Federal Reserve Bank

of New York

SEVENTY-SEVENTH

ANNUAL REPORT

For the Year

Ended

December 31, 1991

Second Federal Reserve District

FEDERAL RESERVE BANK OF NEW YORK

April 30, 1992

To the Depository Institutions in the
Second Federal Reserve District

I am pleased to send you the *Seventy-seventh Annual Report* of the Federal Reserve Bank of New York. In this year's report Edward Frydl, Vice President and Assistant Director of Research, has prepared a provocative essay that traces the origins, magnitude, and implications of the massive buildup in corporate and household debt over the 1980s, with particular emphasis on the role that this phenomenon has played in helping to explain the protracted period of subpar economic growth we have experienced during the past several years. While Mr. Frydl's analysis may not be without some elements of controversy, I believe it provides a useful perspective on some of our current economic and financial problems just as it suggests that substantial progress is being made in unwinding some of those earlier excesses and thus helping to pave the way for a return to improved patterns of economic and financial performance.

I hope our readers will benefit from this important and insightful essay.

E. Gerald Corrigan
President

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Federal Reserve Bank of New York

OVERHANGS AND HANGOVERS: COPING WITH THE IMBALANCES OF THE 1980s

Edward J. Frydl
Vice President and
Assistant Director of Research

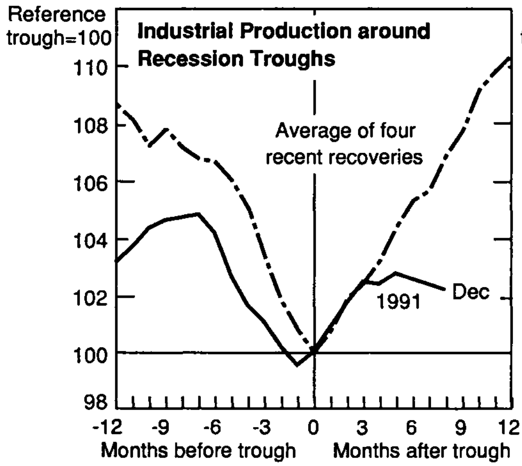
In the spring of 1991 economic activity appeared to be following a familiar cyclical pattern, recovering from a mild downturn that seemed clearly linked to concerns about the Gulf War and the related spike in oil prices. Indicators such as industrial production, durable goods orders, and housing starts appeared to be tracing out a pattern of recovery from their troughs that was broadly consistent with earlier cycles (Chart 1). By the fall, however, it was apparent that no sustained recovery had emerged, and consumer confidence, which had bounced back with the end of the war, was again plummeting.

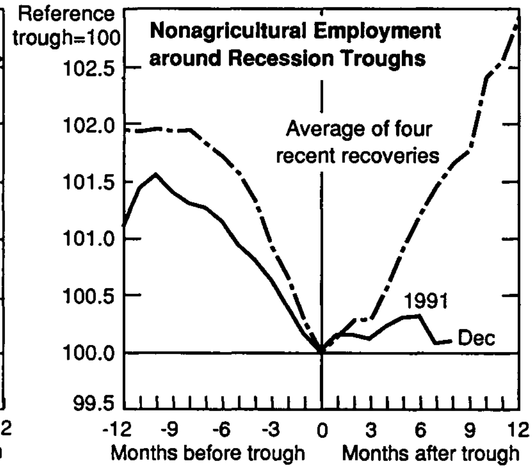
This renewed flattening in economic activity focused attention on some peculiar features of this cycle. First, credit expansion, whose pronounced deceleration had begun in 1990, continued to slow last year to its lowest rate of growth in the postwar period. Behind this slowdown were factors affecting both the demand for and supply of credit. Clearly, the further retrenchment in economic activity that began in the summer of 1991 was a prominent feature reducing business needs for credit last year. On the other side of the market, some lenders continued or extended the restraints on their supply of credit that had begun in 1990. Banks, pressed to upgrade their capital positions, widened their spreads above funding costs on loans and became more selective in providing credit. The worsened credit quality of many classes of borrowers, particularly the commercial real estate sector, made all lenders, regardless of their capital condition, more cautious.

Slow credit growth, combined with complaints from businesses that credit availability was being withdrawn from them, led many observers to attribute the uneven economic performance of the U.S. economy to a prolonged and intensifying "credit crunch." More specifically, restrictions on lending by banks were viewed as going over and above what was warranted by economic fundamentals.

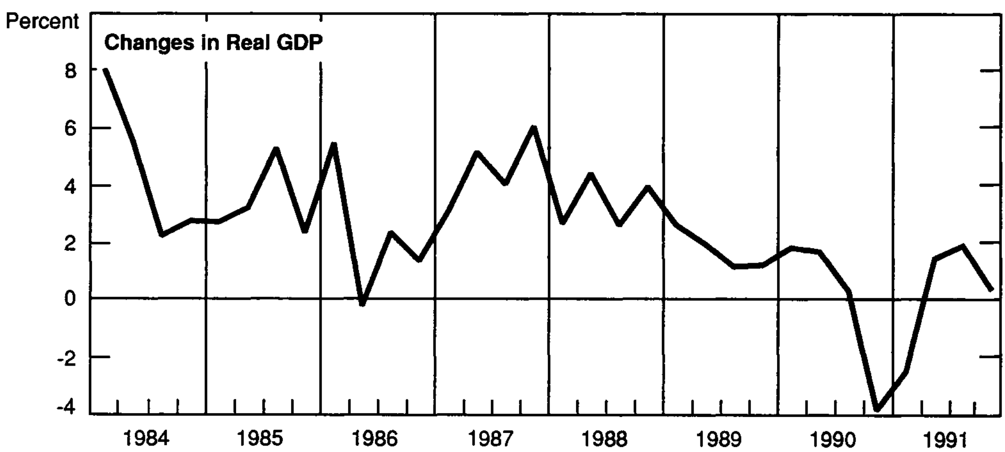
Chart 1. THE FAILURE TO RECOVER

Some indicators, such as industrial production, showed that apparently a typical recovery process began but was cut short in late summer. However, other cyclical measures, notably employment, indicated that a recovery never got started.





The recession began after an extended period of unusually slow growth, suggesting that some enduring factors - - real estate and debt overhangs and intensified competitive pressures - - are weighing against economic performance and inhibiting recovery.



U.S. banks did indeed tighten the terms and conditions under which they would supply credit, but sustained caution in lending was not unwarranted. In large part this caution represented a needed return to prudent standards of creditworthiness in assessing loans. A too-easy credit supply in much of the 1980s was a principal factor leading to damaging imbalances in investment, manifested principally as an unprecedented overhang of commercial real estate, and in the indebtedness of the household and business sectors. Unbalanced investment and overleveraging were combining to damage the economy by depressing construction, bankrupting enterprises, inhibiting lending, and feeding a pervasive financial and economic conservatism among businesses and consumers. Resolving these excesses in real estate and debt will take time and will exert a drag on economic performance during the period of adjustment.

The real estate and debt overhangs are not the only structural features that have created problems for the economy. U.S. businesses have had to cope with an environment of increased competition that has made it difficult to improve profit margins by boosting prices even when demand shows some pickup. This difficulty in restoring profitability was acute in 1991 and contributed to a second peculiarity of the current cycle: the failure of employment, unlike other indicators of business activity, to show even the beginnings of a normal recovery. Firms met any expansion in demand more by working the existing labor force longer and harder rather than by adding new jobs to payrolls. This lack of jobs growth was a drag on personal income and a key feature in the economy's stall in the final months of 1991.

Pressure on profit margins came in part from domestic factors such as deregulation in a number of industries or from new kinds of competition such as the commercial paper market's encroachment on traditional commercial and industrial bank loans. Another source of competitive pressure on the profitability of U.S. companies came from abroad. The world has moved toward a more open trading system at the same time that capital has become highly mobile internationally. In this environment the productivity of labor in low-wage countries is greatly enhanced by foreign investments that provide modern capital goods. The goods produced by this combination are very competitive in international markets and put pressure on profit margins and wage levels in high-wage industrial countries. A principal mechanism for coping with this competitive pressure, apart from exchange rate changes, has been for industrial countries to introduce new products or to improve production processes. For the United States, exports were strong in recent years, but import-competing industries still appeared to be suffering from a competitive disadvantage, even with a lower dollar, that showed up in part as difficulty in bouncing back from recession.

The overhangs in commercial real estate and debt reflect excesses of the previous expansion, while the chronic international competitive pressures reflect a deficiency in productivity-enhancing investments. Still, both represent structural imbalances that have exerted a drag against the usual forces of recovery. This essay seeks to characterize those structural imbalances and assess their implications for macroeconomic recovery.

