Expenditures		Net Acquisition of Financial Assets	Total Receipts	Net Increase in Liabilities
	Total	Purchases of Goods and Services			
			Billions of Dollars		
1946–50	17.2	15.1	1.2	17.4	2.1
1951–55	28.0	25.7	1.6	27.4	4.4
1956–60	43.3	40.4	1.4	42.4	5.3
1961–65	63.8	60.0	3.4	64.1	6.5
1966–70	107.1	100.7	4.3	108.1	9.7
1971–75	185.3	172.6	10.1	194.1	16.0
1976–78	275.2	255.5	20.6	299.2	20.6
			Percentage of GNP		
1946–50	6.8	6.0	0.5	6.9	0.8
1951–55	7.7	7.1	0.5	7.6	1.2
1956–60	9.4	8.7	0.3	9.2	1.1
1961–65	10.6	10.0	0.6	10.6	1.1
1966–70	12.3	11.6	0.5	12.4	1.1
1971–75	14.2	13.3	0.8	15.0	1.3
1976–78	14.4	13.4	1.1	15.7	1.1

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of annual flows, in dollars and as percentages of annual gross national product. Detail may not add to totals because of rounding.

The budget data in table 1.10 also show that state and local governments on average have typically kept their total receipts, consisting primarily of tax revenues and federal grants, rising in pace with their increasing total expenditures—including primarily purchases of goods and services, plus small amounts of transfer payments and the excess of interest paid over interest received.[20] Indeed, in the 1970s they have consistently run surpluses.[21] Hence state and local governments' borrowing, which has consisted almost entirely of long-term debt, has served in large part to finance these governments' own investment in financial instruments, especially Treasury securities. In 1978, however, the federal government eliminated the right of state and local governments to earn a positive "spread" by issuing tax exempt (and therefore lower yield) securities in order to hold (without paying taxes) higher yielding Treasury securities. Hence the relationship between state and local governments' debt issues and their budget surpluses or deficits may well become closer in the future than it has been in the recent past.

Foreign Borrowers

Foreign borrowers have played a relatively small, though growing, role in the American financial markets throughout the postwar period.[22] During the late 1950s and early 1960s, discussions of the American balance of payments deficit, which people were just then coming to perceive as a problem, often focused on the strength of the American financial markets and on their ability to extend credit to finance the growth of world trade and development. Even so, as the memorandum column of table 1.3 indicates, outstanding debt issued by foreigners in the American markets first equaled 5 percent of this country's gross national product only in 1963, and it peaked at an only slightly higher ratio after the imposition of capital controls the next year. Moreover, throughout this period and into the 1970s, about half of the foreign borrowing here took the form of loans from the federal government rather than funds advanced by private investors. Foreign debt in American markets did not again reach the 1964 level (in relation to gross national product) until 1974, after the removal of the capital controls. The subsequent growth remained modest through 1978, although the increasing amount of developing country debt owed to American banks has recently raised widespread questions about these banks' exposure to risks associated with foreign lending.

It is interesting to speculate about whether foreign borrowing would have been a more important activity in American markets but for the restrictive government actions taken in the 1960s to prevent capital outflows in the interest of maintaining a stronger dollar. From 1964 until 1974 the Interest Equalization Tax effectively prohibited the sale in the United States of debt securities issued by foreign borrowers other than

Canadian provinces and international institutions such as the World Bank, and from 1965 until 1974 the Federal Reserve's so-called Voluntary Foreign Credit Restraint program limited lending abroad by American banks.[23] These two restrictions—along with the Commerce Department's Office of Foreign Direct Investment program, which from 1965 to 1974 required American companies to finance abroad whatever funds they were investing abroad, and the advent of effective interest ceilings on domestic deposits (discussed in section 1.4 below)—probably provided the chief impetus to the rapid development of the Eurodollar and Eurobond markets. Without these capital controls foreign borrowers almost certainly would have done more financing in American markets, and might have done much more. Since the removal of capital controls the volume of both American banks' lending abroad and foreign issues in the American bond market has picked up sharply, but the Euro markets, now that they are well established, remain the major immediate source of dollar credits to most foreign borrowers.[24] In retrospect it is clear that the capital flow restrictions imposed in the 1960s had the effect of enhancing the competitive position of, for example, the London financial markets over those in New York.

Federal Government

The federal government's reliance on the American financial markets during the postwar period has largely constituted a return to the experience of the 1920s after the aberration of the Depression and the war years. After World War II the government's outstanding debt fell steadily in relation to gross national product until the mid-1970s—from 119 percent in 1945 to 56 percent in 1955, 37 percent in 1965, and a low of 25 percent in 1974. Although the federal government's budget has rarely been in surplus, only during the years 1949, 1953 and 1975–76 did the impact of business recessions on tax revenues and transfer payments enlarge the deficit to such an extent that the government did not "pay down" the public debt in relation to (temporarily shrunken) nonfinancial activity. Nevertheless, the other postwar recessions—in 1957–58, 1960–61, and 1969–70—did produce some slowing, though not a reversal, of the overall postwar decline in the government's debt ratio. The combined effect of the relatively mild 1969–70 recession and the especially severe 1973–75 recession has been on balance to halt much of the decline of the public debt ratio in the 1970s, although the government budget projections for 1979–81 that are available as of the time of writing suggest that this decline may now be in progress once again.

Table 1.11 presents budget summary data relating the federal government's financial needs to its nonfinancial activity. Apart from a one-time jump at the beginning of the 1950s and subsequent fluctuations associated with recessions, federal expenditures have grown slowly but stead-

Table 1.11 Budget Summary for United States Federal Government

Years	Expenditures: Total	Purchases of Goods and Services	Transfer Payments	Net Acquisition of Financial Assets	Total Receipts	Net Increase in Liabilities
			Billions of Dollars			
1946–50	36.5	17.2	15.1	−0.8	42.9	−6.3
1951–55	68.8	48.1	16.1	1.6	67.6	3.3
1956–60	85.0	51.5	27.7	0.8	85.0	2.2
1961–65	113.7	63.6	42.7	3.4	111.6	6.5
1966–70	176.1	92.2	72.4	3.7	171.2	10.1
1971–75	277.3	106.9	152.2	6.4	251.9	32.6
1976–78	422.2	142.2	249.8	20.6	379.6	69.4
			Percentage of GNP			
1946–50	14.7	7.0	6.1	−0.7	17.3	−3.0
1951–55	19.0	13.3	4.4	0.5	18.7	1.0
1956–60	18.4	11.2	6.0	0.2	18.4	0.5
1961–65	19.0	10.6	7.1	0.6	18.6	1.1
1966–70	20.3	10.7	8.3	0.4	19.7	1.2
1971–75	21.3	8.3	11.6	0.5	19.4	2.4
1976–78	22.1	7.5	13.1	1.1	19.8	3.7

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of annual flows, in dollars and as percentages of annual gross national product. Detail may not add to totals because of rounding.

ily in relation to gross national product throughout the postwar period. Within the overall total, however, the mix between transfer payments and direct purchases of goods and services has radically changed. Except for a brief bulge during the Vietnam War years, the share of gross national product claimed by federal goods and services purchases has fallen ever since the early 1950s. By contrast, during this same period federal transfers—including grants to state and local governments, social security benefits, and all other income support payments—have risen even more rapidly in relation to gross national product. As a result, total expenditures (which also include the excess of interest paid over interest received) have grown modestly in relative size, and their composition is now nearly two-thirds transfers and only one-third direct purchases instead of the reverse twenty years ago.[25]

The federal government typically enlarges its portfolio of directly held financial assets only slowly, so that its borrowing primarily reflects the differences between its total expenditures and its total receipts from tax revenues and social security contributions. After a large surplus during the late 1940s and a small deficit during the Korean War years, the federal government's budget was in balance on average during the

late 1950s. Since then the budget deficit has averaged 0.5 percent of the gross national product during the 1960s, nearly 2 percent during the early 1970s and more than 2 percent during 1976–78. Even after allowance for the enlargement of the deficit due to the severe 1973–75 recession, the federal budget deficit has shown a slow but steady tendency to grow in relation to the economy's nonfinancial activity.[26] The result has been the continual slowing—and in 1975–76 the temporary reversal —of the decline in the federal debt ratio that has dominated the postwar period thus far.

The maturity composition of the debt issued by the federal government has also changed substantially during the postwar period, as table 1.12 shows. Federal debt management policy has not only stood in contrast to the pattern of wartime financing but has also undergone several sharp breaks within the postwar years. Especially since the Federal Reserve System's abandonment of bond price stabilization at the beginning of the 1950s, postwar debt management has mostly emphasized short-term rather than long-term financing, driving the mean maturity of the outstanding federal debt down from 113 months in 1946 to a low of only 33 months in 1976. In two distinct periods, however, debt management has gone the other way. During the early 1960s the government lengthened its outstanding debt, from a mean maturity of 50 months in September 1960, to 65 months in January 1965.[27] In addition, beginning in 1976 and continuing through the time of writing, the government has been lengthening its debt once again. The increase in mean maturity from 33 months in January 1976, to 43 months as of September 1979, represents about as rapid a rate of increase as the rate of decrease that predominated on average during the previous thirty years.

1.3 Changes in the Working of the Financial Markets

How have the American financial markets in the postwar period met the changing needs that the economy has placed on them? In any well

Table 1.12 **Maturity of Privately Held United States Treasury Securities**

Year	Mean Maturity	Year	Mean Maturity
1945	116	1975	29
1950	100	1976	33
1955	71	1977	35
1960	58	1978	40
1965	63	1979	43
1970	41		

Source: U.S. Department of the Treasury.
Note: Data are mean values for December (September for 1979).

developed financial system it is useful to distinguish the liability-issuing and asset-holding activity which takes place directly between nonfinancial participants in the economy, whose respective principal business interests lie elsewhere, from that which takes place through an intermediary whose principal business is financial transactions themselves. In general, changes in how financial markets work to meet the requirements of the nonfinancial economy may represent some combination of changes in the economy's overall degree of intermediation and changes in how the intermediaries go about their business. In fact both aspects together have accounted for changes in the American financial system during the postwar era.

1.3.1 The Advance of Financial Intermediation

Throughout their history, but more so during the twentieth century and especially in the years since World War II, the American financial markets have undergone a shift away from direct transactions between nonfinancial borrowers and lenders toward the intervention of financial intermediaries.[28] The development of the commercial banking system and of the life insurance industry in earlier years, and more recently the great expansion of nonbank deposit institutions and both private and public sector pension funds, have been important features of the development of the American financial system.

In the postwar period the continuation and even acceleration of the trend toward intermediated financial markets has hardly been independent of the simultaneous rise in the economy's reliance on privately issued debt. Instead, the two developments have been natural counterparts.[29] In comparison with default-free government obligations, risky private securities impose both information and transactions costs that encourage the economy's development of financial intermediaries. Holders (or potential holders) of private securities must first discover the specific risks that individual claims against private issuers entail, and then monitor these risks on an ongoing basis. These information costs are especially large in the case of negotiated loans like home mortgages, consumer credit, and bank loans to businesses. Not only economies of scale but also the advantages of specialization favor delegating this information gathering and processing function to third parties. An equally important function performed by financial intermediaries holding private securities is the pooling of specific risks. In transforming the direct claims that they hold into the indirect claims that they issue, intermediaries economize on transactions costs so as to facilitate diversification by enabling investors to own interests (indirectly) in a large number of imperfectly divisible assets. In addition, by pooling many individuals' and businesses' needs for liquidity, deposit intermediaries often change the risk characteristics of the aggregate of assets to be held by issuing

claims (often explicit or implicit demand claims) that have a shorter maturity than the claims that they in turn hold. Similarly, pension and insurance intermediaries change the aggregate risk structure that insured parties face by pooling actuarial risks.

Individuals are the principal *non*financial holders of assets that represent direct claims on other nonfinancial participants in the economy. Individuals' continued willingness to hold such assets therefore constitutes a retardant to the advance of financial intermediation, while their reluctance to perform this function creates the basic need for intermediation. Figure 1.4 shows how American households have shifted the composition of their financial asset portfolios during the postwar period.[30] Households' aggregate holding of deposit-type liabilities of financial intermediaries have grown continually from the early 1950s to the late 1970s, not only absolutely but in relation to overall nonfinancial economic activity (and personal income). Households' claims on insurance and pension reserves have also grown on balance during the postwar years, although here the growth has been less steady because of the effect of equity price changes on the valuation of these reserves (see again fig. 1.3). By contrast, households' direct holdings of nonintermediated debt have declined in relative terms almost continually since World War II, and their direct holdings of equity claims on business corporations have varied mostly with equity price fluctuations, exhibit-

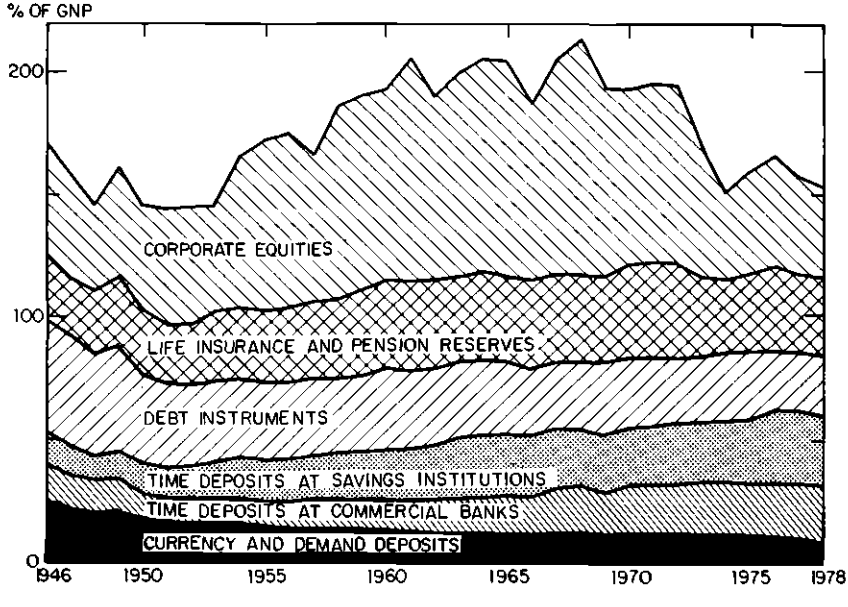

Fig. 1.4 Financial asset holdings of United States households.

ing little overall relative trend.[31] Since the total size of households' financial asset portfolios in relation to gross national product has also shown no overall trend—first declining during the immediate postwar years, then rising sharply in the 1950s, remaining steady through the 1960s, and declining in the 1970s—these patterns of growth and decline in comparison to gross national product also correspond, for the postwar period as a whole, to growth or decline in shares of households' total portfolio.

Households' increasing preference for claims on intermediaries has appeared even more pronounced from the perspective of their accumulation of financial assets. Table 1.13 shows households' net acquisition of various categories of financial assets, both in dollars and as a share of the total. The two features of households' investment behavior that stand out most sharply here are the dominance of deposits throughout the postwar period and the change that took place at the end of the 1950s in households' net investment in corporate equities. Households purchased more equity shares in corporations than they sold in every year during 1946–57, so that the tripling in value of their direct equity holdings over this period represented the combined result of capital gains and positive net purchases. By contrast, households have sold more direct equity shares than they have purchased in every year since 1958, so that capital gains have accounted for more than all of the subsequent increase in total value of their direct equity holdings. Moreover, allowing for the shift from direct ownership of equities to indirect ownership via mutual funds does not alter the fundamental picture of individuals' investment behavior. Households in the aggregate were net purchasers of mutual fund shares during the rise of that industry in the 1960s, but not in sufficient quantity to offset the liquidation of their direct equity holdings. More recently, they have been net sellers of both direct equity holdings and mutual fund shares in every year since 1972. The conclusion remains that equity price movements have accounted for more than all of any increase in the value of individuals' equity holdings. Because equity prices have fluctuated widely but shown little net gain in nominal terms since the mid-1960s (see again fig. 1.3), individuals' aggregate equity portfolio has therefore shown no trend movement in nominal value and has declined in relative value during the last decade and more.

