MONETARY POLICY

AND

OPEN MARKET OPERATIONS

DURING 1990

A Report Prepared for the Federal Open Market Committee
by the Open Market Group
of the Federal Reserve Bank of New York
March 1991

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M3: Levels and Targets

M3 consists of M2, large-denomination time deposits (in amounts of $100,000 or more), term RP liabilities issued by all depository institutions, term Eurodollars held by U.S. residents at foreign branches of U.S. banks worldwide and at all banking offices in the United Kingdom and Canada, and balances in both taxable and tax-exempt institution-only money market mutual funds. Excludes amounts held by depository institutions, the U.S. Government, money market funds, and foreign banks and official institutions. Also subtracted is the estimated amount of overnight RPs and Eurodollars held by institution-only money market mutual funds. The chart is based on data as of March 7, 1991. The target ranges are for Q4 1988 to Q4 1989 and Q4 1989 to Q4 1990.

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Total domestic nonfinancial debt is a measure of the outstanding credit market debt (as defined in the Flow of Funds Accounts, Board of Governors of the Federal Reserve System) of domestic nonfinancial borrowers--Federal and state and local governments, and private nonfinancial sectors. The chart is based on data as of March 7, 1991. The monitoring ranges are for Q4 1988 to Q4 1989 and Q4 1989 to Q4 1990.

M1: Levels and Growth Rates

M1 consists of currency outside the U.S. Treasury, Federal Reserve Banks, and the vaults of depository institutions; travelers checks of nonbank issuers; demand deposits at all commercial banks other than those due to depository institutions, the U.S. Government, and foreign banks and official institutions, less cash items in the process of collection and Federal Reserve float; and other checkable deposits, consisting of negotiable order of withdrawal (NOW) and automatic transfer service (ATS) accounts at depository institutions, credit share draft accounts and demand deposits at thrift institutions. The chart is based on data as of March 7, 1991.

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MONETARY POLICY AND OPEN MARKET OPERATIONS DURING 1990

I. **Overview**

During 1990, the Federal Open Market Committee (FOMC) responded to signs of weakening economic activity and financial market fragilities by gradually shifting toward a more accommodative policy, particularly in the final months of the year. Over the first half of the year, policy was essentially on hold following a move to ease reserve pressures in mid-December 1989. The risks of inflation and of undue economic weakness were seen as being about evenly balanced, as higher food and fuel costs helped lift prices early in the year while the economy continued to grow slowly. In mid-July, the Committee acted to ease reserve conditions to offset a degree of credit restraint on the part of lending institutions that was "greater than anticipated or appropriate." Policy then held steady in the immediate aftermath of the Iraqi invasion of Kuwait in August. Surging petroleum prices simultaneously threatened to worsen inflation and plunge an already sluggish economy into a downturn, and a period of some turmoil ensued in many financial markets. The FOMC eased reserve pressures in late October amid growing evidence of softening economic activity and after the conclusion of a budget agreement involving a large reduction in the Federal deficit over the next several years. Over the final months of 1990, the economy weakened considerably, concerns about the state of the financial system increased, the monetary aggregates expanded anemically, and underlying inflation pressures appeared to ebb. The Committee responded by stepping up the pace of accommodation through three more easing moves. Meanwhile, in December the Board of Governors eliminated reserve requirements on nontransactions deposits and approved a reduction in the discount rate.

The longest recorded U.S. peacetime economic expansion came to an end after nearly eight years, as the economy fell into a recession in the second half of the year. With GNP declining in the final quarter, the economy expanded a mere 0.4 percent (Q4 over Q4) over the year as a whole, and most major spending components of GNP either slowed in growth or fell. The downturn was at least exacerbated, and perhaps brought on, by the Persian Gulf crisis. Meanwhile, rising energy costs generated by developments in the Middle East helped lift most broad inflation measures to their highest levels since the early 1980s. For the year as a whole, consumer price inflation excluding the volatile food and fuel components edged up on balance, but by other measures, underlying inflation and labor cost pressures did not intensify.

The yield curve for Treasury securities steepened during the year. Skyrocketing energy prices fanned inflation fears and left yields higher on balance for most longer maturity fixed-income securities of investment grade, while efforts by the Federal Reserve to spur economic growth helped to reduce shorter term rates. Through the first four months of the year, yields trended up in response to signs that the economy was perking up a bit, rising food and energy costs, higher interest rates abroad, and prospects of much heavier Treasury borrowing. Most rates changed direction and moved lower over the next few months in response to accumulating evidence of economic weakness and speculation that the System would ease monetary policy. At the onset of the Persian Gulf crisis in August, longer term yields jumped and rates on shorter dated instruments posted lesser increases. Over the final months of the year, most yields moved steadily lower as oil prices eased off their highs, a Federal budget accord was reached, and the Federal Reserve took a series of measures intended to help revive the faltering economy.

A slumping economy coming atop a high level of financial indebtedness contributed to growing strains in many financial markets in 1990. Borrowing became more difficult for less than top-rated borrowers. Some degree of dislocation was evident at times in many financial markets, especially during the second half of the year. The market for below investment-grade securities, which had already been buffeted by a series of developments late in 1989, deteriorated dramatically in 1990. Meanwhile, the financial position of many bank holding companies (BHCs) deteriorated, posing potentially serious consequences for the financial system as a whole. The profitability of many BHCs suffered as the value of their loan portfolios declined, especially for real estate-related activities. During the year, the outstanding debt of many banking institutions was downgraded, and market yields on much of this debt soared. Amid these developments, there were growing indications that banks were cutting back on the availability of credit, even for creditworthy customers, although the magnitude of this credit squeeze remained uncertain. Monetary policy moves during the latter half of the year were intended in part to relieve the effects of the credit restrictions.

Growth of the broader monetary aggregates in 1990 fell below the previous year's pace. M2 advanced 3.9 percent (Q4 over Q4) while M3 rose just 1.7 percent.[1] Both measures expanded much more slowly in the second half of the year and finished well down in their respective growth cones. A soft economy, retrenchment in bank lending, and a quickened pace of thrift resolutions all helped to restrain the growth of these aggregates. Nonfinancial debt also increased more slowly in 1990; it rose 6.8 percent and

[1]Money and debt growth rates cited in this report are based on data available on March 7, 1991. The money data incorporate the February 1991 benchmark and seasonal revisions, as well as subsequent revisions. The benchmark revisions raised the growth rates of each of the three monetary aggregates by 0.2 percentage point over the four quarters of 1990.

finished well within its monitoring range. Meanwhile, growth in M1 rebounded in 1990 after posting a meager gain in the previous year; it advanced 4.2 percent, boosted by rapid growth in currency, much of which apparently went overseas.

Implementation of monetary policy continued to be complicated by a strong reluctance of many depository institutions (DIs) to borrow from the discount window under the adjustment credit program. The Desk's formal operating procedures continued to make use of an assumption for borrowing that presumes a reasonably stable relationship between the amount of borrowing and the spread between the Federal funds and discount rates. Instances of unusual reluctance to use the discount window, which have hampered the Desk's operations for several years, intensified in 1990 as many DIs were concerned that their presence at the window might be misconstrued as a symptom of fundamental financial difficulty. On occasions when borrowing had to rise to make up a shortfall in nonborrowed reserves, the funds rate often increased to exceptionally high levels. In light of the continued imprecision in the borrowing relationship, the Desk pursued its borrowing objectives flexibly. When formulating its program for daily operations, it often emphasized current trading conditions in the Federal funds market over estimated reserve needs associated with the borrowing allowance.

Extraordinary year-end funding pressures and reductions to reserve requirements had a significant impact on money markets and the Desk's operations in December. In an atmosphere of heightened financial fragility, and consistent with ongoing efforts to improve their capital positions, many banks strove to reign in the volume of lending that would be on their books on the end-of-year reporting date. At the same time, demands for funds spanning the turn of the year were high. Dislocations occasionally emerged in the money markets as many institutions refrained from their customary arbitrage activities. Short-term interest rates, including the Federal funds rate, were prone to considerable volatility. The reserve requirement reduction indirectly added to this volatility. Many banks, unaccustomed to working with much lower reserve balances at the Fed, tended to manage their reserve positions very cautiously, so as to reduce the risk of incurring overnight overdrafts or having to bid aggressively for funds late in the day. Demands for excess reserves in this climate ran high, although banks would sometimes seek to unload their reserve holdings in late-day trading after they felt assured of meeting their clearing needs. The volatility of the funds rate, resulting both from more cautious reserve management and year-end funding needs, made it very difficult to gauge the underlying demands for reserves. Towards the end of the year, the Desk sought to alleviate these pressures in the Federal funds market by exceptionally aggressive provisions of reserves through open market operations.

II. The Economy and Interest Rates

The pace of economic activity slowed dramatically in 1990, as a modest rebound in the rate of expansion early in the year gave way to a period of generally sluggish growth that was followed by an economic contraction. Real GNP expanded just 0.4 percent over the four quarters of the year, down from 1.8 percent in 1989 (Table I). Growth in most sectors of the economy weakened to some degree during the year, while manufacturing and construction activity declined. Meanwhile, rapidly rising petroleum prices helped to lift overall inflation to levels not seen since 1981. Inflation excluding food and energy prices, or "core" inflation, was somewhat higher at the consumer level, but some other measures of underlying price and labor cost pressures showed no acceleration or declined over the year. Yields on investment-grade securities moved largely in response to the changing outlook for economic growth and

Table I

Changes in Key Economic Statistics
(changes are in percent except where otherwise indicated)

	1990	1989
Fourth Quarter/Fourth Quarter		
Real GNP	0.4	1.8
Final demand	1.3	1.9
Disposable personal income	-0.4	1.7
Consumer expenditures	0.3	1.2
Business fixed investment	1.8	4.5
Residential construction	-9.6	-7.1
Government purchases	3.6	0.6
Nonfarm inventories (bil. $)	-39.3	-11.9
Net exports (bil. $)	29.4	27.8
Fixed-weight GNP deflator	4.8	4.0
December/December		
Consumer price index, total	6.2	4.6
Consumer price index, excl. food and fuel	5.2	4.3
Producer price index, total	5.7	5.0
Producer price index, excl. food and fuel	3.5	4.3
Employment cost index	4.9	5.0
Average hourly earnings	3.7	4.1
Industrial production	-1.5	1.1
Nonfarm payroll employment, total	0.6	2.2
Employment, manufacturing	-3.1	-1.0

Notes: GNP components and personal income are measured in constant dollar terms. Final demand and government purchases are net of purchases made by the Commodity Credit Corporation, which are treated as akin to changes in farm inventories.

inflation during the year, and on accompanying prospects for monetary policy. Interest rates rose and then fell over the first half of 1990 as indications of strengthening economic growth and heightened inflation fears that arose early in the year diminished. Surging energy prices pushed yields back up in late summer, especially for longer dated issues, but rates subsequently retreated in the face of growing signs of a significant economic downturn and several steps to ease monetary policy. On balance, yields on Treasury coupon securities ended mixed, with shorter yields down as much as 70 basis points while the long bond yield ended about 25 basis points higher. Meanwhile, key bill rates ended the year about 100 basis points lower (Charts 1 and 2).

Sluggish growth with inflation worries--January through July

Early in 1990, the ongoing economic expansion, then entering its eighth year, was proving to be resilient. Fueled by a modest rebound in final goods demand and boosted by a weather-related spurt in construction activity, real GNP in the first quarter rose 1.7 percent (annual rate), up from the sluggish 0.3 percent pace in the preceding quarter. At the same time, inflation was accelerating, although much of this pressure was expected to be short-lived because it resulted from severe winter weather in December 1989 that pushed up the cost of fuel and some foods. As measured by the fixed-weight price deflator, the inflation rate jumped to 6.6 percent in the first quarter from 3.8 percent in the previous quarter.