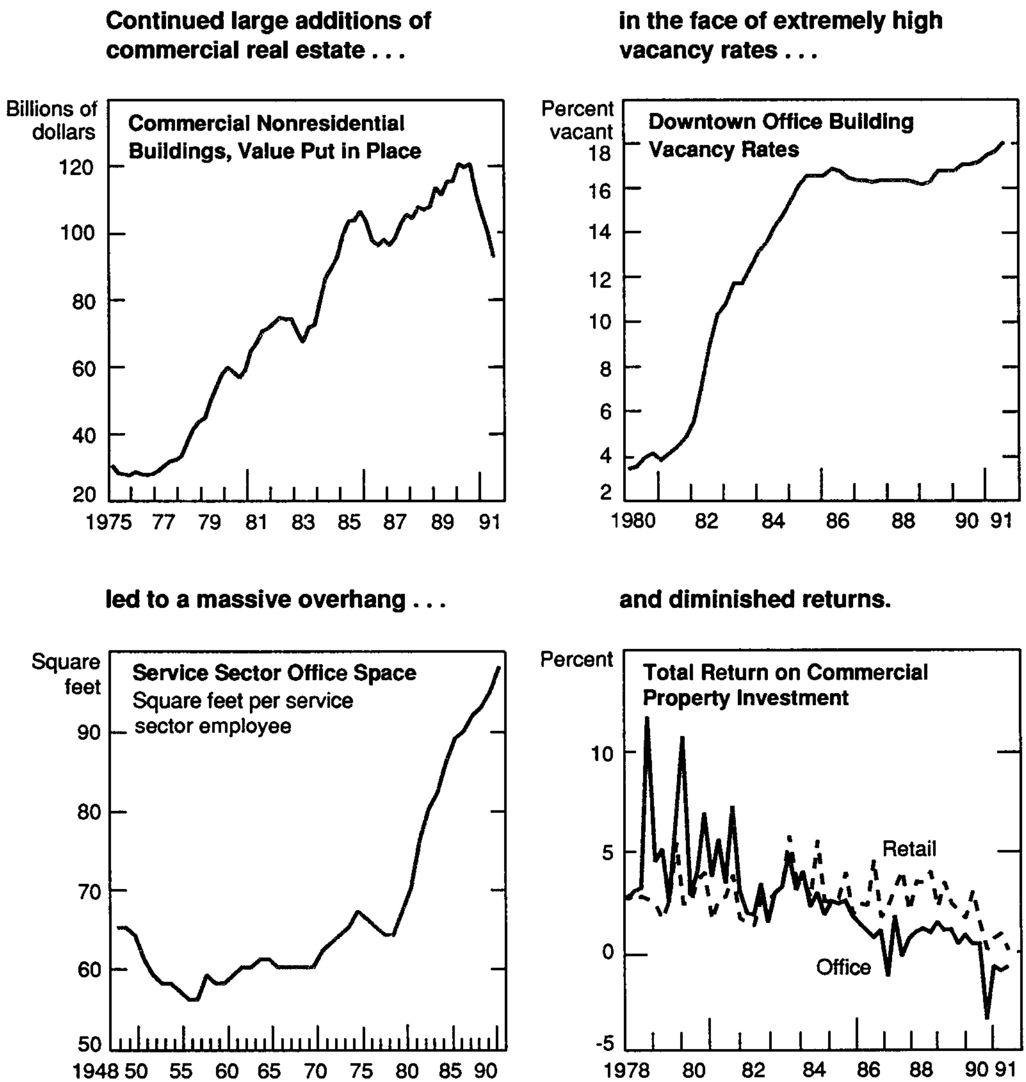
THE REAL ESTATE OVERHANG

In the 1980s an excess of commercial real estate arose, especially in sectors such as office space and retail space, that was unprecedented in the postwar period. By the middle of the decade many measures of capacity showed severe overbuilding (Chart 2). While downtown office building vacancy rates were only 4 percent early in the decade, they exceeded 16 percent by 1985 and have yet to drop below that level. Although the trend in suburban vacancies has been moderately downward in recent years, excess capacity in suburban office markets has been even worse than in downtown markets, with vacancy rates hovering above 20 percent from 1985 to 1991. Furthermore, the overbuilding of office space, typically a localized problem, became geographically pervasive in the past ten years. By 1991 only two of the twenty-five largest metropolitan regions had vacancy rates below 15 percent. Total returns on investments in office buildings had been in pronounced continuous decline throughout the 1980s; by 1991 returns were negative.

Despite these accumulating excesses, the value of commercial real estate put in place continued to expand into 1990. Net investment in structures began to slow by the mid-1980s but remained positive throughout the decade, even at the record high vacancy rates.

By 1991 the overhang in office space, measured as one estimate of square feet per service sector employee, had reached levels more than 60 percent higher than the relatively stable average for 1950-80. Depending on assumptions about how intensively office space will be utilized, this overhang represents the equivalent of about ten years of service sector employment growth (at a growth rate of about 3 percent per year). Of course, as office rentals become cheap, space may find nontraditional uses to take up some of the slack. And old buildings that are fully depreciated may be razed at an accelerated pace, providing part of the needed adjustment.

Chart 2. THE COMMERCIAL REAL ESTATE OVERHANG



On the demand side, however, demographic and labor market trends do not provide much support for rapid service sector growth in the years ahead. In fact, while the 1980s are popularly thought of as a decade of especially rapid services expansion, employment growth in that sector had slowed noticeably compared with growth during the preceding two decades (see table). Services did account for all of the net job creation in the 1980s, but the pace of overall services employment growth decelerated because of a slowdown in the growth of government services positions. Governments across the board are hard pressed by their fiscal problems and are unlikely to step up the pace of hiring. Even in the private services sector, sustaining the trend in employment growth will be difficult. The entry of the baby boom generation into the labor force has been exhausted. Also, the long trend of increasing female participation in the work force may have crested, ending a stimulus to the growth of both the supply of service sector workers and the demand for a wide variety of services to meet the needs of two-earner households. All in all, heavy investments were made in commercial structures that could have been supported only if service sector employment growth had accelerated, even as evidence of the opposite tendency was developing.

SERVICE SECTOR EMPLOYMENT GROWTH
Average Annual Growth Rates

	Total	**Private**	**Government**
1949-59	2.3	2.0	3.3
1959-69	3.4	3.2	4.2
1969-79	3.3	3.4	2.7
1979-89	2.7	3.2	1.1

Several factors combined to create the overinvestment in commercial real estate. The 1981 tax act produced strong incentives for investments in structures. Added to these incentives were powerful changes in the availability of finance. Deregulation of the thrift industry allowed savings and loan institutions to make direct investments in real estate projects. More important, savings institutions that had been damaged by the squeeze on their earnings from high interest rates in the early 1980s tried aggressively to grow their way back to a stronger financial position by pursuing new business.

Thrifts were not alone. Commercial banks were also rapidly expanding into commercial real estate lending. Banks had seen their shares erode in traditional markets (Chart 3). Nonbank issuers were cutting into the general credit card market. The securitization of credit card and auto loan receivables made institutional portfolio investors a growing source of credit to these borrowers. In the business credit markets, multinational and larger regional banks were put at a disadvantage by the expansion of the commercial paper market and by the slippage in their creditworthiness from the overhang of developing country debt carried on their balance sheets. To make up for these falling shares in consumer and business credit markets, banks moved aggressively to increase their presence in nonresidential mortgages.

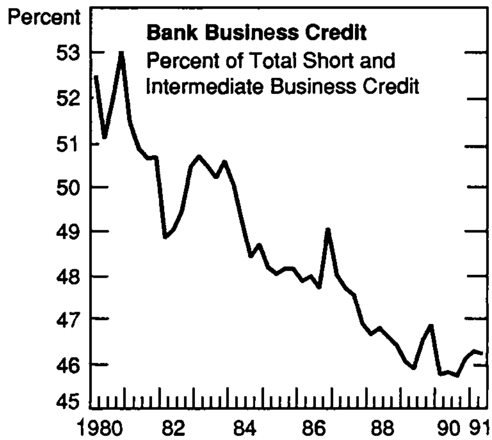
These combined incentives were strongest in the first half of the 1980s. The pace of commercial nonresidential construction doubled between 1980 and 1985, and vacancy rates rose sharply. Although the 1986 tax act removed many of the fiscal incentives supporting the real estate boom, investment in the commercial sector continued to pile on to an already glutted market. Availability of finance based on optimistic assumptions for real estate prices supported this bubble for several years. By early 1990, however, the full dimensions of the real estate problem became clear. Estimates of the financing needs of the Resolution Trust Corporation, the vehicle for disposing of troubled thrift real estate exposures, had to be revised upward. In this environment, real estate lenders drastically altered their expectations and financial institutions curtailed real estate lending.

THE DEBT OVERHANG

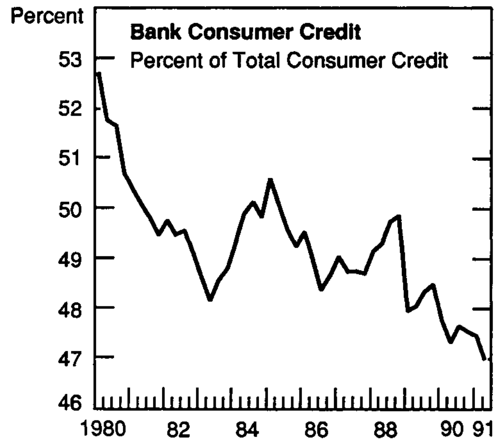
Excess investment in commercial structures was not the only imbalance arising from heavy debt growth. The 1980s in fact witnessed a widespread leveraging of the U.S. economy. The traditional stable linkage between private sector debt and GDP broke down completely in the last decade, and by 1991 an extra $2 trillion of private sector

Chart 3. TRENDS IN BANK LENDING

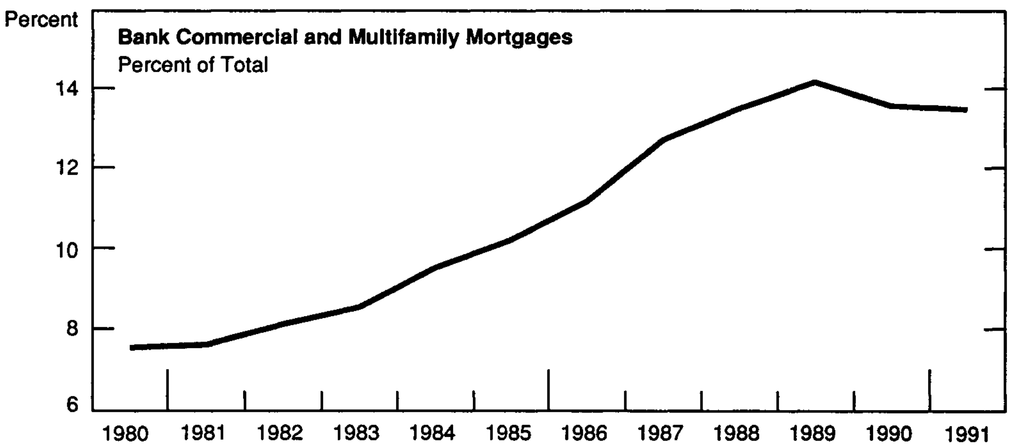
As commercial banks lost market share in their traditional business . . .



and consumer markets, . . .



they sought to expand in the commercial real estate market.



