

Increasing Indebtedness and Financial Stability in the United States

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The American economy during the 1980s has relied on debt financing to a degree that is unprecedented within the nation's prior experience — certainly within this century, and apparently earlier on as well. The combined indebtedness of both government and **private**-sector borrowers, which earlier had shown considerable **stability** in **relation** to the economy's **overall growth**, and especially so **since** World War II, has since 1980 jumped far out of proportion with **nonfinancial** economic activity. Moreover, almost all major sectors of the **U.S.** economy have participated in this pattern of accelerating borrowing, including individuals, businesses, and government at all levels.

This sharp break with prior **U.S.** economic behavior raises several important issues. For example, at the most fundamental level it casts in a new light the underlying puzzle of why the relationship between outstanding debt and economic activity was so stable for so long in the first place. Major changes in such key factors as interest rate levels, inflation rates, tax rates, and **bankruptcy** rules could plausibly have changed the **U.S.** economy's proclivity toward indebtedness at many points during the course of the twentieth century, but in fact—at least until the 1980s—they did not. Now careful analysis of the most recent experience may resolve such as yet unanswered questions as whether this prior stability chiefly reflected the behavior of borrowers or lenders.

The object of this paper is to consider two issues of a more prospective nature raised by the rise in the **U.S.** debt totals since 1980.

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First, has this increase eroded the ability of the United States to withstand economic shocks? More specifically, has it raised the threat of financial instability in the sense of disruptions in the orderly functioning of payment flows that would, in turn, either magnify a disturbance to the economy originating from some nonfinancial source or impose on the nonfinancial economy contractionary effects due initially to some purely financial cause? Second, if the increase in indebtedness has eroded U.S. financial stability, will the awareness of this deterioration constrain the future conduct of U.S. monetary policy? In particular, will fear of the consequences of financial instability render Federal Reserve System policymakers reluctant to impose a restrictive monetary policy in the event of a threatened re-acceleration of price inflation, and therefore impart an inflationary bias to U.S. monetary policy on average over the ups and downs of future business cycles?

The paper's first section highlights the extent to which U.S. borrowing behavior in the 1980s has departed from prior relationships, including both the rise in the overall debt-income ratio and the absence of negative correlation between public and private-sector debt ratios, by contrasting this most recent period with the earlier experience since the Korean War. The second section focuses on the corresponding experience of the assets held by the economy's private sector, broken down separately between individuals and businesses, to learn whether what stands behind this increased private-sector indebtedness can plausibly provide some assurance of borrowers' ability to service it. The third section examines the experience of debt delinquency and default in previous episodes of tight monetary policy and offers some speculations about the implications of recent developments in individual and business balance sheets for the conduct of monetary policy. The final section briefly summarizes the paper's principal findings and concludes with a note of caution about the implications of the steady rise since 1980 in the federal government's indebtedness.

Debt and income, before and after 1980

One of the most striking features of the U.S. financial system during the post-World War II era — but not since 1980 — has been the stable relationship between debt and economic activity. The outstanding debt of all U.S. obligors other than financial intermediaries, expressed as a percentage of gross national product, fluctuated (mostly cyclically) within a narrow range throughout this period, with no *evi-*

dent time trend? The debt ratio measured in this way has been especially stable since the Korean War, with a 1953-80 mean of 137.1 percent and corresponding standard deviation of 2.9 percent? Moreover, except for the depression of the 1930s, the debt ratio was also fairly stable and trendless during the pre-war period extending as far back into the nineteenth century as available data permit.³

What makes the pre-1980s steadiness of the U.S. economy's overall debt-income relationship especially striking is that it did not represent merely the sum of individually stable elements. At least throughout this century there have been wide swings, relative to gross national product, in the indebtedness of individuals, businesses, and government considered separately. As Chart 1 shows for the post-Korean War period, however, until 1980 these sector-specific debt levels exhibited sufficient negative covariation—especially between private-sector debt and federal government debt—to render the economywide overall debt ratio **essentially** trendless? The federal government component of the debt ratio exhibited strong negative correlation with the private-sector components, either individually or taken together, not just during 1953-80 (when the significant negative correlation could have reflected opposing time trends), but also over much longer periods dating back as far as World War I.

The experience of the 1980s stands in sharp contrast to this prior pattern of a stable total consisting of negatively **covarying** components. At the end of 1980, the total debt ratio stood at 137.7 percent, well within one standard deviation of the 1953-80 mean. By the end of

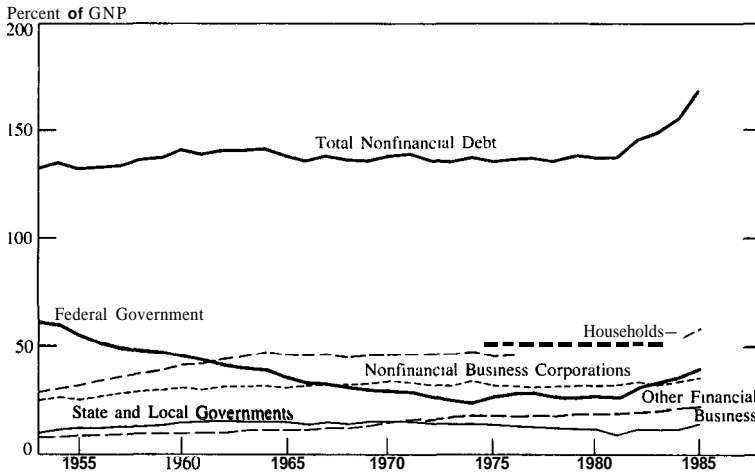
¹ The debt total excluding financial intermediaries roughly corresponds to Gurley and Shaw's (1960) concept of "primary debt." By contrast, Minsky's analysis of financial instability (e.g., Minsky 1977) has emphasized "gross debt," including financial intermediation. Credit market indebtedness (that is, market liabilities other than deposits and deposit equivalents) of U.S. financial intermediaries, relative to GNP, rose slowly but steadily throughout this period.

² These values, like all those reported below, are based on annual yearend par-value debt figures scaled by the corresponding **fourth-quarter** GNP (seasonally adjusted, at annual rates). They differ modestly from those reported in **Friedman** (1979, 1982, 1983, etc.) because of the Commerce Department's 1985 benchmark revision of the GNP data; on average, the revision raised GNP values during 1953-80 by 2.3 percent. Adjusting to a market-value basis would alter the year-to-year pattern somewhat, but would not affect such long-run properties as the absence of time trend. See, for example, the market-value correction factors calculated by **Strong** (1986).