The shift of individuals' investment flows away from equities during the second half of the postwar period probably reflects several considerations in addition to the economies of scale and risk pooling noted above as general advantages of intermediation. Changing birthrates, age distributions, and income levels have all played some role. The increasing government provision of health, education, and income security benefits has also altered the objectives associated with saving for many

Table 1.13 **Net Acquisitions of Financial Assets by United States Households**

	Total Assets	Currency and Deposits	Equities			Credit Market Debt	Life Insurance and Pension Reserves	Other
			Total	Investment Company Shares	Direct Holdings			
				Billions of Dollars				
1946–50	14.3	3.4	1.0	0.2	0.7	1.2	5.7	3.1
1951–55	21.8	9.7	1.2	0.5	0.7	3.3	7.6	−0.2
1956–60	29.8	13.0	1.0	1.4	− 0.4	6.5	10.6	−1.3
1961–65	46.9	27.8	−1.3	2.1	− 3.4	5.2	14.3	0.8
1966–70	68.4	33.5	−3.3	4.1	− 7.3	15.2	20.6	2.4
1971–75	129.4	79.3	−4.6	−0.2	− 4.4	23.2	34.0	−2.4
1976–78	218.4	126.5	−5.2	−1.0	− 4.2	39.1	65.3	−7.3
				Percentage of Total Net Acquisitions				
1946–50	100.0	23.9	6.4	1.6	4.8	8.1	39.9	21.7
1951–55	100.0	44.5	5.7	2.3	3.4	15.3	35.1	−0.7
1956–60	100.0	43.7	3.5	4.7	− 1.2	21.8	35.5	−4.5
1961–65	100.0	59.4	−2.7	4.6	− 7.3	11.0	30.6	1.8
1966–70	100.0	48.9	−4.8	6.0	−10.7	22.2	30.1	3.5
1971–75	100.0	61.3	−3.6	−0.2	− 3.4	17.9	26.2	−1.9
1976–78	100.0	57.9	−2.4	−0.4	− 1.9	17.9	29.9	−3.4

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of annual flows, in dollars and as percentages of annual total net acquisitions. Detail may not add to totals because of rounding.

people. The growing importance of workers' claims on future pension benefits, including job-specific pensions in both the private and public sectors and also social security, has in particular changed many people's need to accumulate assets directly to finance their retirement.[32] Finally, perceptions of the relative returns and risks—including especially inflation risk—associated with different assets have also changed markedly during the postwar period. After the unpegging of bond prices in 1951, fixed-income securities became subject to market risk in addition to inflation risk, and in the 1970s the inflation risk has increased dramatically. As for equities, during most of the 1950s and 1960s, renewed confidence in economic stability and prosperity lessened fears of any collapse of values comparable to that of 1929–33, and in addition many people regarded them as a "hedge" against price inflation.[33] Following the rapid acceleration of inflation and the poor performance of both equity prices and the American economy in the 1970s, however, prevailing opinion has become progressively more skeptical both of the economy's long-run growth prospects and of the usefulness of equities as an inflation hedge.[34] As the correlations presented in table 1.14 show, even during the 1950s and 1960s nominal returns on equities never compensated fully for variations in price inflation.[35] Even so, the table also shows that there has been a noticeable shift in the structure of asset returns and risks in the 1970s.

Although individuals are the dominant nonfinancial holders of direct claims on other nonfinancial participants in the economy, businesses also advance a substantial amount of direct credit, both to individuals in the form of installment and other consumer credit, and to each other

Table 1.14 **Asset Returns and Price Inflation**

	After-Inflation Total Returns			
	1-Month Bills	20-Year Bonds	Equities	Inflation
1953–78				
Mean	0.41	−0.52	7.09	3.69
Standard deviation	1.41	6.89	20.13	3.12
Correlation with inflation	−0.88	−0.40	−0.61	1.00
1953–72 Subperiod				
Mean	1.02	0.18	10.48	2.36
Standard deviation	0.69	6.59	18.19	1.73
Correlation with inflation	−0.44	−0.30	−0.56	1.00
1972–78 Subperiod				
Mean	−1.62	−2.83	−4.19	8.10
Standard deviation	1.29	8.00	23.87	2.53
Correlation with inflation	−0.97	−0.72	−0.77	1.00

Note: Data in percentages per annum.

in the form of trade credit and commercial paper. Even with the ready availability of business credit cards and charge accounts, however, commercial banks and finance companies have increasingly dominated the consumer credit field. The share of outstanding consumer credit owed to nonfinancial businesses (including corporations and others) has fallen from just over one-third in the early 1950s to just under one-sixth in the 1970s. In addition, business lending via purchases of nonfinancial commercial paper has remained relatively small, so that trade credit—typically equal to 15–18 percent of the gross national product, and mostly borrowed and lent within the corporate sector—remains the primary vehicle for businesses' holdings of direct claims on nonfinancial obligors.

Foreign investors have held a small but growing share of direct claims on nonfinancial participants in the American economy throughout the postwar period.[36] The growth of foreign holdings has been especially rapid during the 1970s, as the persistent American balance of payments deficit has transferred assets abroad, especially to member countries of the international oil cartel. The rapid recent growth has proceeded from a small base, however, so that foreign holdings still represented less than 5 percent of all direct claims against American nonfinancial obligors as of year-end 1978. Nevertheless, the concentration of foreign (especially foreign official) investments in specific instruments has made foreign holdings of particular importance in some American markets. The year-end 1978 share of federal government securities held abroad, for example, was nearly one-sixth.

Figure 1.5 indicates the extent to which the increasing preference for claims on intermediaries by individuals (and, to a lesser extent, other nonfinancial investors) has shifted to intermediaries the task of meeting the needs that nonfinancial participants in the economy have brought to the American financial markets. As of 1978 individuals in the aggregate remained the largest single class of holders of direct claims on nonfinancial borrowers and share issuers—but only by virtue of their continuing domination of the ownership of corporate equities. Because the direct claims that individuals hold consist overwhelmingly of equities (see again fig. 1.4), the household share of ownership of the total of direct claims outstanding has varied with fluctuations in equity prices. Overall, however, the household share has declined, as has the share held by all other nonfinancial investors. As the share of direct claims on nonfinancial entities held by all nonfinancial investors has declined, the share held by financial intermediaries has correspondingly risen. Intermediaries' holdings first accounted for the majority of all direct claims outstanding in the American financial markets in 1969, and they have remained the majority ever since.

Table 1.15 presents flow data indicating the even stronger postwar dominance of intermediaries in meeting the funds required each year by

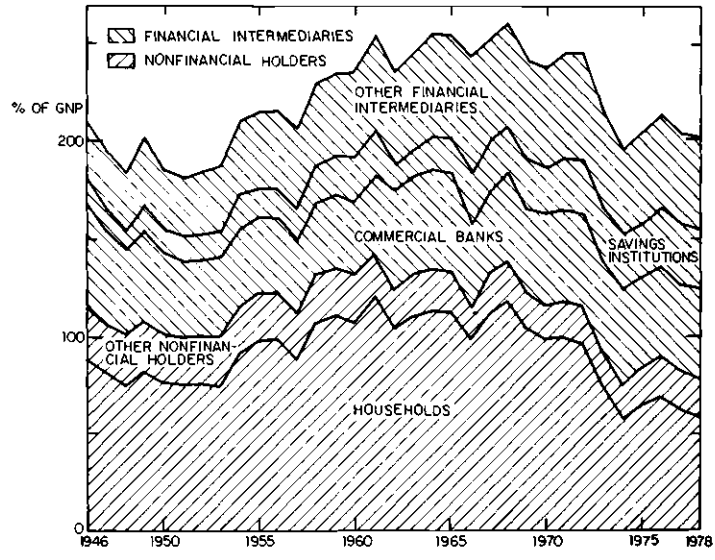

Fig. 1.5 Holdings of claims against United States nonfinancial sectors (including equities).

nonfinancial participants in the economy. Here the main difference from the pattern indicated in figure 1.5 is that these data exclude equity capital gains, which constituted most of the increase in households' equity holdings until the late 1960s and more than all of the increase since then. Apart from accumulating capital gains on equities, individuals and other private domestic nonfinancial investors have played only a small and shrinking role in meeting directly the needs that nonfinancial entities have brought to the financial markets.[37] In large part because of the growing fraction of those needs that have come in the form of debt issued by private borrowers, nonfinancial investors have instead accumulated claims on intermediaries and have left to them the task of directly allocating the economy's financial resources.

1.3.2 The Role of Specific Intermediaries

The advance of intermediation in the postwar period has hardly been uniform. The specialization of American financial intermediaries has inevitably led to some playing more important roles than others, and some experiencing more rapid growth than others, as the needs and objectives of both borrowers and lenders have changed and as government interventions have (intentionally or otherwise) favored first one kind of institution and then another.

Table 1.15 **United States Credit Market Funds Advanced to Nonfinancial Sectors**

Years	Total	Private Domestic Nonfinancial Investors	Federal Government	Foreign	Financial Intermediaries			
					Total	Commercial Banks	Savings Institutions	Other
				Billions of Dollars				
1946–50	14.2	2.3	1.3	0.1	10.5	1.3	2.7	6.5
1951–55	31.4	5.8	1.7	0.7	23.1	6.6	5.8	10.8
1956–60	40.4	6.8	2.0	1.3	30.4	7.7	8.8	14.0
1961–65	63.1	1.5	5.1	1.0	55.7	20.7	15.0	20.0
1966–70	94.4	9.7	8.6	2.2	73.8	29.4	14.3	30.1
1971–75	189.0	18.3	14.0	10.4	146.3	60.3	40.2	45.7
1976–78	338.1	26.7	23.5	30.8	257.1	92.0	76.4	88.7
				Percentage of Total Funds Advanced				
1946–50	100.0	16.2	9.2	0.6	74.0	9.1	19.2	45.6
1951–55	100.0	18.5	5.4	2.3	73.7	20.9	18.4	34.4
1956–60	100.0	16.9	4.7	3.2	75.2	19.0	21.7	34.4
1961–65	100.0	2.3	8.0	1.4	88.2	32.8	23.7	31.7
1966–70	100.0	10.3	9.1	2.4	78.2	31.2	15.1	31.9
1971–75	100.0	9.7	7.4	5.5	77.4	31.9	21.3	24.2
1976–78	100.0	7.9	7.0	9.1	76.0	27.2	22.6	26.2

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of annual flows, in dollars and as percentages of annual total funds advanced. Detail may not add to totals because of rounding.

Commercial Banks

The commercial banking system has long stood at the center of economists' interest in financial markets. Even today, despite nearly two decades of increasing emphasis on nonbank intermediaries in financial economics research,[38] discussions ranging from textbook descriptions of the economy to professional evaluations of monetary policy often proceed as if commercial banks were the only intermediaries in the financial markets. This emphasis on the commercial banking system is understandable in part, in view of the special role that banks play in the monetary policy process by virtue of their relationship to the Federal Reserve System. In addition, in the past commercial banks were more dominant in financial market activity than they are today. Before World War II, banks' assets and liabilities dwarfed those of other intermediaries, and before passage of the Glass-Steagall Act in 1933 commercial banks also dominated the American securities business.[39] Until as recently as the early 1970s, commercial banks enjoyed a monopoly on the right to issue checkable deposits.

Since World War II the American commercial banking system has approximately held its own in relation to the scale of nonfinancial economic activity, but it has not participated in the economy's overall postwar expansion of intermediation. The approximate stability of the banking system's relative size is apparent in figure 1.5, and also in the data on commercial banks' assets and liabilities presented in table 1.16. The total size of the banking system in relation to gross national product has shown essentially no trend during the postwar period. Put the other way around, as figure 1.6 shows, there has been little postwar trend in the "income velocity" of the broad *M2* money stock, which consists of most commercial bank deposit liabilities (plus the public's currency holdings), or in the corresponding income velocity of bank credit, which consists of most commercial bank earning assets.[40] This relative stability (actually a slow decline) in the postwar period stands in marked contrast to the prewar years when, over nearly a century, the size of the banking system continually grew in relation to gross national product.[41]

Within the stability of the overall totals, however, the postwar years have also seen substantial shifts in composition on both sides of the banking system's balance sheet. Among bank assets, the most significant development of the postwar period has been the recovery of bank loan portfolios and hence the general resumption of banks' traditional role as "inside" intermediaries. In 1929 loans constituted 73 percent of bank credit. During the depression and then the war years, however, the falloff in private debt issuing meant that, for all practical purposes, there was little or no loan business to be had. By contrast, the federal government was then issuing debt in record volume, and banks participated in

Table 1.16 **Assets and Liabilities of United States Commercial Banks**

Years	Financial Assets					Financial Liabilities			
	Total	Treasury Debt	Government Agency Debt	State and Local Debt	Loans	Total	Demand Deposits	Non-CD Time Deposits	CD
				Percentage of GNP					
1946–50	54.8	26.7	0.6	2.3	16.0	51.1	35.4	14.0	0.0
1951–55	47.1	17.5	0.8	3.0	18.6	43.8	29.6	12.0	0.0
1956–60	45.1	13.2	0.5	3.4	22.2	41.6	25.8	13.3	0.0
1961–65	47.0	10.6	0.7	4.8	26.1	43.5	22.6	16.6	1.5
1966–70	49.1	6.9	1.1	6.3	30.1	46.0	19.4	19.7	2.2
1971–75	52.7	5.0	2.0	7.1	34.0	49.7	17.1	22.3	4.6
1976–78	50.5	5.1	2.0	5.8	33.6	47.5	14.0	23.3	4.0
				Percentage of Total Financial Assets					
1946–50	100.0	48.3	1.1	4.3	29.5	93.2	64.6	25.4	0.0
1951–55	100.0	37.1	1.6	6.5	39.6	93.0	62.8	25.6	0.0
1956–60	100.0	29.1	1.1	7.5	49.4	92.3	57.1	29.7	0.1
1961–65	100.0	22.2	1.6	10.3	55.8	92.7	47.8	35.5	3.3
1966–70	100.0	14.0	2.3	12.8	61.4	93.6	39.4	40.1	4.4
1971–75	100.0	9.4	3.9	13.3	64.6	94.3	32.1	42.3	9.0
1976–78	100.0	10.0	3.9	11.5	66.8	94.1	27.7	46.0	8.1

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of year-end amounts, as percentages of annual gross national product and as percentages of annual total assets. Detail may not add to totals because of rounding.

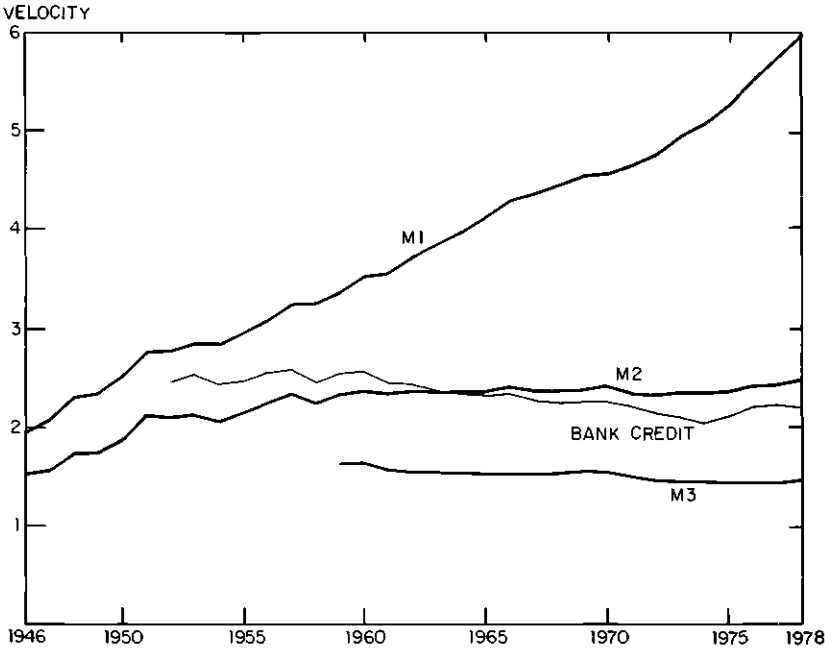

Fig. 1.6 Income velocities of monetary and credit aggregates.

financing it. By 1935 banks' securities investments exceeded their loan portfolios, and in 1945 investments constituted 79 percent of bank credit. Commercial banks simply were no longer very commercial. The years since 1946 have largely consisted of a reversal of the 1930–45. pattern, with bank loans exceeding securities investments in 1957 for the first time in more than two decades and reaching 73 percent of total bank credit as of year-end 1978.

In rebuilding their loan portfolios and deemphasizing their investments, banks have also both altered the mix of their lending business and changed the character of their securities holdings. Although banks remain a principal source of business credit, and commercial and industrial loans are still the largest single category of bank lending, they no longer dominate bank loan portfolios as they once did. Instead, mortgage credit and other consumer loans now comprise nearly one-third of the total. Especially during the second half of the postwar period. the widespread use of bank-issued credit cards has been a major factor in banks' development of their consumer lending business. Moreover, among business loans per se, the larger banks have increasingly become a major factor in the intermediate-term credit market through the use of explicitly longer maturity loans (in some cases up to ten years) and revolving credits of an implicitly ongoing nature. Total bank investments

have grown slowly since World War II, but because of tax incentives banks have so concentrated their investments on state and local government issues that, for a few years in the early 1970s, they held more of these securities than of federal government debt.[42]

Among bank liabilities, the two most significant changes that have occurred during the postwar period have been the continual decline of demand balances and increase of time and savings deposits, relative to either total bank liabilities or gross national product, and the "liability management revolution" that has greatly increased the larger banks' reliance on "bought funds." As figure 1.6 shows, the income velocity of the narrow *M1* money stock, consisting of currency plus demand deposits, has about tripled over the postwar years as a result of a combination of influences including economies of scale in the public's holding of cash balances, the secular rise in nominal interest rates, and the increasingly widespread use of credit cards and charge accounts.[43] This persistent trend in *M1* velocity stands in sharp contrast to either the absence of any trend during 1910–30 or the steeply declining trend during 1930–45. Hence only the strong growth of time and savings deposits, including the new negotiable certificates of deposit that first came into existence in 1961, has accounted for the much slower postwar increase in the income velocity of *M2*. Large banks' growing use of such liabilities as certificates of deposit, federal funds, Eurodollar borrowings, commercial paper issues, repurchase agreements and so on—instruments that in some cases represent the development of new financial markets since World War II—has not only changed banks' balance sheets but also facilitated a major change in the feasible aggressiveness of bank lending practices. The enormous postwar expansion of bank loan portfolios, which banks have achieved in part through the competitive use of such devices as loan commitments and medium-term credits, would probably have been impossible if banks had simply continued to follow the classic practice of treating their deposits (and other liabilities) as determined by outside forces.