Signs that economic activity was picking up while inflation was gaining some momentum helped push yields on many long-term Treasury issues to levels just over 9 percent by the end of April, up by over 100 basis points since the start of the year. Bill rates rose by lesser amounts to their highest levels for the year. Unexpectedly strong nonfarm payroll employment statistics were released in February and March, and some other economic reports pointed to somewhat greater strength in the manufacturing sector than

Chart 1
Long-Term and Short-Term Interest Rates

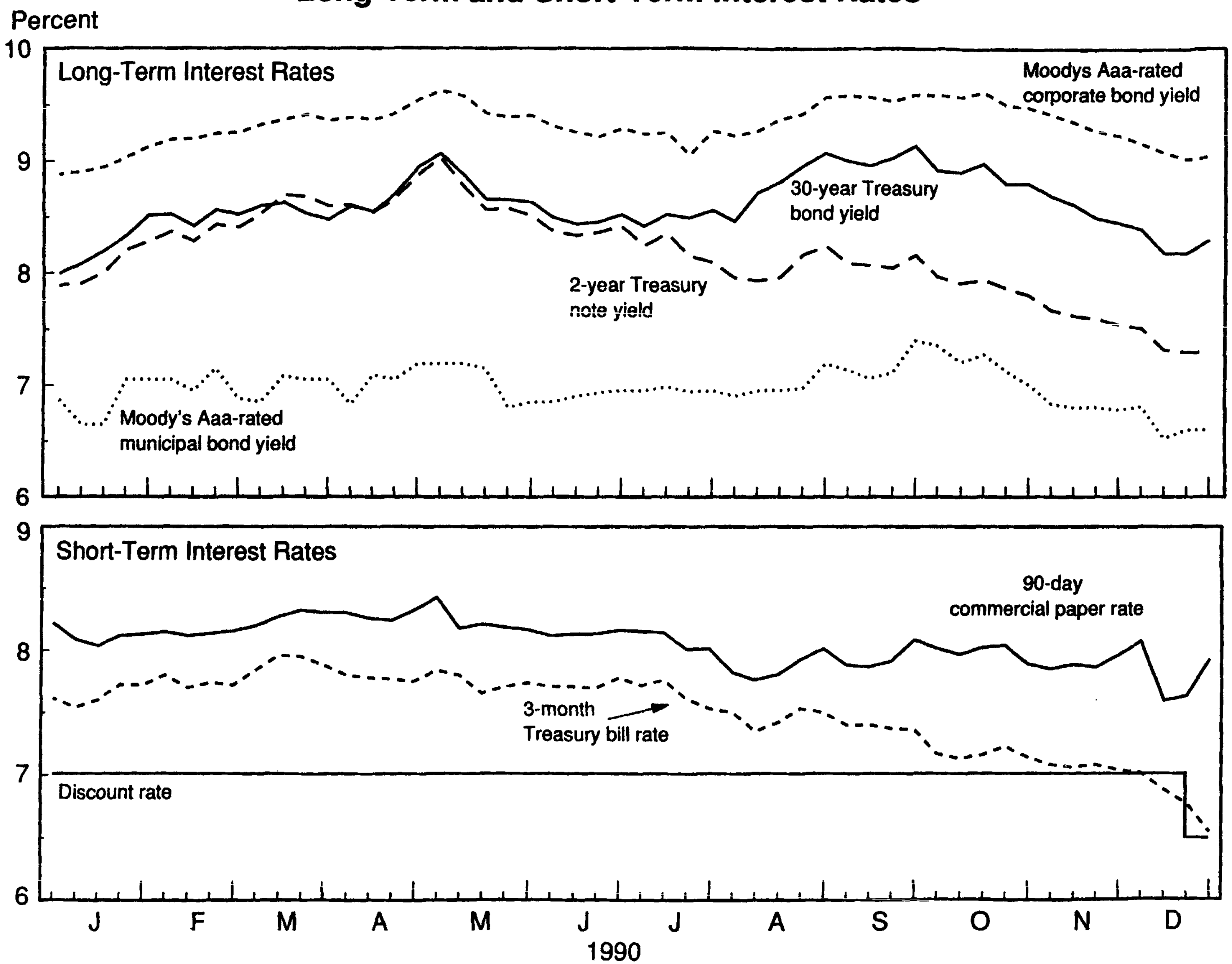
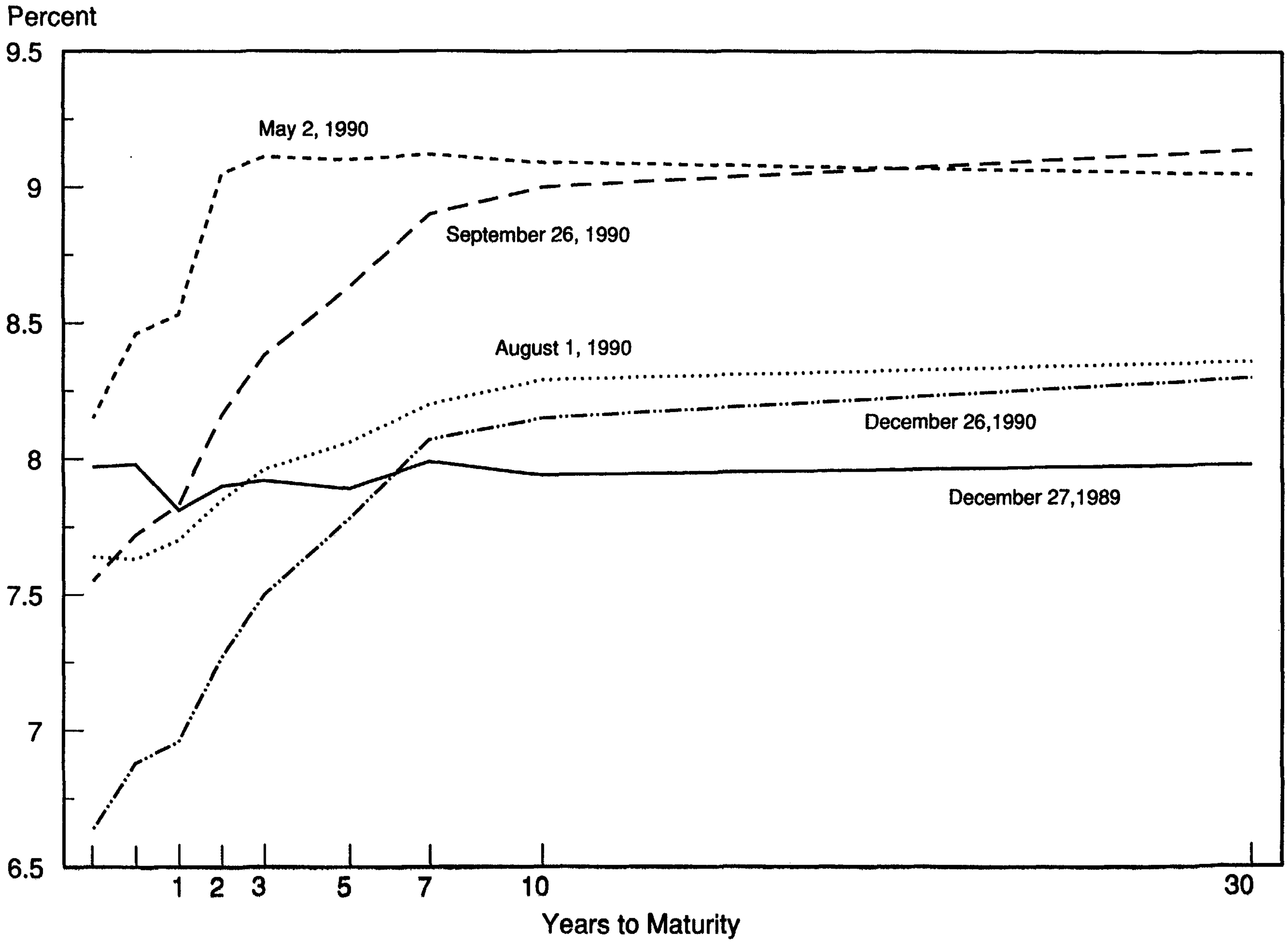


Chart 2

Yield Curves For Selected U.S. Treasury Securities



had been previously perceived.[2] Meanwhile, investors became more concerned about inflation prospects as price data began to reflect rising food and fuel costs and as the core component of the consumer price index (CPI) crept up. These reports helped to dispel expectations that the System would soon follow-up its December move with another easing step. This perception was reinforced in late January by Chairman Greenspan, who expressed the view in Congressional testimony that the current inflation rate was unacceptably high and that the recent slowdown in economic activity appeared to be only a "temporary hesitation." Investor psychology shifted further and yields surged in mid-April on the release of the March CPI, which showed a disturbingly large jump in the core component of that index.

Rising interest rates in Japan and Germany added to the upward pressure on domestic yields early in 1990 by substantially narrowing the differential between foreign and domestic rates and by curbing the foreign appetite for U.S. securities. Higher foreign yields were largely the product of tighter monetary policies and deteriorating inflation outlooks abroad which, in the case of West Germany, were linked in part to the potential inflationary consequences of union with East Germany. Sharp declines in Japanese equity prices early in the year also helped to push U.S. interest rates higher as foreign investors reportedly sold U.S. securities to mitigate their losses; however, some "flight-to-quality" demand for domestic securities was seen at times when foreign equity markets came under strong downward pressure.

Rising borrowing by the Treasury and sharply higher estimates of its future funding needs added to a negative market sentiment early in the year.

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[2]Employment data during the year were distorted by the temporary hiring of census workers. Characterizations of the jobs data in this report are net of the impact of these workers.

A progressive deterioration in official deficit forecasts occurred through the year, in large measure reflecting a scaling back of projected economic growth and revised estimates of the costs of the savings and loan bailout.[3] Official projections of the final costs of the thrift bailout escalated to a range of $90 to $130 billion (in present value terms), well above the $50 billion originally allocated by the Congress for this task. Estimates of the "working capital" needs of the Resolution Trust Corporation (RTC), the agency charged with disposing of failed thrifts, also grew; and in February, the agency began to raise funds by borrowing from the Federal Financing Bank--which resulted in increased Treasury borrowing from the public. In a related development, the Resolution Funding Corporation (REFCORP), the borrowing agency which had been authorized to raise a total of $30 billion to pay for thrift losses, borrowed $8 1/2 billion in two auctions of 40-year bonds, in January and in April, and both auctions fared poorly. (Later auctions of 30-year REFCORP bonds were better received.)

During the middle of the year, economic growth was uneven, but on balance was slower. The real economy expanded at about a 1 percent annual rate during the middle two quarters, with somewhat slower growth coming in the second quarter. Inflation moderated in the spring and early summer as food and fuel cost pressures eased, and there was little evidence that the upsurge in these costs earlier in the year was having an impact on core inflation.