³ See **Friedman** (1980, 1982) and Goldsmith (1985).

⁴ **Ordinary** least squares regression of the total nonfinancial debt ratio on a constant and a linear time trend, using annual data for **1953-80**, results in a coefficient on the trend variable of 0.08 with t-statistic 1.3.

CHART 1
Outstanding Debt of U.S. Nonfinancial Borrowers



1985, the debt ratio was 169.2 percent, more than 11 standard deviations higher, and above any prior U.S. debt level recorded in this century except for 1931-35, when many recorded debts had defaulted de facto anyway. Further, as Table 1 shows, all major classes of U.S. nonfinancial borrowers except farmers have participated in this increased indebtedness since 1980. The long-standing significant negative correlation between the federal government and the private-sector components of the debt ratio has, accordingly, turned positive.

Not surprisingly, most of the familiar measures of financial asset holding in the United States have also shown major increases during the 1980s, at least in relation to previously established time trends. This parallel behavior of asset holding behavior, at least at the aggregate level, is potentially of major importance in the context of concerns about threats to financial stability posed by rapid accumulation of debt, in that no cogent economic theory suggests gauging risks by looking at liabilities without attention to assets. Both sides of the balance sheet matter.

If the United States were a closed economy, any increase in debt liabilities outstanding would necessarily involve an equal increase in debt assets held. The same would be true for an open economy if the current account were always just in balance, so that foreign capital

TABLE 1
Increase in the U.S. Debt Ratio, 1980-85

Borrower	Debt Ratio		Change
	1980	1985	
	%	%	%
Households	50.9	58.5	+7.6
Businesses	50.3	57.9	+7.6
Corporations	32.1	36.8	+4.8
Farms	5.6	4.4	-1.2
Other	12.6	16.6	+4.0
State-local governments	10.4	13.3	+2.9
Federal government	26.1	39.4	+13.4
All nonfinancial borrowers	137.7	169.2	+31.5

Notes: Figures for 1980 and 1985 are yearend totals of credit market liabilities, expressed as percentages of corresponding fourthquarter gross national product (seasonally adjusted at annual rates).

Detail may not add to totals because of rounding.

Source: Board of Governors of the Federal **Reserve** System

inflows or outflows always netted to **zero**, and if there were no net debt-equity asset swaps with foreigners. In fact, the U.S. current account has moved into record deficit range in the **1980s**, presumably as a consequence of the combination of loose fiscal and tight monetary policies pursued throughout this period. Even so, the cumulative sum of the U.S. current account deficits sustained during 1981-85 was only \$231 billion, and the sum of recorded foreign net financial investment in the United States during this five-year period was just \$139 billion. In addition, the net exchange of equity with foreign issuers and investors, including both portfolio and direct investment, was close to zero through this period. Hence the increase in the total nonfinancial debt ratio by as much as 31.5 percent between the end of 1980 and the end of 1985 necessarily increased the total of debt assets held domestically, however measured, by a huge amount.

Table 2 places the rise of the total nonfinancial debt ratio in the context of the increase in analogous ratios to gross national product for major U.S. asset aggregates. As of the end of 1985, the ratios for total net assets, the monetary base, and the narrow **M1** money stock

TABLE 2
Aberrations of U.S. Financial Ratios, 1980-85

<u>Aggregate</u>	1980	1985	1985	<u>Difference</u>	Difference	Difference
	<u>Actual</u>	<u>"Norm"</u>	<u>Actual</u>		<u>of 1980</u>	<u>as Multiple</u>
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>Actual</u>	<u>Deviation</u>
Total nonfinancial debt	137.7	137.1	169.2	32.1	.23	11.3
Total net assets	92.9	93.0	114.2	21.2	.23	14.5
Monetary base	5.7	4.4	5.8	1.3	.23	3.6
Money: M1	14.5	10.0	15.4	5.5	.38	6.1
Money: M2	57.2	61.2	63.2	2.0	.03	1.0
Money: M3	69.8	74.1	78.8	4.7	.07	2.8

Notes: Data for nonfinancial debt and total net assets are yearend values, and data for all other aggregates are December values, scaled by corresponding fourth-quarter gross national product (seasonally adjusted at annual rates).

1985 "norm" is the 1953-80 mean (1959-80 for M2 and M3), plus adjustment for linear time trend in all cases except total nonfinancial debt and M2.

Standard deviations used for computing final column are calculated from 1953-80 data (1959-80 for M2 and M3), with allowance for linear time trend in all cases except total nonfinancial debt and M2.

Detail may not add to total due to rounding.

Source: Board of Governors of the Federal Reserve System, and author's calculations.

all stood at levels that, on a proportional basis, deviated from their respective prior trends by as much as, or more than, the total nonfinancial debt ratio.⁵ Because the previous relationships for the monetary base and M1 were less stable, however, these deviations were less dramatic when expressed as multiples of their respective standard deviations. By contrast, the broader money stock measures, M2 and M3, deviated far less from their historical relationships, in comparison to either prior levels or prior volatility.

From the standpoint of potential threats to financial stability, however, what has attracted concern has been increasing indebtedness, and in particular the increasing indebtedness of borrowers in the economy's private sector. In this context, the parallel behavior of some aggregate-level asset holding relationships (but not all) can be reassur-

⁵ Total net assets, the measure often emphasized by Kaufman (e.g., Kaufman 1979), is the sum of deposits and credit market instruments held by all nonfinancial sectors, including foreign holders.

ing only to a limited degree. It is crucial also that both the composition and the distribution of the assets held enhance borrowers' ability to service their obligations. Drawing such judgments is simply not possible on the basis of economywide aggregate data alone.

Assets and liabilities in the private sector

Debt liabilities are obligations to pay interest and repay principal at specified times in the future. Even under circumstances in which there is every expectation of refinancing the principal when it is due, by issuing debt borrowers assume the obligation to meet future interest payments. Their ability to do so depends on the incomes they will receive and on the assets they will have available to liquidate if doing so becomes necessary.

In aggregate, the U.S. economy has become more heavily indebted during the **1980s**, in relation to both income and assets. The outstanding credit market debt obligations of all nonfinancial borrowers rose from a 1953-80 mean of 1.37 times gross national product as of the end of 1980 to a post-depression record 1.69 times gross national product at the end of 1985 — an increase in indebtedness equal to nearly **one-third** of a year's income. Gross national product is not necessarily the most precise measure of the aggregate of income flows available to service this debt, of course, but more specifically refined measures of debt service capacity tend to move sufficiently in step with gross national product over time that an increase of this magnitude in the simple debt ratio is surely indicative.