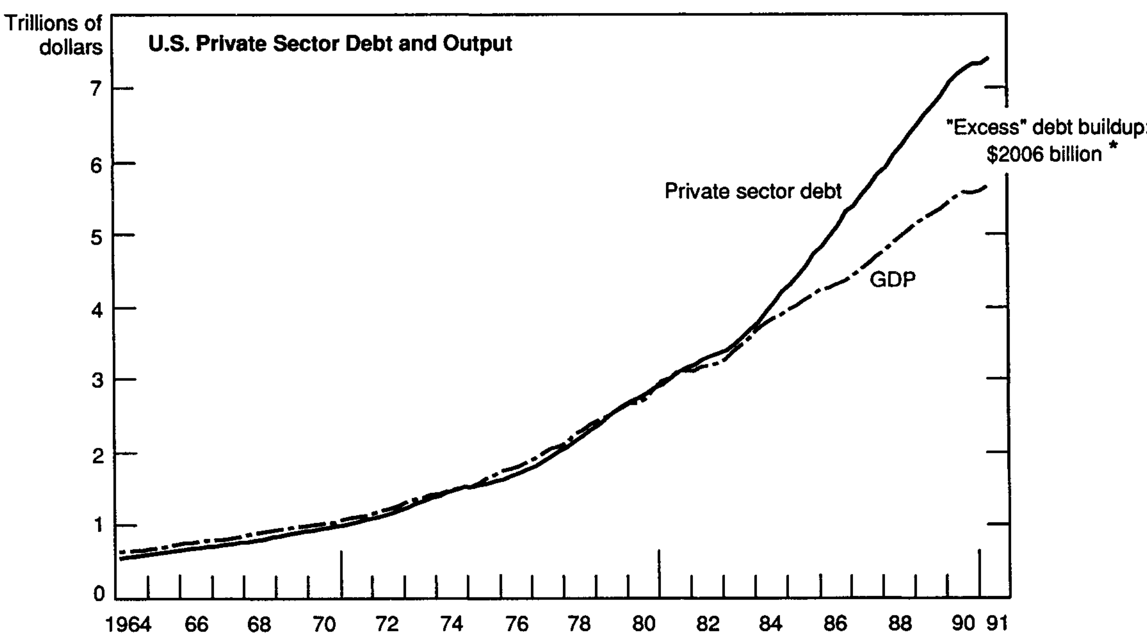
debt had been created over and above what would have been expected on the basis of the past relationship between private sector debt and GDP (Chart 4). Certainly, only part of this unusually rapid debt growth was generated by bad debts that were purely speculative. Most of the growth represented an economic use of financial and tax incentives for debt.

Corporate Leverage

Private sector debt has ballooned in both the business and household sectors. Corporate leveraging was driven by two processes: debt-financed acquisitions and

Chart 4. THE DEBT OVERHANG

The relatively stable relationship between private debt and output broke down in the 1980s as businesses and households both increased their leverage.



* Calculated relative to the average private sector debt-to-GDP ratio for 1964-84 (0.9569).

stock repurchases, through which existing management reduced outstanding equity by buying stock from the public for the company's own account (Chart 5). The takeover boom of the 1980s differed crucially in the character of its financing from the previous merger wave of conglomerations in the 1960s. In the earlier episode, acquiring companies often took over other enterprises in unrelated lines of business through an exchange of stock, thereby avoiding the creation of debt. In the 1980s, acquisitions were typically effected through cash tenders financed by debt.

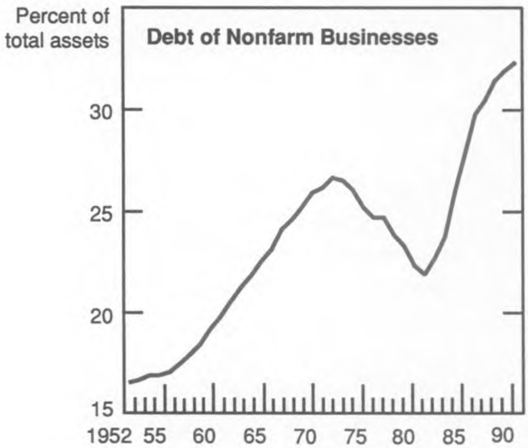
The leveraged buyout (LBO) of companies by their management or some other narrow set of individual buyers was an especially debt-reliant form of acquisition. Before the 1980s, LBOs had played a familiar but limited role in corporate finance, typified by the case of management at a particular plant buying out and taking private the plant operations from the parent corporation. In such a case equity was put into the hands of knowledgeable production management. Because of the high debt burden created, the technique was usually limited to operations generating stable cash flows.

In the 1980s the riskiness of LBO deals increased for a number of reasons. Deal sizes grew larger to accommodate larger targets. Firms with more cyclical earnings streams became LBO candidates, and the paydown of high initial debt came to depend on sales of diverse corporate assets. These asset sales often consisted of the divestment of entire lines of business, in effect unwinding the conglomerates put together in the earlier merger wave. Buyers were willing for some time to pay premium prices for these assets, often because they were competitors in the same line of business and the purchases resulted in increases in market concentration. But leveraged buyouts were carried to the point where prospective asset sales, crucial to reducing the debt burden to manageable proportions, became speculative, relying more on a hoped-for general rise in asset values and less on the prospects of selling to specific buyers who had a clear business purpose behind their demands. In a nutshell, some highly leveraged acquisitions depended on the combined good fortune of no recession and no falloff in asset prices in order to service debt obligations without difficulty.

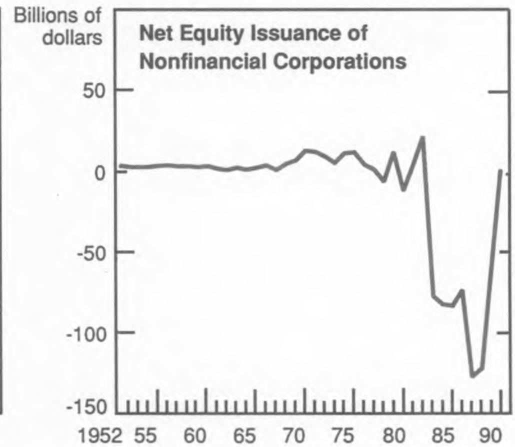
Both bank lending and bond issuance were important sources of debt finance for acquisitions. One particularly significant development was the emergence of original-issue junk bonds as a source of takeover finance, especially for hostile takeovers. This development, pioneered by the securities firm Drexel Burnham, increased the risk to firms of the hostile takeover event and prompted greater use of defensive leveraging. Potential targets may have reduced their attractiveness by acquiring other companies in a leveraged manner. Or they may have repurchased

Chart 5. CORPORATE LEVERAGE

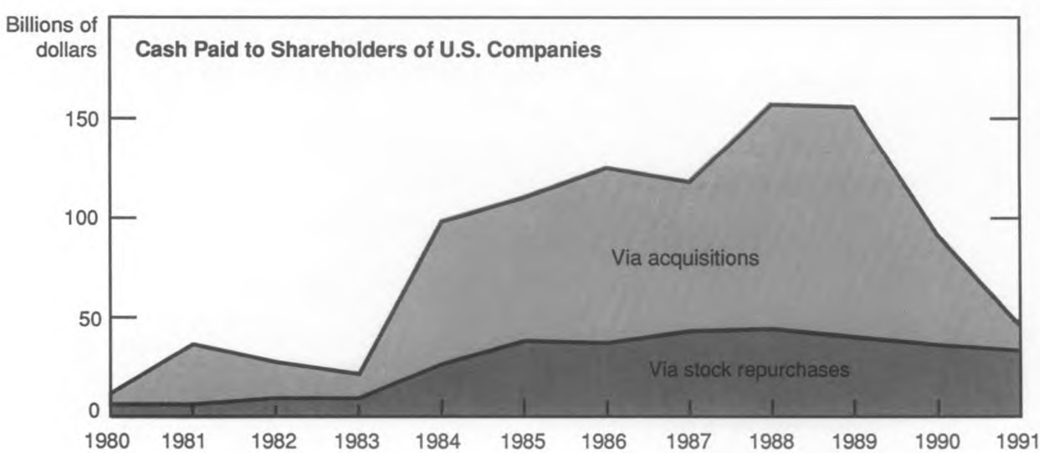
Leverage increased in the business sector . . .



as companies retired equity . . .



through both acquisitions and stock repurchases.



their shares in the open market, using available cash or even borrowing to do so. Of course, not all share repurchases represented defensive leveraging. Much of the activity was conducted by huge firms such as Exxon or IBM that were safely beyond any risk of takeover, even by the standards of the RJR-Nabisco acquisition.

The tax structure in the United States has always favored corporate leverage because it allows the deduction from corporate tax liabilities of interest paid on debt but not of dividends paid on equity. This incentive was not fully exploited, however, in earlier periods. The factors that changed business attitudes toward indebtedness in the 1980s are not straightforward and easy to pin down. It is plausible, however, that the readier availability of finance for use in increasing leverage by way of acquisitions or otherwise helped to change attitudes among potential borrowers. In any case, the combination of debt-financed acquisitions, defensive leveraging, stock buybacks to improve returns on equity, and increased availability of takeover finance created a major leveraging of the corporate sector through indebtedness and decapitalization. Between 1984 and 1990, U.S. corporations borrowed some $400 billion from banks and other lenders and another $650 billion in the securities markets. This raised the aggregate corporate debt-to-assets ratio to a postwar record level of 32 percent (Chart 5). At the same time, corporations retired $640 billion of equity through acquisitions and stock repurchases.

The Household Debt Buildup

Households as well as corporations boosted their reliance on debt in the 1980s (Chart 6). Most household debt is in the form of residential mortgages, which totaled $2.7 trillion in 1991, or 67 percent of total household debt. Likewise, most of the increase in household debt was explained by the $1.3 trillion rise in residential mortgages in 1981-89, a period during which the ratio of mortgage debt to home values rose from 36 percent to 50 percent.

The factors behind this increased reliance on mortgage debt by households are not clear. High real interest rates, a hallmark of the 1980s, should themselves, of course, work to reduce the use of debt by increasing its cost. High rates should also encourage holders of low-rate mortgages to turn these over less frequently. A consequence of holding onto mortgages is that the housing stock should support a lower, not a higher, level of mortgage debt over time as more of the original debt gets amortized. Yet in spite of incentives created by higher rates to reduce mortgage debt, it increased sharply relative to home values.