Accumulating evidence of lower growth and slower inflation put interest rates on a declining trend, and by the end of July many longer term

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[3]The ultimate implications for interest rates of growing deficits are complex. Extra Treasury borrowing brought on by slowing economic growth normally is accompanied by reduced credit demands from other sources. Moreover, if funds borrowed to pay for deposit insurance losses and the RTC's working capital needs are recirculated in financial markets, as is generally assumed, then the funds available to other borrowers would not be reduced and there would be little impact on interest rates apart from dislocations brought on by new funding patterns.

rates were just a bit above and shorter term rates somewhat below the levels prevailing at the start of the year. Yields had moved sharply lower following the release of an unexpectedly weak jobs report in early May, and smaller-than-expected changes in the producer price index (PPI) reported soon afterwards alleviated inflation worries. Subsequent economic reports confirmed that a slowdown was underway and virtually eliminated any speculation that monetary policy would be tightened in the near future. Another weak employment report released in June encouraged talk of a possible recession, stirred expectations of a Fed easing, and pushed yields even lower; however, later economic reports provided a more mixed assessment of the pace of the expansion, and the core inflation rates in the PPI and CPI reports released in June were seen as too high to permit an easing move.[4]

Many investors were surprised by the move to relax reserve pressures foreshadowed by Chairman Greenspan in Congressional testimony on July 12 and implemented by the Desk on the following day. Some were skeptical about the reasons given for the move--to help offset a recent modest tightening of credit availability--and suspected that the System might have responded to political pressures to ease policy. Chairman Greenspan's Humphrey-Hawkins testimony, which was delivered during the following week on the same morning that an unexpectedly big jump in the CPI was announced, did not dispel these doubts and left many participants concerned that monetary policy was moving toward further ease just when inflation appeared to be gaining momentum. Consequently, while rates on many shorter maturity issues moved lower on the easing move, longer term yields held steady or moved a bit higher.

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[4]Several payroll employment reports, including some released in the spring and summer, showed large revisions to previously released data. These revisions sometimes altered perceptions formed by the initial release.

Budgetary developments continued to affect financial markets during the spring and early summer. Growth in Treasury borrowing, in part to finance an accelerated pace of RTC activity, underscored a deteriorating budget outlook. Formal negotiations for a multiyear budget package began in mid-May, and in June President Bush announced that tax hikes would be part of any credible budget package. Hopes were raised that significant deficit cuts could be realized, lowering the Treasury's prospective borrowing needs and possibly paving the way for an easing move by the Fed to offset fiscal restraint. Chairman Greenspan directly linked a possible monetary policy move to a budget pact in his July Humphrey-Hawkins testimony when he indicated that the System might reduce reserve pressures if "major, substantive, credible cuts in the budget deficit" were achieved. Interest rates generally eased on these developments, especially on short-term Treasury securities; however, little progress was made in budget negotiations before the summer recess, and most investors remained wary about prospects for significant deficit reductions.

Persian Gulf crisis and declining economic activity--August through December

The surge in oil prices that followed the Iraqi invasion of Kuwait in August raised the prospect of rapidly escalating inflation and generally clouded the economic outlook. Yields on longer term securities shot up quickly, and the Treasury yield curve steepened dramatically, in part because many participants sought the relative safety of shorter term securities. Also in the immediate aftermath of the invasion, trading conditions were quite volatile, with prices for oil and long-term securities often moving sharply on rumors or reported developments relating to the Persian Gulf crisis. This volatility, and the close association between movements in oil prices and long-term rates, eventually moderated but remained a feature of trading for the rest of the year. Petroleum prices peaked in October, briefly trading above $40 per barrel for near-term delivery of some grades of oil, but prices soon fell back as fears of an immediate outbreak of hostilities abated and as investors became assured that the shortfall left by the embargo on Iraqi and Kuwaiti oil would be filled by higher output elsewhere (Chart 3).

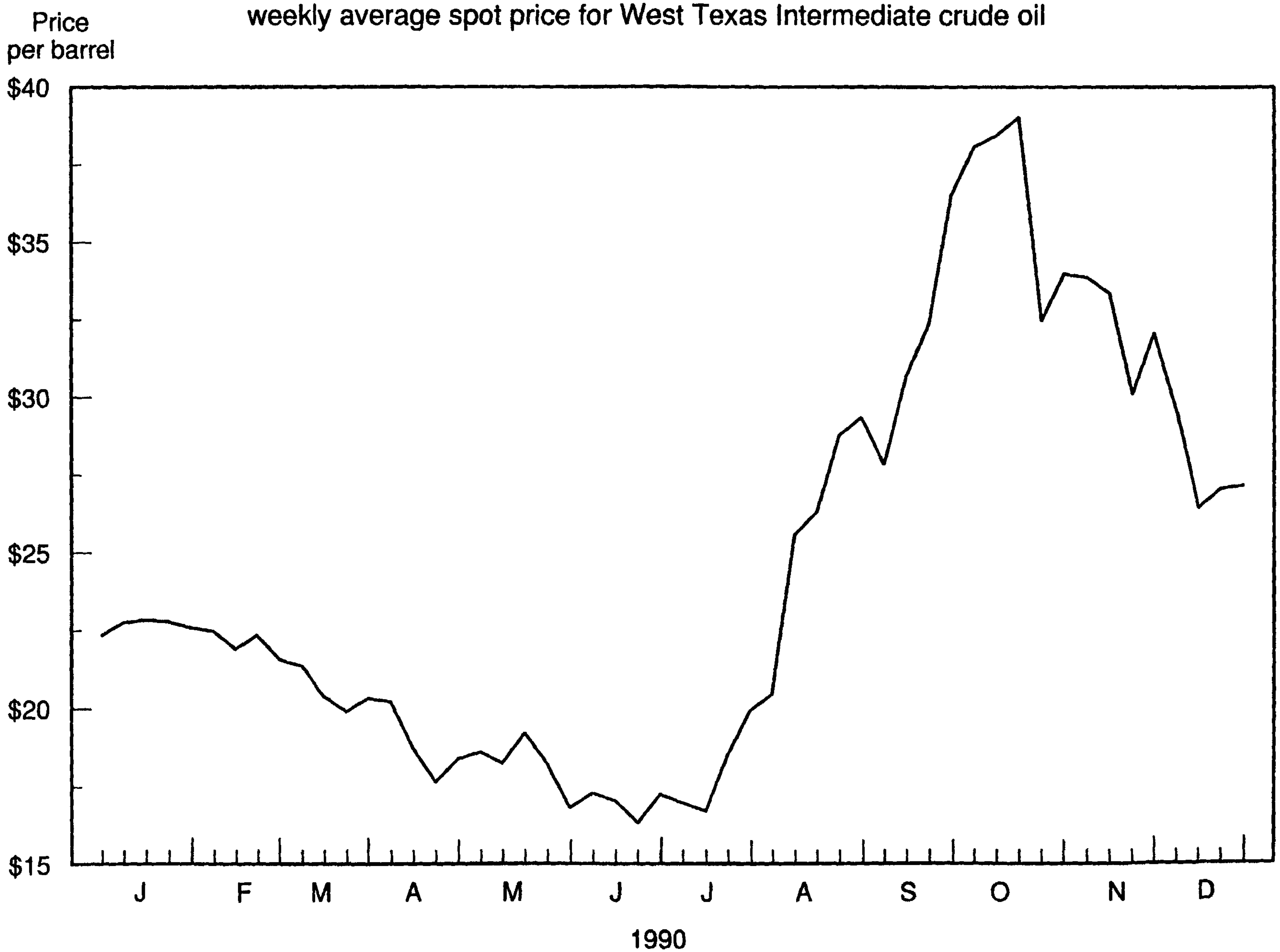
In the weeks following the invasion, financial market participants viewed prospects for monetary policy as very uncertain. Accumulating evidence that economic activity was slowing and concerns over the impact of a sustained rise in oil prices on consumer spending and business investment generated speculation that an easing of policy could occur in the not-too-distant future. This perception helped limit the upward movement in rates on shorter term instruments. At the same time, however, the System was seen as being constrained by the rapid run-up in oil prices and as preferring to wait until the turmoil in financial markets abated before making any policy move. Other price data available in August and September added modestly to a deteriorating inflation outlook, and in September, a stronger-than-expected employment report largely dispelled the view that policy would soon be eased to spur growth.

Investors monitored the course of budget talks in late summer and early fall, and interest rates often moved inversely with the degree of optimism about the course of negotiations. In early September, President Bush reiterated his goal of achieving significant cuts in a multiyear package and Chairman Greenspan again tied a possible easing in policy in part to the adoption of a credible and enforceable agreement, but hopes for achieving such a package dimmed as budget negotiations dragged on. A tentative accord was reached on September 30--which was designed to cut future deficits by a cumulative $500 billion over five years and provide several new enforcement mechanisms--and it was labelled "credible" by Chairman Greenspan. On

Chart 3

Petroleum Prices

weekly average spot price for West Texas Intermediate crude oil



October 4, however, the House of Representatives rejected the proposal. A reformulated accord, which was similar in many respects to the earlier agreement, was reached on October 27. It was soon ratified by the Congress and followed by an easing move by the Fed.

The economy began to turn down toward the end of the year, a contraction brought on to an indeterminate degree by the rise in oil prices and the uncertainty over the future course of events in the Middle East. Real GNP in the final quarter dropped by 2.0 percent (annual rate). The manufacturing sector--particularly auto production--was hard hit, but many service industries weakened as well. Businesses, however, were keeping their inventories trim (final demand actually posted a slight gain in the final quarter). Exports also remained a bright spot. Pressures on core prices showed some tendency toward moderation in the fourth quarter, but total inflation remained elevated because of higher energy prices.

Interest rates moved steadily lower during the final two months of the year as investors increasingly accepted the view that the U.S. economy had entered into a recession and as the System took several steps to spur growth. Many long-term yields again fell to levels not far above those prevailing at the start of 1990, while shorter term yields dropped to their lows for the year. A weak employment report in early November was soon followed by a move to ease policy. Yields fell dramatically on December 7 on news of the huge job losses in the previous month and big downward revisions to October's employment levels, and the Fed eased later that day. Meantime, evidence of some moderation of core inflation was seen in the monthly PPI and CPI reports released in November. Actions by the Board of Governors in December to eliminate some reserve requirements and to lower the discount rate, as well as another easing move by the FOMC, added momentum to the downward move in rates and convinced most investors that the System was prepared to act aggressively to support a faltering economy.

Debt issuance

The Treasury's financing needs continued to grow in the latter part of the year. The size of its regular weekly bill auctions rose steadily to a record $20 billion in the final quarter--a rise that was only briefly interrupted in October when the Treasury exhausted its remaining borrowing authority under a temporary debt ceiling--and the size of the midquarter refunding also reached a record level of $34 billion in November. For the year as a whole, the Treasury issued a net $232 billion in new marketable debt (including over $50 billion to raise RTC "working capital") compared with $123 billion in 1989.[5] Meanwhile, REFCORP borrowed $18 1/2 billion during the year, exhausting all but $7 billion of its remaining borrowing authority (which it used up in January 1991).

In other markets, public debt offered by U.S. corporations in the domestic bond market rose 3.6 percent, reversing a three-year decline, as a large jump in asset-backed issuance helped offset the virtual disappearance of new speculative grade offerings.[6] Borrowing by state and local governments picked up 5.9 percent as many municipalities struggled to cover budget gaps brought on by a slowing economy. Borrowing in both the corporate and tax-exempt markets was concentrated in the middle and the end of the year, when interest rates were at their lowest. Yields on top-rated corporate and tax-

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[5]These figures are for calendar years. The Federal government's budget deficit in fiscal year 1990 was $220 billion, up from $153 billion in the previous year and just shy of the record $221 billion deficit in fiscal year 1986.

[6]Data on corporate and municipal debt issuance were supplied by the Board of Governors of the Federal Reserve System.