It is always possible, of course, that an economy—or an individual borrower—may incur more debt in relation to income because net worth has also risen in relation to income. In such circumstances incurring additional debt liabilities, even relative to income, merely preserves previously existing balance sheet relationships. In the United States, however, there has been no significant change in the economy's aggregate net worth in relation to income during this period. At the end of 1985, the U.S. economy's consolidated net worth, with reproducible tangible assets measured on a current cost basis and land measured at market value, was \$12.6 trillion, or 3.09 times **fourth-quarter** gross national product — roughly in line with the approximately 3 to 1 ratio that has **prevailed** for decades? Hence the **extra-**

⁶ The standard reference is Goldsmith and Lipsey (1963). The wealth-to-income ratio calculated in this way was **3.09** in **1960**, **2.72** in **1965**, **2.82** in **1970**, **3.03** in **1975** and **3.41** in **1980**.

ordinary increase in the nonfinancial debt ratio since 1980 has, in the aggregate, simply represented a higher leveraging of existing economic activity, with greater debt levels in relation to net worth as well as income.

Because the cumulative **U.S.** current account deficit during **1981-85** was small compared with this increase in indebtedness (and because net debt-equity asset exchanges with foreigners were even smaller) more debt liabilities owed by **U.S.** borrowers mean more debt assets held by **U.S.** investors. Hence the economy's aggregate 1985 balance sheet does include more nominally denominated assets to accompany the higher levels of nominally denominated liabilities. Whether or not the resulting higher debt ratio poses the threat of financial instability depends, however, not just on economywide asset and liability aggregates but on the distribution of those assets and liabilities—that is, whether the borrowers who owe the liabilities also hold enough assets, and the right kind of assets, to ensure their ability to service their obligations in the event of an inadequacy in their incomes.

Households

Of the 31.5 percent increase in the **U.S.** economy's total **nonfinancial** debt ratio between 1980 and 1985, 7.6 percent consisted of increased indebtedness of households (mostly individuals but also personal trusts and non-profit organizations). Table 3 shows the aggregate **U.S.** household sector balance sheet broken down into broad categories of assets and liabilities, with holdings of tangible reproducible assets (mostly houses and consumer durables) measured on a current cost basis and both land and corporate equities measured at market value, all scaled in relation to gross national product. Because it is helpful to place the changes that have taken place so far in the 1980s in the context of at least a somewhat longer time span, the table presents comparable data by five-year intervals over the last quarter-century.

The recent growth in household sector liabilities stands out clearly in these **data**. After only modest variation in their indebtedness relative to gross national product between 1960 and 1975, households sharply increased their debt position in the late 1970s and again in the early 1980s.⁷ During the late 1970s, home mortgage borrowing accounted

⁷ The total household sector liability figures shown in Table 3 differ slightly from those shown in Table 1 because of the inclusion of liabilities other than credit market instruments (including security credit, trade credit, and deferred or unpaid life insurance premiums).

TABLE 3
Balance Sheet of U.S. Household Sector, 1960-85

	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>
	%	%	%	%	%	%
Total assets	384.6	367.6	356.1	330.3	367.6	374.5
Tangible	119.3	104.7	113.3	119.2	136.0	125.6
Financial	265.4	263.0	242.8	211.1	231.6	248.8
Deposits	46.3	51.5	52.8	56.0	56.9	65.9
Debt market instruments	29.3	23.7	24.4	20.1	18.5	25.0
Equities	77.1	86.8	70.7	38.6	41.7	45.4
Other	112.8	100.9	94.9	96.5	114.5	112.5
Total liabilities	44.5	49.0	48.6	47.4	52.9	60.6
Home mortgages	26.8	29.3	28.1	28.0	33.2	35.8
Consumer credit	12.7	14.1	13.9	13.3	13.2	16.6
Other	5.0	5.6	6.6	6.1	6.6	8.2
Net worth	340.1	318.6	307.5	282.9	314.7	313.9

Notes: Data are yearend values, scaled by corresponding fourth-quarter gross national product (seasonally adjusted at annual rates).

Detail may not add to totals due to rounding.

Source: Board of Governors of the Federal Reserve System ~

for substantially all of the increased household indebtedness. By contrast, during the early 1980s all forms of household indebtedness rose, including home mortgages and especially consumer credit.

Because households' net worth recovered between 1975 and 1980 and then remained roughly constant between 1980 and 1985, by 1985 households held additional assets at least in pace with their increased liabilities. Indeed, during this ten-year period in which households' liabilities increased in relation to a year's gross national product by one-eighth, households' total assets increased by nearly one-half of a year's gross national product.

The greater part of this increase in asset holdings took highly illiquid forms, however. Rising real estate prices during the late 1970s resulted in major increases in holdings of tangible assets (dominated by houses and land) as well as in equity positions in **nonincorporated** farms and other businesses (which dominate the "other" financial asset category, along with pension and life insurance reserves). Only under conditions of severe distress are such assets available for sale to service debt. The ten-year combined increase in holdings of deposits, debt market instruments, and corporate equities amounted to only one-fifth of a year's gross national product, more nearly in line with the increase in liabilities.

Moreover, the available evidence suggests that the distribution of these more liquid assets within the household sector hardly matches the distribution of the additional household indebtedness. For example, Table 4 summarizes the respective distributions of consumer credit owed and of liquid and nonliquid financial assets held across various income classes of U.S. households, based on the 1983 Federal Reserve Survey of Consumer Finances. Not surprisingly, the debt distribution does not match the asset distribution. Families with less than \$10,000 in annual income constituted 25 percent of **U.S.** households in 1983. Among such families, 39 percent owed at least some consumer debt, with mean indebtedness per family (whether borrowing or not) of \$1,178. Of such families, 66 percent owned financial assets, with mean value per family (whether owning or not) of \$2,988. By

TABLE 4
Distribution of Household Liabilities and Assets, 1983

<u>Annual Family Income</u>	<u>Consumer Credit</u>	<u>Financial Assets</u>		
		<u>Total</u>	<u>Liquid</u>	<u>Nonliquid</u>
	%	%	%	%
Below \$10,000	8.6	3.1	4.7	1.2
\$10,000 - 19,999	18.4	11.8	17.3	5.4
\$20,000 - 29,999	18.4	12.7	17.4	7.2
\$30,000 - 49,999	26.6	21.3	26.1	15.7
\$50,000 and over	28.0	51.1	34.5	70.5