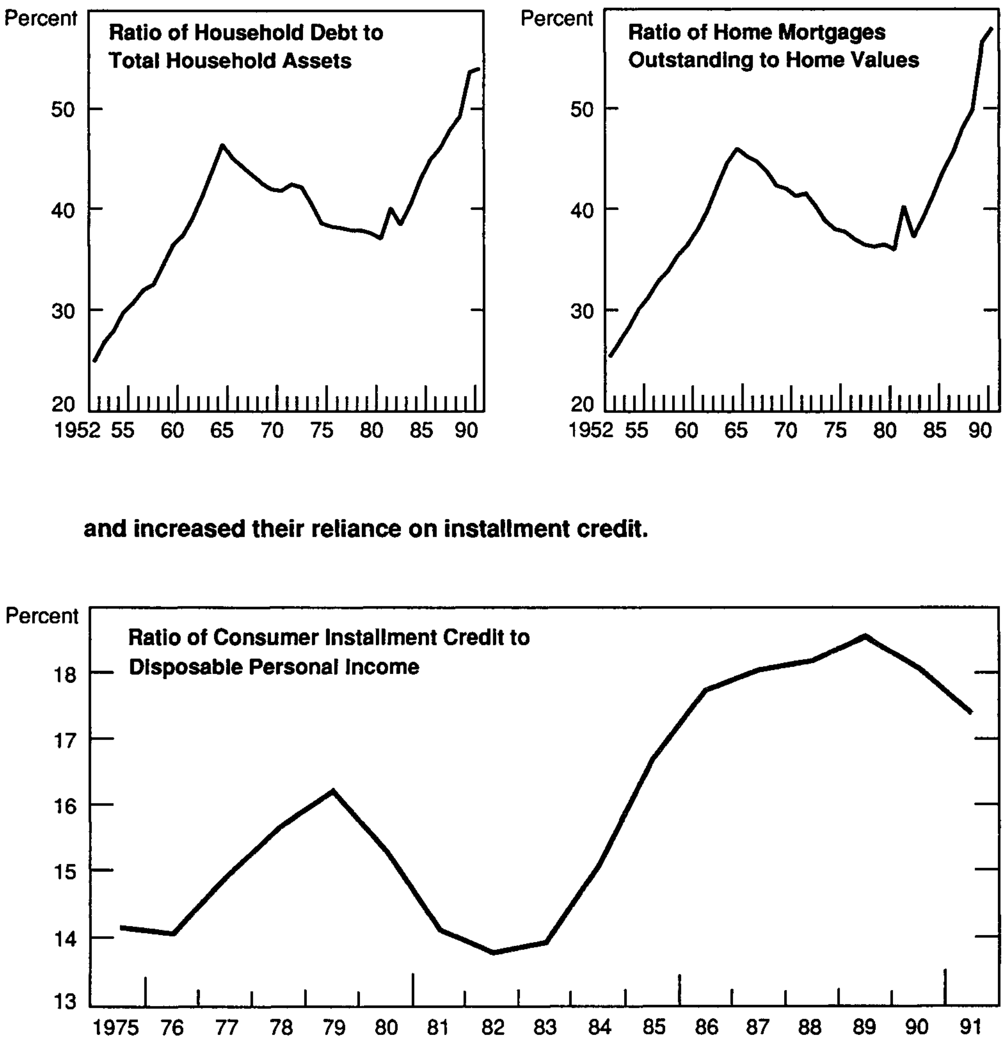
Most likely, the key to this anomalous behavior lies in the increased level and rate

Chart 6. **HOUSEHOLD LEVERAGE**

Leverage increased in the household sector . . .

as homeowners borrowed against their equity . . .

and increased their reliance on installment credit.



of change of house prices. As house prices rose, some new homeowners who otherwise would have preferred to take a higher initial equity than that required by mortgage lenders may have been forced into higher than desired leverage in order to buy a house. Also, homebuyers may have adapted their financial risk taking to the trend of rising house prices and may have counted on rising prices to support a more leveraged position. Such behavior, of course, can create a troubling financial condition if households have leveraged beyond the ability of their other assets to support the mortgage debt in a weak housing market.

Supply-side factors may also have spurred greater leveraging through mortgages. The 1980s saw the development of a deep, liquid market in mortgage-backed securities that allowed mortgage originators to pass off their exposures to a broader range of ultimate investors. Originators, then, may have adopted a more relaxed attitude on loan-to-value ratios, more readily accommodating demands for leveraging and indicating to borrowers a willingness to write large mortgages. The credit risk on the loan would quickly be passed through the mortgage pool to the guarantors or investors in the secondary market, making the originator less concerned about the degree of leverage on the loan.

Another supply-side innovation that may have contributed to the leveraging of the housing stock was the easy availability of home equity loan accounts. These made available to homeowners a credit line backed by the equity interest in a house — in effect, a prearranged second mortgage. The accounts were fairly popular and substituted somewhat for other avenues of consumer borrowing, partly because they retained tax deductibility for interest payments, a feature that other kinds of household debt lost through tax reform.

Nonmortgage debt also rose strongly relative to personal disposable income in the 1980s. Increased competitiveness among credit suppliers played a key role. Captive finance subsidiaries of automobile companies consistently resorted to subsidized financing terms as a competitive technique to sell cars. All lenders on auto loans extended the maturity they offered; this practice reduced monthly cash payments, making the financing affordable to a broader range of car buyers.

In the revolving credit markets, the high profitability of the credit card business attracted new entrants into the market. Existing issuers become more aggressive in their marketing, seeking new customers among households previously regarded as of marginal creditworthiness. In consequence, the number of cards and credit card indebtedness surged.

The excesses in real estate and leveraging have left a legacy of weakened borrowers and lenders. In the corporate sector, the burden of debt service, as measured by the ratio of interest cost to cash flow for nonfinancial corporations, reached record postwar levels in 1991, higher even than at the trough of the 1981-82 recession. This burden of debt has weighed heavily on businesses (Chart 7). The financial strains have shown up as a widespread increase in the downgradings of corporate debt, an increased default rate on corporate bonds, and a sharp increase in business failures, measured both by the number of failing firms and the value of failed liabilities.

Signs of financial strain have also been readily apparent in the household sector. Delinquency rates on broad classes of consumer credit, especially auto loans and credit card loans, were at unusually high levels in recent years. By 1991 mortgage delinquencies had moderated somewhat from the peak reached a few years earlier (although they have been turning up again in the most recent quarters), but they still averaged over the 1980-91 period a higher rate than in the 1970s. The pace of mortgage foreclosures started—an indicator of extreme stress—has risen decidedly from 1981 to 1991. Also showing a dramatic surge after 1985 was the number of personal bankruptcies.

With many real estate, corporate, and household borrowers in default, credit strains have been passed back to financial institutions (Chart 8). Loan loss rates at commercial banks have risen to levels last seen in the Depression as all broad categories of bank loans have deteriorated. Still, commercial banks, large ones especially, have coped well with these difficulties and have managed to achieve impressive improvements in their capital positions. Nonbank lenders exposed to the commercial real estate sector, including finance and insurance companies, have also suffered a sharp rise in bad loans. The legacy of the overhangs of the 1980s is a hangover of damaged creditworthiness in the 1990s.

The Macroeconomic Consequences

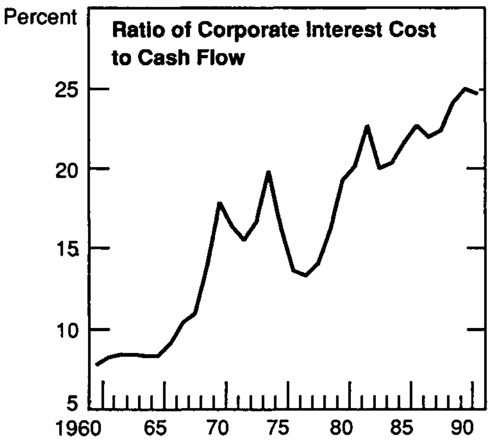
The fallout of the real estate and debt overhangs has shown up in two principal features of the macroeconomic environment. First, corporate profitability has been depressed; second, credit growth has plummeted.

Profitability

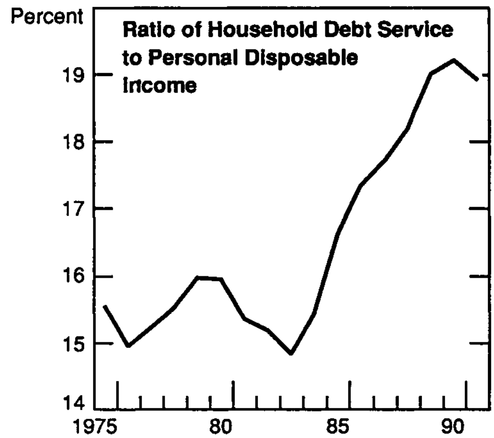
The increased debt burden on the corporate sector and the associated servicing costs

Chart 7. THE DEBT HANGOVER: WEAKENED BORROWERS

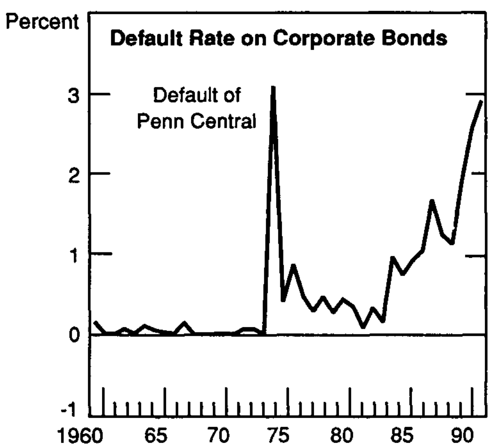
A legacy of the 1980s debt buildup has been a heavy burden on corporate cash flow . . .



and household incomes, . . .



leading to higher defaults for businesses . . .



and consumers.