Developments in the market for speculative debt

The problems besetting the market for below investment-grade securities, sometimes called "high-yield" or "junk" bonds, that had emerged in 1989 intensified in 1990. As the year began, this market was already under pressure from a sluggish economy which aggravated the interest payment burden of many highly leveraged issuers of junk debt. Pressures grew in late January, when Allied Stores and Federated Department Stores, two subsidiaries of Campeau Corporation whose difficulties had sparked a general selloff in the high-yield market in September 1989, filed for bankruptcy protection. That same month, ratings were lowered on almost $20 billion of outstanding high-yield debt issued by RJR Nabisco, a company whose debt had been viewed relatively favorably.[10] Then, in February, the Drexel Burnham Lambert Group, a major underwriter and holder of junk debt, filed for bankruptcy. This action came after the firm began to face difficulties attracting funding for its operations.[11] Although rumors of Drexel's impending demise had been circulating for some time, many junk bond yields still rose upon the announcement. Investors were not only concerned about the impact of disposing of Drexel's considerable holdings of junk bonds but about the functioning of the market for high-yield debt following the collapse of its biggest market-maker. The prospect of large divestitures of junk bond holdings by thrifts

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[10]This move by Moody's followed a similar step taken by Standard & Poor's the previous July.

[11]The Federal Reserve Bank of New York played a critical role in coordinating an orderly winding down of the operations of Drexel's government securities subsidiary, a primary dealer. See appendix D for a further discussion. Additional information on the System's response to the collapse of Drexel is contained in the Testimony of Chairman Greenspan before the Subcommittee on Economic and Commercial Law of the Committee on the Judiciary, U.S. House of Representatives on March 1, 1990, reprinted in the *Federal Reserve Bulletin*, May 1990.

attempting to restructure and by the RTC, which acquired its holdings from seized thrifts, also weighed on the market over the first half of the year.

Despite these developments, a number of factors helped to calm the market for junk bonds over the next several months. New issuance was nil. Several companies announced plans to recapitalize or restructure their outstanding high-yield debt through corporate "buy-backs," further alleviating supply pressures and generally helping to restore investor confidence. Furthermore, the RTC reassured investors that it would pursue an orderly, long-term liquidation of its high-yield holdings. Finally, the growing popularity of collateralized bond obligations--in this case securities derived from pools of junk bonds that diversify risk--added liquidity to the market. According to one measure, the spread between yields on junk bonds and those on Treasury securities widened modestly in February but, on balance, was about unchanged during the first half of the year (Chart 4).[12]

The market for high-yield debt deteriorated dramatically following the Iraqi invasion of Kuwait. Rising fuel costs were expected to depress earnings of transportation-related companies, especially airlines, many of which had large amounts of junk bonds outstanding. Growing concerns over an economic downturn pushed yields sharply higher on bonds issued by firms in cyclically-sensitive sectors of the economy, notably some retailers and casino operators. Some of the biggest jumps in junk bond yields came amid eroding equity prices and extremely illiquid trading conditions. A number of affected companies filed for bankruptcy during the last few months of the year and more saw their outstanding debt downgraded. The spread between the index of yields on junk bonds and corresponding Treasury securities about doubled over the

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[12]The spread in Chart 4 is based on the Donaldson, Lufkin and Jenrette High-Yield Active Issues Index and an index of yields on Treasury securities with seven years to maturity.

year, after having doubled in 1989. According to the Bond Investors Association, 89 issuers defaulted on about $25 billion of high-yield debt in 1990; in the previous year 57 issuers defaulted on about $12 billion, and 37 issuers defaulted on under $5 billion in 1988.

Credit developments in the banking system

The financial position of many bank holding companies (BHCs) deteriorated markedly in 1990 as a soft economy jeopardized the value of assets carried on the balance sheets of their bank subsidiaries. In particular, a depressed real estate market in parts of the country placed tremendous strains on the many banks that had aggressively extended credit for construction activity and related commercial projects over the past several years. Loans granted to companies that were highly leveraged with below investment-grade debt also came under pressure as junk bond prices plummeted. These developments compounded the difficulties of those banking institutions that were still burdened with problem loans that had been extended years earlier to less developed countries.

As 1990 began, BHC problems were most apparent in the Northeast, particularly in New England, a region that had seen some of the most spectacular growth in property prices in the 1980s but which was now experiencing a depressed real estate market. Several of the larger regional banks in the area reported sizable losses and additions to loan-loss reserves, for the most part stemming from soured construction-related loans. The credit ratings on the debt of many BHCs in the region were downgraded during the year, and yield spreads on their outstanding debt widened significantly, in some cases reaching "distressed" levels. In January, one of the most seriously affected, and largest, banks in the region, Bank of New England, began to borrow from the discount window. After it became clear the bank's difficulties would not be quickly resolved, its borrowing was classified under the extended credit program. Soon afterwards, Federal regulators issued orders requiring the BHC's main banking subsidiary to improve its capital position, and the bank embarked on a major effort to shed a sizable portion of its asset holdings.[13]

Problems confronting banks throughout the country worsened as the year progressed, most visibly at many of the nation's money center banks. Banks' profitability during the year suffered from deteriorating loan portfolios. Partly as a result, ratings on the outstanding debt of many BHCs were lowered. The downgradings mostly affected longer term debt, but ratings on some commercial paper and other short-term liabilities were lowered as well. Yield spreads on much of this debt widened considerably in expectation of or soon after these moves. Bank stock prices were on a downward course during most of the year.[14]

Negative sentiment toward the BHC sector intensified in late summer. In September, two government agencies issued reports that suggested that the condition of many banks might be too fragile to withstand an economic downturn. About the same time, Chase Manhattan Corporation encountered a much higher-than-expected rate on the auction repricing of some of its outstanding notes. Shortly thereafter, the Chase BHC announced far-reaching cost-cutting efforts, a cut in the bank's dividend, and a sizable provision to its loan-loss reserves. These events were seen as symptomatic of difficulties faced by an increasing number of banks, and in fact they were soon repeated at several other large BHCs. In this environment, yields on much BHC debt soared--with spreads over comparable Treasury issues widening as much as 200 basis points

[13]The bank's extended credit borrowing ended in June. The bank was eventually seized by the FDIC in January 1991.

[14]The unweighted average of stock price changes for thirteen of the nation's largest BHCs fell 40 percent for all of 1990.

funds' holdings of less than top-rated paper.[16] In this environment, quality spreads--yield differences between issuers with different ratings--widened, and some borrowers were forced to seek alternative, sometimes more costly, sources of short-term financing.

The funding pressures that typically arise in money markets towards the year-end as institutions adjust their balance sheets for that important reporting date were aggravated in 1990 by these financial market strains. Corporate borrowers, cut off from alternative sources of short-term financing, increasingly turned to their committed credit facilities at banks. At the same time, however, many of these banks were discouraging new borrowing as they sought to constrain their balance sheets in an effort to improve their capital positions over the year-end statement date. In addition, with credit concerns rising, many lenders were pulling back on their credit lines to certain borrowers, including to many domestic banks; and some institutions were not engaging in their customary arbitrage activities, creating some dislocation in the money market. Meantime, many banks were wary of borrowing at the discount window even for routine adjustment credit lest their borrowing somehow become known to the public and be misinterpreted as a sign of fundamental problems. Thus, adjustment credit borrowing from the discount window lost some of its value as a safety valve when pressures intensified.

The high demands of many branches and agencies of Japanese banks operating in the United States added to the year-end distortions. Like their U.S. counterparts, many Japanese banks faced growing strains in 1990 as plummeting equity prices and a sagging real estate market at home depressed their asset holdings just as they were struggling to comply with tighter

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[16]This proposal was adopted with minor modifications by the SEC in February 1991, but most money funds had begun to adjust their portfolios to conform to its provisions before then.

capital standards. During the year, credit ratings of many Japanese banks were reduced by the U.S. ratings agencies. Larger Japanese banks that traditionally provided credit to regional Japanese banks cut back on this lending, forcing some borrowers out of the yen-denominated market in search of alternative funding for the year-end. At the same time, credit sensitive U.S. lenders, particularly regional institutions that were less familiar with Japanese institutions, cut their own credit lines to these borrowers. Other lenders were often unwilling to fill this funding gap, despite the profitable opportunities that occasionally emerged, in order to keep their balance sheets from expanding or to avoid carrying Japanese names on their books over the year-end.

In these circumstances, demand for funds covering the year-end emerged sooner than usual, with Japanese institutions in particular being early, aggressive borrowers of both term monies and of forward two-day Eurodollars and Federal funds. The dislocation in normal funding patterns that emerged also contributed to an upsurge in volatility of the Federal funds rate, which swung from elevated levels to extreme lows on some days.[17] To alleviate these pressures, the Desk acted aggressively--particularly in late December--in providing reserves through open market operations. Relative calm returned to the money markets with the passing of the year-end, but many of the elements that contributed to these extraordinary funding pressures remained.

[17]The cut in reserve requirements made late in the year also contributed to an increase in the volatility of the Federal funds rate. (See the discussion of the Desk's operations in December in Section VI.)

IV. The Monetary Aggregates

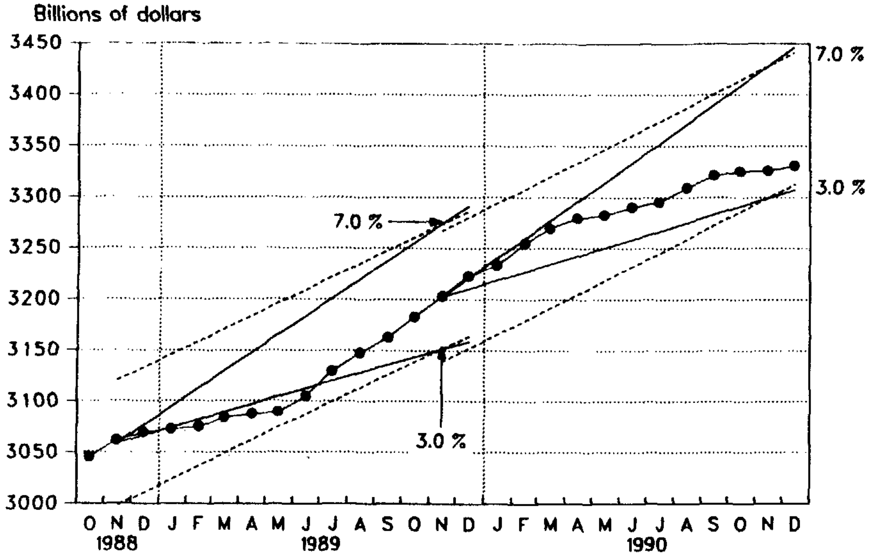
Growth of the broader monetary aggregates, M2 and M3, decelerated in 1990 (Chart 5). Early in the year, M2 and M3 continued to advance in line with growth in the latter half of 1989. By spring, however, a pervasive weakness emerged that was to last for the remainder of the year, except for a spurt of growth in late-summer. Overall, M2 and M3 increased 3.9 and 1.7 percent, respectively, from the fourth quarter of 1989 to the final quarter of 1990. These rates of expansion left both aggregates in the lowest quarter of the FOMC's annual target growth cones at the end of the year. Growth of total domestic nonfinancial debt in 1990 was somewhat below the previous year's pace. Total debt expanded fairly steadily throughout the year, supported by a high rate of expansion in Federal government borrowing. It rose 6.8 percent overall and finished slightly below the midpoint of its monitoring range. Meanwhile, after growing anemically in 1989, M1 grew a modest 4.2 percent in 1990. Boosted by exceptionally strong currency growth, its growth was in line with the pace of expansion set in the second half of 1989.

The ongoing restructuring of the savings and loan industry depressed growth of the broader aggregates, and especially M3, to a greater extent than had been expected at the start of the year as the RTC stepped up the pace of its restructurings by more than had been anticipated. Much of this activity came in the late spring and early autumn. The downsizing of the savings and loan industry resulted primarily in a switching of deposits--out of thrifts and into other depositories--which by itself has no impact on the aggregates; however, some of the deposits of dissolved thrifts, especially managed liabilities, were reinvested in instruments not included in the monetary aggregates.