Source: Author's calculations, based on data in Avery et al. (1984a,b)

contrast, families with \$30,000 or more in annual income constituted 30 percent of U.S. households in 1983. Among these **families**, 77 percent owed at least some consumer debt, with mean indebtedness per family of \$6,229. Of such families, 99 percent owned financial assets, **with** mean value per family of \$58,525. Hence, the ratio of mean family financial asset holdings to mean family consumer **in-**debtedness varied from 2.5 to 1 for the lower income group to 9.4 to **1** for the upper income **group**.⁸

Further, to the extent that much of the limited 1975-85 increase in household ownership of readily marketable financial assets took the form of debt market instruments and corporate equities, rather than deposits, there are yet further reasons for doubt that the household sector's higher aggregate asset-income ratio provides fully satisfactory stability behind its higher debt-income ratio. One reason is simply that asset prices may go down as well as up. For example, more than all of the entire rise in household ownership of corporate equities between 1975 and 1985—not just in relation to income but absolutely—reflected increased equity prices. Throughout the past quarter-century, U.S. households considered directly have, in fact, been net sellers of equity securities. **A** significant reversal of equity prices would erode household assets, just as the recent market rally has enhanced them.

The other major reason for concern in this regard is that, as the distribution of nonliquid asset holdings reported in Table 4 suggests, ownership of **corporate** equities and of negotiable debt market instruments is even more skewed toward the upper income groups than is ownership of financial assets in general. For the United States as a whole, only 19 percent of all families owned directly any equities at all as of 1983, and among the one-quarter of families with less than \$10,000 in annual income only 5 percent did so. Further, the top 2 percent of all families (ranked by income) owned 50 percent of all equities, while the top 10 percent of all families owned 72 percent of all equities? Clearly, these assets are not generally available for liquidation, if necessary, to facilitate servicing the liabilities of the typical U.S. household.

Finally, balance sheet relationships like those summarized in Table 3 fully describe debt burdens only if both real and nominal interest

⁸ These figures are computed from data presented in Avery et al. (1984a,b).

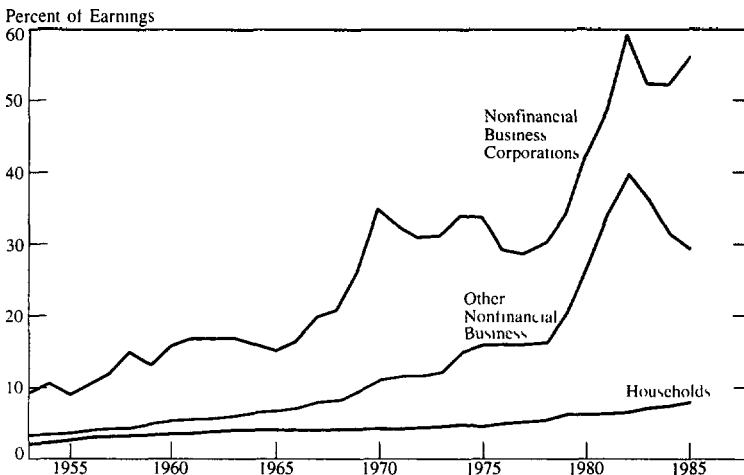
⁹ See again Avery et al. (1984a).

rates remain constant over time. When real interest rates rise, the share of income required for pure debt service, in an economic sense, rises even if indebtedness as measured by outstanding debt-income ratios is unchanged. Even when nominal interest rates rise solely because of more rapid expected and realized price inflation, stated interest payments also rise in relation to income, with the increment representing a faster required repayment of principal. As Chart 2 shows, personal interest payments as a share of personal disposable income have risen steadily since the Korean War, from a low of 2.5 percent in 1953 to a high of 8.0 percent in 1985. In light of the sharp rise both in household indebtedness and market interest rates during the **1980s**, it is surprising that this increase has been so smooth. The **reason** presumably lies in the long maturity of home mortgages, which account for the majority of household debt, together with the inflexibility of interest rates on most consumer credit transactions. From the perspective of financial stability, however, the point remains that the share of household income required to avoid debt default has risen substantially.

Businesses

As Table 1 shows, households and businesses have been equally responsible for the post-1980 increase in the U.S. economy's **nonfinan-**

CHART 2
Interest Payments as Share of Available Earnings



cial debt ratio. Especially for corporate businesses, however, the issues involved in the increased indebtedness of the past decade are more straightforward than in the case of households. Unlike households, U.S. business corporations on average have not taken on additional debt to hold greater amounts of liquid or other readily marketable financial assets. Hence questions about whether the distribution of the additional debt matches the distribution of the additional assets do not arise in the case of the corporate sector, because (in comparison to income levels) there are no additional corporate assets. Instead, the U.S. corporate business sector has simply substituted debt for equity **financing** behind a largely unchanged asset position.

Table 5 presents balance sheet data for the U.S. nonfinancial cor-

TABLE 5
Balance Sheet of U.S. Nonfarm Corporate Business Sector
1960-85

	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>
	%	%	%	%	%	%
Total assets	131.6	119.7	126.6	131.6	139.8	132.6
Tangible	96.1	84.3	90.7	98.4	104.9	99.1
Financial	35.4	35.4	35.9	33.2	34.9	33.4
Liquid	10.0	8.6	6.7	7.5	6.9	8.0
Other	25.4	26.7	29.1	25.8	28.0	25.4
Total liabilities	46.6	47.6	52.5	45.9	48.5	53.3
Market debt	30.1	30.3	34.4	32.7	32.1	36.8
Trade debt	12.5	13.4	15.7	10.8	12.6	12.0
Other	4.0	4.0	2.4	2.5	3.8	4.5
Net worth	85.0	72.1	74.0	85.7	91.4	79.2

Notes: Data are yearend values, scaled by corresponding fourth-quarter gross national product (seasonally adjusted at annual rates).

Detail may not add to totals due to rounding.

Data for trade debt reflect a series break in 1974.

Source: Board of Governors of the Federal Reserve System

porate business sector in a form comparable to the household data shown in Table 3. The increase in the corporate sector's credit market debt, from 32.1 percent of gross national product at the end of 1980 to 36.8 percent at the end of 1985, marked the first major departure from the pattern of approximately steady indebtedness in relation to income that had prevailed for the previous two **decades**.¹⁰

In sharp contrast to the household sector's accumulation of both financial and tangible assets in pace with its accumulation of debt during the late 1970s and early 1980s, as of the end of 1985 the corporate sector's financial and tangible assets both stood at almost exactly the same point in relation to gross national product as in 1975. Moreover, even within the overall financial asset category, corporate businesses' mix of liquid and nonliquid assets showed essentially no change. Hence there are no additional assets behind the new accumulation of corporate debt, which has resulted simply from debt-for-equity exchanges on the other side of the corporate sector's balance sheet.