Finally, it is useful to point out explicitly that because of changes in commercial bank organization, especially during the 1960s, the representation of banks as having merely held their own during the postwar increase in the American economy's degree of financial intermediation relative to economic activity risks understating by a wide margin the growing overall presence of commercial banks in the financial system. After falling by more than one-half between 1920 and 1935, the number of American commercial banks has remained roughly steady at about 14,000. The number of bank branches, however, has risen from some 4,000 to over 32,000 during the postwar years, with most of this growth occurring since 1960. Moreover, especially since the 1970 Amendments to the Bank Holding Company Act, banks have increas-

ingly gone into activities other than their traditional loan and deposit business.[44] Although their direct participation in financial intermediation has not kept pace with the rising postwar trend, commercial banks have increasingly enhanced their importance as more nearly full-service financial institutions.

Nonbank Deposit Institutions

As is clear from figure 1.5, one group of intermediaries that has accounted for much of the postwar increase in American financial intermediation has been the nonbank deposit institutions including savings and loan associations, mutual savings banks, and credit unions. The public's strong demand for consumer-type time and savings deposits has kept these institutions growing rapidly, not just absolutely but in relation to economic activity, during most of the postwar period. In fact, as figure 1.6 shows, their growth has even been great enough to offset the relative decline of the commercial banking system, so that the income velocity of the *M3* money stock, consisting of *M2* plus nonbank deposits, has shown a modest downward trend since the beginning of the data series in 1959. Moreover, when extrapolated backward this trend appears to have been a continuation of the downward trend associated with *M2* during the prewar era when nonbank deposit institutions were not of major importance.

Table 1.17 presents data for the individual deposit (or share) volume and combined asset holdings of the three major groups of nonbank deposit institutions, first in relation to gross national product and then as a share of the total assets of the three groups of institutions together. The vast postwar expansion of the savings and loan industry stands out clearly here. Between the early postwar years and the 1970s outstanding savings and loan shares more than quadrupled as a percentage of gross national product. By 1978 the amount of these shares equaled more than twice the amount of mutual savings bank deposits and credit union shares combined, and also equaled about five-sixths of the amount of consumer-type time and savings deposits held at commercial banks. In comparison with mutual savings banks, the primary factor underlying the more rapid growth of savings and loan associations has probably been mere geography; mutual savings banks are overwhelmingly concentrated in a few states, especially New York and Massachusetts, which have experienced slower than average economic growth during the postwar period. In comparison with commercial banks, the primary factor has probably been the effect of government regulation, in that savings and loan associations did not face deposit interest rate ceilings until 1965 and have enjoyed a one-fourth percent differential over commercial banks since then. The growth of credit unions has been even faster than that of savings and loan associations, but credit unions constitute

Table 1.17 Assets and Liabilities of United States Nonbank Deposit Institutions

Years	Combined Financial Assets			Liabilities by Sector		
	Total	Mortgages	Consumer Credit	Savings and Loan Shares	Mutual Savings Banks Deposits	Credit Union Shares
			Percentage of GNP			
1946–50	13.4	6.3	0.3	4.7	7.2	0.2
1951–55	15.3	9.7	0.5	6.9	6.6	0.5
1956–60	21.0	15.0	1.0	11.1	7.1	0.8
1961–65	26.9	20.5	1.3	16.0	7.3	1.2
1966–70	27.0	20.9	1.6	16.2	7.2	1.4
1971–75	30.2	22.3	2.1	18.8	7.2	1.8
1976–78	33.1	23.6	2.6	21.7	6.7	2.3
			Percentage of Total Combined Financial Assets			
1946–50	100.0	47.4	2.2	32.3	53.5	1.8
1951–55	100.0	63.4	3.3	41.2	43.0	3.0
1956–60	100.0	71.4	4.4	50.0	33.9	4.0
1961–65	100.0	76.4	5.0	54.7	27.1	4.4
1966–70	100.0	77.3	6.0	54.5	26.6	5.2
1971–75	100.0	73.9	7.0	56.0	23.5	6.2
1976–78	100.0	71.4	8.0	58.4	20.2	7.0

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of year-end amounts, as percentages of annual gross national product and as percentages of annual total assets. Detail may not add to totals because of rounding.

another example of rapid growth from a small base, and they remain by far the smallest of the three groups of institutions. Mutual savings banks are alone among the three groups in having failed to do more than grow in pace with economic activity. Although mutual savings banks were twice as large as savings and loan associations at the end of World War II, savings and loans were equal in size in 1954 and more than three times as large by 1978.

Because all of these nonbank deposit institutions operate under legal and regulatory constraints governing the disposition of their asset portfolios, their aggregate contribution to meeting the financial needs of nonfinancial participants in the economy has followed a fairly predictable pattern. Savings and loan associations and mutual savings banks typically invest some 80 percent and 70 percent, respectively, of their assets in mortgages, so that these two groups together have become the nation's leading provider of mortgage lending. As of year-end 1978, savings and loans and mutual savings banks together held 45 percent of

all outstanding mortgages (in comparison to 18 percent for commercial banks, the next largest class of holders). These institutions are especially predominant in the market for single-family home mortgages, accounting for 55 percent of year-end 1978 loans outstanding. Credit unions, by contrast, have traditionally invested most of their assets in consumer installment loans, and by 1978 they accounted for 14 percent of the outstanding consumer credit.

As the discussion in section 1.4 below emphasizes, the history of American nonbank deposit institutions in the postwar period has been in large part a story of evolving financial regulation, including restrictions on these intermediaries' liability issuing as well as their asset holding. In this context, what may well turn out to be two of the most important changes affecting nonbank financial institutions within the postwar era are only just in progress at the time of writing. The first is the sudden acceleration of the erosion of the deposit interest rate ceilings these institutions have faced since the mid 1960s, following the introduction in mid-1978 of "money market certificates" bearing yields set in relation to those on Treasury bills. Just by late 1979—that is, after less than eighteen months—these new deposit certificates accounted for more than one-fourth of all deposits at savings and loan institutions and almost one-fourth those at mutual savings banks. The second change is the expansion of authority to issue interest-bearing checkable deposits, which nonbank deposit institutions and commercial banks in the New England states received in several steps during 1972–76, and the extension of which to the rest of the country is to be decided by Congress in 1980. Both checking account authority and the freedom from deposit interest rate ceilings are likely to increase greatly the demand for claims on nonbank deposit intermediaries, although the impact of the latter on these institutions' cash flows (and even solvency in some cases) makes it a mixed blessing in the short run.

Nondeposit Intermediaries

Finally, as is also apparent from figure 1.5, a significant part of the postwar increase in the American economy's degree of financial intermediation has stemmed from neither commercial banks nor nonbank deposit institutions but, instead, from intermediaries that issue only nondeposit claims. There are many forms of such intermediaries operating in the American markets, but the most familiar and important among them include life and casualty insurance companies, private and public sector pension funds, independent consumer finance companies and the "captive" finance companies of nonfinancial businesses, equity and money market mutual funds, real estate investment trusts, and security brokers and dealers.

Table 1.18 presents data, analogous to that shown above for the nonbank deposit institutions, for three specific categories of nondeposit intermediaries:[45] life insurance companies, private pension funds, and state and local government pension funds. The reason for focusing in particular on these three groups is not only that they are the largest of the nondeposit intermediaries but also that their respective postwar experiences reflect some interesting contrasts. Because the low interest rates implicitly paid on the savings component of ordinary life insurance has increasingly favored the use of group and other term insurance policies, life insurance companies' total assets held and liabilities outstanding grew little relative to gross national product during the first half of the postwar period, and since then they have been declining in relative terms. Moreover, the relative decline in these companies' life insurance business has been even more pronounced, in that their growth in recent years has consisted disproportionately of pension monies which they

Table 1.18 **Assets of United States Life Insurance Companies and Pension Funds**

	Combined Financial Assets				Financial Assets by Sector		
Years	Total	Equities	Corporate Bonds	Mortgages	Life Insurance Companies	Private Pension	State and Local Government Pension
				Percentage of GNP			
1946–50	24.6	0.8	8.2	4.3	21.2	1.9	1.4
1951–55	26.3	1.6	10.8	6.5	20.8	3.3	2.2
1956–60	31.8	3.4	13.2	8.3	22.3	6.2	3.3
1961–65	36.0	6.1	14.3	9.1	22.3	9.2	4.5
1966–70	36.8	8.3	14.0	9.0	20.6	10.8	5.4
1971–75	35.1	10.2	12.9	6.7	18.4	10.4	6.4
1976–78	33.3	8.7	12.9	5.5	17.3	9.2	6.8
				Percentage of Total Combined Financial Assets			
1946–50	100.0	3.3	33.4	17.4	86.4	7.7	5.9
1951–55	100.0	6.0	41.1	24.9	79.1	12.6	8.3
1956–60	100.0	10.6	41.4	26.1	70.0	19.4	10.5
1961–65	100.0	17.0	39.7	25.3	62.0	25.6	12.4
1966–70	100.0	22.6	38.1	24.3	55.9	29.3	14.8
1971–75	100.0	29.0	36.7	19.6	52.4	29.5	18.1
1976–78	100.0	26.2	38.7	16.5	51.9	27.7	20.4

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of year-end amounts, as percentages of annual gross national product and as percentages of annual total assets. Detail may not add to totals because of rounding.

manage for other businesses. As of year-end 1978 pension reserves constituted nearly one-third of life insurance companies' total liabilities, up from less than one-tenth in the early postwar years.

By contrast, both private and public sector pensions have experienced extraordinarily rapid growth throughout these years. Tax incentives at both the individual and corporate levels, business personnel policies aimed at reducing worker turnover, features of the collective bargaining process, and other corporate financial objectives have all combined to favor the mushrooming of private pension liabilities since World War II. During most of this period, however, businesses had (and many used) broad latitude to incur pension liabilities without funding them. The 1974 Retirement Income Security Act has subsequently specified minimum standards for the vesting of workers' rights to accumulated pension benefits and for employers' funding of vested pension liabilities.[46] Even so, businesses still have flexibility in choosing the actuarial assumptions underlying the calculation of future benefits, the minimum required amortization of unfunded vested benefits is very slow, and nonvested benefits require no funding at all. Consequently, many businesses continue to carry substantial amounts of unfunded liabilities, so that private pension funds' total assets as shown in table 1.18 substantially understate their liabilities.[47] This understatement has been especially great during the 1970s when many private pension funds' asset portfolios, of which in the aggregate about two-thirds is invested in equities, have suffered an erosion in market value.

State and local government pensions, including both teachers' and other employees' funds, have experienced similar postwar growth. Public sector workers have the same tax incentive to use the pension mechanism to spread income beyond retirement as do private sector workers. Although public sector employers do not have the same tax incentives as do private businesses, in many cases the political process has probably favored the use of pension compensation over current compensation, especially when there is no pressure to raise tax or other revenues immediately to fund the accumulating pension liabilities. In fact public sector pension funds have been and remain substantially underfunded, so that the asset data shown in table 1.18 greatly understate their liabilities also.[48] The continued growth of public sector pensions' assets during the 1970s, in contrast to private pensions, reflects merely the smaller share of assets invested in equities (about one-third in the aggregate) rather than any difference in funding practices.

The asset mix of these insurance and pension intermediaries—and hence their role in financing economic activity—has also undergone important changes since World War II. Regulatory changes in the 1960s allowed many life insurance companies to increase the equity portion of their portfolios, and since the mid-1960s life insurers have largely

withdrawn from direct home mortgage lending. State and local government pension funds and especially private pension funds have even more dramatically increased the equity share of their investments. Consequently, these nondeposit intermediaries have increasingly become a major source of both debt and equity funds for corporate businesses. As a result of these portfolio changes, together with the rapid growth of pensions and the (relative) stagnation of the commercial banking system, insurance companies and pension funds combined have come to dominate banks as holders of claims on the American corporate business sector—despite banks' postwar emphasis on loans over investments in government securities. In the early postwar years these intermediaries held only slightly more claims on the corporate sector than did commercial banks, but by the 1970s they held more than twice as much.

It is also important to distinguish the claims on business held by banks, which are overwhelmingly in the form of short- to medium-term loans, from the corresponding claims held by insurance companies and pension funds, which consist mostly of long-term debt and equity securities. These nondeposit intermediaries have traditionally held some three-fourths of all outstanding corporate bonds, and in recent years they have also come to hold nearly one-sixth of all corporate equity. The flow data in tables 1.19 and 1.20 give a further idea of these investors' importance in providing long-term debt and equity capital to American business corporations. In addition to accounting for much or all of the corporate sector's net long-term bond financing throughout the postwar period, since 1960 they have also accounted for more than all of its equity financing, absorbing also the equity holdings liquidated by the household sector. In sum, businesses' equity and bond financing has become increasingly dominated by these investors. Given their high rates of portfolio turnover, especially in comparison with individuals, equity and bond trading has become even more so.

1.3.3 Financial Innovation and the Advance of Market Efficiency

With individuals doing less of the direct lending in the American financial markets and specialized intermediaries doing more, it is not surprising that many aspects of the working of these markets have changed during the postwar years, and that most of these changes have tended to reduce or eliminate barriers to the transfer of financial resources and thereby to render the financial system more efficient than before. One example of this evolution has been individuals' increasing ability to diversify their holdings via mutual funds, pensions, and mortgage pools. Another has been their increased ability to escape interest rate ceilings via negotiable certificates of deposit or money market certificates, and minimum size requirements via money market mutual funds. Still another has been their ability to invest abroad (or for busi-

Table 1.19 Net Issues and Purchases of United States Corporate Bonds

Years	Net Issues		Net Purchases			
	Total	Domestic Nonfinancial Businesses	Total	Life Insurance Companies	Private Pension Funds	State and Local Government Pension Funds
			Billions of Dollars			
1945–50	2.9	2.5	4.0	2.7	0.4	0.1
1951–55	4.1	3.5	3.9	2.4	1.0	0.4
1956–60	5.9	4.4	4.7	2.2	1.6	0.9
1961–65	6.4	5.0	6.0	2.6	1.4	2.0
1966–70	15.9	13.9	7.5	2.6	1.3	3.6
1971–75	23.1	17.4	12.9	6.3	1.3	5.3
1976–78	35.0	21.3	27.8	17.6	3.7	6.5
			Percentage of Total Net Issues			
1945–50	100.0	87.8	139.9	93.8	15.1	3.1
1951–55	100.0	86.6	95.6	60.7	24.6	10.3
1956–60	100.0	75.1	79.4	37.6	26.8	15.1
1961–65	100.0	70.8	94.5	40.6	22.0	31.8
1966–70	100.0	87.7	47.5	16.5	8.5	22.5
1971–75	100.0	75.2	55.7	27.1	5.4	23.1
1976–78	100.0	60.9	79.5	50.4	10.5	18.6

Source: Board of Governors of the Federal Reserve System.
Notes: Data are averages of annual flows, in billions of dollars and as percentages of total net issues. Detail may not add to totals because of rounding.

nesses to borrow abroad) as legal barriers have fallen. Especially in conjunction with innovations exploiting new physical technologies, postwar changes in financial intermediation have reduced many of the barriers and frictions that interfere with the capital allocation process.

At least four kinds of friction-reducing changes bear explicit attention. First, wholly apart from the effective reduction of transactions costs associated with increased intermediation, marginal transactions costs in both the direct and the indirect senses have fallen irregularly throughout the postwar period. The fee typically charged for negotiated underwritings of high grade corporate bonds, for example, declined from $10 or more per $1,000 bond in the early postwar years to $8.75 per bond in the late 1950s and has remained unchanged at that level ever since, although underwriting fees for competitively bid bond issues have fallen more substantially in recent years. Bid-asked spreads have fallen from $2.50 or $5.00 to $1.25 or even $0.625 per bond for actively traded government bonds, and the feasible size of transaction at the quoted prices has increased substantially for both government and corporate bonds. Bid-asked spreads for equity issues traded on the New

Table 1.20 Net Issues and Purchases of United States Corporate Equities

Years	Net Issues		Net Purchases			
	Total	Domestic Nonfinancial Businesses	Sub-total	Life Insurance Companies	Private Pension Funds	State and Local Government Pension Funds
			Billions of Dollars			
1946–50	1.2	1.1	0.4	0.2	0.2	0.0
1951–55	2.2	1.9	0.6	0.1	0.5	0.0
1956–60	2.4	2.0	1.6	0.1	1.4	0.1
1961–65	1.1	0.7	3.1	0.5	2.4	0.2
1966–70	3.4	2.5	7.1	1.3	4.6	1.3
1971–75	10.7	8.8	11.9	3.0	5.9	3.0
1976–78	7.5	5.3	10.2	1.4	5.7	3.2
			Percentage of Total Net Issues			
1946–50	100.0	92.8	31.8	16.6	14.8	0.3
1951–55	100.0	86.6	31.6	5.9	24.9	0.9
1956–60	100.0	82.8	66.5	5.5	58.6	2.5
1961–65	100.0	60.5	310.9	44.4	221.5	21.9
1966–70	100.0	73.3	206.8	36.8	132.7	37.2
1971–75	100.0	82.7	111.6	27.9	55.3	28.5
1976–78	100.0	70.4	136.2	18.0	75.9	42.2

Source: Board of Governors of the Federal Reserve System.

Notes: Data are averages of annual flows, in billions of dollars and as percentages of total net issues. Detail may not add to totals because of rounding.

York Stock Exchange have also declined to a typical $0.25 or $0.125 per share for most issues, instead of the $0.375 per share that was more prevalent some years ago. Effective equity brokerage fees have typically fallen as well, especially for larger trades, although under the fixed minimum commission system the reductions usually took the form of indirect rebates and services provided. Since the Securities and Exchange Commission prohibited fixed minimum commission rates in 1975, average fees on large trades have fallen from $0.15 per share to only $0.08 per share (0.4 percent of principal value). Overall, as a result of natural competitive forces in the financial markets, striking advances in electronic communications and data processing technology, and specific regulatory actions, these and other direct transactions costs have fallen sufficiently that the markets for what are traditionally regarded as "nonliquid" instruments now in fact provide substantial liquidity.[49] In addition, indirect transactions costs at the margin have fallen during the postwar period as nonfinancial businesses have increasingly invested in sophisticated financial staffs, either "in house" or on a retainer basis, and individuals have gained substantially more financial knowledge also.