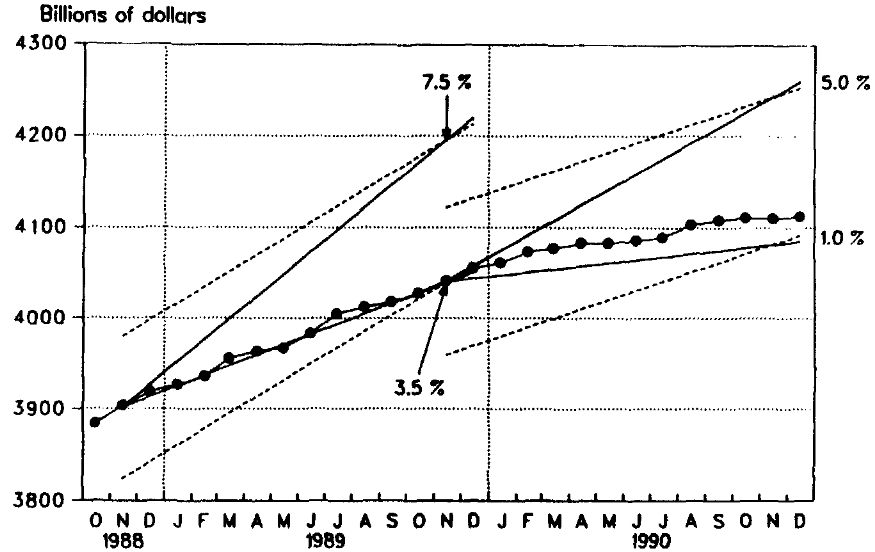
At the same time, commercial banks' funding requirements fell as their lending diminished because of a slumping economy and more cautious

Chart 5

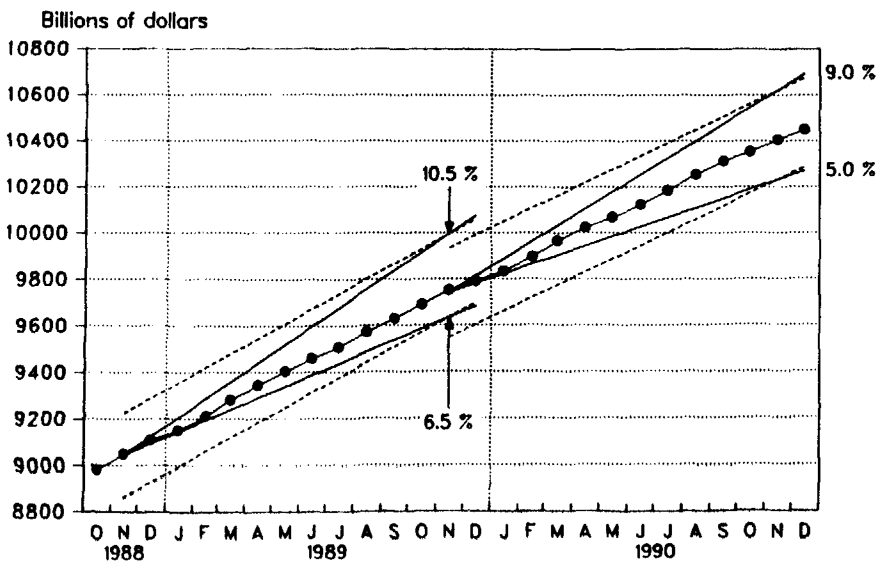
M2 : LEVELS AND TARGETS (CONES AND TUNNELS)



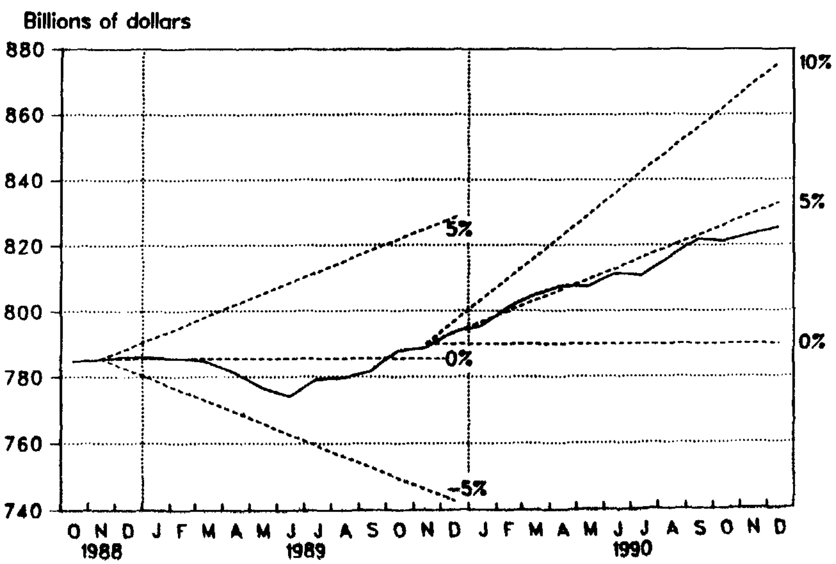
M3 : LEVELS AND TARGETS (CONES AND TUNNELS)



DOMESTIC NONFINANCIAL DEBT : LEVELS AND MONITORING RANGES



M1: LEVELS AND GROWTH RATES



the declines seen at commercial banks were unanticipated because banks had been expected to pick up enough of the thrifts' loan business to have sought additional financing through large time deposit issuance. The weakness at commercial banks was attributed to the slackening pace of economic expansion and, increasingly, to banks' growing reluctance to lend. M3 expanded at a 2.1 percent annual rate over the first two quarters of 1990. Meanwhile, M1 grew at a 4.8 percent pace during this time, partly a result of the strong currency growth; and debt rose at a 6.7 percent rate, buoyed by growing Treasury borrowing, some of which was used to fund the RTC's activities.[18]

At its midyear review of the growth ranges for the broader monetary aggregates and debt, the FOMC decided to lower the 1990 range for M3 to 1 to 5 percent. This move reflected the weakness in M3 to date, and expectations of continuing thrift resolution activity by the RTC and moderate expansion of commercial bank credit. These factors were expected to affect M2 to a much lesser degree, and the growth range for this aggregate was retained in July, as was the monitoring range for debt.

Growth in the broader aggregates tapered off even further in the second half of the year, despite a brief jump in the immediate aftermath of the Iraqi invasion of Kuwait. At that time, MMMFs surged as investors fled the uncertainty and volatility of equity and bond markets, and currency sharply increased, much of it tied to demands from the Middle East. Growth in currency and MMMFs decelerated by November, however, and the earlier weakness in the broader aggregates reemerged. The accelerated slippage in the economy and, perhaps to some degree, growing difficulties of banks in attracting funds as anxieties about their financial health deepened, aggravated the weakness in

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[18]Growth rates of M1 and M2 in the first half of the year were revised up modestly by the benchmark and seasonal factor revisions. For the second half of the year, these revisions led to minimal changes in the growth rates of both aggregates, but M3 growth was raised modestly.

M2 and M3. Growth in small time and savings deposits remained sluggish late in the year despite declines in the opportunity costs of holding these deposits. The weakness in M2 was fairly broad-based, and the managed liability component of M3 shrank.

M1 growth remained robust in the second half of the year, partly as a result of the late-summer surge in currency growth. This aggregate was also whipsawed by changes in banking practices at some depository institutions which affected measured money but not underlying relationships. In July, the banks of First Union Corporation, which operate in the Southeast, converted customer NOW accounts into large nonpersonal time deposits by routing them through a trust subsidiary--a changeover which significantly reduced reserve requirements. This switch lowered measured M1 (and M2) but left M3 unaffected. Then in September, Security Pacific Corporation reduced its commercial paper clearing operations at a New York subsidiary in a way that reduced cash items (which are subtracted from, but do not affect the size of, gross demand deposits) and thus boosted its net demand deposits. The bank's actions lifted both the demand deposit component of M1 and required reserves. On balance, these two developments had roughly offsetting effects on M1, although they did have a significant impact on the monthly growth pattern of this aggregate.

The decline in deposit liabilities associated with the restructuring of the thrift industry and banks' restrained lending behavior contributed to a significant 2.6 percent advance in the income velocity of M3--extending the recent pattern of increases but in contrast to its declining long-run trend--and a lesser, 0.5 percent, rise in the velocity of M2 (Chart 6).[19] Both increases were well above the respective average rates of velocity growth for

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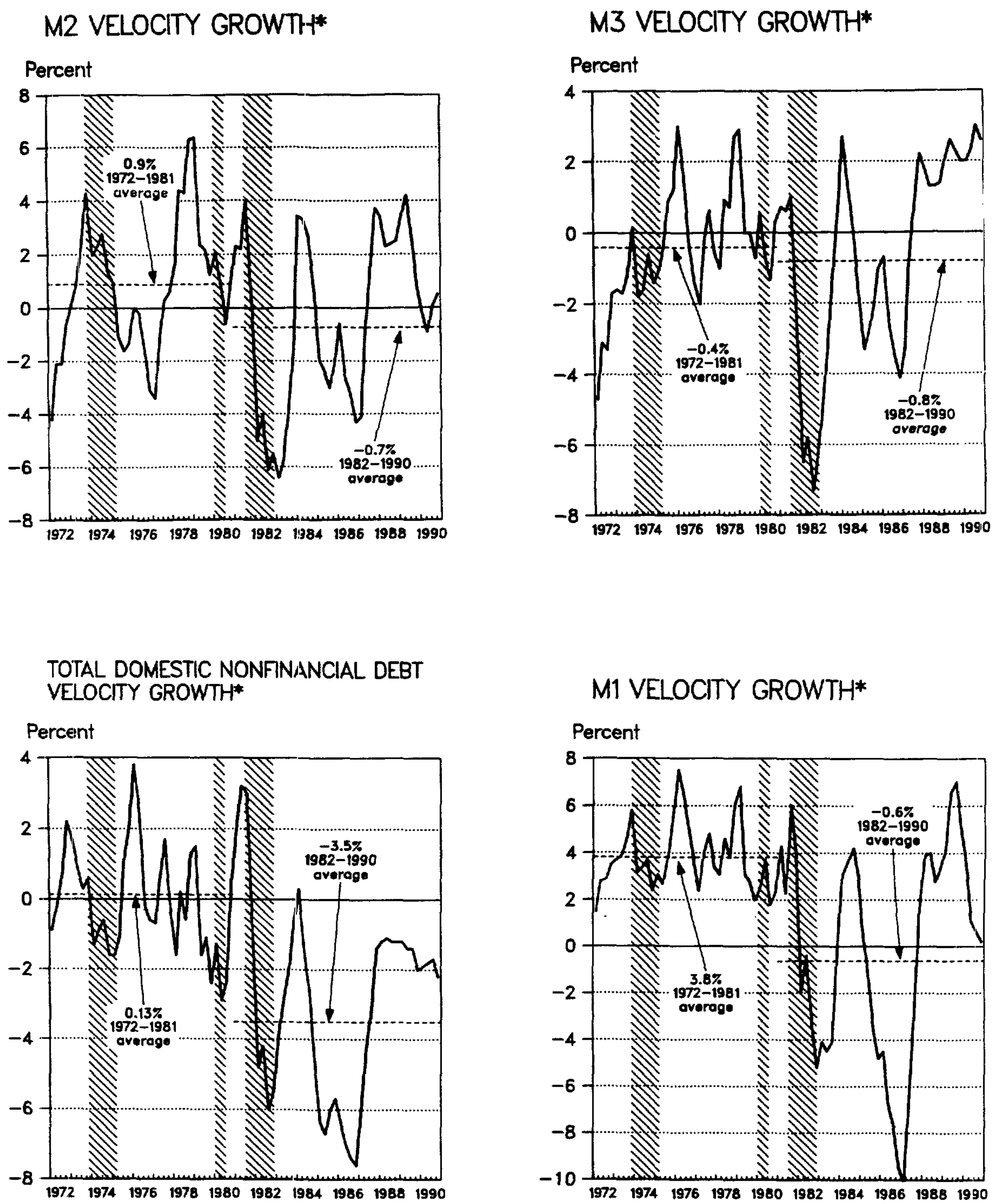
[19]The income velocity of an aggregate is the ratio of nominal GNP to the level of the aggregate.