These exchanges have largely emerged in the course of a wave of corporate reorganizations that constitutes a major phenomenon worthy of study in its own right. American business corporations have traditionally issued only minimal amounts of new equity securities, relying mostly on internally generated funds to maintain desired debt-equity ratios. During 1960-83, for example, the average net new funding in the equity market (that is, gross new issues less retirements) by nonfinancial business corporations was only \$4 billion per year. By contrast, the series of mergers, acquisitions, leveraged buyouts, and other reorganizations that took place during 1984 and 1985 alone resulted in a two-year net retirement of \$156 billion of equities—an amount equal to approximately 4 percent of a year's gross national product—as firms used borrowed funds to buy their own and other firms' equities."

Hence almost all of the increase in the corporate sector's indebtedness shown in Table 1 can be attributed to the corporate

¹⁰ The sharp decline shown in trade debt between 1970 and 1975 reflects a 1974 change in data gathering procedures. These liabilities are mostly held within the corporate sector. As of the end of 1985, nonfinancial business corporations' holdings of trade credit amounted to 15.1 percent of gross national product. "Other" corporate sector liabilities include mostly the foreign direct investment position of foreign-owned U.S. firms; the increase during 1980-85 reflects the swollen net foreign capital inflow.

¹¹ Gross new issues totaled \$43 billion and gross retirements \$199 billion during these two years.

reorganization wave of just the past two years. Whether or not this increase in corporate indebtedness relative to both income and assets will ultimately threaten the financial stability of U.S. business remains to be seen, of course. Rising equity prices approximately neutralized the balance sheet impact of the aggregate debt-for-equity exchange during this period, so that the corporate sector's aggregate debt-equity ratio (with equity measured at market value) rose from 69 percent at the end of 1983 to only 76 percent at the end of 1985—roughly in line with the average 75 percent that prevailed through the 1970s, though well above the corresponding 49 percent in the 1950s and 43 percent in the 1960s. As data presented in the third section of this paper make clear, however, the experience of business debt default during the first half of the 1980s was distinctly more severe than anything that had occurred earlier on since the 1930s.

Whether the level of corporate debt prevailing today raises the prospect of future instability will ultimately depend not on current balance sheet relationships but on whether the cash flows realized by business corporations are sufficiently in line with the expectations underlying this recent borrowing and lending activity. The strong performance of equity prices during 1984–85, despite continuing high real interest rates, suggests that equity market investors also share corporate borrowers' and lenders' favorable expectations of future business cash flows, at least to some degree. Still, as Chart 2 shows, the share of corporate earnings before interest and taxes required to meet corporate interest payments has jumped during the 1980s far beyond even the historically high level of the 1970s, as a result of greater indebtedness at a time of unusually high interest rates.

Among noncorporate businesses, the relationship between changing debt levels and potential financial instability is less straightforward. As Table 1 shows, between 1980 and 1985 the U.S. farm sector actually reduced its indebtedness relative to gross national product. This modestly lower debt level hardly implies a sounder financial basis for U.S. farms, however. Because of declining market prices for agricultural land, the farm sector's aggregate net worth relative to gross national product fell by more than half during the early 1980s—from 30.6 percent of gross national product at the end of 1980 to 14.9 percent at the end of 1985. The current crisis in U.S. agriculture is a striking demonstration of the importance of cash flows and of balance sheet positions in full, rather than just debt levels, in determining borrowers' financial health or problems.

By contrast, borrowing by noncorporate businesses other than farms raised the total U.S. nonfinancial debt ratio almost as much as corporate borrowing during 1980-85, despite a far smaller initial noncorporate debt level. This rise in nonfarm noncorporate business indebtedness, however, was not all that out of line with a general increase in the debt levels of such borrowers that began many years earlier. Moreover, almost all of these businesses' increased debt has been in the form of mortgage financing, and it has taken place against even more substantially enlarged holdings of tangible assets, including mostly land and residential real estate but also some business plant and equipment. As a result, the aggregate net worth of the nonfarm noncorporate business sector, which had risen from 34.3 percent of gross national product in 1975 to 45.2 percent in 1980, increased further to 47.2 percent in 1985 despite the higher 1985 debt level. Much of this activity has reflected efforts, carried out either individually or via partnerships, to exploit various "shelter" provisions of the tax code (including some provisions that will no longer apply under the 1986 **tax** restructuring legislation).

The chief threat to the financial soundness of noncorporate business borrowers is therefore the possibility of a reversal in the real estate market, such that future rental incomes **realized** are not consistent with current values, and cash flows become insufficient to service outstanding debts. One potentially significant factor in this context, shown in Chart 2, is that noncorporate business borrowers' interest payments have jumped sharply since 1980 as a share of proprietors' pretax income. Another is that nonfarm **noncorporate** business holdings of liquid assets have declined steadily during most of the post-World War II period. In 1955, these borrowers' liquid assets modestly exceeded their mortgage debt outstanding (2.7 percent of gross national product versus 2.5 percent), and their financial assets in total exceeded their total outstanding debt (5.3 percent of gross national product versus 4.9 percent). **By** 1985, while their total indebtedness had risen to 16.8 percent of gross national product (13.9 percent in mortgage form), their holdings of all financial assets had fallen to 2.5 percent of gross national product, and their holdings of liquid assets had fallen to only 0.3 percent. Hence these borrowers' available financial cushion, which could enable timely debt service to continue in the context of reduced or interrupted cash flows, has steadily shrunk.

State and local governments

Finally, as Table 1 shows, the remaining 2.9 percent of the 1980-85 increase in the **U.S.** nonfinancial debt ratio not due to the federal government reflects increased indebtedness of state and local governments. As is clear from Chart 1, this development has represented a sharp reversal of a general pattern of declining relative indebtedness of state and local governments that had prevailed ever since the late 1960s. With changing demographic trends eliminating pressures to expand public school facilities, and more and more localities having completed the major hospital, sewer system, and road projects that were characteristic of the earlier postwar years, the outstanding **state-local** government debt declined from nearly 15 percent of gross national product in 1970 to less than 11 percent in the early 1980s.