A second change which has been related to the decline in transactions costs, and which has also served to make markets both more liquid and more efficient in the sense of reducing barriers to financial allocations and reallocations, has been the increasing trend toward negotiability of financial assets. As table 1.21 shows, nonfinancial corporations and finance companies have on balance increased the negotiability of—and hence the potential market for—both their short-term and their long-term debt by substituting commercial paper issues for bank loans and publicly offered bonds for directly placed bonds. In addition, a large part of the postwar trend toward negotiability of financial assets has occurred through the development of new financial instruments. Commercial banks first introduced the negotiable certificate of deposit in 1961, and by the mid-1970s these certificates accounted for some one-tenth of banks' total liabilities. Bank lending has also become more of a straightforward market transaction and less closely tied to bank-customer relations, as in many cases commitment fees have augmented or replaced deposit balances as criteria for extending credit, and the greater flexibility provided by banks' liability management practices has better enabled them to accommodate fluctuating business credit demands (especially through the use of floating-rate loans). The introduction of exchange-traded options and financial futures markets has facilitated hedging and speculating investment postures that previously were either impossible to achieve or possible only via expensive combinations of long and short positions. The development in the 1960s of a secondary mortgage market and the advent of mortgage-backed "pass-through" securities have also rendered home mortgages in effect negotiable and

Table 1.21 **Negotiability of United States Corporate Debt**

	Net Corporate Bond Issues		Net Change in Bank Loans and Commercial Paper	
Years	% Privately Placed	% Publicly Offered	% Bank Loans	% Commercial Paper
1946–50	46.7	53.3	95.7	4.3
1951–55	49.4	50.6	92.8	7.2
1956–60	41.3	58.7	92.1	7.9
1961–65	55.6	44.4	88.4	11.6
1966–70	33.0	67.0	81.1	18.9
1971–75	27.3	72.7	81.6	18.4
1976–78	42.1	57.9	78.8	21.2

Sources: Securities and Exchange Commission and Board of Governors of the Federal Reserve System.

Note: Data are percentages of the respective totals.

have correspondingly increased the range of investors prepared to consider them.

The gradual and piecemeal removal of international barriers to financial transactions, including the American actions already noted above as well as corresponding actions by other countries, has been a third important factor in the postwar development of the American—indeed, the world—financial system. One part of this process has simply been the development of viable financial markets abroad. Most European countries did not even have currency convertibility for current transactions until 1958 (Japan not until 1964). Convertibility for financial transactions has come in individual pieces since then, and it is still incomplete although there is now so much convertibility that massive short-run movements of short-term capital have become a major problem in the international monetary system. Since the removal of the American capital controls, both American and foreign borrowers may again choose whether to raise funds in the American markets or abroad, American banks may choose between domestic and foreign loans, and other American investors may choose whether to buy securities issued at home or abroad. Other countries have also gradually eliminated analogous capital controls—most recently the United Kingdom in 1979. All of these developments have improved the markets' ability to allocate financial resources in comparison with the earlier situation in which banks' participation in the Eurodollar market was the primary vehicle for international capital flows, or even more the situation of the still earlier postwar years before the reopening of foreign financial markets and the use of modern communications technology to connect them with the American markets. In addition, as the example of around-the-clock trading in Eurodollars and Asian dollars suggests, the removal of international financial barriers has also even further enhanced the overall negotiability of many financial assets. The move to floating exchange rates in the 1970s, a subject that lies beyond the scope of this essay, has also been an important part of this entire set of developments.[50]

Financial innovation per se—whether due to technological, regulatory, or entrepreneurial forces—has constituted a fourth major source of postwar change enhancing the efficiency of the American financial system. Given its low capital intensity and highly mobile (and well-educated) labor force, the financial industry is typically able to adopt innovations both more cheaply and more rapidly than can, for example, manufacturing or other production lines of business.[51] Many of the innovations that have been so important in changing the structure and working characteristics of the American financial markets have already appeared in the discussion above. Other examples include such now standard instruments as leveraged leases, variable-rate annuities, corporate bonds

subject to call protection, and floating-rate debt issues, as well as instruments that are only just now coming into use like graduated-payment and variable-rate mortgages. Additional markets like those for federal funds and commodity futures are not new in the postwar period, but they now play a far greater role in the financial system than ever before. Adoption of modern electronic technology has already facilitated such innovations as remote terminal banking, and such far-reaching structural changes as the development of a semiautomated national market system for equity trading or an electronic funds transfer system for commercial banking are now visible on the horizon though not yet in place. In every case, these innovations have acted to reinforce the continual trend toward erosion of barriers and frictions that has marked the evolution of the American financial markets since World War II.

Despite this cataloging of the reduction of costs and barriers that have followed from the rise of intermediation together with innovation, however, it would be misleading to suggest that the American financial system has yet (or will soon) realize economists' idealized conception of a perfectly efficient mechanism for allocating financial resources. Many imperfections remain. Perhaps the most striking example of the American financial markets' continuing shortcomings in this respect is the failure, despite the experience documented in table 1.14, to provide an investment vehicle that would (presumably, for a price) guarantee the purchasing power of its holder's capital value.[52] In addition, the home mortgage instrument remains a relatively inflexible instrument despite recent innovations,[53] tax lock-ins remain important despite the changes in inheritance taxes in 1976 and in capital gains taxes in 1978, pension rights remain entirely illiquid, and most individuals face severe liquidity constraints preventing their borrowing against future income in the form of either wages or pension benefits. More generally, the gap between the interest rates that most individuals earn on assets and pay on borrowings is very wide. In sum, the postwar trend has indeed been toward more efficient markets, but at least as of 1979 there is much room left for further development.

1.4 Changes in the Role of Government

In addition to its reliance on the financial markets as a borrower financing its current deficit, the federal government has played a number of other roles in the development of the American financial markets since World War II. Regulatory actions and tax policies have resulted in significant impacts on how the financial markets have been able to do their job. The government's activities as a financial intermediary have affected the allocation (and perhaps the total) of saving in the economy. The monetary policy carried out by the Federal Reserve System has

fundamentally shaped the postwar course not only of the financial markets but of the economy as a whole. In sum, despite the decline of the government's role as a direct borrower, the broader changes at work during the postwar era have probably been in the direction of a growing overall influence of government on the American financial markets.

1.4.1 Deposit Insurance and Government Regulation

The proliferation of the federal government's regulatory activities since World War II has touched almost every part of the American economy, and has brought important and far-reaching changes.[54] The financial markets have been no exception in this regard. Some of the most significant innovations in financial market regulation came during the 1930s, as part of the society's immediate reaction to the excesses of the 1920s and their effects during the depression. Others have come since the war. On both counts, however, the postwar experience has been significantly different from what went before.

The single most important development along these lines during this century has been the almost universal adoption of deposit insurance following the inception of both the Federal Deposit Insurance Corporation (FDIC) and the Federal Savings and Loan Insurance Corporation in 1934. Before 1934 the individual depositor had always to regard his deposit holdings as assets subject to default risk, and the wave of bank failures during the early 1930s dramatically demonstrated the potential impact of default not only on individuals' perceptions, and hence their asset-holding behavior, but also on nonfinancial macroeconomic outcomes. After 1934, depositors' losses due to bank failure shrank quickly to miniscule proportion. Bank failures and forced mergers, of which there were hundreds each year during the 1920s and more than 1,000 in each year during 1930–33 (over 4,000 in 1933 alone), suddenly shrank to the double-digit range in 1934 and into single digits per year by the end of World War II. Moreover, from 1934 until the mid-1970s what few bank failures did occur were entirely concentrated among banks with less than $100 million in deposits, and nearly three-fourths of all failures were among banks with less than $1 million in deposits.[55] Even then, more often than not—and especially when a large bank has failed, as in 1974—the FDIC arranged either for a merger or for the assumption of the failed bank's valid assets (and a corresponding share of its liabilities) by another bank, rather than simply pursuing liquidation, so that depositors suffer no loss of liquidity at all. Even in cases of liquidation, the FDIC has typically settled depositors' claims almost immediately. In sum, the advent of deposit insurance has fundamentally changed the nature of the American financial markets.

Federal regulation of banking has not been limited to that incidental to the insurance of deposits. The Federal Reserve System, the FDIC,

and the Comptroller of the Currency have shared with the individual state banking commissions the responsibility for regulation and supervision of commercial banks. Important aspects of these activities include inspecting bank operations (and in particular the composition of bank portfolios), ruling on bank merger applications, and regulating the entrance of banks and bank-holding companies into activities beyond traditional banking businesses. Because the fixed-percentage pricing system for deposit insurance implicitly acts as a subsidy to risk-taking, it is possible that the role of bank inspection has been especially important in limiting the risk level of banking, although the available evidence is ambiguous on this question.[56] Bank inspections have in any case become more relevant for limiting risks as banks have moved heavily into international transactions such as exchange market trading and foreign lending. In addition, control over banks' applications to engage in nonbanking activities has become more important as banks and their holding companies have increasingly widened their scope to encompass leasing, credit cards, real estate, insurance and other related activities.

Growth of federal regulation in the postwar era has also extended beyond banks and other deposit intermediaries. The securities legislation of the 1930s, including especially the National Banking (Glass-Steagall) and Securities Acts of 1933 and the Securities and Exchange Act of 1934, not only created a separate securities industry distinct from the commercial banking system but also set down an elaborate set of rules governing securities issuing and trading and established the Securities and Exchange Commission to enforce them. This legislation of course antedated World War II, but many of its effects have appeared only after the war. Disclosure requirements increased, and have continued to increase throughout the postwar years. Public utility companies from 1941 and railroads from 1944 were compelled to seek competitive bids on their new securities—a practice which over time brought major changes in the structure of the investment banking industry.[57] Margin requirements for securities trading, set by the Federal Reserve under authority of the 1933 act, have remained at or above 50 percent since World War II—an especially sharp contrast to the experience of the 1920s. Under the Investment Advisor Act of 1940, the regulation of the postwar securities industry has extended also to asset management as well as the trading and issuing functions. As of the time of writing, the Securities and Exchange Commission is actively considering plans to restructure securities trading so as to develop the nationwide market system mandated by Congress in 1975, and it is possible that the implementation of such a system could eventually even result in a dealer market replacing the auction market that has characterized most American stock exchanges for nearly two centuries.

Federal regulation of the financial markets has also affected nondeposit intermediaries other than securities brokers and dealers. The

most recent development along these lines, which bears potentially important implications not just for the financial markets but also for the overall amount and composition of saving in the American economy, is the regulation of private pension funds under the Employee Retirement Income Security Act of 1974. In addition to the minimum pension funding standards already discussed in section 1.3, this legislation further specifies associated fiduciary responsibilities for the management of pension funds' assets. Even within the first few years it has had a noticeable impact on both the amount of pension funding and the composition of pension investments. Given the already increasing role of private pensions in postwar financial intermediation, as discussed above, these changes are of great potential significance for the future.

1.4.2 New Distortions in the Allocative Mechanism

It would be surprising if the increase since World War II in the presence of government, both in the financial markets and more broadly in the economy as a whole, had not brought with it at least some distortions in the economy's allocative mechanism. In fact, as the postwar period has advanced, government actions have directly or indirectly introduced numerous distortions in the financial system's allocation of capital. Several of these distortions, such as the restrictions on international capital flows, have already figured in the discussion of sections 1.2 and 1.3. Nevertheless, it is important to note specifically two aspects of the distortion of capital allocations that have been particularly important since World War II and have differentiated this period from the prewar experience.

The National Banking Act of 1933 introduced deposit interest rate ceilings, in part as a response to banks' alleged overly aggressive bidding for interbank demand deposits during the 1920s. The ceilings have also applied to other demand deposits as well as time and savings deposits, however, so that they have also served as an anticompetitive device to subsidize bank profits and bank borrowers at the expense of bank depositors. Given the postwar changes in the pattern of deposit holding reviewed in section 1.3, the main focus of these ceilings, imposed under the Federal Reserve's Regulation Q and analogous regulations governing nonbank intermediaries, came to be consumer-type time and savings deposits. Moreover, given the growing role of nonbank intermediaries both in issuing such deposits and in mortgage lending, the subsidy has mostly either passed to homeowners or bolstered the lending institutions' (usually inaccessible) reserves.[58]

Apart from the long-run average subsidy transferred from depositors to mortgage borrowers, however, the chief effect of deposit interest rate ceilings has been the introduction of severe volatility into both intermediation and homebuilding through the interaction of these ceilings with the cyclical pattern of short-term interest rate movements. A wholly new

postwar phenomenon, experienced for the first time when interest rates on readily available open market investment instruments rose above the prevailing savings deposit ceilings in 1966, was the widespread withdrawal of deposits from both banks and nonbank deposit intermediaries. This "disintermediation" then led to reduced mortgage lending, which after some lag led in turn to a decline in residential construction activity. As figure 1.7 shows, this pattern subsequently recurred in 1969–70 and

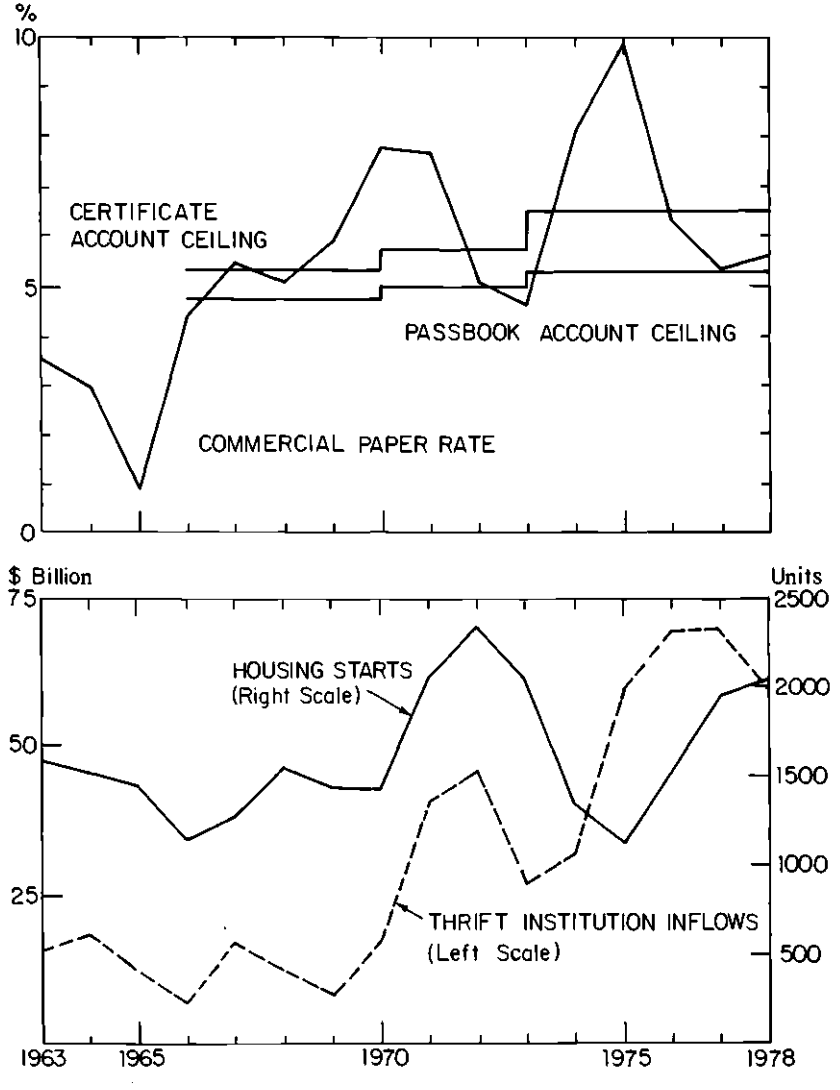

Fig. 1.7 Disintermediation and residential construction.

in 1973–74, with increasing severity except that in these more recent episodes government sponsored intermediaries have increasingly supplemented the funds lost to the mortgage market. Nevertheless, the net result has been the introduction of sufficient volatility into the residential construction industry to make the consequent decline in housing activity a major element in postwar economic downturns.

The second major postwar distortion in the financial markets' capital-allocation mechanism has come from taxes, and in particular from the interaction of taxes with the more rapid price inflation of the later postwar years. The federal government was constitutionally prohibited from imposing income taxes until after passage of the Sixteenth Amendment in 1913, and tax rates remained low by today's standards until World War II. After the great increase instituted to finance the war, tax rates have fallen only slowly during the postwar period. In addition, the effect of inflation over time has been to lower the real income level associated with the higher marginal tax rates.[59]

More importantly, however, because the income tax applies to nominal asset returns—including gains in prices that merely keep pace with inflation as well as whatever premium nominal interest rates include to compensate lenders for the erosion in the real value of their principal —the faster average rates of inflation in recent years have increasingly magnified the associated tax distortions. Given the tax deductibility of nominal interest payments, the after-inflation interest rate on long-term borrowing by medium risk business corporations was negative during ten of the thirteen years 1966–78. Analogously, for an individual investor in the median tax bracket among all American taxpayers, the after-inflation after-tax return on Treasury bills was negative during nine of these thirteen years. Moreover, the presence of deposit interest ceilings has further compounded the effect of taxes and inflation. Not since 1967 have ordinary savings accounts at nonbank deposit institutions returned a positive after-inflation after-tax yield to the investor in the median tax bracket.