Chart 6



*Growth from four quarters earlier.
Shaded area represent periods of recession as defined by the National Bureau of Economic Research.

the period 1982-1990, but not much different from the gains registered in 1989. Meanwhile, the income velocity of M1 was up a scant 0.2 percent in 1990, well below the previous year's rapid 5.0 percent advance. The velocity for domestic nonfinancial debt fell 2.2 percent, in line with recent yearly declines.

V. The Course of Policy

During 1990, the Federal Open Market Committee (FOMC) responded to economic and financial developments by continuing the gradual easing of reserve pressures it initiated in mid-1989. Following a move to ease reserve pressures in mid-December of 1989, the Committee's policy stance remained unchanged for nearly seven months, as the risks of inflation and of an economic softening were seen as about evenly balanced.

The Committee eased reserve conditions shortly after its July meeting, but left policy unchanged at its August meeting. By mid-July, the risks appeared to be weighted in the direction of weakness in economic activity. Although the trend rate of inflation had shown no signs of improvement, it was anticipated that progress toward reducing this rate would be achieved because the monetary aggregates had grown at moderate rates for an extended period and economic expansion was expected to continue at a pace below its potential. Meanwhile, evidence such as a marked slowing in monetary growth in the second quarter suggested that credit conditions had become tighter than appropriate. To offset this unintended degree of restraint, reserve pressures were eased slightly on July 13.

The outlook for the economy and prices was not much changed just prior to the Iraqi invasion of Kuwait; however, the invasion and subsequent surge in oil prices introduced considerable uncertainty into the longer term prospects for both economic activity and inflation. In these circumstances,

VI. Policy Implementation

Behavior of Discount Window Borrowing

Implementation of open market policy in 1990 was complicated by the continued deterioration of the relationship between discount window borrowing and the Federal funds rate. The FOMC specifies its policy objectives in terms of desired degrees of reserve pressure, a concept that has been associated with attaining a specified mix of nonborrowed and borrowed reserves.[21] By managing nonborrowed reserves, the Desk seeks to achieve an assumed level of borrowed reserves, which are supplied by the discount window under the adjustment and seasonal programs.[22] The portion of required reserves not provided as nonborrowed reserves must be borrowed from the discount window if reserve deficiencies are to be avoided. So long as there is a predictable degree of reluctance to borrow, a specified level of borrowing is expected to be consistent with a particular degree of money market pressure, as measured by the spread between the Federal funds rate and the discount rate. In recent years, however, DIs have become less willing to borrow from the discount window; thus, a larger spread between the Federal funds rate and the discount rate has been needed to induce DIs (in the aggregate) to borrow the amount assumed by the Committee. (Notes on the FOMC directives, the expected degree of money market firmness, and the borrowing assumptions used to construct the reserve paths are in Table II.)

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[21]Refer to Ann-Marie Meulendyke, *U.S. Monetary Policy and Financial Markets*, Federal Reserve Bank of New York (1990), Chapter 6, for a complete discussion of the borrowed reserve operating procedure.

[22]Reserves can also be borrowed under the extended credit program. This facility is used by banks that are in financial difficulty. Banks borrowing under this program are expected to devote their energies to resolving their basic problems rather than to quick repayment of the loan; thus, their borrowing is more likely to be for extended periods, rather than the short intervals for adjustment borrowing. Banks borrowing under the extended credit program may be charged an above-market rate that exceeds the basic discount rate.

TABLE II

SPECIFICATIONS FROM DIRECTIVES OF THE FEDERAL OPEN MARKET COMMITTEE AND RELATED INFORMATION

Date of Meeting	Specified Short-term Growth Rates (in percent)	M2	M3	Borrowing Assumption for Deriving NBR Path (millions of dollars)	Associated Federal Funds Rate[1] (in percent)	Effect on Degree of Reserve Pressure	Prospective Reserve Restraint Modifications: Guidelines for Modifying Reserve Pressure	Prospective Reserve Restraint Modifications: Factors to Consider for Modifications (in order listed)
								These factors did not change materially over the course of the year. They were:
12/18 to 12/19/89	November to March	8 1/2	5 1/2	150 125 on 12/20	8.50 8.25 on 12/20	decrease slightly	A slightly greater or slightly lesser degree would be acceptable.	
2/6 to 2/7/90	December to March	7	3 1/2	125 150 on 2/8*	8.25	maintain	"	(1) Progress toward price stability.
3/27/90	March to June	6	4	150 200 on 4/26* 300 on 5/3*	8.25	maintain	"	(2) The strength of the business expansion. (Dec 1989 - Nov 1990.)
5/15/90	March to June	4	3	300 350 on 5/17* 400 on 6/14* 450 on 6/28*	8.25	maintain	"	(2) Trends in economic activity. (Dec 1990.)
7/2 to 7/3/90	June to September	3	1	450 400 on 7/13 450 on 7/26* 500 on 8/2*	8.25 8.00 on 7/13	maintain	A slightly greater degree might be acceptable. A slightly lesser degree would be acceptable.	(3) Behavior of the monetary aggregates.
8/21/90	June to September	4	2 1/2	500	8.00	maintain	A slightly greater degree might be acceptable. A somewhat lesser degree would be acceptable.	(4) Developments in foreign exchange and domestic financial markets.
10/2/90	September to December	4	2	500 450 on 10/4* 400 on 10/18* 350 on 10/29** 300 on 11/8*	8.00 7.75 on 10/29	maintain	"	
11/13/90	September to December	1-2	1-2	300 225 on 11/14** 200 on 11/23* 150 on 12/6* 125 on 12/7 100 on 12/13*	7.75 7.50 on 11/14 7.25 on 12/7	decrease slightly	"	
12/18/90	November to March	4	1	100 125 on 12/19[2]	7.25 7.00 on 12/19	decrease slightly	"	

*Borrowing assumption changed for technical reasons.

**Change in borrowing assumption reflects technical adjustment and a change in reserve pressure.

[1]The Federal funds rate trading area which is expected to be consistent with the borrowing assumption. The discount rate remained at 7 percent from the beginning of the year until December 19, when it was reduced to 6.50 percent.

[2]This increase was made so that only part of the accommodation from the cut in the discount rate showed through to the market.

DIs' reluctance to borrow from the discount window became even more pronounced during 1990. Against the backdrop of the ongoing difficulties of savings and loan associations, developments in the real estate and leveraged buyout lending areas raised public concerns about the financial health of DIs. When Bank of New England faced some liquidity problems early in the year, the press scrutinized weekly reports of discount window borrowing in the First Federal Reserve District. Then, between September and year-end, concerns about a number of large DIs intensified as a result of reports of large losses, dividend reductions, and mounting evidence of an economic downturn. Moreover, heavy media coverage continued of those DIs considered to be under earnings stress.

The intense scrutiny by the press of institutions rumored to be under any kind of financial strain tended to intensify the perception that DIs borrowing from the discount window must be in tight financial straits.[23] Indeed, the *New York Times* cited this view in a front page article appearing on December 19. This perception is, in fact, not consistent with longstanding practices or with the periodic needs of the banking system. From time to time, healthy DIs find themselves unexpectedly short of reserves late in the day, perhaps because reserve position managers were not informed of a large deposit outpayment or because an expected inflow of funds did not materialize. In such circumstances, DIs generally turn first to the Federal funds market and other money markets, but they may not be able to obtain enough funds at

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[23]Attention has been focused on adjustment borrowing. Seasonal borrowing, which is used primarily by small agricultural banks during the growing season when their loan demand in seasonally strong, has not been affected.

The Federal Reserve does not release data on individual bank borrowing to the public. However, it may be possible, occasionally, for other banks to infer the probable identity of a borrower from their observation of the institution's behavior in the funds market or from the district-by-district Federal Reserve data published for Wednesdays.

reasonable rates to meet their needs if reserves are scarce for the banking system as a whole. Previously, when such systemwide shortages prevailed, DIs would bid for funds in the market until rates rose to a level sufficiently high above the discount rate to induce DIs short of reserves to come to the window for adjustment credit, thus introducing additional reserves that would relieve their own reserve deficiencies and, with them, the systemwide shortage.[24] Recently, with the heightened reluctance on the part of many institutions to borrow, DIs have been bidding the funds rate to very high levels as they seek to avoid borrowing. Nonetheless, when the entire system is short of reserves, the borrowing must occur because there is no other way for the banking system as a whole to obtain reserves late in the day.

In part reflecting DIs' reluctance to borrow, adjustment borrowing was typically very light in 1990, as it had been in the latter half of 1989. (Actual reserve levels appear in Table III.) Also contributing to the light borrowing were the generally narrower spreads of the funds rate over the discount rate. Narrower spreads emerged as policy became more accommodative and the discount rate was held at 7 percent for most of the year. During many maintenance periods, adjustment credit was very low until the final day, when borrowing sometimes rose in the face of settlement-day pressures. The low point for adjustment borrowing in 1990 occurred in the December 12 maintenance period, when it averaged a minimal $19 million at a time when the average funds rate exceeded the discount rate by 43 basis points (Chart 7). This average for adjustment borrowing was the lowest since one week in July 1980 during a period when the funds rate was considerably lower than the discount rate.

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[24]The Federal Reserve extends such credit for a limited time period, usually for one day to two weeks, depending on the size and nature of the DI involved.