It is readily apparent that more than all of the subsequent increase has reflected a form of financial intermediation by state and local governments. Frequently during the **1980s**, state and local governments have issued securities, either to refund in advance their outstanding but as yet non-callable long-term debt or to fund a variety of other programs, and have had funds to invest for the interim. These investments have typically gone into **U.S. Government securities**.¹² For decades state-local government holdings of **U.S. Government securities** fluctuated narrowly within a range of 2 to 3 percent of gross national product, and as recently as the end of 1982 their holdings of these securities were still within the historical range. By the end of 1985, however, these holdings had risen to 7.1 percent of gross **national** product, with much of the increase occurring just within the last few months of 1985—presumably in anticipation of a change in the relevant tax code provisions governing the ability to issue tax-exempt debt. Had state and local governments during 1980-85 merely maintained their holdings of **U.S. Government securities** unchanged at the yearend 1980 level of 2.6 percent of gross national product, and done nothing else differently, their outstanding indebtedness relative to gross national product would have declined by 1.6 percent instead of rising by 2.9 percent as shown in Table 1.

Because these borrowers have matching portfolios of **U.S. Govern-**

¹² The **U.S. Treasury** issues special non-marketable debt instruments especially for this purpose, with interest rates set so as to minimize arbitrage between the taxable and tax-exempt market rates.

ment securities behind their increased indebtedness, there is presumably no reason why the state-local government contribution to the higher overall U.S. debt ratio carries any negative implications for financial stability.

Overview

In sum, the different categories of private-sector borrowers who collectively issued enough liabilities to add 18.1 percent to the U.S. nonfinancial debt ratio between 1980 and 1985 did so under widely disparate circumstances, with correspondingly differing implications for the U.S. economy's financial stability. Households in aggregate took on more debt but also more assets, including liquid and other readily marketable financial assets. Business corporations in aggregate merely substituted debt for equity, without taking on additional assets of any kind. Noncorporate businesses issued more debt to match their higher values of real estate assets, but further reduced their already thin holdings of liquid assets. State and local governments simply engaged in arbitrage between the taxable and tax-exempt bond markets.

Clearly, whatever threat to financial stability may exist as a result of this mixed experience lies primarily with the prospect that household and business cash flows may fall short of the expectations on which both borrowers and lenders proceeded during this period. Such a shortfall, for the economy in general rather than just in isolated regions or sectors, is most likely in the context of a business recession.

Debt defaults, recessions, and monetary policy

Much of the potential importance of financial instability as a matter of public policy concern stems from the fundamental two-way interrelationship between the financial phenomenon of debtors' distress and contractions in **nonfinancial** economic activity. On one side, the chief economic danger posed by an overextended debt structure is that the failure of some borrowers to meet their obligations will lead to cash flow inadequacies for their creditors—who may, in turn, also be borrowers, and so on—and that both borrowers and creditors facing insufficient cash flows will then be forced to curtail their demands in the economy's product and factor markets. Similarly, forced disposal of assets by debtors and others facing insufficient cash flows will lead to declines in asset prices that erode the ability of other asset owners to realize the expected value of their assets if sale becomes necessary and will therefore threaten the solvency (in a balance sheet sense)

of still others. This causal process, running from **financial** constraint to nonfinancial contraction, has long been familiar in the analysis of business **downturns**.¹³ Indeed, it is implicit in essentially all models of quantity-constrained effective aggregate demand, even those that exclude an explicit representation of the credit **market**.¹⁴

At the same time, **the** likelihood that an aggregate-level problem of debtors' distress will arise in the first place is clearly not independent of what is happening in the nonfinancial economy. Apart from occasional **instances** of recklessness, incompetence, or fraud, most borrowers typically expect to be able to service their debts in a timely fashion. In other words, they expect that their available cash **flows**—and, if necessary, the value of their salable assets—will be sufficient to meet the requisite sequence of payments due. For most borrowers, **however**, including individuals as well as businesses, both the size of cash flows and the value of marketable assets depend to a great extent on prosperity or recession in the economy at large. In **particular**, business downturns typically shrink the cash flows of many borrowers, slow cash flow growth for most others, and in many cases also reduce the market values of equities, houses, and other assets.

Hence problems of financial instability are most likely to erupt in the context of just the kind of nonfinancial economic difficulty that they tend to aggravate. Limitations on individuals' and businesses' activities arising from widespread financial distress restrict **economywide** demands for goods and services and for labor and capital inputs, and thereby depress **overall** economic activity. At the same time, a contraction of economic **activity** is the most likely initial cause of widespread debtors' distress in the first place.

Table 6 presents data illustrating this cyclical feature of the emergence of financial distress among both individual and business borrowers in the United States. The percentage of consumer debt in delinquency is typically greater at or near the trough of business **reces-**

¹³ The basic idea has long been emphasized by Minsky. See, for example, Minsky (1964, 1972, 1977). The classic applications to a specific historical event are Fisher's (1933) and Hart's (1938) analyses of the depression of the 1930s; Bernanke's (1983) analysis is more recent but in the same vein. For roughly analogous applications of the same idea to describe postwar recessions, see Wojnilower (1980) and Eckstein and Sinai (1986).

¹⁴ For example, Clower's (1965) model of income-constrained households reducing their effective demand for consumer goods would make little sense if households were able to borrow without restriction to make up for income shortfalls. The same is true for Patinkin's (1949) model of sales-constrained firms reducing their effective demand for labor.

TABLE 6
Debt Default in Post-War Business Recessions

	Delinquent Consumer Installment Loans (percent of outstandings)	Number of Business Failures (per 10,000 concerns)	Liabilities in Business Failures (percent of GNP)
Mean for 1953-80	1.91	44	.16
Recessions during 1953-80			
1954	1.89	42	.12
1958	1.67	56	.16
1961	1.78	64	.20
1970	1.84	44	.19
1975	2.61	43	.27
1980	2.61	42	.17
Experience since 1980			
1981	2.38	61	.23
1982	2.24	88	.49
1983	2.01	110	.47
1984	1.96	116	.46
1985	2.31	123	.54

Notes: Delinquent consumer loans are loans in arrears more than 30 days.

Business failures comprise concerns involved in court proceedings or voluntary actions involving loss to creditors.

Liabilities in business failures exclude long-term, publicly-held securities.

Data for number of business failures and liabilities in business failures are adjusted for series breaks after 1983.