As noted in sections 1.2 and 1.3, a variety of tax-related effects have influenced individuals' and businesses' asset-holding and liability-issuing behavior as well as the structure of financial intermediation. Individuals' and banks' preferences for tax-exempt state and local government securities, the postwar emphasis on debt in corporate finance, and the increasing channeling of saving through pensions and other tax-exempt or tax-sheltered vehicles are all attributable, at least in part, to the interaction of taxes and inflation. Within the later postwar years, these effects have also led individuals to restructure their portfolios in yet further ways, shifting from deposit to nondeposit forms of financial assets and, even more, from financial assets to houses and other real investments.[60]

These and other similar distortions, such as those resulting from deposit interest ceilings, have presumably had important effects not just on financial market developments but on economic activity more generally.

1.4.3 The Growth of Government Intermediation and Credit Guarantees

Another important change that has come about within the postwar period, in part as a direct reaction to the distortions noted above, has been the great increase in the federal government's activities as an intermediary for, and also a guarantor of, private credit. The "off-budget" sponsored credit agencies such as the Federal Home Loan Bank System and the Federal Intermediate Credit Bank were in operation before World War II, but the scale of their lending operations was small. As of 1946 all of these agencies combined held only about $2 billion of assets, the majority of which consisted of agricultural loans, and they owed only $2 billion of liabilities. The focus of these agencies' activity turned more toward support for homebuilding after the Federal National Mortgage Association began its lending operations in 1955, but as late as 1960, when their combined assets had reached $11 billion, their total agricultural credit outstanding still exceeded their total housing credit. Only in the 1960s and 1970s, when the interaction of deposit interest rate ceilings with rising nominal interest rates led to the introduction of large-scale support for housing, did government financial intermediation begin to increase rapidly.

Table 1.22 presents data, comparable to that given above for other groups of intermediaries, for the assets of the federally sponsored credit agencies and also the even more recent mortgage "pools" like the Government National Mortgage Association and the Federal Home Loan Corporation. Government sponsored intermediation has grown rapidly, not just absolutely but in relation to gross national product, and by 1978 these intermediaries held more than one-fifth of all outstanding home mortgages and nearly two-fifths of all outstanding farm debt. Moreover, the total housing credit advanced by these intermediaries, which has grown especially rapidly since the onset of periodic disintermediation in the mid-1960s, includes not only direct purchases of mortgages but also Federal Home Loan Bank advances to savings and loan associations, so that the effective amount is even greater. Given its pattern over time, in the absence of this support even the cyclicality of homebuilding shown in figure 1.7 would presumably have been more severe. Federally sponsored intermediaries accounted for 45 percent, 48 percent and 52 percent of the total net extensions of single-family home mortgage credit in the high disintermediation years 1969, 1970, and 1974, respectively.[61]

Federally sponsored intermediaries conduct their business much like private intermediaries, acquiring financial assets on either a loan or

Table 1.22 Assets of United States Sponsored Credit Agencies and Mortgage Pools

Years	Combined Financial Assets				
	Total	Agencies	Mortgage Pools	Housing Credit	Loans to Agriculture
			Percentage of GNP		
1946–50	1.0	1.0	0.0	0.2	0.7
1951–55	1.1	1.1	0.0	0.3	0.6
1956–60	1.8	1.8	0.0	0.7	0.8
1961–65	2.5	2.4	0.1	1.1	1.1
1966–70	3.7	3.4	0.3	2.0	1.4
1971–75	6.3	4.9	1.4	4.3	1.8
1976–78	8.8	5.4	3.5	6.5	2.2
			Percentage of Total Combined Financial Assets		
1946–50	100.0	99.7	0.3	18.7	65.9
1951–55	100.0	98.3	1.6	25.0	58.8
1956–60	100.0	97.8	2.1	38.1	46.6
1961–65	100.0	96.6	3.4	44.5	43.8
1966–70	100.0	91.8	8.2	52.5	39.0
1971–75	100.0	77.3	22.7	68.2	28.6
1976–78	100.0	61.0	39.1	73.1	24.8

Source: Board of Governors of the Federal Reserve System.
Notes: Data are averages of year-end amounts, as percentages of annual gross national product and as percentages of annual total assets. Detail may not add to totals because of rounding.

purchase basis, and in turn issuing their own liabilities. There are at least two important differences, however. One is that government intermediaries do not operate subject to the profit motive alone. While they pursue a profit objective, they do so within the limitations imposed by their charter to support areas of economic activity designated by Congress as public policy priorities.[62] The other key difference is that the liabilities of the mortgage pools and some of the sponsored credit agencies are directly guaranteed by the federal government and accordingly pay interest geared to that on federal government securities. Hence government intermediation also provides some degree of subsidy in the form of access to less expensive (because less risky, by virtue of the guarantee) credit.[63]

The federal government's role as a credit guarantor is not limited to the financial intermediation that it sponsors. Deposit insurance, for example, constitutes the most prevalent form of government sponsored guarantee provided for a fee. Other familiar government sponsored agencies providing guarantees for a fee include the Veterans Administration, the Federal Housing Authority, the Overseas Investors Protection Cor-

poration, the Security Investors Protection Corporation, and most recently the Pension Benefit Guarantee Corporation. The federal government has also sponsored large-scale guarantee programs for diverse borrowers ranging from college students and small businesses to the Lockheed and Chrysler Corporations and New York City. In all, the government's 1978 outstanding credit and credit guarantees—including direct loans, formally guaranteed loans, and other loans by federally sponsored lenders—totaled $440 billion in comparison to $626 billion of direct federal debt obligations outstanding. In addition, the amounts of deposits insured by the FDIC and the Federal Savings and Loan Insurance Corporation were $761 billion and $401 billion, respectively, in 1978.

The postwar growth in the American economy's reliance on federal government intermediation, deposit insurance, and other credit guarantees has probably been to a great extent a counterpart of the government's waning role as a direct borrower. Given the substantial decline (relative to nonfinancial activity) that has occurred in the federal government's outstanding debt, and the corresponding increase in the outstanding debt of private nonfinancial borrowers, the financial markets have increasingly attempted to make private obligations more acceptable to the economy's ultimate wealth holders by converting them into government obligations via government insurance and credit guarantees. Along with the increase in private financial intermediation, the growth of government credit guarantees broadly defined—including some that are merely implicit—have enabled the American financial system to absorb the large postwar shift in the public versus private mix of direct primary debt.

1.4.4 The Evolution of Monetary Policy

Finally, one of the most important, and importantly changing, aspects of the federal government's role in the American financial markets during the postwar era has been the monetary policy carried out by the Federal Reserve System. The changes since World War II in the method of conducting monetary policy, in the effect of monetary policy on the American economy, and in the perceptions of monetary policy held by financial market participants have all been profound.

Although monetary policy developments have been fundamental to the interaction between the American financial markets and nonfinancial economy, a detailed quantitative analysis of the macroeconomic effects of postwar monetary policy lies beyond the scope of this essay.[64] Nevertheless, an essay on postwar changes in the financial markets would be incomplete without some attention—albeit at the qualitative level—to how monetary policy has evolved over these years.

The Federal Reserve System, created by Congress in 1914 as America's first central bank since the 1830s, has responsibility for maintaining the currency and also for the implementation of monetary policy, which along with fiscal policy has constituted one of the two principal engines of government macroeconomic influence during much of this century. As an historical matter, it is interesting to note that the macroeconomic objectives universally associated with monetary policy in the postwar era—and especially the objective of maintaining price stability—received no mention by Congress in the original 1913 Federal Reserve Act. Instead, prompted by the recurrent series of financial crises and panics, most recently in 1901, 1907, and 1913, Congress charged the new Federal Reserve System with the more direct task of preserving stability in the financial markets. More specifically, with the contractionary economic effect of the recent financial panics in mind, Congress instructed the Federal Reserve "to furnish an elastic currency"—exactly the opposite of the anti-inflation objective widely associated with monetary policy and viewed by many people as the chief desideratum of monetary policy today.

The use of monetary policy to achieve broader macroeconomic objectives evolved slowly and cautiously during the prewar years, as economists and Federal Reserve officials gradually came to understand the working of open market operations, now the most important tool of monetary policy but not even contemplated as such in the Federal Reserve Act. The establishment in 1923 of what subsequently developed into today's Federal Open Market Committee led temporarily to an increasing emphasis on open market operations and macroeconomic objectives, but the confusions of the Depression and the associated international monetary problems served to arrest the development of the monetary policy mechanism. During World War II the Federal Reserve facilitated the financing of the huge increase in public debt noted above by supporting the prices of Treasury securities. After the war the reluctance to impose losses on investors who had financed the war effort led to a continuation of the bond price supports, thereby precluding active use of monetary policy for a further half-decade.

The first major postwar change in the posture of American monetary policy came in 1951, when the Treasury-Federal Reserve Accord relieved the central bank of its wartime obligation to peg long-term interest rates. Monetary policy then assumed the macroeconomic role that it has played ever since. Even so, interest rates, especially short-term rates, remained relatively low during much of this period (see fig. 1.2), and the Federal Reserve on balance followed the half-restrictive, half-accommodative policy subsequently known as "leaning against the wind." More specifically, the Federal Reserve primarily keyed its open

market operations in the very short run to the net-free reserve position (that is, excess reserves less borrowed reserves) of the commercial banking system. The theory of open market operations underlying this operating strategy—which was based on the relation between sources and uses of bank reserves, and on the assumption of banks' interest-inelastic demands for excess reserves and reluctance to borrow at the discount window—implied that net-free reserves measured banks' willingness to extend loans and create deposits, and hence measured the effect of monetary policy in stimulating or retarding nonfinancial economic activity. In addition, net-free reserves appeared to constitute the perfect "money market" variable—a close proxy for market interest rates (given the level of the Federal Reserve's own discount rate), yet not itself an interest rate and hence not a contradiction of the accord.

For several reasons financial market participants during the 1950s and even the early 1960s did not attach to monetary policy the great importance that they have associated with it in more recent years. The "go-slow" consensus economic philosophy of the Eisenhower years—which Congress never actively opposed, even under the Democratic majorities of the second half of the decade—was broadly consistent with the "sound money" ethos traditionally associated with central banking as well as the more specific "leaning against the wind" policy, which served to dampen cyclical fluctuations of market interest rates as well as to keep them low on average. In addition, although most economists had favored the accord freeing monetary policy, much of the popular thinking of the 1950s emphasized the newfound importance of fiscal policy.

Several changes occurred thereafter, however, that not only heightened market participants' awareness of monetary policy but also changed how monetary policy worked. The emergence of a "guns plus butter" policy, as the Great Society program and the Vietnam War effort peaked simultaneously, had the support of Congress but appeared to be running afoul of the Federal Reserve as interest rates climbed steadily beginning in 1965. Restrictive monetary policy was a major factor, and visibly so, in the macroeconomic policy environment from 1966 on, in part because of the increased sensitivity of the financial markets to interest rate levels as they interacted with the deposit rate ceilings (see fig. 1.7). After 1969 the acceleration of price inflation raised new questions about the relative priority of full employment and price stability in macroeconomic policy making, and the business recessions of 1969–70 and especially 1973–75 placed monetary policy in the middle between the unprecedented double-digit price inflation and the highest unemployment rate of the postwar era. Monetary policy had gradually moved from off stage to on, and then to the center.

Another source of the increasing attention focused on monetary policy during the second half of the postwar period has been a change of attitudes toward fiscal policy. When it emerged during the 1960s that an occasionally flexible fiscal policy was not as sufficient as many people had hoped as a "cure" for business fluctuations, the perception of the potential of monetary policy expanded to fill the apparent need. As is usual in such situations, once opinion began to change it probably went too far in the opposite direction. In the context of an already somewhat polarized economic policy environment, monetary policy therefore became simultaneously the hope of those who opposed whatever they believed to be the current stance of fiscal policy, as well as the target of those who supported that stance but were dissatisfied with the apparent results. Moreover, the question of the fiscal-monetary balance, and therefore the coordination of fiscal and monetary policies, also emerged as issues of some import. Matters of timing came to be perceived as relevant too, as evidence accumulated on the lags associated with the effects of policy actions. Most economists continued to believe that the "outside" lags with which monetary policy influences business activity were longer than the corresponding fiscal policy lags, but the Federal Reserve's compact decision structure shortened the "inside" lag of monetary policy in comparison with the cumbersome Congressional committee process involved in taking fiscal actions.

At the same time, questions arose about the operating methods used to conduct monetary policy per se. Most of the attention centered on the short-run policy of setting the banking system's free reserve position, and then after 1961 on the corresponding short-run policy of setting a short-term interest rate. The essence of the debate was whether this operating method in fact constituted only a short-run guide for open market operations aimed at broader objectives or, instead, had developed into a system of false beacons for policy over the longer run. The main point was that it was not appropriate simply to regard monetary policy as steady or changing because market interest rates (or free reserves) were fixed or moving. What mattered was instead the relationship between observed interest rates and something else—something that was at best difficult to determine. Events played a part here, too, as the acceleration and increasing volatility of price inflation rendered the inference of a "real" market rate of interest ever more difficult. To the extent that allowing for price expectations was basic to interpreting observed (nominal) interest rates as "indicators" of the likely effect of monetary policy on nonfinancial economic activity, calculating such corrections was becoming ever more difficult.

At the beginning of the 1970s, therefore, the Federal Reserve shifted the strategy of its monetary policy yet again—this time to an emphasis

on quantitative measures of commercial banking activity in general and on the narrowly defined *M1* money stock in particular. In the late 1960s the Federal Reserve had experimented with a "proviso" approach, according to which short-run open market operations pursued a stated interest rate objective provided that doing so did not cause some aggregate measure to deviate from a predetermined range. In 1970 the Federal Reserve finally adopted an operating strategy based explicitly on monetary targets. The directives governing the conduct of open market operations continued to specify a narrowly constrained short-term interest rate (the federal funds rate), but with the clear understanding that this practice was in large part meant to achieve the targeted rate of monetary growth. Although these directives typically specified target ranges for the growth of several monetary aggregates, as well as commercial bank credit, in practice the focus of policy through the time of writing seems to have been primarily on the narrow money stock.[65]

The Federal Reserve's monetary-targets strategy has subsequently evolved into a fairly well-defined two-stage procedure. First, at the "strategy" level, about once per quarter the Federal Reserve translates its ultimate policy aims (in terms of the economy's growth, employment, price stability, and so on) into a set of desired growth rates for the monetary aggregates over the next year. Because it will choose a new set of desired one-year growth rates three months later, however, only the first quarter of this one-year extrapolation is of direct operational relevance. Second, at the "tactics" level, within the quarter the Federal Reserve determines how best to manipulate the instruments over which it can exert close control (such as nonborrowed bank reserves, or a short-term interest rate) so as to cause the designated monetary aggregates to move in the specified way. In practice the federal funds rate typically served in this instrument role until 1979, when the Federal Reserve initiated a new experiment using the growth of bank reserves as its short-run operating guide. Although the Federal Open Market Committee, which has responsibility for these decisions, meets formally only once a month, it also occasionally uses telephone conferences to make within-month adjustments in the instrument setting aimed at achieving the desired monetary growth, subject only to the need to avoid undue instability in the money market. Apart from occasional variations, the Federal Reserve has essentially continued to pursue its monetary-targets operating strategy along these lines through the time of writing.

In part as a result of the new strategy of open market operations implemented during the 1970s, the short-run volatility of market interest rates sharply increased (see fig. 1.2). These wider interest rate fluctuations in turn have been the source of many of the developments discussed earlier in this essay. Together with the ever higher average level

of interest rates during the second half of the postwar period, they have heightened the awareness of monetary policy among nearly all participants in the financial markets. In addition, along with dissatisfaction with macroeconomic outcomes in the 1970s, they have spurred Congress to institute regular "oversight" procedures requiring the Federal Reserve periodically to report its current monetary growth targets through the relevant Congressional committees. The practical ability of Congress to supervise the Federal Reserve's monetary policy in any effective sense, however, appears to be dubious at best.[66]

Finally, a feature of American monetary policy that has also changed several times since World War II has been the degree of influence associated with international considerations. Before the war international financial matters were often at the heart of Federal Reserve policy making. By contrast, during the "dollar shortage" of the early postwar years American monetary policy was largely free to pursue domestic objectives without much regard for international considerations, and the relatively conservative posture of monetary policy (and fiscal policy) during much of the 1950s posed no threat to the country's already strong currency anyway.[67] After the balance of payments had become a major problem in the early 1960s, however, the Federal Reserve began at times to take monetary policy decisions with an eye to their international ramifications. Since then the international constraint on monetary policy making has strengthened and then waned several times. Somewhat surprisingly, although the American role in the international monetary system became a major focus of attention in the early 1970s, with the exchange rate realignment and suspension of dollar-gold convertibility in 1971 and the move to floating exchange rates after 1973, American monetary policy primarily emphasized domestic objectives during these years. By contrast, in the late 1970s (and through the time of writing), despite inconvertibility and floating rates international considerations appear to have exerted more influence over monetary policy than at any time since the early 1960s.[68]

1.5 Summary and Concluding Comments

This essay has documented three major developments that have dominated the American financial markets since World War II.

First, the nonfinancial economy has increasingly relied on private debt financing. At the war's end there was much government debt but little private debt outstanding. Since then both nonfinancial businesses and individuals have greatly increased their indebtedness, while the federal government has sharply reduced its indebtedness, in comparison to the economy's nonfinancial activity. The sustained rise in private indebtedness has represented in part a return to prewar practices after

the aberration of the depression and war years and in part the establishment of new norms for indebtedness in relation to incomes. Perceptions of enhanced economic prosperity and stability, greater tax incentives to debt finance under conditions of accelerating price inflation and rising nominal interest rates, increased holdings of physical assets, and the relative decline in government-issued debt per se have probably played some part in accounting for the large relative increase in the nonfinancial economy's private debt.