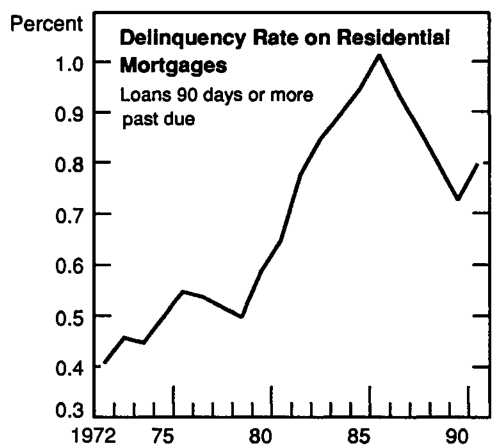
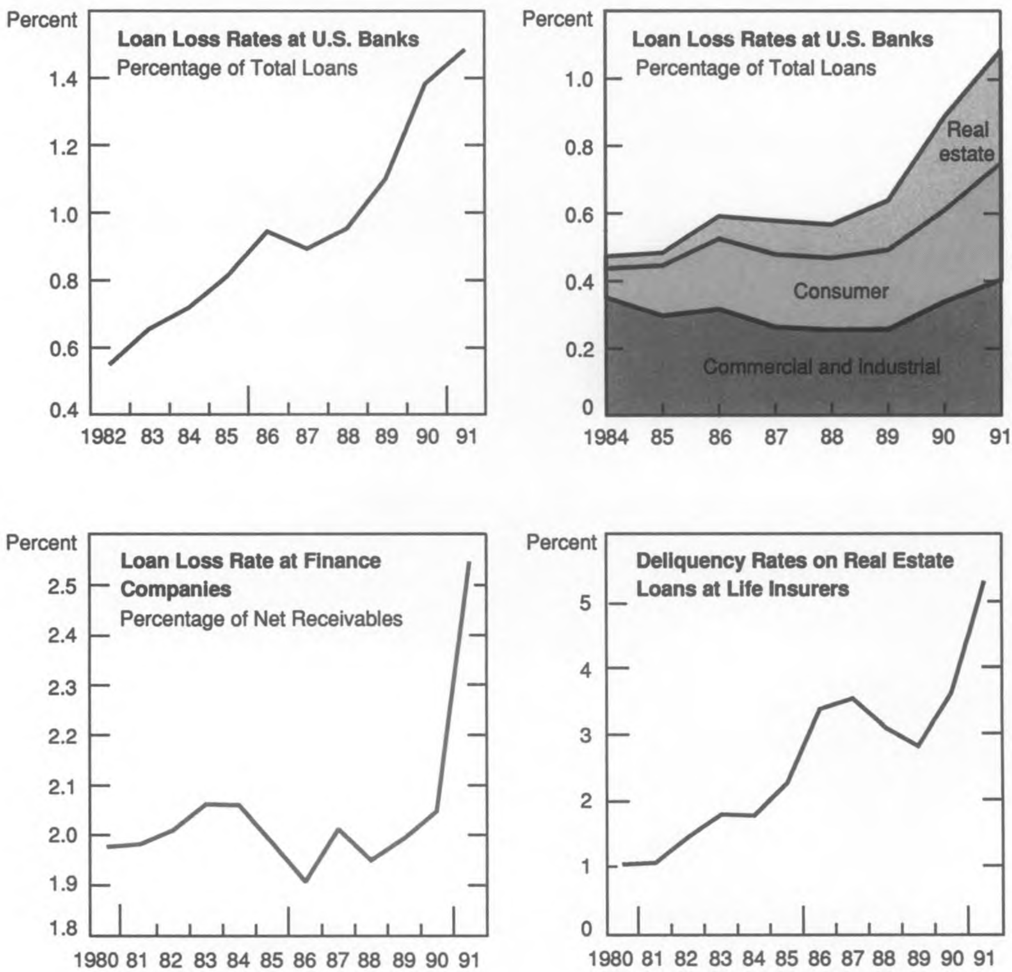


Chart 8. THE DEBT HANGOVER: WEAKENED LENDERS

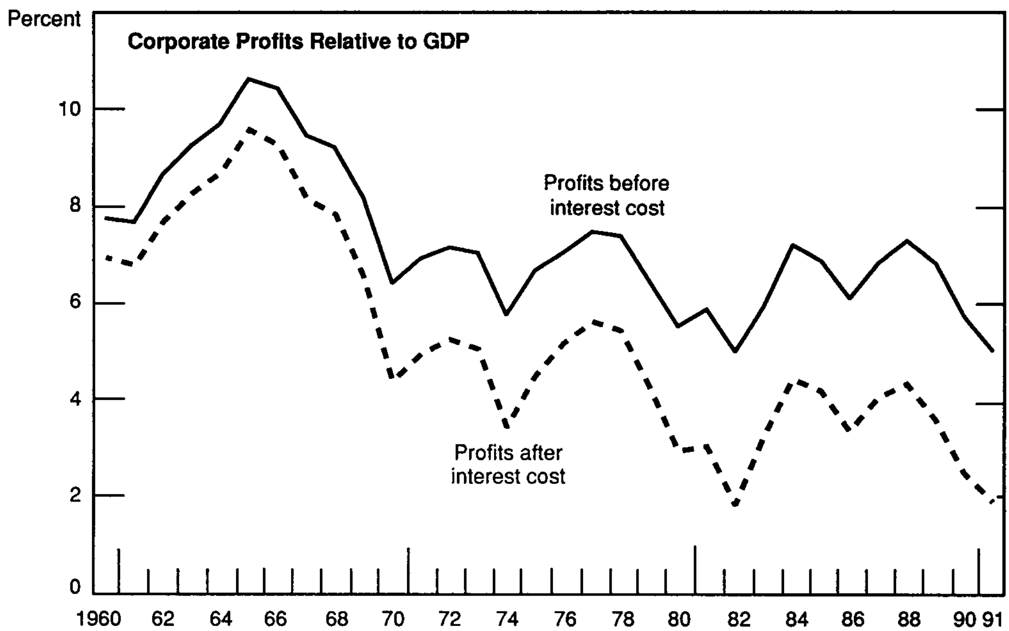
The aftermath of the debt binge shows damaged balance sheets at banks and other financial intermediaries.



have been a major factor pushing down the profitability of business enterprises in the 1980s (Chart 9). Corporate profits, whether measured relative to GDP or to the net worth of corporations, did not recover after the 1981-82 recession to levels that prevailed in the 1970s. If, however, the interest costs paid out by corporations are added to profits to provide a rough measure of income paid to capital in the corporate sector, then a rebound shows up after the recession of the early 1980s,

Chart 9. PRESSURE ON PROFITS

The higher debt burden of the 1980s contributed to a squeeze on corporate profits that has prompted many firms to shrink and restructure, inhibiting a recovery in employment.



Note: Profits of nonfarm nonfinancial corporations before tax are adjusted for inventory valuation and capital consumption.

although the measure still remains well short of its performance in the 1960s. This finding suggests that an important factor behind the continued downtrend in profitability in the 1980s, at least for the corporate sector, is the additional interest burden created by a higher level of corporate indebtedness in an era of high real interest rates.

Strains on profitability have been a chronic problem of recent years, and they grew acute in the recessionary environment. What makes them especially troublesome in this cyclical episode, however, is their resistance to the typical and relatively quick resolution of cost reduction through inventory destocking. Inventories in general, and particularly in manufacturing, have been kept under tight control. Although retail inventories exclusive of autos are at higher than usual levels, overall the inventory cycle has been very muted in the recent recession. Firms, then, cannot easily lessen the pressures on profits from their heavy interest burden by cutting inventories.

An alternative remedy for the profit squeeze is to try to restore margins through price increases. Companies in many industries—including autos, airlines, and primary metals—attempted this approach on different occasions with a conspicuous lack of success. In many sectors, price increases could not be sustained or price cuts could not be avoided. Even if listed prices were maintained, discounting and incentives to purchase became a commonplace. Competitive pressures, whether from domestic or international sources, were too intense to allow price increases to get much ahead of costs. The recurrent faltering of attempts to recover from this persistent squeeze on profits must have made firms more reluctant to rehire workers to meet the resurgence of consumption demand after the Gulf War. The lack of recovery in hiring retarded personal income growth and colored the gloomy background of consumer confidence.

The inability of many firms to pass on cost increases, particularly those stemming from higher interest costs, arose in a number of ways. Deregulation in some domestic industries—airlines and banking are prime examples—led to intensified price competition that revealed substantial structural excess capacity.

On the international side, competitive pressures remained formidable, despite an improvement in the relative cost competitiveness of U.S. producers. Since 1985 the depreciation of the dollar has dominated all other factors influencing the production costs of U.S. goods relative to those of other countries. This improved cost competitiveness has contributed to a substantial reduction in the U.S. merchandise trade deficit from a peak value of nearly $160 billion in 1987 to an annual rate of less than $75 billion in the first three quarters of 1991. This improvement has come principally by way of a rapid advance in U.S. exports. Competition in the American market from imports, however, has remained quite strong despite the weaker dollar. Import prices in dollars have risen more slowly than general price indicators in the United States, and import-to-income ratios have drifted up since 1985. In part these developments may reflect especially vigorous efforts by the export industries of trade competitors to achieve productivity enhancements that offset the cost disadvantages of the weaker dollar. Or they may reflect a stubborn attempt to hold on to market share in the United States by tolerating lower profit margins here while trying to make up the difference in the domestic market or in other export markets. All in all, foreign sellers have remained determined competitors in the U.S. market.

The inability of U.S. businesses to raise prices aggressively in a competitive environment and thereby restore profitability that had been eroded by debt costs provoked a change in business behavior. Managers became more conservative in controlling costs and more reluctant to add labor. Many firms, in fact, committed to permanent staff reductions and were willing to take sizable special charges against earnings to carry out these steps.

These attempts to control costs through shrinkage by eliminating staff jobs and selectively closing plants, offices, or outlets are an important element of a total restructuring. They represent a shift to a more efficient scale of operation under existing cost structures. Equally important, however, if not more important, are efforts to shift the entire cost structure through productivity-enhancing investment.

Investment requires financing, either out of retained earnings or through equity issuance or borrowing. Building up retained earnings depends on the slow process of restoring profitability. While the equity markets have indeed come alive in recent months as a source of new funding for corporations after eight years of massive net equity retirement, only a small part of these funds are going directly to finance new investment. The majority are being used to restructure balance sheets and a good part are simply going to cover losses. Borrowing in securities markets has been extremely heavy recently, but again most of these funds are being directed to balance sheet restructuring, especially the refinancing of old high-rate debt. Borrowing from banks is depressed by both low demand and the apparent reluctance of some depository institutions to lend. The full benefits of restructuring await the revival of investment. Firms now are directing their efforts toward balance sheet restructuring to reduce the burden of heavy leverage built up in the 1980s. Net credit demands are likely to be subdued until this balance sheet restructuring has gone farther. This process has contributed to the second major macroeconomic feature of the current cycle: a precipitous slowdown in credit growth.