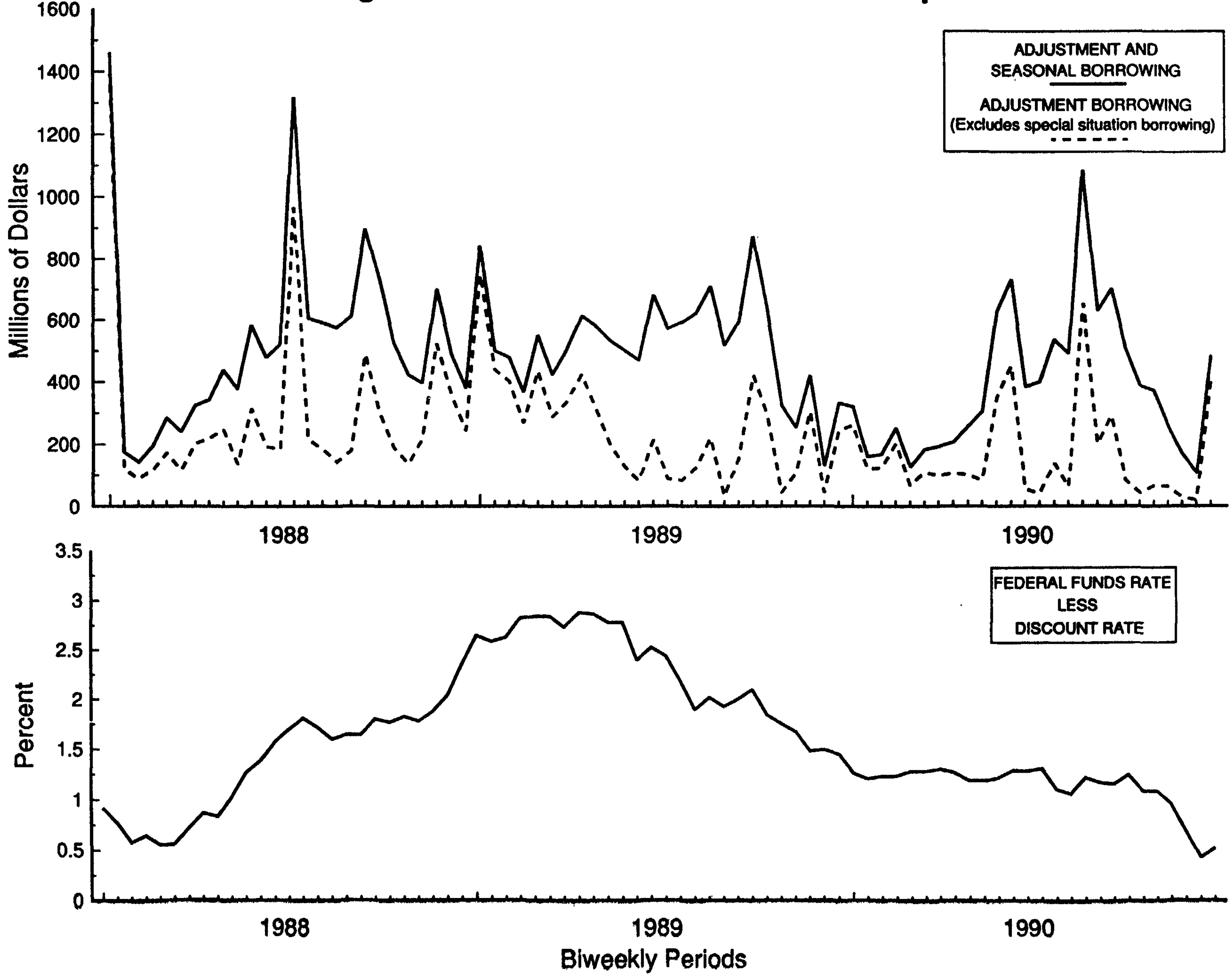
Table III
1990 Reserve Levels
(in millions of dollars, not seasonally adjusted)

Period Ended	RR current	RR first published	ER current	ER first published	TR	Adj. & Seas. BR	NBR plus Extended Credit BR current	NBR plus Extended Credit BR first published	NBR Interim Objective 1/	Anticipated Adj. and Seas. BR	Assumed ER 1/	Extended Credit BR
Jan. 10	63,844	63,962	1,117	1,020	64,961	320	64,641	64,661	65,042	125	1,200	19
24	61,627	61,668	841	958	62,468	273 2/	62,195	62,355	62,520	125	950	27
Feb. 7	59,735	59,774	1,220	1,217	60,955	832 3/	60,123	60,159	60,573	125	950	33
21	59,585	59,599	968	992	60,553	1,348 4/	59,205	59,245	60,430	150	950	133
Mar. 7	59,633	59,643	797	816	60,430	126	60,304	60,333	60,443	150	950	1,841
21	59,997	60,020	737	832	60,734	184	60,551	60,669	60,820	150	950	1,995
Apr. 4	59,633	59,640	1,078	1,120	60,711	192	60,519	60,568	60,440	150	950	1,965
18	62,675	62,600	665	782	63,341	206	63,135	63,176	63,448	150	950	1,676
May 2	61,040	61,081	1,105	1,138	62,145	257	61,889	61,963	61,844	150/200	950	899
16	59,657	59,865	927	862	60,584	303	60,281	60,423	60,514	300	950	673
30	58,526	58,603	1,011	1,014	59,537	625	58,912	58,992	59,220	350	950	1,098
June 13	60,709	60,801	479	348	61,188	732	60,456	60,417	61,432	350	950	559
27	60,046	60,042	1,020	1,072	61,066	383	60,683	60,731	60,574	400	950	183
July 11	60,944	60,957	898	841	61,842	399	61,443	61,399	61,522	450	950	182
25	59,609	59,611	875	837	60,484	534	59,950	59,914	60,172	450/400	950	298
Aug. 8	59,599	59,617	764	709	60,363	489	59,874	59,836	60,024	450/500	950	419
22	60,367	60,292	910	1,019	61,277	1,086	60,192	60,225	60,790	500	950	38
Sept. 5	59,304	59,365	893	848	60,197	631	59,566	59,582	59,688	500	950	8
19	61,546	61,577	746	733	62,292	701	61,591	61,610	62,027	500	950	5
Oct. 3	59,832	59,739	1,122	1,243	60,954	507	60,447	60,474	60,115	500	950	9
17	61,021	61,099	984	956	62,004	388	61,616	61,668	61,658	450	950	13
31	59,471	59,534	650	635	60,121	372	59,749	59,798	60,145	400/350	950	26
Nov. 14	61,132	61,249	982	915	62,114	257	61,857	61,907	61,947	350/300/225	950	25
28	61,006	61,034	966	1,055	61,972	169	61,804	61,921	61,785	225/200	950	25
Dec. 12	61,513	61,618	561	497	62,073	106	61,968	62,010	62,431	200/150/125	950	25
26	56,113	56,017	1,922	2,111	58,034	482	57,552	57,646	57,569	100/125	1,500/1,700 5/	22

1/ As of final Wednesday of reserve period.
2/ Includes $111 million of special situation adjustment borrowing, which was treated as nonborrowed reserves.
3/ Includes $665 million of special situation adjustment borrowing.
4/ Includes $1,096 million of special situation adjustment borrowing.
5/ The allowance for excess reserves was raised on December 13 and December 21 to reflect both year-end demands and increased demands during the phase-in of the cut in reserve requirements.

Chart 7

Borrowing and Federal Funds-Discount Rate Spread



For the year, adjustment credit averaged $231 million, while the funds-discount rate spread averaged 112 basis points. Early in the year, however, Bank of New England borrowed steadily for about a month under the adjustment credit program. This special situation borrowing was treated as akin to extended credit borrowing, and the Desk excluded it in assessing how adjustment borrowing was behaving. Later borrowing by the institution was formally classified as extended credit borrowing. Excluding the special situation borrowing, average adjustment credit was $159 million. Comparable figures for 1989 and 1988 were $243 and $293 million per day, while spreads averaged 228 and 137 basis points, respectively.

Seasonal borrowing followed its typical pattern of rising in the spring and declining in the fall (Chart 8). The rise in seasonal borrowing was accommodated through eight increases in the borrowing allowance from February through August, while its decline was reflected in six reductions in the allowance from October through the year-end. On two occasions, October 29 and November 14, reductions were made both to reflect routine decreases in seasonal borrowing and to reduce reserve pressures. Seasonal borrowing peaked in the August 22 maintenance period at an average $432 million per day.[25] For the year as a whole, seasonal borrowing averaged $223 million, compared with $274 million in 1989 and $235 million in 1988.

Operating Procedures

The Committee formally followed a borrowed reserve operating procedure in 1990; however, it took account of the uncertain relationship between borrowing and the Federal funds rate, as it had in the previous two years. The Desk treated the intended levels of borrowing very flexibly in order to achieve the desired policy stance, which was designed so that Federal

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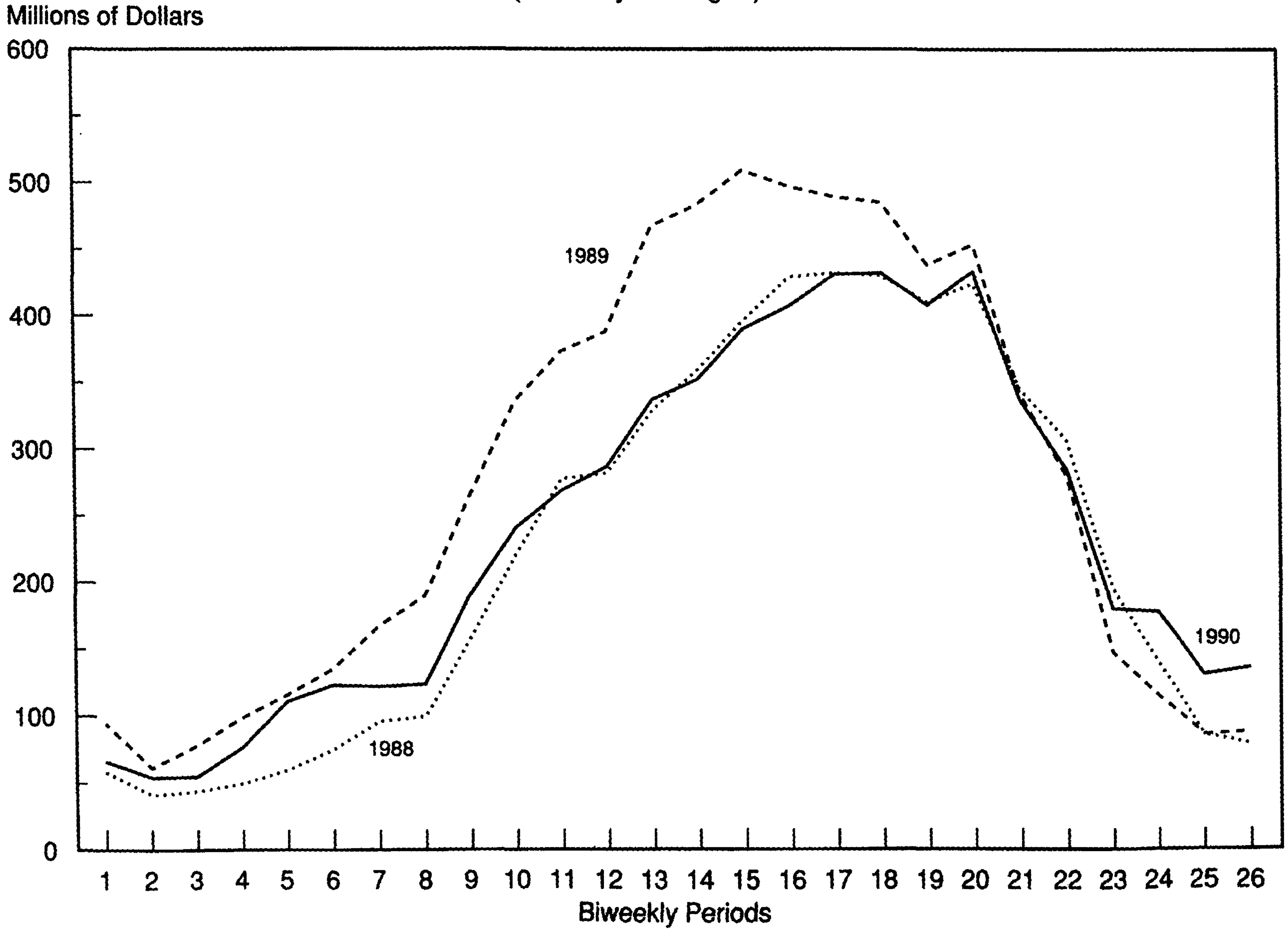
[25]Peak-period averages in 1989 and 1988, respectively, were $509 million (July 26 period) and $433 million (October 5 period).

Chart 8

Seasonal Borrowing

(biweekly averages)



funds generally traded in a narrow range around the Committee's expected rate. The Desk continued to evaluate estimated needs to add or drain reserves when planning the nature and size of its daily operations, but it was also guided by the funds rate prevailing before its typical market-entry time, around 11:30 to 11:40 a.m., when determining whether to perform an operation. Market participants focused on the Federal funds rate as an indicator of the Federal Reserve's policy stance, even though the Federal Reserve does not have complete control over this rate.