Second, the economy has increasingly relied on financial intermediaries to hold the claims issued by nonfinancial borrowers. Individuals as well as other nonfinancial investors have allocated a growing share of their portfolios to claims on financial intermediaries, rather than direct claims on nonfinancial borrowers. Even in the holding of corporate equities, the one area traditionally dominated by individual ownership, intermediaries have begun to play a more substantial role. Nonbank deposit intermediaries, including especially savings and loan associations, and private and public sector pension funds have figured prominently in the continuing overall postwar rise in financial intermediation. This increasing degree of financial intermediation has facilitated the increased debt financing of private nonfinancial borrowers and, together with a series of financial innovations, has also helped to break down barriers and frictions interfering with efficient allocation of the economy's financial resources.

Third, in contrast to its declining role as a direct borrower, the federal government has in other ways become more of an influence in the financial markets. The government has increasingly served as an insurer and guarantor of, and an intermediary for, private claims. Federal deposit insurance, instituted shortly before the war, importantly changed the character of private intermediation, and other forms of government credit guarantees have proliferated subsequently. Federally sponsored credit agencies, and more recently mortgage pools, have supplemented private intermediation. Government regulation of the financial markets has also increased in both scope and effect, and market participants have come to attach ever more importance to monetary policy actions as well.

Finally, it is important to reemphasize that these three postwar developments—the rise of the private debt economy, the increasing degree of financial intermediation, and the growing role of the federal government —are not independent phenomena. These three ongoing processes constitute different but closely related facets of the same overall pattern of American financial evolution. Because of the differing risk and liquidity characteristics of public versus private securities, the postwar shift from public to private debt has increased the economy's need for financial intermediation, and the growth and development of that intermediation have in turn facilitated the successful issuance and absorption of ever

greater amounts of private debt relative to nonfinancial activity. Similarly, in place of direct government-issued debt, the federal government has indirectly transformed private debt into its own on an increasing scale through a combination of guarantees and federally sponsored intermediation. On balance, over thirty-five years the most important postwar changes in the American financial markets have largely been parts of the same consistent story.

Notes

1. See Gordon's essay in this volume (chap. 2) for a comprehensive treatment.

2. Moreover, the use of annual data for the first seven downturns shown in table 1.2 importantly understates the peak-to-trough decline of real gross national product in comparison to that shown using quarterly data for the six postwar downturns.

3. Kindleberger (1978) provides a lively review of the international propagation of economic disturbances.

4. Perry (1977), Jorgenson (1978), and Perloff and Wachter (1979) documented this shift and offered alternative explanations.

5. Debt issued by nonfinancial borrowers is similar to the concept of "primary securities" introduced by Gurley and Shaw (1960).

6. The data shown here include only those liabilities classified as "credit market debt" in the Federal Reserve Board's flow-of-funds accounts. The debt of the federal government therefore excludes currency and bank reserves but includes the Federal Reserve System's holding of United States government securities ($147.8 billion and $118.6 billion, respectively, as of year-end 1978). For state and local governments, households, and unincorporated nonfinancial businesses, credit market debt in each case constituted 95 percent or more of all liabilities outstanding as of year-end 1978; for nonfinancial business corporations, year-end 1978 total liabilities consisted of 71 percent credit market liabilities, 24 percent trade debt (almost all owed to each other), and 5 percent other liabilities.

7. It is not appropriate to include foreign debt in an analysis of these data from the perspective of the United States economy's liability-issuing behavior. By contrast, if there were some assurance that debt issued by foreign borrowers in United States markets remained in the portfolios of United States investors, then it would be appropriate to include that debt in an analysis from the perspective of the United States economy's asset-holding behavior. (The caveat, of course, would apply as well to debt issued in the United States markets by United States borrowers.)

8. The peak debt/GNP ratio during 1918–78 occurred in 1933, the trough year of the Depression. In addition, much of the household and business debt nominally outstanding during the Depression was of questionable actual value.

9. During 1953–78 the United States debt/GNP ratio has been more stable than the money/GNP ratio. This statement is true regardless of whether one uses annual or quarterly data, either unadjusted or detrended, with money measured as either *M1* or *M2*; see B. Friedman (1979).

10. See B. Friedman (1979) for a discussion of each of these three behavioral hypotheses and a look at some pertinent postwar evidence.

11. The United States government's debt increased from only $1.2 billion in 1916, the year before the United States entered the war, to $25.6 billion in 1919, the year after the war ended.

12. Apart from a discrepancy due to inadequacies of statistical reporting, the total sources of funds shown in table 1.5 is equal to the total uses of funds shown in table 1.4.

13. Apart from a discrepancy due to inadequacies of statistical reporting, the total sources of funds shown in table 1.5 is equal to the total uses of funds shown in table 1.4.

13. According to U.S. Department of Commerce estimates, reported depreciation allowances *under*stated corporations' true capital consumption by some $2–4 billion annually during 1946–61, then *over*stated it by about the same amount during 1962–73, and since 1974 has *under*stated it again by an increasing amount ($13 billion in 1978). See Feldstein and Summers (1979) for an analysis of the relation between allowable depreciation and true capital consumption under conditions of price inflation.

14. During 1971–76, the years of the equity bulge, public utility companies accounted for 46 percent of total *gross* offerings, and preferred shares accounted for 29 percent of total *gross* offerings. (These data, from the Securities and Exchange Commission, are not available on the net basis used in table 1.5.)

15. For an analysis of this issue see Feldstein (1976) and Feldstein et al. (1978). The more basic point that the corporate tax structure favors debt over equity financing has long been familiar; see, for example, Modigliani and Miller (1963).

16. The rise in short-term indebtedness (which reached 25.7 percent of credit market debt as of year-end 1978) still seems small in comparison with the attention it has received. Moreover, even the small increase that has occurred may be only an illusion if, as seems likely, an increasing share of bank lending is actually intermediate term. The much discussed notion of declining corporate liquidity is captured much better by the relationships among both liabilities and assets. (See data in table 1.4 on funds used to acquire financial assets.) The year-end ratio of the corporate sector's liquid assets to its short-term liabilities has fallen from .86 in 1946 to .68 in 1950, .48 in 1960, .26 in 1970 and a low point of .25 in 1973; after recovering to .34 in 1976, as a consequence of the severe 1973–75 recession, the ratio has fallen again to .27 in 1978.

17. Hendershott and Hu (1979) have documented the growing after-tax incentive for individuals' mortgage borrowing to finance home ownership in recent years, even for those in marginal tax brackets as low as 30 percent. A similar conclusion holds for consumer credit, although here low tax bracket individuals account for more of the borrowing.

18. Apart from a discrepancy due to inadequacies of statistical reporting, the total sources of funds shown in table 1.8 is equal to the total "investment" uses of funds shown in table 1.7.

19. Although installment credit constituted only about one-half of total consumer credit outstanding in the early postwar years, it has so dominated consumer borrowing that, as of year-end 1978, households owed $276 billion of installment credit and only $64 billion of other consumer credit.

20. Since the early 1960s the most rapidly growing expense item of state and local governments has been contributions to their employees' pension funds; see Munnell and Connolly (1976) for a review of this experience. The growth of these pension funds, the subject of section 1.3, has itself been an important development.

21. To avoid confusion it is worth noting explicitly that the *general* funds of state and local governments were in surplus in the 1970s. Since their *pension* funds also run a large current surplus, the state-local government sector has been heavily in surplus on a consolidated basis throughout the postwar period.

22. Because of the enormous size of the United States markets, however, especially in comparison with specific foreign markets, what represents only a small part of lending here may often play a sizable role in meeting the needs of particular foreign borrowers.

23. See Solomon (1977) for a description of the capital controls program and a discussion placing it in the context of the United States economy's postwar foreign economic policy.

24. Remaining barriers to foreign securities issues in the United States market include the withholding tax on interest and dividends paid to foreigners and disclosure requirements of the Securities and Exchange Commission.

25. Because of the cyclicality of transfer payments and the overall weakness of the United States economy in the 1970s, the data shown in table 1.11 slightly overstate the trend increase in both transfers and total federal expenditures in relation to gross national product. See Break's essay in this volume (chap. 9) for a comprehensive review of postwar trends in federal spending.

26. In 1978, the fourth year of the economic expansion, the (calendar year) federal deficit was $28 billion, or 1.3 percent of gross national product.

27. During this same period the Federal Reserve System was trying, via its "Operation Twist," to shorten the mean maturity of the federal debt held by public investors. As table 1.12 shows, the debt management policy predominated. A number of researchers subsequently attempted to analyze the effects of Operation Twist as if it were not offset by debt management policy; see, for example, Modigliani and Sutch (1966; 1967). In light of the prevailing debt management policy, it is not surprising that such efforts were unsuccessful.

28. See Goldsmith (1958; 1969) and Gurley and Shaw (1960) for an analysis of the prewar experience.

29. The interesting question of cause and effect between these two developments lies beyond the scope of this essay.

30. The data plotted in figure 1.4 and used also in table 1.13 refer only to financial assets and hence exclude nonfinancial assets like houses and consumer durables. As of year-end 1978 households' nonfinancial assets, valued at replacement cost, totaled $2.8 trillion (of which $1.5 trillion was residential real estate) in comparison to $4.8 trillion of financial assets. The available current-value data on nonfinancial asset holdings are understandably weak.

31. Moreover, these data overstate households' direct equity holdings in that they do not separate holdings via mutual funds, which grew from an average 2 percent of total equity holdings in 1946–50 to 7 percent in 1971–75.

32. Feldstein (1974), for example, derived a large estimate of social security "wealth" (defined as the present discounted value of expected future benefits) and found evidence of a significant impact of social security on private saving behavior. Although this work and the literature that has followed it have emphasized effects on total saving behavior, there is no reason to expect the composition of asset holding to remain invariant.

33. Some of the best-known examples of this thinking were Greenough (1951) and Advisory Committee (1969).

34. Lintner (1975), Modigliani and Cohn (1979), and Feldstein (1979), among others, have provided analyses of the failure of equity returns to keep pace with inflation.

35. Table 1.14 is adapted from Bodie (1979) and is based on updated annual data compiled by Ibbotson and Sinquefield (1977); see also Bodie (1976). See Cagan (1974) for a more detailed examination of data over a longer time period and for cross-country comparisons.

36. See Hartman (1978) for a review of the participation of foreign investors in the United States financial markets. A distinction documented by Hartman is that, within the category of long-term portfolio (as opposed to direct) investments, foreign investors have mostly bought United States equities while United States investors have mostly bought foreign debt securities.

37. Funds generated internally and retained by corporate businesses also represent a form of investment by the holders of equity shares in those corporations. Given the large household ownership of equities, including retained earnings in the data shown in table 1.12 would greatly increase the share of funds "advanced" by nonfinancial investors, but it would still leave intermediaries as the direct source of well over half of the total.

38. Much of this literature has followed the lead of Gurley and Shaw (1960).

39. Following Glass-Steagall, commercial banks no longer engage in investment banking or broker-dealer activities for publicly offered corporate securities, although they do so for public sector securities, and in recent years they have been increasingly involved in arranging direct placements of corporate securities. In addition, the trust departments of commercial banks continue to be the largest single factor in private asset management.

40. See Fellner and Larkins (1976) for a discussion of the stability of *M2* velocity, and B. Friedman (1980) for a corresponding discussion for bank credit.

41. The work of M. Friedman (1959) and M. Friedman and Schwartz (1963) explained the downward prewar trend in *M2* velocity by emphasizing the role of money as a luxury good.

42. Banks' holdings of Treasury securities were essentially flat from 1946 until the swelling of the federal deficit occurred in 1975, so that banks' portfolios of municipals have exceeded their portfolios of Treasuries ever since 1969. Except for 1974–76, all of the growth in banks' holdings of federal government debt has consisted of federal agency securities.

43. See Goldfeld (1973; 1976) for a review of the postwar evidence on money demand behavior.

44. See Rhoades (1976) for a summary of changes in banking structure following the 1970 amendments.

45. In table 1.18, however, the respective size of the three groups is indicated by their total assets because of the lack of historical data on pension funds' liabilities.

46. See Weiss (1976) for a review of the ERISA legislation and its impact.

47. Tepper and Affleck (1974) and Oldfield (1976), among others, have investigated the nature of this underfunding. Although corporations are now required to report (as a footnote to the balance sheet) the difference between pension assets and liabilities for vested benefits, there is no easy way to discover the liability for *non*vested benefits.

48. See again Munnell and Connolly (1976).

49. Silber (1977), for example, has analyzed liquidity provided by markets as an alternative to liquidity provided by intermediaries.

50. See Branson's essay in this volume (chap. 3) for a comprehensive treatment.

51. Silber (1975) has developed a theory of financial innovation. For discussions of the impact of specific recent financial innovations, see, for example, Lieberman (1977), Porter et al. (1979), and Lombra and Kaufman (1978).

52. Tobin (1963), for example, called on the government to issue such an instrument long before the major acceleration of inflation. More recently, researchers have sought to discover why the private markets have not provided it; see, for example, Fischer (1975; 1979).

53. See, for example, Modigliani and Lessard (1975).

54. See Caves' essay in this volume (chap. 7) for a comprehensive treatment.

55. Data on bank failures are available from M. Friedman and Schwartz (1963) and successive issues of the FDIC *Annual Report.*

56. For analyses of this issue see, for example, Maisel (1980).

57. The federal government's most ambitious postwar effort to restructure the investment banking industry failed, however, when the government lost the antitrust suit it brought against seventeen leading investment banking firms (*United States* v. *Morgan et al.*) in 1951.

58. An anomaly of these ceilings is that mutual institutions which are in principle owned by their depositors—including savings and loan associations, mutual savings banks, and credit unions—are prohibited from fully distributing earnings to their owners. Earnings above the ceiling rate merely accumulate unless the institution converts to a stock organization (as is legal for savings and loans), in which case they become a windfall to the new owners.

59. Congress has repeatedly adjusted the brackets, but on balance these adjustments have had sufficient redistributive elements to reduce the real income level to which the higher marginal rates apply.

60. Kane (1980), for example, has documented the substantial shifts in individuals' asset holding since the early 1960s.

61. It is possible, however, that the mortgage market receives less as a net addition to available funds than all of the credit provided by the sponsored credit agencies and mortgage pools if they in turn sell their securities to investors who would otherwise have held deposits in thrift institutions. See, for example, the analysis of this question in Jaffee and Rosen (1979).

62. It is important not to draw this distinction too firmly, however. For example, savings and loan associations are constrained to hold at least 82 percent of their asset portfolios in residential mortgages (or other qualified assets). Also, as the discussion above notes, in the presence of deposit interest ceilings limiting the pay-out of earnings to holders of deposit shares, it is not clear what role the profit motive plays in savings and loans' portfolio decisions.

63. See Penner and Silber (1973) for an analysis of the subsidy implicit in federal credit programs.

64. See Gordon's essay in this volume (chap. 2). For more detailed accounts of postwar monetary policy, see M. Friedman and Schwartz (1963), Brunner and Meltzer (1964), Guttentag (1966), Bach (1971), Brimmer (1972), and Poole (1975). Parts of what follows draw on B. Friedman (1977; 1978).

65. Although some observers have alleged that the Federal Reserve's commitment to the monetary growth targets has been largely rhetorical, a steady accumulation of evidence shows that the observed movement of the money stock in relation to its targeted growth path has become a major determinant—on some evidence, the dominant one—of short-run monetary policy operations. De Rosa and Stern (1977), Feige and McGhee (1979), and Lombra and Moran (1979) have all found evidence to this effect.

66. Pierce (1978) and Roberts (1978) have both assessed this effort and drawn essentially negative conclusions.

67. Concerns about the dollar's external position first arose in conjunction with the government's $12 billion deficit in 1958—a peacetime record at the time, and

equal to nearly 3 percent of the gross national product (a relative size not again reached until the 1973–75 recession).

68. See again Solomon (1977) for a detailed account of the role of international factors in United States monetary policy making.

2. *Milton Friedman*

The Changing Character of Financial Markets

World War II may be a meaningful watershed for many aspects of American economic development—though I have my doubts. But two other dates are far more significant for analyzing changes in financial institutions and their role in the economy: first 1933, the end of the Great Contraction and the beginning of a major structural reform of financial institutions; second, the mid-1960s, the beginning of widespread recognition that the immediate problem was not deflationary collapse but rather inflation.

The institutional changes that followed the Great Contraction were designed to reduce the susceptibility of the financial system to collapse; and largely succeeded in doing so. But those very changes made the system ill adapted to cope with inflation. When that danger emerged, further changes in the financial structure occurred that are still far from complete. They too may well be completed after the major need for them has passed.

Post-1933 Changes

My task with respect to the post-1933 changes is eased by a broad-brush evaluation that I made of some of these changes a quarter of a century ago—in chronological time; it seems much longer in psychological time, to borrow Maurice Allais's perceptive distinction.