Sources: American Bankers Association, Dun & Bradstreet, U.S. Department of Commerce

sions than at other times. Similarly, both the business failure rate and the total amount of defaulted liabilities in business failures (scaled in relation to gross national product) bulge during and just after business cycle troughs. Especially for business debt problems, the data shown in Table 6 make clear the extraordinary character of the economy's experience in this regard during the first half of the 1980s. In 1981-83, both the business failure rate and the failed business

liability rate rose to levels far beyond those seen in any other recession since World War II, and both indicators of business **financial** distress continued to rise in 1984-1985 despite the economy's renewed **expansion**.¹⁵

Whatever threat to financial stability the post-1980 rise in the U.S. economy's debt ratio presents, for any period into the future, is therefore fundamentally dependent on the **nonfinancial** performance of the economy during that period. For example, if the economy were henceforth to achieve a decade of sustained rapid growth, with only minimal interruptions, then it is plausible that whatever debt service problems emerged would be localized within specific industries, like energy and agriculture in the **mid-1980s**, or within specific geographical regions especially dependent on those industries. In that case, there would be little reason to expect the **kind** of widespread borrowers' distress that would be likely to exert substantial **contractionary** pressures on nonfinancial economic activity. With sustained rapid growth of incomes and profits, most borrowers would realize cash flows (and market values of assets) adequate to meet their obligations. Indeed, a sufficient period of sustained rapid economic growth could readily shrink the economy's overall debt ratio back to its historical range, not by reducing the numerator but by enlarging the denominator.

By contrast, given the strongly cyclical pattern of debtors' distress in the past, the historically high levels of individual and business indebtedness outstanding as of the midpoint of the 1980s suggest that the onset of a major new business recession under these circumstances could easily lead to debt service problems of a **kind** that would, in turn, further **magnify** the initial **contractionary** movement in **nonfinancial** economic activity. As of the end of 1985, both individuals and businesses were more highly leveraged, relative to income levels, than at any time since World War II. Moreover, as the data shown in Table 5 make clear, the corporate business sector in particular had no greater asset position, in either liquid or any other form, to support its greater debt-to-income position. In the event of a recession causing reduced incomes and depressed asset values generally—that is, a recession typical of those that the United States has experienced during the

¹⁵ The experience of the early 1980s did not match that of the early 1930s, however. In 1932 there were 154 business failures per 10,000 listed concerns, and total liabilities in business failures equaled 1.59 percent of gross national product. The business failure data for 1984 and 1985, including both the failure rate and the failed liabilities rate, are adjusted to reflect breaks in the relevant series after 1983.

postwar period—the possibility of financial instability that would compound an already deteriorating economic situation is entirely plausible.

Two principal implications follow from this conclusion. First, in the event of a business contraction initiated by some entirely external factor—for example, an international cartel action comparable to the oil price increases **imposed** by OPEC in 1973 and again in 1979—the U.S. economy would exhibit less resilience, and correspondingly more proclivity to contractionary dynamics, because of the greater potential for financial instability. Second, to the extent that U.S. **policymakers** are aware of this potential instability, and that they can and do exert influence over the path of aggregate economic activity, the onset of a major business recession is itself less likely. Given the important role of monetary policy in bringing about (or at least not resisting) each of the most significant postwar U.S. recessions, this implication for the likely future behavior of monetary policymakers is probably the more important of the two.

Hence the main point is that, because of the increased likelihood of debtors' distress in the event of an economic downturn, the Federal Reserve System is likely to be less willing either to seek or to permit a business recession in the United States. At the relevant margin of policy choice, U.S. monetary policymakers are likely to perceive the real costs of a business recession—in terms of foregone output, incomes, jobs, capital formation, and so on—as greater than would be the case without the higher levels of individual and business indebtedness. On average over an extended period, therefore, U.S. monetary policy is likely to be more expansionary than it would be in the absence of a higher debt ratio.

In light of the key role historically played by periodic episodes of tight monetary policy in either arresting or reducing price inflation, both in the United States and elsewhere, this likelihood of a bias toward more expansionary monetary policy on average, due to a greater reluctance to tolerate business contractions, raises the prospect of inflation as the ultimate chief consequence of the higher U.S. debt ratio. In the United States, for example, the historical record makes clear that the restrictive monetary policy that figured so importantly in the major recessions of 1957-58, 1973-75, and 1981-82 (the three largest recessions of the postwar period) in each case arose largely out of Federal Reserve policymakers' desire to slow the then prevailing rate of price inflation. In each case, the recession did accomplish just that end. Although it is theoretically possible to achieve both price stability

and steady economic growth, without the occasional punctuation of business contractions, nothing in the postwar U.S. experience suggests that doing so is practically feasible. Instead, this experience suggests that if a higher debt ratio raises the cost of business contractions, and hence makes policymakers less likely to accept them, it therefore also imparts **an** inflationary **bias**.¹⁶

In time, of course, a sufficient amount of price inflation can also restore the debt ratio to its historical range, just as could sustained real growth. These two outcomes **are** analytically parallel, and hardly incompatible. Since almost all debts outstanding in the United States are nominally denominated, what matters for borrowers' ability to meet their obligations is nominal cash flows, and nominal values of marketable assets. These nominal values **may** rise because of increases in either their real or their price component, or both. Either, in sufficient magnitude, would preclude the kind of widespread debt service problems that can **threaten** financial stability. Which is more likely is a question of achievable economic performance, presumably to be judged on the basis of both past experience and future economic policies.

Concluding comments

The U.S. economy's nonfinancial debt ratio has risen since 1980 to a level that is extraordinary in comparison with prior historical experience. Approximately one-half of this rise has consisted of increased indebtedness (relative to income) of borrowers in the economy's private sector, including both individuals and businesses. It therefore at least potentially represents **an** increase in the economywide exposure to debt default. The U.S. household sector as a whole has increased its holdings of liquid and other readily marketable assets, so that in the aggregate its balance sheet is no less sound than before, but available **data** make it doubtful that the distribution of the additional assets matches the distribution of the additional debt close enough to avoid debt service problems in the event of a general economic contraction. By contrast, in the case of businesses, including especially the corporate sector, there **are** no additional assets to match the additional liabilities, so that balance sheets as well as incomes have become more leveraged.

¹⁶ This conclusion is also consistent with the implication of formal models of monetary policy based on reputational equilibrium, like that of Barro and Gordon (1983).

The chief implication of this increased exposure to the threat of financial instability is not only that the U.S. economy is likely to be more prone to financial instability in the event of a major business contraction, but also—and perhaps more important—that, as a result, U.S. economic policymakers are likely to be more reluctant either to seek or to tolerate a business recession in the first place. Experience suggests that it **will** be difficult to balance the desire to avoid economic downturns with the ability to avoid occasional periods of aggregate excess demand, so that this increased reluctance to tolerate recessions probably implies a more expansionary monetary policy on average than would otherwise be the case. Experience also suggests that a plausible result of such a no-recession monetary policy, sustained over time, is price inflation. This process is self-limiting, however, in that over time inflation reduces the real value of the private sector's outstanding nominal indebtedness, hence reducing the risk of financial instability and thereby removing the source of **policymakers'** increased reluctance to tolerate recessions.