Slow Credit Growth

Last year saw a continuation of the sharp deceleration in the growth of credit to the private sector that began early in 1990. Private credit expansion had been slowing since 1985, but growth rates had stayed within a familiar range of fluctuation until 1990. By then it was clear that a significant deceleration was under way (Chart 10). This development coincided with a rise in complaints from businesses that commercial banks had restricted credit—the emergence of a credit crunch.

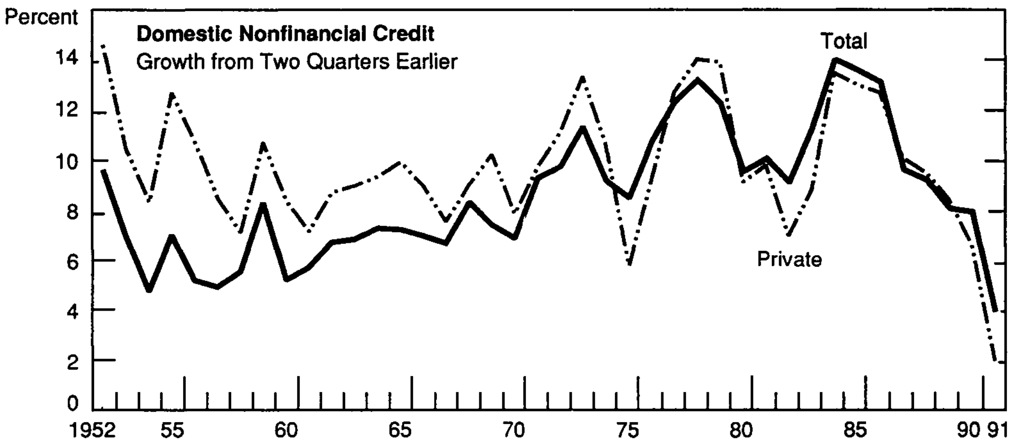
The term "credit crunch" usually connotes some restriction, or rationing, of the supply of credit. It can be equated with conditions in which the market supply of credit to a particular borrower or class of borrowers reaches a maximum regardless of the interest rate that the borrower is willing to pay, leaving the borrower with some frustrated demand for credit. Typically, these conditions emerge because of new concerns about the underlying creditworthiness of the borrower. The borrower wants to get a bigger loan at the prevailing rate of interest than lenders are prepared to give. The borrower may even be willing to pay a premium, but offering to pay above-market rates does not induce more supply. In this regard the credit markets differ from other markets: in a credit crunch environment, higher bids only create greater lender uncertainty about the financial condition of the borrower.

Some commentators have applied the credit crunch designation to what can better be described as increases in the costs of financial intermediation. As banking system loan losses have risen, credit rating agencies have downgraded the standing of many banks, raising their cost of capital. At the same time, banks have faced a need to improve their capitalization to satisfy stock market desires for a stronger capital ratio and to gain leeway for regulatory approval of expanded powers. Motivated by both higher costs of raising capital in the markets and the desire to improve their capital ratios, banks have increased their lending margins and tightened terms and conditions to borrowers. These measures may have elicited complaints from borrowers because even when credit was available, the costs were higher and the conditions tighter than what borrowers anticipated on the basis of the funding costs to banks.

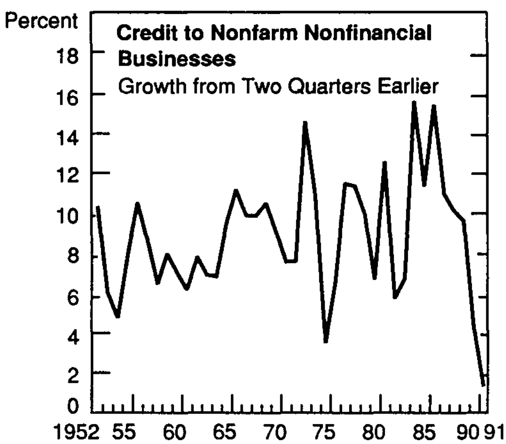
Restrictions on credit supplies have probably played a role in this cyclical episode (Chart 11). To be sure, to some extent restricted credit is always a characteristic of downturns, since the ability of some borrowers to service debt is damaged by recessions. The present cycle is no exception. In fact, for overextended sectors such as commercial real estate and heavily indebted companies, the damage to creditworthiness from the recession has been so bad that creditor caution is entirely justified.

Chart 10. THE SLIDE IN CREDIT GROWTH

By 1991 credit growth had decelerated to the lowest rates in postwar experience.



The sharp slowdown occurred in both business and household credit.



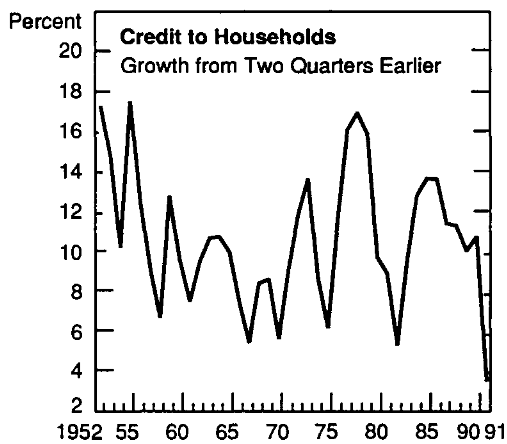
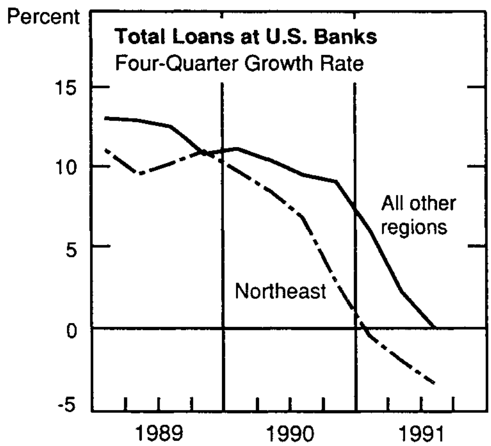


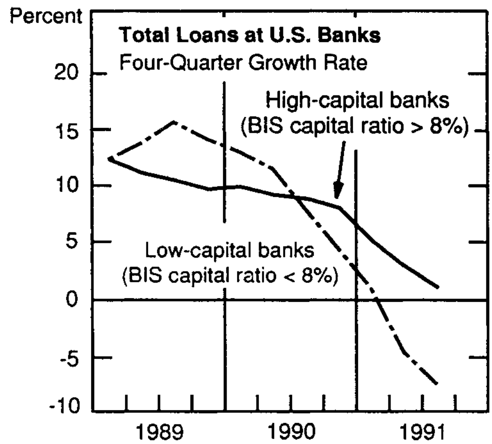
Chart 11. A BANK CREDIT CRUNCH?

**Much of the slowdown in bank-provided credit has been warranted.
The deceleration in lending was fastest at banks . . .**

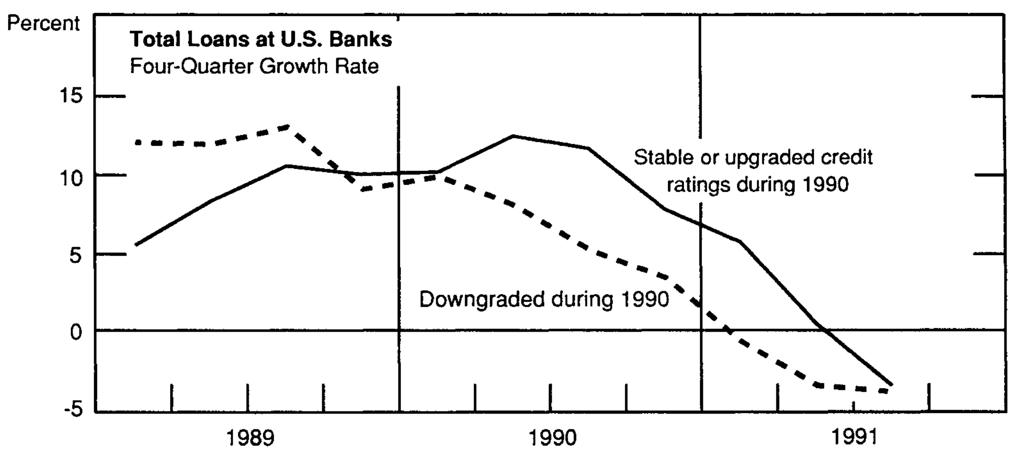
in weaker economic regions . . .



or with higher capital needs . . .



or with lessened creditworthiness.



Concerns about a credit crunch, however, do not focus on credit restrictions that are a consequence of a weak economy, but rather on restrictions that are unusual in the cyclical context and that may have worked to bring about a downturn.

A variety of surveys provided evidence that lenders in 1990-91 did restrict the availability of lending, not only for commercial real estate and highly leveraged acquisitions, but also for nonmerger commercial and industrial loans. Furthermore, lenders desired for several reasons to improve their capital ratios and were reluctant to expand their assets. This feature of the 1990-91 cyclical episode was generally not evident in earlier downturns.

By and large, reductions in credit supply were warranted. The overhangs in real estate and debt were partly brought about by a too-easy supply of credit based on optimistic assumptions of borrower performance and a highly competitive financial environment. The restoration of prudent lending standards by depository institutions required a slowdown in credit growth.

Improvements in bank capital positions have been encouraged (and in some cases required) by regulators, rating agencies, and even the stock market. Strengthened capitalization of the banking system is a structural improvement that will protect the Bank Insurance Fund and the creditors of banks and give bank management leeway to pursue a wider range of potentially profitable business. The broad support for this long-term policy of seeking a stronger capital base for banking warrants carrying out the policy independent of cyclical business conditions.

Borrowers have sometimes charged that the restrictions on credit supply that prevailed in 1990-91 were not justified by fundamental economic and financial factors. Rather, they saw these restrictions as brought about by overzealous regulators determined not to repeat with banks the delays experienced in dealing with thrift problems. The frustrations of borrowers are understandable and incidents of a heavy regulatory hand may have occurred. As we have seen, however, the overhangs of real estate and debt, together with the need to improve bank capital positions, provide a sufficient fundamental explanation for the recent restrictions on credit supply.