With respect to changes in the United States banking structure, I wrote:

> Three major changes have occurred in this system since the great depression: first, the establishment in 1934 of the Federal Deposit Insurance Corporation; second, a growth in the importance of government obligations among bank assets; third, a loosening of the links between gold and domestic monetary conditions. These changes have transformed the banking system to an extent that is not generally recognized. . . .
>
> The combined effect of . . . [these changes] is to eliminate as a

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practical possibility anything approaching a collapse of the American banking structure. Insurance rules out an internal drain or banking panic; the importance of government obligations reduces the sensitivity of the stock of money to internal private credit changes; the dethroning of gold reduces its sensitivity to changes in external conditions. It is hard to see how under these circumstances any sharp *decline* in the stock of money could occur except through deliberate action by the monetary authorities to bring one about. This is very different from the situation prior to 1933, when it would have required deliberate action by the monetary authorities to prevent a decline in the stock of money. I hasten to add that none of these changes rules out sharp increases in the stock of money. . . .

After commenting on changes in the fiscal structure and in the psychological climate of opinion, I concluded:

Our present monetary and fiscal institutions are so constructed that anything more than a minor economic recession is extremely unlikely, even if, or especially if, no explicit action is taken by Congress or the Administration. But unless the recession is *exceedingly* minor, explicit action will be taken. The widespread general fear of depression would lead Congress to force such action on any administration whatever its political complexion. . . . Such additional action will be unnecessary. Even more, it will be positively harmful. . . . Measures taken to stem a supposed depression will serve to stimulate the succeeding recovery and to convert it into another round of inflation.

This inflation will not get out of hand; the same built-in stabilizers that would prevent a depression from getting out of hand will also prevent a runaway inflation. Sooner or later another recession will come along. . . . When it does, the same process is likely to be repeated.

The prospect is therefore a period of recurrent bouts of inflation produced by overreaction to the temporary recessions that punctuate the period. How long will this period last? How serious will the inflation be? . . . These questions seem to me to admit of no easy answer. Much depends on accidents of timing and politics, both internal and external.

Economists have known—at least intermittently—for over a century and a half two propositions: first, that by printing enough money you can produce any desired degree of activity; second, that the ultimate result is destruction of the currency. The American public has learned the first proposition. It once knew, but has now forgotten, the second. Only experience is likely to teach it once again.[1]

Experience has been teaching it—and that is the major source of the developments discussed in the next section.

The second change in the banking structure—the increased ratio of government obligations to the total assets of commercial banks—proved

temporary in form, though long lasting in substance. As Benjamin Friedman notes in his background paper, the ratio of government obligations to total commercial bank assets has returned to its earlier level, thanks to the reduction, primarily via inflation, in the explicit government debt as a fraction of income. However, the main thrust of the first two changes—assumption by government of responsibility for the security in nominal terms of nominal private assets—has continued. Guarantees have been expanded from deposits in commercial banks and thrift institutions to Federal Housing Administration and veterans' housing loans, Federal National Mortgage Association, Government National Mortgage Association, Federal Land Bank, and Federal Home Loan obligations in the housing area; loans to small businesses and students; securities of New York City; loans to Lockheed and Chrysler. And no doubt this is a highly partial list.

Benjamin Friedman gives an estimate in his background paper of the total amount of some of the outstanding liabilities currently issued or guaranteed by the Federal government. They total nearly three times as much as all direct Treasury obligations. The grand total must by now equal well over half of the total financial assets of the public, and an even larger fraction if the present value of the public's claims to future benefits from social security and from government pensions is included as an asset of the public and a liability of the government.

A corollary is that the decline in the ratio of the funded government debt to national income is highly misleading. Total direct, contingent, and unfunded government debt has almost surely been rising in recent years rather than falling as a fraction of national income. How else explain the decline in the yield differential between corporate Aaa bonds and long-term Treasury bonds?

All of this has to do with *nominal* liabilities and assets. The real value of the physical assets corresponding to nominal liabilities remains subject to all the dynamic forces in a dynamic economy. The guarantee of nominal assets has been accompanied by fluctuations in their real value through variable inflation. Uncertainty has been rechanneled, papered over by a facade of misleading dollar figures.

Federal insurance of bank deposits was accompanied by the adoption of Regulation Q, which prohibited the payment of interest on demand deposits and authorized ceilings on rates of interest that could be paid by depository institutions on other categories of deposits. Regulation Q proved to be a concealed time bomb that had its greatest effect during our second period after interest rates started to respond to inflation. The interest rate limits were largely innocuous for a long time after they were imposed. They were above market rates and so neither performed any positive function nor did much harm.

Similarly, the third change, the reduced role of gold, was finally consummated during our second period, in 1971, though it had considerable impact earlier.

Two developments after 1933 deserve mention to put the changes in the banking structure in perspective.

First, the changes in banking structure were accompanied by a shift in power: from the regional Federal Reserve Banks to the Board in Washington and from the Federal Reserve System to the Treasury Department. The Fed became a largely passive adjunct to the Treasury, playing no active part until the Treasury-Federal Reserve accord in 1951, and, paradoxically, gaining importance through the 1960s as it became a more potent engine of inflation.

The shift of power from monetary to fiscal authorities coincided with a matching shift in economic thinking. The initial shift in power owed nothing to the Keynesian revolution. However, it was strongly reinforced by the changing climate of academic opinion. Research in the Federal Reserve System itself on monetary matters proper largely came to a halt. It was replaced with research on Keynesian lines, which culminated years later in Federal Reserve collaboration in developing a large-scale econometric model in which monetary forces played at most a bit part, entering only via a narrow range of interest rates.

Second, the commercial banking system itself lost power and place to other institutions. The reforms of the 1930s which limited the functions that banks could perform laid the basis for growth in other financial intermediaries and were later strongly reinforced by the impact of Regulation Q. The stress of competition subsequently forced innovation that slowed the decline of commercial banks and altered their operations in the ways that Benjamin Friedman discusses.

A final comment is relevant to the ending of the initial phase and the beginning of the second. The inflationary roller coaster that I predicted in my 1954 talk did not arrive on schedule in the United States (though it did in the United Kingdom). It started in the 1950s but was then aborted by the successive recessions of 1957–58 and 1960, so that, by 1960, inflation was close to zero. Only then did the roller coaster really take off.

That interruption reflected, I conjecture, the accident of a nonpolitical president, Dwight Eisenhower, who was willing to sacrifice his party's, and his vice-president's, presidential prospects in order to cut short the inflationary process. He succeeded, bequeathing to his successor, John F. Kennedy, a noninflationary environment. The process of "recurrent bouts of inflation produced by overreactions to . . . temporary recessions" that had seemed to me imminent in 1954 was then resumed.

That is why it was not until the mid-1960s that inflationary expectations began to become part of the standard outlook of consumers, businessmen, and participants in the financial markets. It has always seemed remarkable to me how late this development occurred and how slowly it proceeded. Even now, after more than two decades, many phenomena in the financial world—particularly, persistent negative real rates of interest—are hard to rationalize except on the assumption that many participants anticipate a fairly prompt return to a noninflationary environment.

Post-1960s

No single year marks the beginning of the inflationary period as sharply as 1933 marks the end of the contraction. Robert Gordon, in his perceptive background paper, picks 1967 and that is probably as good a single date as any. It comes after the beginning of the actual inflationary roller coaster—that is clearly 1960. It comes before widespread recognition that a "new era" was under way. However, it is a good date to mark the beginning of the successive changes in the financial structure that the new era was to bring. That unattractive word "disintermediation" entered the financial vocabulary in 1966, revealing clearly how perverse in a time of inflation were the effects on the financial structure of reforms designed to reduce the evils of deflation.

The rapid rise in the velocity of *M1* as depositors found ways to economize on non-interest-bearing demand deposits showed that regulation Q was beginning to bite. Similarly, many of the financial changes over the next decade that are referred to by Benjamin Friedman reflected the attempt to evade or avoid Q with respect to both demand and time deposits: negotiable certificates of deposits, negotiable orders of withdrawal (NOW) accounts, automatically transferable savings accounts, special certificates of deposit available to depositors at mutual savings banks and savings and loan associations, money market mutual funds, and so on. Benjamin Friedman emphasizes the extent to which these and other financial innovations contributed to market efficiency. My own reaction is quite different: what a waste of capital and human ingenuity simply to get around restrictions and regulations that should never have been imposed, that were never justified by the ostensible purpose of reducing the vulnerability of the financial system to deflationary pressure and were adopted only because the circumstances enabled commercial banks and other financial institutions to persuade Congress to grant them special privileges they had long sought. In the 1960s and thereafter, the banks were hoisted on their own petard.

Did we really need still another demonstration of how ingenious economic actors are in getting around government restrictions that interfere with their pursuit of self-interest? Was it really a net gain in market

efficiency to replace or supplement commercial banks in their function of mediating transactions by savings and loan institutions, mutual savings banks, credit unions, money market funds, Sears-Roebuck, and the telephone company? Or to create a situation in which persons with small sums to invest are struck with rates of return half as large as those available to persons with large sums?

The explosive growth of the Eurodollar market is another example of the same phenomenon. The Eurodollar market was initially established largely as a way to hold dollars not subject to freezing by United States authorities. But its growth was greatly stimulated by regulation Q which could be avoided by borrowing and lending abroad. The attempt to preserve fixed exchange rates through the interest-equalization tax, restrictions on foreign investment by United States enterprises, and on foreign lending by United States banks were even more important. Had the United States cut completely the link with gold earlier and set the dollar free to float, the Eurodollar market would never have attained its present scale. New York, not London would have been the center of world finance and the United States would probably never have drifted into so unsatisfactory an international financial position. Here again, the banking community must bear much of the blame for developments that proved so adverse to its interests. With the notable exception of Walter Wriston, leading bankers were all strong proponents of fixed exchange rates and lobbied for their retention—which meant they also lobbied, though not explicitly, for exchange control.

Benjamin Friedman quite properly emphasizes the growth of private debt and the decline in the ratio of corporate equity to debt. The mystery to me is why debt did not grow still more rapidly under the double spur of tax advantages and the inflation-induced availability of long-term funds at a negative real rate. Individuals and enterprises that borrowed at long term in nominal form have been the major private beneficiaries from inflation. Why were so many so slow to take advantage of the opportunity? The obvious answer is the inertia of the status quo, the long time that it takes for the community at large to adjust its expectations and its behavior to basic changes in its environment—alike a major source of the appeal of inflation to fiscal and monetary authorities, of the damage that inflation does, and of the difficulty of ending inflation. Expectations may be rational, yet take a long time to adjust; markets may be efficient in the technical sense, yet prove highly imperfect estimators of future values; it may not be possible to fool all the people all the time, but it appears to be possible to do so for a surprisingly long time.

An unanticipated consequence of the greatly expanded role of government on both income and capital account has been a return of the cyclical behavior of interest rates to its pre-World War I pattern. Before the

First World War, long-term interest rates typically peaked well after the peak of the business cycle—around mid-recession—and reached their trough well after the cyclical trough—around mid-expansion. This occurred because of the importance of railroad bonds issued to finance extensions of track. Once an extension was started, it was generally expedient to complete it even if business conditions softened. A downturn in the cycle brought a postponement of new track extensions but meant a higher rather than lower demand for bond finance to complete the extensions under way, since there was a decline in current revenues accompanying the constant, or for a time even growing, requirement for capital. As the extensions were completed the demand for finance ebbed, reinforcing the decline in demand elsewhere, and producing by mid-recession a decline in interest rates. Similarly, during an expansion, there was a delay before new track extensions were approved and moved from paper plans to actual construction, so that the demand for finance did not pick up sharply until about mid-expansion.

Since the end of the Second World War the government has increasingly been playing the role that the railroads played earlier as a dominant and lagging element in the market for long-term bond finance. After a cyclical downturn, government demand increases as earlier commitments mature, spending rises on unemployment insurance and similar countercyclical programs, and current tax revenues decline. Interest rates decline only after demand from other sources has fallen enough to offset the higher government demand. A similar sequence in the reverse direction occurs during expansions.

A major institutional change that is still mostly in bud is the widespread indexation of financial contracts for inflation. The shortening of debt periods, floating interest rates, and variable-rate mortgages are all signs of the demand for indexing. An even more dramatic sign is the retreat from financial assets to physical assets—to land, houses, antiques, jewelry, gold, and silver—and the explosive rise in the prices of such assets.

There have been two major obstacles to the issuance of inflation-adjusted securities by private enterprises: first, their ability to borrow at negative real rates of interest through traditional channels; and second, the absence of indexing in the tax structure so that payments to lenders to allow for inflation would not be treated as taxable interest or capital gains. The major obstacle to the issuing of inflation-adjusted liabilities by financial intermediaries is the absence of corresponding assets to serve as their counterpart in the balance sheet.

If the inflationary roller coaster continues, these obstacles will disappear. Nominal interest rates will rise sufficiently to give a positive real yield; the pressure to index the tax system is strong and will become irresistible. The government may even be led to issue inflation-adjusted

obligations, which could serve as the counterpart to inflation-adjusted liabilities of financial intermediaries.

Conclusion

I am not nearly so confident now about the longer range future as I was a quarter of a century ago. At that time, the initial stage of a long trend had been passed, so the direction was clear, but the trend was still in its early stages, so it could be expected to continue for a long time. Today that trend is old. It is generating countercurrents of opinion and action. A turn is in the offing. But who knows just when it will occur? As every forecaster is aware, as the Dow theory enshrines, picking turning points is the really hard part of the job.

The turn may come soon. A number of fortuitous circumstances, including mistakes in monetary policy, have, I believe, increased the possibility that 1979 or 1980 will prove the year when inflation peaked in the United States, not in the sense that the inflation will thereafter sink steadily and precipitously to zero, but in the sense that the inflationary roller coaster will change from an upward to a downward trend. In that case, while the trough of inflation in 1981 or 1982 will probably be higher than the preceding trough in 1976, the next peak in the mid-1980s will be lower than the 1979 or 1980 peak. Even if that optimistic outlook is realized, the institutional changes—particularly the indexation of taxes and government borrowing—set in motion by the gradual incorporation of inflationary expectations will continue, though they may not reach full fruition. The continued changes will slow the adjustment to a less inflationary environment—just as the earlier institutional changes slowed the adjustment to accelerating inflation. The role of commercial banks will continue to decline—though the decline may be slowed by a reduction in regulation, particularly the elimination of Q; forms of financial intermediation will continue to proliferate, and new financial instruments will continue to be produced—all, on the initial assumption, to respond to a vanishing problem.

While I now regard this scenario as more likely than I did even six months ago, it still seems to me decidedly less likely than a continued, and indeed even accelerating, upward trend of the roller coaster, with the swings becoming shorter and wider. Inertia is strong. Objections to inflation are weaker than they seem. All of us object to rises in the prices of the things we buy; few of us object to rises in the prices of the things we sell. All of us are eager to end inflation—provided it is done at someone else's expense.

Experience abroad, particularly in Japan and Great Britain, suggests that inflation must reach a rate of something like 25 percent a year before its destructive social effects become so visible, so widespread, as to make it politically profitable to end the inflation.

If that proves the case here, as I fear it will, inflation will come down to perhaps something like 7–9 percent in 1981, and then rise to perhaps 15–20 percent by the mid-1980s. On this scenario, the upward swing of the roller coaster still has another decade or so to run before it becomes politically profitable to end it. That is not a pleasant prospect. However, I do not share the views of those who believe that the outcome will be a runaway hyperinflation (always of course excepting the outbreak of major war, in which case, a wholly different range of possibilities would emerge). The conditions for a hyperinflation are not present now and are almost certainly not going to be present for the foreseeable future.

If the roller coaster does continue on its upward path for another decade or so, the nascent changes in the financial institutions and arrangements could go very far. By then, we shall be living in a financial world where indexation is well-nigh universal for all but very short-term contracts, where financial intermediation of all kinds is a sharply declining industry. The financial markets will be highly efficient, but we shall buy that market efficiency at the cost of physical inefficiency, widespread social unrest, and political instability.

If we cannot long before then summon the political will to end the inflation that only government produces and that only government can end, we shall, in the famous words of Adam Smith, have "to endeavour to accommodate . . . to the real mediocrity of [our] circumstances."

Note

1. "Why the American Economy is Depression-Proof," a lecture delivered in Stockholm in April, 1954. Reprinted in Milton Friedman, *Dollars and Deficits* (Englewood Cliffs, N.J.: Prentice-Hall, 1968), pp. 72–90, quotations from pp. 74, 75, 78, 89, and 90.

3. A. W. Clausen

The Changing Character of Financial Markets in the Postwar Period: A Personal Perspective

Since the postwar period closely coincides with my own thirty years as a commercial banker, my discussion of postwar changes in financial markets will bear the stamp of that personal perspective.

I'll begin by reviewing developments from 1945 to 1960, a time when: mutual funds, savings and loans, and insurance companies invaded the backyard of a sedentary and overly cautious commercial bank-

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ing sector; the growth of consumer credit opened vast new markets to financial institutions; and the worldwide dollar shortage came to an end following the declaration in 1958 that major European currencies would henceforth be convertible, paving the way for the rapid growth of trade and multinational activity in the decades to come.

Next I will focus on the 1960s, a period characterized by a flurry of activity and innovation among banks and other financial institutions, including: the emergence of a number of new money market instruments; the advent of liability management in banking; the integration of financial markets on an international scale; formation of one-bank holding companies as vehicles for financial services diversification; and disturbing trends involving our balance of payments and advancing inflation.

The 1970s, my third frame of reference, represents yet another distinct set of developments: the breakdown of the Bretton Woods and Smithsonian agreements and the dramatically increased pressure on the value of the dollar relative to other currencies and gold; the massive recycling of petrodollars following a series of dramatic OPEC price hikes; loan syndications—often for projects in developing countries—of a scope far exceeding previous experience; highly volatile financial markets in the United States and abroad; and a blurring of distinctions between different types of United States financial institutions and between services offered by the financial and nonfinancial sectors.