Finally, what about the nearly one-half of the post-1980 rise in the U.S. economy's **nonfinancial** debt ratio that has consisted of increased indebtedness of the federal government? The steady, unbroken growth of the U.S. Government's outstanding debt from 26.1 percent of gross national product at the end of 1980 to 39.4 percent at the end of 1985—despite a major business expansion during **1983-85**—is clearly the element of the overall debt ratio rise that is most out of character with prior U.S. historical experience, not just since World War II but throughout the nation's existence. Until the **1980s**, significant sustained increases in federal government debt relative to gross national product took place only during wartime. The contrary pattern during this decade stands as the hallmark of post-1980 fiscal policy.

What are the implications of this extraordinary surge of government indebtedness for the economy's financial stability? Despite fears now expressed more frequently than in earlier years, there remains little prospect of a government debt default. To be sure, any fiscal policy involving so large a government deficit as to cause the outstanding government debt to rise faster than the economy grows, even under conditions of full employment, cannot be sustained indefinitely? Nevertheless, with the federal debt ratio still fairly low compared

¹⁷ See Tobin (1986) for an analysis of this kind of long-run instability in the context of U.S. fiscal policy since 1980.

with 117.9 percent at the end of World War II, or even 46.1 percent in 1960, there is as yet no reason to anticipate instability involving government debt default.

Instead, the chief threat to financial stability implied by the sharp post-1980 rise in the government debt ratio comes from the need to raise taxes—and hence to reduce the incomes that individuals and businesses have available to meet their own debt service **obligations**—in order to service the government's debt. Net interest payments by the federal government, which averaged 1.4 percent of gross national product during the **1970s**, rose to **3.2** percent in 1985. Moreover, there is little reason to believe that the distribution of these interest payments among individual and business recipients in any way matches either the reduction of incomes by **tax** collections or the distribution of private-sector debt service payments owed. Continuing increases in government interest payments relative to aggregate income are not likely to lead to a government debt default, but unless they are balanced by reductions in noninterest government spending they will, on balance, further reduce the ability of private-sector borrowers to meet their own obligations.

References

- Avery, Robert B., Elliehausen, Gregory E., Canner, Glenn B., and Gustafson, Thomas A. (1984a), "Survey of Consumer Finances, 1983," *Federal Reserve Bulletin*, 70 (September), 679-692.
- Avery, Robert B., Elliehausen, Gregory E., Canner, Glenn B., and Gustafson, Thomas A. (1984b), "Survey of Consumer Finances, 1983: A Second Report," *Federal Reserve Bulletin*, 70 (December), 857-868.
- Barro, Robert J., and Gordon, David B. (1983), "Rules, Discretion and Reputation in a Model of Monetary Policy." *Journal of Monetary Economics*, 12 (July), 101-121.
- Bernanke, Ben S. (1983), "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Recession," *American Economic Review*, 73 (June), 257-276.
- Clower, Robert W. (1965), "The Keynesian Counterrevolution: A Theoretical Appraisal." Hahn and Brechling (eds.), *The Theory of Interest Rates*, Macmillan, London.
- Eckstein, Otto, and Sinai, Allen (1986), "The Mechanisms of the Business Cycle in the Postwar Era." Gordon (ed.), *The American Business Cycle: Continuity and Change*. University of Chicago Press, Chicago.
- Fisher, Irving (1983), "The Debt-Deflation Theory of Great Depressions." *Econometrica*, 1 (October), 337-357.
- Friedman, Benjamin M. (1979), "The Relative Stability of Money and Credit Velocities in the United States," *Mimeo*, National Bureau of Economic Research.
- Friedman, Benjamin M. (1980), "Postwar Changes in the American Financial Markets." Feldstein (ed.), *The American Economy in Transition*. University of Chicago Press, Chicago.
- Friedman, Benjamin M. (1982), "Debt and Economic Activity in the United States." Friedman (ed.), *The Changing Roles of Debt and Equity in Financing U.S. Capital Formation*. University of Chicago Press, Chicago.
- Friedman, Benjamin M. (1983), "The Roles of Money and Credit in Macroeconomic Analysis." Tobin (ed.), *Macroeconomics, Prices and Quantities: Essays in Memory of Arthur M. Okun*. The Brookings Institution, Washington.
- Goldsmith, Raymond W., and Lipsey, Robert E. (1963), *Studies in the National Balance Sheet of the United States*, Vol. I, Princeton University Press, Princeton.
- Goldsmith, Raymond W. (1985), *Comparative National Balance Sheets: A Study of Twenty Countries*, University of Chicago Press, Chicago.
- Gurley, John G., and Shaw, Edward S. (1960), *Money in a Theory of Finance*, The Brookings Institution, Washington.
- Hart, Albert Gailord (1938), *Debts and Recovery*, Twentieth Century Fund, New York.
- Kaufman, Henry (1979), "Statement," *Hearings Before the Committee on Banking, Housing and Urban Affairs*, U.S. Senate, 96th Congress, 1st Session, U.S. Government Printing Office, Washington.
- Minsky, Hyman P. (1964), "Financial Crisis, Financial Systems, and the Performance of the Economy," Commission on Money and Credit, *Private Capital Markets*. Prentice-Hall, Inc., Englewood Cliffs.

- Minsky, Hyman P. (1972), "Financial Stability Revisited: The Economics of Disaster," *Reappraisal of the Federal Reserve Discount Mechanism*, Board of Governors of the Federal Reserve System, Washington.
- Minsky, Hyman P. (1977), "A Theory of Systemic Fragility," Altman and Sametz (eds.), *Financial Crises: Institutions and Markets in a Fragile Environment*, Wiley-International, New York.
- Patinkin, Don (1949), "Involuntary Unemployment and the Keynesian Supply Function," *Economic Journal*, 59 (September), 360-383.
- Strong, John S. (1986), "The Market Valuation of Credit Market Debt," Mimeo, College of William and Mary, School of Business Administration.
- Tobin, James (1986), "The Monetary-Fiscal Policy Mix," *American Economic Review*, 76 (May), 213-218.
- Wojnilower, Albert M. (1980), "The Central Role of Credit Crunches in Recent Financial History," *Brookings Papers on Economic Activity* (No. 2), 277-326.