Finally, measured credit has also been growing slowly because of a fundamental reason that has been underemphasized in analyses of the recent credit cycle: declining demand. Whatever factors may have touched off the economic recession, the dynamics of the down phase of the cycle have become since mid-1990 the compelling determinant of credit growth. Of course, the relative effects of demand versus supply declines have varied over time and across regions, an observation that may help explain why bankers and businessmen view the causes of the credit slowdown so differently. Demand-side and supply-side effects have been further muddied by the emergence of discouraged borrowers: some businesses may not have bothered to seek new credit, knowing that their lenders had become more restrictive. To bankers, however, this reluctance to seek credit would appear as a falloff in credit demands. Still, the persistently sluggish behavior of spending since the onset of the recession accounts for much of the weakness in credit growth.

IMPLICATIONS FOR THE FUTURE

The overhangs that are the legacy of financial excesses in the 1980s have exerted a drag on the overall economy. But adjustment is advancing in many sectors. Households have been paying down their installment debt, reducing the burden on their personal incomes. Businesses have begun a vigorous balance sheet restructuring that is reducing the degree of leverage and the cost of debt service. These steps are contributing importantly to lowering the interest burden on corporate cash flow. Companies have also aggressively sought to control noninterest costs through the elimination of excess capacity and the reduction of overhead staff levels. Financial institutions, banks especially, have faced up to the damage on their loan portfolios, increasing their loss reserves and strengthening their capital base.

All of these actions are part of the process of adjustment and recovery that will restore financial health to the economy and prepare the way for an economic upswing. Central bank policy has aided this process of restoration and can continue to do so. It is important, however, to clarify what central banking actions are appropriate and helpful. Occasionally, commentators have called for a relaxation of supervisory criteria on capital, asset quality, and other features of bank performance. These rules have been put in place to promote a long-run improvement in the financial strength of the banking system. Some, such as the Basle Accord capital standards, have been negotiated in an international context to ensure fairness. An abrupt reversal of the commitment to these rules and standards would undercut the credibility of efforts for a structural improvement in banking and would risk undermining confidence in the banking system. Nor is it clear that easier prudential standards would be much help now in starting a recovery, since the downward dynamics of the cycle have likely made weakness in demand the chief drag on business activity.

As usual, monetary policy is the principal vehicle for dealing with the economic cycle even in this period of burdensome overhangs. Some aspects of the current environment improve the potency of the stimulus that comes from lower interest rates. Lower rates, of course, alleviate the squeeze on profitability that has been a major block to recovery in hiring. The adoption by business of a more conservative attitude toward capital structures in 1990-91 will hasten this process as firms take advantage of opportunities to refinance, recapitalize, and deleverage. And as banks succeed in strengthening their capital positions, they will be more forthcoming as providers of credit to finance recovery.

The lingering effects of the real estate and debt overhangs can be expected to create pressures to use monetary policy as the remedy to ease the strains on specific sectors. But a monetary policy stance that packs enough stimulus to resuscitate the commercial real estate sector quickly or to cut short the restructuring of balance sheets will almost certainly carry the risk of renewed high inflation. That temptation must be resisted. The appropriate pitch for policy is to complement and facilitate the process of economic and balance sheet restructuring in a context of stable financial conditions. That process is now under way.

Financial Statements

STATEMENT OF EARNINGS AND EXPENSES FOR THE CALENDAR YEARS 1991 AND 1990

In Dollars

	1991	1990
Total current earnings	8,321,208,854	8,196,655,958
Net expenses	214,693,548	196,357,085
Current net earnings	8,106,515,306	8,000,298,873
Additions to current earnings:		
Profit on sales of U.S. government securities and federal agency obligations (net)	49,980,606	23,246,076
Profit on foreign exchange	97,121,050	579,774,990
All other	37,427	25,801
Total additions	147,139,083	603,046,867
Deductions from current net earnings	14,052,900	16,102,575
Net additions (deductions)	133,086,183	586,944,292
Assessments by the Board of Governors:		
Board expenditures	31,222,600	28,184,700
Federal Reserve currency costs	100,248,786	65,406,596
Total assessments	131,471,386	93,591,296
Net earnings available for distribution	**8,108,130,103**	**8,493,651,869**
Distribution of net earnings:		
Dividends paid	43,267,767	38,420,160
Transferred to surplus	104,367,350	59,374,800
Payments to U.S. Treasury (interest on Federal Reserve notes)	7,960,494,986	8,395,856,909
Net earnings distributed	**8,108,130,103**	**8,493,651,869**
Surplus Account		
Surplus — beginning of year	667,053,050	607,678,250
Transferred from net earnings	104,367,350	59,374,800
Surplus—end of year	**771,420,400**	**667,053,050**

STATEMENT OF CONDITION

In Dollars

Assets	Dec. 31, 1991	Dec. 31, 1990
Gold certificate account	3,913,778,047	3,501,358,554
Special drawing rights certificate account	3,395,000,000	3,395,000,000
Coin	15,532,123	16,252,698
Total	**7,324,310,170**	**6,912,611,252**
Advances	7,000,000	22,850,000
U.S. government securities:		
Bought outright*	105,022,220,206	86,783,322,275
Held under repurchase agreements	15,345,150,000	17,013,250,000
Federal agency obligations:		
Bought outright	2,382,137,667	2,340,985,421
Held under repurchase agreements	552,850,000	1,340,750,000
Total loans and securities	123,309,357,873	107,501,157,696
Other assets:		
Cash items in process of collection	968,700,956	569,605,138
Bank premises	127,101,346	76,092,357
All other**	10,525,101,074	11,217,985,098
Total other assets	11,620,903,376	11,863,682,593
Interdistrict settlement account	(12,000,155,993)	(1,043,533,098)
Total assets	**130,254,415,426**	**125,233,918,443**

*Includes securities loaned — fully secured	676,950,000	1,625,675,000

**Includes assets denominated in foreign currencies revalued monthly at market rates.

STATEMENT OF CONDITION
In Dollars

Liabilities	Dec. 31, 1991	Dec. 31, 1990
Federal Reserve notes (net)	100,834,171,266	102,696,522,537
Reserve and other deposits:		
Depository institutions	6,460,525,291	9,933,722,931
U.S. Treasury — general account	17,696,902,345	8,960,212,141
Foreign — official accounts	858,904,306	259,448,612
Other	639,546,133	156,425,233
Total deposits	25,655,878,075	19,309,808,917
Other liabilities:		
Deferred availability cash items	865,763,335	381,862,038
All other*	1,355,761,950	1,511,618,851
Total other liabilities	2,221,525,285	1,893,480,889
Total liabilities	**128,711,574,626**	**123,899,812,343**
Capital accounts		
Capital paid in	771,420,400	667,053,050
Surplus.	771,420,400	667,053,050
Total capital accounts	1,542,840,800	1,334,106,100
Total liabilities and capital accounts	**130,254,415,426**	**125,233,918,443**

*Includes outstanding foreign exchange commitments revalued at market rates.

Changes in Directors and Senior Officers

CHANGES IN DIRECTORS. In July 1991, the Board of Governors of the Federal Reserve System designated Ellen V. Futter Chairman of the Board and Federal Reserve Agent for the year 1992. Ms. Futter, President of Barnard College, New York, N.Y., has been serving as a Class C director since January 1988 and as Deputy Chairman since September 1988. As Chairman and Federal Reserve Agent, she succeeded Cyrus R. Vance, presiding partner of the New York law firm of Simpson Thacher & Bartlett, who had been serving as a Class C director and as Chairman and Federal Reserve Agent since January 1989. (Mr. Vance, whose term as a Class C director does not expire until December 31, 1992, is continuing to serve in that capacity.)

Also in July, the Board of Governors reappointed Maurice R. Greenberg a Class C director for a three-year term beginning January 1, 1992, and appointed him Deputy Chairman for the year 1992. Mr. Greenberg, who is Chairman and Chief Executive Officer of American International Group, Inc., New York, N.Y., has been serving as a Class C director since June 1988.

Member banks in Group 1 elected Thomas G. Labrecque a Class A director in December 1991, for a three-year term beginning January 1, 1992. Mr. Labrecque, Chairman and Chief Executive Officer of The Chase Manhattan Bank (National Association), New York, N.Y., succeeded John F. McGillicuddy, Chairman and Chief Executive Officer of Manufacturers Hanover Trust Company, New York, N.Y., who had served as a Class A director since February 1988.

On April 15, 1992, member banks in Group 1 elected Robert E. Allen a Class B director for the term ending December 31, 1994. Mr. Allen, Chairman and Chief Executive Officer of AT&T, New York, N.Y., succeeded Richard L. Gelb, Chairman and Chief Executive Officer of Bristol-Myers Squibb Company, New York, N.Y., who had served as a Class B director from January 1986 through December 1991.

Buffalo Branch. In August 1991, the board of directors of this Bank appointed Charles M. Mitschow a director of the Buffalo Branch for a three-year term beginning January 1, 1992. On the Branch Board, Mr. Mitschow, Senior Executive Vice President, Marine Midland Bank, N.A., Buffalo, N.Y., succeeded Robert G. Wilmers, Chairman and Chief Executive Officer of Manufacturers and Traders Trust Company, Buffalo, N.Y., who had served as a director of the Branch since January 1989.

Also in August, the board of this Bank designated Herbert L. Washington Chairman of the Board of the Buffalo Branch for the year 1992. Mr. Washington, owner of HLW Fast Track, Inc., Rochester, N.Y., has been serving as a director of the Branch since June 1990. As Chairman of the Board, he succeeded Mary Ann Lambertsen, Vice President-Human Resources, Goulds Pumps, Inc., Seneca Falls, N.Y., who had been a director of the Branch and Chairman of the Branch Board since January 1986.

At the same time, the board of this Bank reappointed Richard H. Popp a Branch director for a three-year term beginning January 1, 1992. Mr. Popp, Operating Partner of Southview

Farm, Castile, N.Y., has been serving as a director of the Branch since January 1989.

In September 1991, the Board of Governors of the Federal Reserve System appointed Donald L. Rust a director of the Buffalo Branch for a three-year term beginning January 1, 1992. Mr. Rust, who is Plant Manager of the General Motors Powertrain Division, Tonawanda, N.Y., succeeded Ms. Lambertsen on the Branch Board.

CHANGES IN SENIOR OFFICERS. The following changes in the official staff at the level of vice president and above have occurred since the publication of the previous *Annual Report:*

Effective March 22, 1991:

Roberta J. Puschel, Senior Vice President, was assigned supervisory responsibility for the Bank Examinations Function, continuing as the officer in charge of the Loans and Credits Function. Effective July 1, 1991, she was also assigned senior management responsibility for the Accounting Function.