When I first entered the financial world in 1949, widespread predictions of a depression following World War II were giving way to optimism as the peacetime economy entered an unprecedented period of sustained economic growth. Output per man-hour nearly doubled during the first half of the postwar period, providing the impetus for a 138 percent increase in the gross national product from 1945 to 1960. These gains were facilitated by corresponding increases in American credit markets. During the 1945–60 period, total debt grew 115 percent, to $875 billion.

Not all financial institutions shared equally in the market's largess, of course. Commercial banks, dominated for the most part by conservative managements that were more interested in the size of balance sheet totals than in earnings per share, failed to take full advantage of the opportunities that arose following the war. Insurance companies, mutual funds, savings and loans, and other institutions rushed in to fill the vacuum. By 1960, the banking sector's share of total debt had slipped almost three percentage points.

Savings and loan associations proved especially adept at cultivating the mortgage field. Encouraged by pent-up demand immediately following World War II and subsequently bolstered by government programs such as the Federal National Mortgage Association, mortgage debt grew at a substantial pace throughout the postwar period. From 1945 to 1960, outstanding mortgages increased almost sixfold.

The expansion of Bank of America's mortgage portfolio paralleled this trend. However, most bankers were less eager to participate in the market during the first half of the postwar period, preferring more liquid assets. It wasn't until 1957 that the loan portfolios of commercial banks finally surpassed their holdings of government securities.

Savings and loan associations, adopting a more aggressive stance, doubled their share of the mortgage market during the postwar years. By 1960, they held 29 percent of mortgage debt outstanding. This compared with 20 percent for life insurance companies, 14 percent for commercial banks, 13 percent for mutual savings banks, and 24 percent for all other holders. Commercial banks were more successful in capitalizing on growing demands for consumer installment loans, a relatively young market. Excluding the portion served by retailers, these loans expanded almost twentyfold from 1945 to 1960. The commercial bank share of this $37 billion market had reached 45 percent by 1960.

Banks also began testing the credit card field in the early 1950s. Although early attempts proved unprofitable, Bank of America established a firm foothold in the market with the introduction of BankAmericard in 1958.

However, in attracting time deposits, the savings and loan industry clearly outperformed rival financial institutions during the 1950s. Until the liberalization of Federal Reserve Regulation Q in 1960, commercial banks had been steadily losing ground in this area. From 1945 to 1960, their individual savings deposits increased only 124 percent, to $67 billion, while individual savings at savings and loans rose almost 750 percent, to $62 billion. Then Regulation Q was modified, allowing banks to pay more competitive rates on savings and time deposits. In the years that followed, commercial banks reversed the trend of previous years. For example, they attracted 42 percent of the savings flow from 1960 to 1968, whereas the share going to savings and loans dropped to 26 percent. Life insurance companies, which garnered 31 percent of the savings flow in the 1950s, slipped to a 17 percent share during the 1960–68 period.

The 1960s ushered in a host of other changes that provided banks with new sources of funds, primarily "purchased money" available in large volume at money market rates. As these funds made up an increasingly sizable proportion of bank liabilities by the mid-1960s, the term "liability management" quickly gained currency in financial circles. Carried to its extreme, this concept suggested that banks no longer needed to provide for liquidity in their asset mix. They could simply "buy" the liabilities they needed to meet liquidity or loan demands.

With the introduction of new money market instruments, such as the large denomination negotiable certificate of deposit, the growth of federal funds trading, and the burgeoning of the Eurodollar pool, commercial banks untied themselves from the apron strings of their primary

deposit sources—checking and savings accounts. Now they could turn to purchased funds to satisfy the market's growing appetite for credit as the economy boomed and inflation began mounting in the mid-1960s. In the 1950s, the total assets of weekly reporting banks increased by $51 billion, or 53 percent. The corresponding gain in the sixties was $189 billion, a 128 percent jump. By 1970, commercial banking had regained the market share that had been lost during the 1950s.

The dramatic expansion of credit markets in the 1960s coincided with a merging of previously segmented markets and increasing innovation within financial markets. For example, seekers of mortgage funds began venturing beyond the confines of local and regional markets to tap the capital markets. At the same time, household savings also became more mobile, moving from deposit institutions to bond markets and other sectors returning higher yields.

In search of more funds at lower interest rates, corporations also turned increasingly to the money markets, bypassing financial intermediaries. From 1966 to 1969, when the average prime rate increased from 5.2 to 8 percent, the commercial paper market almost tripled—from $13 billion to $32 billion. Bankers and corporate managements both soon learned that "money for hire" has only one allegiance: It goes to the highest bidder offering the least risk. It was quickly dubbed "hot money," and more than once overly dependent banks were burned by it.

Another innovation with far-reaching consequences was the formation of one-bank holding companies that began in 1967 and soon became a vogue. In fact, so popular was this new concept that in the space of but a year, one-bank holding companies grew from almost nothing to encompass one quarter of the total banking assets in the United States. The congeneric was banking's answer to insurance lenders, captive finance companies, and giant corporations that had been trespassing on the traditional turf of banks. It provided an avenue for bank expansion into new fields without running afoul of the Justice Department. However, legislation passed in 1970 curbed bankers' exuberance by restricting operations of one-bank holding companies to specific activities closely related to finance.

Although our subject is American financial markets, many of the forces at work in the United States must be analyzed in a global context. Indeed, the interdependency of international finance had become apparent to American business and financial leaders in the early 1950s. To provide a forum for discussion of major economic, monetary, and fiscal issues affecting the international banking community, the American Bankers Association hosted the first International Monetary Conference in 1954. Initially, the conference brought together chief executive officers of the 50 largest United States banks and 12 to 15 bankers of equal rank from abroad as well as central bank and government officials. The number of foreign bankers in attendance increased each year, and in

1970, the by-laws were changed to make the International Monetary Conference (IMC) a truly international body. The membership has been broadened considerably in the last decade. It currently comprises 116 banks from 23 countries.

The rapid internationalization of finance was powered by two major developments of the 1960s: (1) the dramatic surge of foreign activity by United States-based multinationals; and (2) attempts by the American government to staunch the flow of dollars leaving the country. Because the dollar was overvalued in the 1960s, United States firms found that foreign markets offered extremely attractive investment opportunities. During the latter half of the decade, United States direct foreign investment increased rapidly, mounting to $76 billion in 1970. This compared with direct foreign investment in the United States of but $13 billion.

Devaluations of the dollar in the early 1970s altered the pattern of international investment. Since 1970, the rate of increase in foreign investment in the United States has been outpacing United States investment abroad. At the end of 1978, it totaled nearly $41 billion, a 207 percent increase over the 1970 figure. During the same period, United States direct investment abroad grew by 123 percent, to $168 billion. Naturally, major American banks followed their customers overseas, setting up foreign subsidiaries to service multinational accounts. Soon these banks were deriving a sizable portion of their earnings from abroad.

Except for a branch in London, Bank of America's operations were confined almost exclusively to the United States until 1947. Even as late as 1963, we had only 22 branches abroad. The ensuing years, however, witnessed a phenomenal growth in our international activities. By the end of 1970, our overseas network encompassed 100 branches, 8 representative offices, and 61 subsidiaries and affiliates in 77 countries and territories. Our international assets more than doubled between 1965 and 1970, when they totaled $8 billion. Income from our international activities also climbed steeply, rising to 55 percent of BankAmerica Corporation's profits by 1975. Since then, however, our foreign source income has declined relative to domestic income.

Our shift toward a more international orientation reflected a profound reordering of the global financial structure. In place of compartmentalized national markets, the world was entering an era of highly integrated financial systems that overcame the old limitations imposed by distance and political divisions. This metamorphosis placed the evolving transnational markets on a collision course with some national governments, illustrating once again that changes in the financial environment owe as much to laws, regulations, and similar restraints as to the basic forces of economics.

In the mid-sixties, the United States government began introducing monetary controls aimed at arresting some disturbing trends in the national economy. The inflationary spiral that began its ascent in 1965 was showing little sign of responding to treatment. This, plus the increasing flow of capital abroad and deterioration of the nation's formerly very positive balance of trade, compounded United States balance of payments problems. The nation's official reserve transactions moved from a modest surplus in 1966 to a $3.6 billion deficit in 1967. The following year the situation worsened further as a result of Britain's devaluation of the pound late in 1967, which triggered a run on the dollar. The flight to gold caused the Federal Reserve to tighten voluntary foreign credit restraints and invoke other controls, notably the interest equalization tax.

Instead of keeping dollars at home, these moves by the government acted as a catalyst for the extraordinary development of the Eurodollar market. During a nine-year period of increasing controls that ended in 1974, Eurodollars grew twelvefold, to a gross size of $370 billion. Since then, the market has continued to increase at an average annual rate of 20 to 25 percent.

Ironically, it was this unregulated pool of funds—and the free market mechanism surrounding it—that enabled the international monetary system to rise to the challenge posed by the quintupling of oil prices in 1974. No official mechanism then in place could have resolved the imbalances caused by such an action. The Eurocurrency markets offered the private banking system the flexibility needed to engineer the greatest transfer of financial assets in history with an efficiency that dazzled even supporters of the Euromarkets.

Another, less publicized benefit of these markets is their effect on developing countries. Since they emerged, the Third World has had much greater access to adequate funding for viable projects. The question for the 1980s is what changes will occur in the financial markets in order to accommodate the ever-increasing need in the non-oil-producing Third World to finance the debt burdens caused by higher oil prices and inflation. In 1969, I signed a $245 million syndicated loan for a venture in Papua New Guinea that attracted considerable attention as the then largest privately financed project in history. Today, projects costing billions of dollars are almost commonplace. Much of the funding for these massive projects in the seventies came from the Eurocurrency markets.

A discussion of financial markets in the 1970s would be incomplete without reference to four other developments: (1) concern about overextension of banks following the growth spurt of the sixties; (2) the increasing volatility of markets; (3) the breakdown of the Smithsonian and Bretton Woods accords; and (4) a blurring of distinctions within the financial services industry.

The go-go growth of commercial banks made possible by liability management was a mixed blessing. While effectively meeting rising demands for credit, the rapid expansion of loans and investments in the early 1970s could not continue for long without proportionate additions to equity capital. Balance sheets of commercial banks soon began showing signs of strain. During the first three years of the decade, the assets of major banks expanded at a rate of 15 percent, well above the 9 percent growth of the 1960s. As a result, at the end of 1973, equity capital equaled only 6.5 percent of total bank assets, a considerable decline from 9 percent at the end of 1960. The closure of the United States National Bank of San Diego in 1973, followed by the demise of Franklin National and the international reverberations of the Bankhaus Herstatt failure, further escalated concerns over the soundness of the banking system in this country and abroad.

Against this backdrop, Bank of America adopted a policy of self-restraint in the summer of 1974. In two years, our total assets had risen by more than $15 billion, a gain of 45 percent. And our loan assets had grown by more than 55 percent! Expansion at such a headlong rate clearly could not continue. As a result, we chose to emphasize quality of assets and sustainable growth of earnings over growth for growth's sake. This strategy served us well during the 1974–75 recession and in succeeding years. Other institutions also recognized the need for controlled growth and have adopted similar courses of action.

The return to a more conservative management philosophy led to a gradual erosion in the credit market share of commercial banks during the remainder of the decade, paving the way for more active participation by other intermediaries—especially savings and loans and foreign investors.

Another distinguishing feature of the 1970s is the volatility that infected national and international financial markets during this period. Devaluations of the dollar, the breakdown of the Bretton Woods and Smithsonian agreements, continued high rates of inflation—these and other developments served to undermine confidence in the dollar and encourage speculation.

On the national level, the prime rate offers a useful reference point. From 1934 to 1970, the prime changed thirty-four times, about once a year on the average. Compare this with the three-year period beginning in 1973, when the prime rate changed no less than sixty-six times, or the fifteen changes that occurred in 1979.

Finally, the seventies represented a move away from compartmentalized financial services in the United States and toward a more efficient, nationwide financial market. In the process, we have seen a blurring of the distinctions that traditionally separated competitors within the marketplace. For example, Merrill Lynch, the nation's largest brokerage

firm, has developed a Cash Management Account that bears a striking resemblance to a checking account paying a money market rate of interest.

Thanks to pass-through certificates, the mortgage instrument is now relatively marketable. In addition, savings and loan associations are offering construction loans and variable-rate mortgages, as well as housing-related consumer loans. And they can draw funds, when necessary, from the Federal Home Loan Banks. In short, they are becoming more and more like commercial banks.

The desire of savers to receive realistic interest rates has prompted a rush to money market mutual funds and six-month money market certificates. In 1979, for example, the volume of MMCs outstanding more than tripled, exceeding $100 billion by year-end.

And nonfinancial enterprises have been staking out larger claims in financial markets. Sears, Roebuck and Co., for example, earned almost as much from its financial services in 1978 as BankAmerica Corporation. This year Sears intends to go yet another step. To meet some of its capital requirements, it will offer Sears credit card customers an opportunity to buy intermediate term notes through a wholly owned subsidiary.

These and other rumblings in the marketplace portend a shift toward an integrated network that is increasingly efficient at mobilizing and transferring financial resources. Indeed, we already have a nationwide financial services industry on the wholesale level, and I'm convinced it's only a matter of time until the United States has interstate retail banking as well. Electronic funds transfer capabilities and an increasingly mobile population will eventually bring irresistible pressure to bear on the prohibition against interstate banking.

Whatever the future holds, we can be sure there will be no lack of challenges to test the ingenuity, mettle, and resilience of financial markets and the intermediaries that serve them. Chief among these challenges is inflation, which is saddling our economy with a mounting burden of debt and threatening to widen the gap between real gross national product and total credit outstanding. To accommodate demands for future credit and other financial services, financial institutions can be expected to create additional instruments and techniques that will whittle away the remaining impediments to a free flow of funds. Increasing competition, in turn, will produce narrower spreads and greater profit pressures.

In my opinion, this type of environment will favor the consolidation of financial intermediaries, resulting in larger, more diversified institutions that command the resources and leadership qualities required to survive and prosper in an uncertain marketplace. But legislative and regulatory changes will be required to accomplish this. Considering the

rough and largely uncharted terrain we've traversed during the past thirty years, I have no doubt that tomorrow's financial systems will be more than adequate to deal with the inevitable future shocks of decades to come. Indeed, the message of the entire postwar period is abundantly clear: Markets will be served. And being terribly prejudiced, I have a personal preference for an active role for the commercial banking industry.

Summary of Discussion

The discussion turned to a number of issues, including the puzzle of low equity and bond yields in an inflationary environment, the changing role of the commercial banks, the growing importance of international constraints in money management, and the role of bank regulation. On the first, Paul Samuelson declared that the greatest puzzle in the area of finance in the past thirty years has been the failure of common stocks to provide an effective inflation hedge. In life-cycle terms, the lower real total yield on equity has substantially raised the real cost of retirement. Samuelson noted a further puzzle in the consistently negative real return to debt in recent years and wondered about the connection between the debt and equity yields. He indicated that Professor Modigliani of M.I.T. claims that both negative yields reflect money illusion of investors, who discount stock prices at the nominal interest rate. Even if the market is vastly inefficient at processing nominal versus real yields, an individual investor may have no way to arbitrage the market error.

Martin Feldstein offered another explanation for low equity and bond yields. The interaction of inflation with the tax rules on depreciation allowances, nominal capital gains, and inventories has lowered the post-tax real rate of return to capital, and therefore the return to equity holders. Low bond yields reflect traditional differentials with equity yields. Walter Wriston declared that the poor performance of stock prices since 1964 reflects an increasingly hostile business environment, with growing regulations and tax burdens. Arthur Okun added that the growing uncertainties about economic performance have led rational investors to bid down equity prices. Okun also joined Feldstein in the view that investors correctly view the combination of taxes and inflation as an effective levy on capital.

Wriston addressed the great changes in the role of commercial banks during the past thirty years. Commercial banks hold a declining share of United States financial assets. In 1946, commercial banks held 57 percent of financial assets in the United States. At the end of 1980, they will likely hold about 37 percent. And Wriston predicted that the down-

ward trend will continue. For example, Sears is beginning to sell commercial paper directly to credit card holders. And while there are 700 million credit cards in America, the commercial banks have less than 15 percent of the cards. General Electric credit will earn more than the Wells Fargo banks, and Sears financial division will earn more in 1980 than Sears retailing. Indeed the entire system of intermediation is moving dramatically away from banks. Wriston declared that the electronic management of funds now allows corporations to maintain nearly zero cash balances and pointed out that the net demand deposits of the clearinghouse banks in New York have not increased in nominal terms in the past five years. Finally, Wriston noted that ten years ago, eight of the world's ten largest banks were resident in the United States. At the end of 1979, there were only three here.

James O'Leary and Arthur Burns suggested that growing world capital mobility and flexible exchange rates have made United States monetary policy increasingly hostage to international events. In coming years, O'Leary predicted, the Federal Reserve Board will not aggressively ease credit in a recession because of fears of large capital outflows and exchange rate depreciation. Milton Friedman, however, was skeptical of this view. He held that monetary policy is freer from international constraints now than under fixed rates. In Friedman's view, the Federal Reserve Board has recently justified its policies on the basis of international events for political convenience rather than as a matter of substance. Friedman said that our main international vulnerability, the dependence on imported oil, is a self-inflicted burden. Our regulations restricting domestic production have made us the "unpaid agents" of OPEC.

On the matter of bank regulation, Burns and Clausen pointed to the difficulties in effecting needed deregulation and reform. Clausen attributed much of the problem to the divergences of interest among small and large banks in the Federal Reserve System in a system in which all banks have an equal vote on changes in regulations. This has shown up in the divergence of views concerning the elimination of Regulation Q, which many small-town banks have ardently fought.

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