J. Andrew Spindler, Senior Vice President, was assigned as the officer in charge of the Payments System Studies Staff, in addition to his supervisory responsibility for the Banking Studies and Analysis Function.

Christopher J. McCurdy, Vice President, formerly assigned to the International Capital Markets Staff, was assigned supervisory responsibility for the Payments System Studies Staff, together with responsibility for special projects within the Bank Supervision Group.

David L. Roberts, Vice President, formerly assigned to the Foreign Group, was assigned to the International Capital Markets Staff.

Effective July 1, 1991:

Cathy E. Minehan, Senior Vice President, resigned from the Bank to accept appointment as the First Vice President of the Federal Reserve Bank of Boston, succeeding Robert W. Eisenmenger. Ms. Minehan joined our Bank's staff in 1968 and became an officer in 1975.

Robert M. Abplanalp, formerly Vice President, was appointed Senior Vice President and assigned responsibility for reviewing audit and controls within the Bank, in addition to senior oversight of the Cash and Check Functions and responsibility for Bankwide coordination of transition planning for the East Rutherford Operations Center.

Thomas C. Baxter, Jr., formerly Associate General Counsel, was appointed to the senior vice president level in the Legal Function, with the title of Counsel.

Ralph A. Cann, III, formerly Vice President, was appointed Senior Vice President and assigned senior management responsibility for the Security Control Function, in addition to supervisory responsibility for the Systems Development Function.

John M. Eighmy, formerly Vice President, was appointed Senior Vice President and assigned senior management responsibility for the East Rutherford Operations Center.

Joyce M. Hansen, formerly Associate General Counsel, was appointed to the senior vice president level in the Legal Function, with the title of Counsel.

Joan E. Lovett, formerly Vice President, was appointed Senior Vice President and assigned as the officer in charge of the Open Market Function.

Carol W. Barrett, Vice President, formerly assigned to the Electronic Payments Function, was assigned responsibility for the Funds and Securities Group (consisting of the Electronic Payments and Fiscal Services Functions).

Paul B. Bennett, formerly Vice President and Assistant Director of Research, was designated Vice President and assigned as the officer in charge of the Electronic Payments Function.

Mary R. Clarkin rejoined the Bank as a Vice President and was assigned responsibility for the Accounting Function and the Loans and Credits Function. Ms. Clarkin had resigned from the Bank as Vice President in the Open Market Function in 1987.

Steven J. Garofalo, formerly Assistant Vice President, was appointed Vice President and assigned as the officer in charge of the Check Function.

George R. Juncker, Vice President, formerly assigned to the Payments System Studies Staff, was assigned to the Bank Examinations Function. Effective January 2, 1992, he was assigned as the officer in charge of Bank Supervision Resource Support.

John F. Sobala, Vice President, formerly assigned to the Check Function, was assigned as the officer in charge of the Service Function.

Effective September 5, 1991, Suzanne Cutler, Executive Vice President, was assigned senior responsibility at the Head Office for the operations of the Buffalo Branch, in addition to her responsibility for the Operations Group.

On September 24, 1991, Sam Y. Cross, Executive Vice President, Foreign Group, announced his retirement from the Bank. Mr. Cross joined the Bank in 1981 as a Senior Vice President.

William J. McDonough joined the Bank on January 6, 1992, as an Executive Vice President and was assigned to the Foreign Group, succeeding Mr. Cross. Mr. McDonough also succeeded Mr. Cross as Manager for Foreign Operations of the System Open Market Account.

William L. Rutledge, formerly Vice President, was appointed Senior Vice President, effective January 2, 1992, and assigned supervisory responsibility for the Banking Applications Function, the Compliance Examinations and Specialized Examinations Departments of the Bank Examinations Function, and senior management responsibility for Bank Supervision Resource Support.

Christine M. Cumming, formerly Assistant Vice President, was appointed Vice President, effective January 2, 1992, and assigned to the Domestic Banking Department of the Bank Examinations Function.

In connection with the establishment of the Market Surveillance Function in the Open Market Group, and the discontinuance of the Dealer Surveillance Function, effective February 21, 1992:

Mary R. Clarkin, Vice President, formerly assigned to the Accounting Function and the Loans and Credit Function, was assigned as the officer in charge of the Market Surveillance Function.

Barbara L. Walter, Vice President, formerly assigned to the Dealer Surveillance Function, was assigned to the Loans and Credit Function.

Directors of the Federal Reserve Bank of New York

DIRECTORS

DIRECTORS	*Term expires Dec. 31*	*Class*
VICTOR J. RILEY, JR Chairman, President, and Chief Executive Officer, KeyCorp, Albany, N.Y.	1992	A
BARBARA HARDING Chairman and Chief Executive Officer, The Phillipsburg National Bank and Trust Company, Phillipsburg, N.J.	1993	A
THOMAS G. LABRECQUE Chairman and Chief Executive Officer, The Chase Manhattan Bank (National Association), New York, N.Y.	1994	A
JOHN A. GEORGES Chairman and Chief Executive Officer, International Paper, Purchase, N.Y.	1992	B
RAND V. ARASKOG Chairman and Chief Executive, ITT Corporation, New York, N.Y.	1993	B
ROBERT E. ALLEN Chairman and Chief Executive Officer, AT&T, New York, N.Y.	1994	B
CYRUS R. VANCE Presiding Partner, Simpson Thacher & Bartlett, New York, N.Y.	1992	C
ELLEN V. FUTTER, *Chairman and Federal Reserve Agent* President, Barnard College, New York, N.Y.	1993	C
MAURICE R. GREENBERG, *Deputy Chairman* Chairman and Chief Executive Officer, American International Group, Inc., New York, N.Y.	1994	C

DIRECTORS—BUFFALO BRANCH

DIRECTORS—BUFFALO BRANCH	
WILBUR F. BEH President, Atlanta National Bank, Atlanta, N.Y.	1992
HERBERT L. WASHINGTON, *Chairman* Owner, HLW Fast Track, Inc., Rochester, N.Y.	1992
JOSEPH J. CASTIGLIA President and Chief Executive Officer, Pratt & Lambert, Inc., Buffalo, N.Y.	1993
SUSAN A. MCLAUGHLIN General Credit Manager, Eastman Kodak Company, Rochester, N.Y.	1993
CHARLES M. MITSCHOW Senior Executive Vice President, Regional Banking, Marine Midland Bank, N.A., Buffalo N.Y.	1994
RICHARD H. POPP Operating Partner, Southview Farm, Castile, N.Y.	1994
DONALD L. RUST Plant Manager, Tonawanda Engine Plant, GM Powertrain Division, General Motors Corporation, Tonawanda, N.Y.	1994

Advisory Groups

FEDERAL ADVISORY COUNCIL

SECOND DISTRICT MEMBER AND ALTERNATE MEMBER

CHARLES S. SANFORD, JR., *Member*
Chairman and Chief Executive Officer, Bankers Trust Company, New York, N.Y.

GEORGE J. VOJTA, *Alternate Member*
Executive Vice President, Bankers Trust Company, New York, N.Y.

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ALAN S. BLINDER
Princeton University

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Massachusetts Institute of Technology

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Harvard University

BENJAMIN M. FRIEDMAN
Harvard University

PETER B. KENEN
Princeton University

PAUL R. KRUGMAN
Massachusetts Institute of Technology

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WILLIAM POOLE
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ROBERT J. SHILLER
Yale University

WILLIAM L. SILBER
New York University

LAWRENCE H. SUMMERS
International Bank for Reconstruction and Development

LAWRENCE J. WHITE
New York University

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IRVING S. CAPLAN
President, National Army Stores Corp., Malone, N.Y.

JUDY COLUMBUS
President, Judy Columbus, Inc., Realtors, Rochester, N.Y.

BENITO R. FERNANDEZ
President, Brooklyn Manor Group, Brooklyn, N.Y.

HENRY F. HENDERSON, JR.
President, H.F. Henderson Industries, West Caldwell, N.J.

CHARLES L. LAIN
President, Pine Island Turf Nursery, Inc., Sussex, N.J.

ROGER A. LEW
President, Wormuth Brothers Foundry, Athens, N.Y.

TONI NORMAN
President, Ranor Inc., Englewood, N.J.

PETER G. TEN EYCK II
President, Indian Ladder Farms, Altamont, N.Y.

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Chairman, Postel Investment Management Limited
London, England

THOMAS G. LABRECQUE
Chairman and Chief Executive Officer
The Chase Manhattan Bank (National Association)
New York, N.Y.

ROBERT E. RUBIN
Senior Partner and Co-Chairman
Goldman Sachs & Co.
New York, N.Y.

Other Members

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Executive Vice President and
Member of the Executive Board
Union Bank of Switzerland
Zurich, Switzerland

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President
Investment Bank, CIBC
Toronto, Canada

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Vice Chairman of the Board
World Banking Group
Bank of America
San Francisco, Calif.

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ABN/Amro Bank
Amsterdam, The Netherlands

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Henry Kaufman and Company, Inc.
New York, N.Y.

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Daiwa Securities Co., Ltd.
Tokyo, Japan

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Directeur Général Adjoint
Crédit Lyonnais
Paris, France

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Albany, N.Y.

SPENCER S. CROW
President, Maple City Savings and Loan Association,
Hornell, N.Y.

HENRY DREWITZ
Chairman, Astoria Federal Savings and Loan Association,
Lake Success, N.Y.

JOSEPH P. GEMMELL
Chairman, President and Chief Executive Officer,
Bankers Savings
Perth Amboy, N.J.

WILLIAM J. LARAIA
Chairman and Chief Executive Officer,
Apple Bank for Savings
New York, N.Y.

GERALD T. MURPHY
President, Garden State Corporate Central Credit Union,
Hightstown, N.J.

WILLIAM F. OLSON
Chairman and President, Peoples Westchester Savings Bank,
Hawthorne, N.Y.

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JAMES H. OLTMAN, *First Vice President*

SUZANNE CUTLER, *Executive Vice President*
Operations

CHESTER B. FELDBERG, *Executive Vice President*
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*On leave of absence.

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BUILDING OPERATING; CASH; SERVICE
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