One complication of paying greater heed to the funds rate was that Federal funds, at times, traded at rates that were not consistent with reserve projections made by the staffs of the New York Reserve Bank and the Board of Governors. Such inconsistencies often occurred when market participants expected an imminent shift in the Federal Reserve's policy setting. At these times, the funds rate sometimes tended to reflect the expected policy move rather than the reserve picture. In these circumstances, the Desk usually deferred addressing the reserve situation rather than risk misleading market participants about the stance of policy. Indeed, after the experience of late November 1989, the Trading Desk sought to signal policy moves more clearly in 1990 in an effort to minimize the possibility of misunderstanding.[26]

Conflicts between the behavior of the funds rate and the reserve forecasts were particularly acute on the August 22 and September 19 settlement days. On both occasions, reserve estimates showed large needs to add

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[26]The "signaling" of changes in the Desk's stance vis-a-vis the availability of reserves took place by means of executing (or refraining from executing) particular operations at particular levels of the funds rate. Arranging overnight System RPs when funds were trading below the perceived "expected" rate was taken in the market as presumptive evidence of a shift to an easier stance. That inference might even be drawn from overnight System RPs when funds were right at the expected rate, if the market was on the look-out for a shift and if analysts thought that the Desk could have chosen other means to provide reserves.

reserves, but Federal funds were trading at rates somewhat below the level that was generally considered to be consistent with the FOMC's policy stance. The Desk deferred to the signal from the funds rate and refrained from injecting the needed reserves so as not to mislead market participants about policy. It was realized that if reserves were as scarce as the estimates suggested, the shortage would have to be filled by substantial borrowing at the discount window. The lack of reserves and DIs' pronounced reluctance to borrow from the window later showed through to the money market, and the funds rate climbed sharply. It touched highs of 60 percent on August 22 (a record at the time) and 40 percent on September 19.

Open Market Operations and Reserve Management

In 1990, the System's portfolio of securities grew by $12 billion, somewhat below the average annual increase of $14.3 billion registered over the 1981-1988 period. All of the expansion of the portfolio occurred over the first eleven months of the year, when it increased by $18.7 billion. The bulk of this rise was in Treasury bills. In December, however, the Desk reduced the portfolio by $6.7 billion to absorb part of the release of reserves resulting from the cuts in reserve requirement ratios. This contraction was accomplished through sales of securities to foreign accounts and redemptions of Treasury bills at auctions.

As usual, the primary motivation for growth in the portfolio during the year was to offset reserve drains from currency issuance. Currency rose at an exceptionally rapid pace, primarily because of a dramatic surge in shipments to foreign countries. The $26.1 billion growth in currency was the largest ever and about twice that recorded in the previous year. Other factors that affect the supply of reserves were mostly trendless, although holdings of foreign currency and special drawing rights (SDRs) increased reserve levels modestly over the year. In contrast, foreign currency

Following the Board's decision (in December) to reduce reserve requirements, Chairman Greenspan informed the chairmen of several Congressional committees that the Board had authorized the pledging of foreign currency assets as collateral when all other eligible assets were insufficient. Foreign currency assets were first pledged on January 2, 1991.[29]

Desk Operations: December

The reserve requirement cut had a profound impact on the reserve management strategies of DIs and the Trading Desk. Total required reserves on nontransactions deposits had been met by about $11 3/4 billion of deposits at the Federal Reserve and about $1 3/4 billion of vault cash.[30] The reduction in requirements left additional DIs in a position in which they could meet their reserve requirements entirely with vault cash, while other DIs found that the level of balances that they were required to hold at the Federal Reserve fell sharply.[31] At the same time, many DIs found that they needed to hold reserves for clearing purposes in excess of their new lower requirements. DIs' reserve accounts are used to process hundreds, or perhaps even thousands, of transactions each day and their reserve balances swing sharply during the course of the day. DIs can project these swings to some extent but also face late-day surprise inflows and outflows. As a result, DIs must aim to hold positive balances in their accounts to help guard against being inadvertently

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[29]The level of excess collateral including the market value of foreign currency assets stood at $30.7 billion on this date. Without these assets, the collateral would have been deficient by about $2 billion.

[30]DIs meet reserve requirements by holding cash in their vaults and, if their vault cash proves insufficient, with reserve balances at the Federal Reserve. Excess vault cash is excluded from the definition of total reserves.

[31]In the December 12 period, about 4,700 DIs had reserve requirements that exceeded their vault cash. In the January 9 period, this was true for only about 2,300 DIs. (The actual figures vary during the year as deposits and reserve requirements change seasonally.) At the end of 1990, there were over 31,100 DIs, including about 12,300 commercial banks.

overdrawn at the end of the day. In many cases, the balances needed to avoid such overdrafts are close to or exceed those needed to meet requirements.

The Trading Desk recognized that, following the cut in reserve requirements, demands for excess reserves would likely far exceed levels which had been typical, but it could not quantify with any precision how much DIs would want to hold and for what length of time. The cut in requirements was expected to lift permanently the banking system's demand for excess reserves because many DIs would need to hold such reserves to help meet their clearing needs. Moreover, it was anticipated that excess reserve demand would temporarily run above this new permanently higher range, while DIs adjusted to their new levels of requirements. Past experience was not a good guide in helping to determine either the size or the persistence of the elevated demands because the magnitude of the reductions for Federal Reserve member bank was unprecedented and because neither nonmember nor foreign institutions had ever had their requirements reduced.

Gauging excess reserve demands in future maintenance periods was also complicated by uncertainty about the volume of required clearing balances. A DI can establish such a balance by specifying an average level of reserves that it will hold on deposit at the Federal Reserve for clearing purposes in addition to any balances that it must hold to meet reserve requirements. In exchange, it receives credits on its required clearing balance that it can use to pay for priced services from the Federal Reserve, such as check processing. Thus, it earns implicit interest on its required clearing balances. These balances are an attractive way for DIs which use priced services to obtain some cushion against unexpected reserve outflows from their reserve accounts, rather than holding excess reserves which by law pay no interest. The Desk knows required clearing balances for a given maintenance period at the beginning of that period, but not those for future periods. Thus, the Desk anticipated that future demands for excess reserves would be relieved to some extent by DIs' opening required clearing balances, but it could only make rough estimates about the extent to which DIs would choose such balances.[32]

The reserve requirement reductions introduced large needs to drain reserves to avoid leaving DIs with excess reserve levels that were far more massive than they could want; however, the magnitudes of the reserve drains were highly tentative because of the uncertainty about the likely size of the rise in excess reserve demand. Consequently, the Desk drained reserves cautiously because it did not want to withdraw too many reserves and thus create undesired firmness in the money market, especially around the year-end when demands for liquidity were high. The Desk, therefore, eschewed an outright market transaction in December. Instead, it opted to reduce the portfolio gradually by running off $1 billion of maturing bills at the Treasury bill auctions each week for four weeks and by selling about $2.7 billion of securities to foreign accounts.

Unusually high demands for year-end funding complicated the Desk's ability to drain reserves in late 1990. Year-end funding demands were greatest in late November and again in mid-to-late December. Japanese banks, in particular, were early aggressive borrowers of both term monies and forward two-day funding for December 31 and January 1 ("over the turn"). Rates paid for over-the-turn borrowing in the Federal funds market by many Japanese banks rose to around 20 percent in late November, and then touched a high of 30 percent in late December (Chart 9).[33] In addition, Japanese banks were

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[32]Required clearing balances rose from $1.8 billion in the maintenance period ended December 12 to nearly $2 billion in the period ended January 9, 1991. They continued to rise in early 1991.

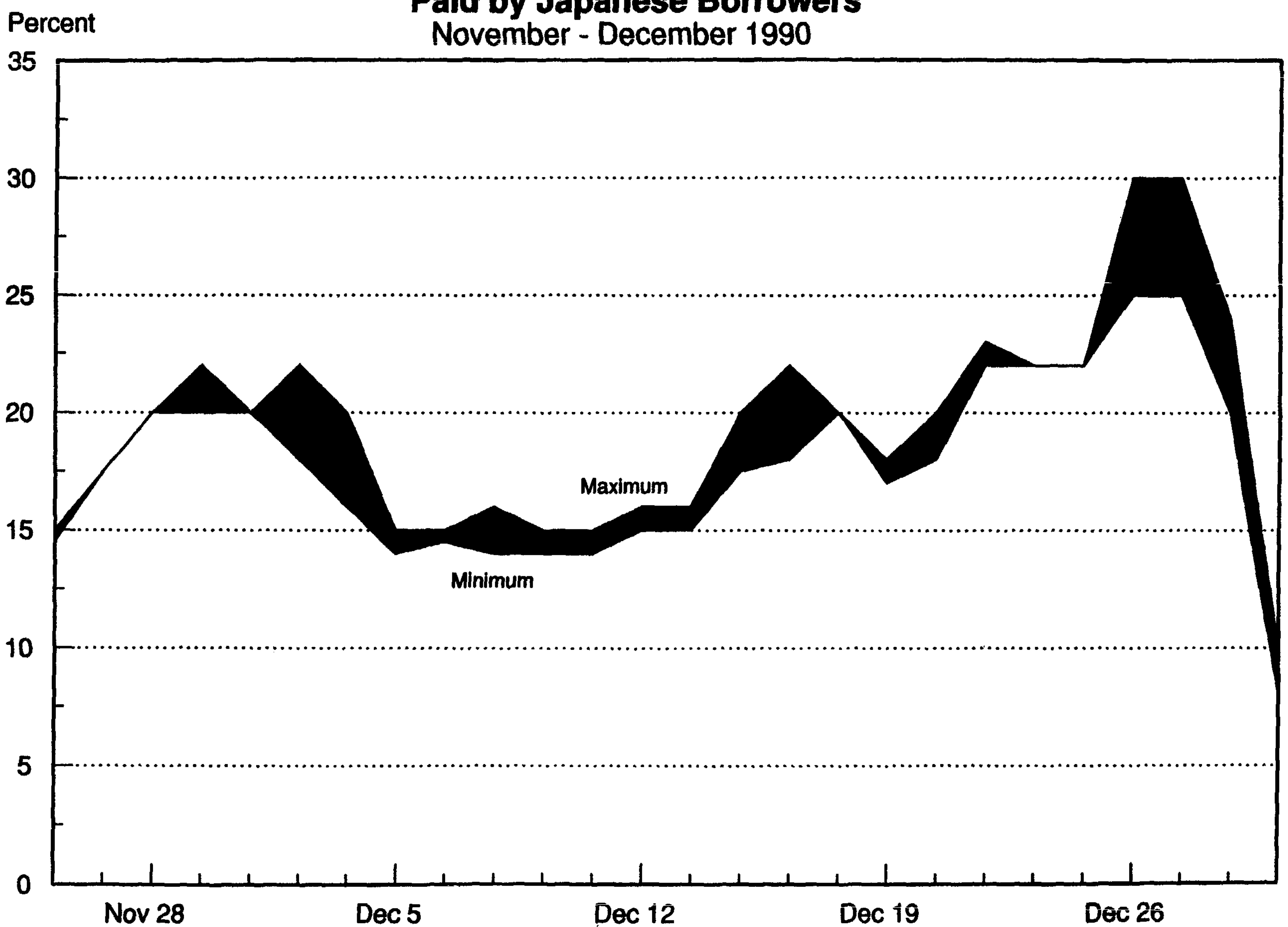
[33]During this period, U.S. banks were not active purchasers of year-end Federal funds. On days when there were domestic trades, rates for these borrowers were substantially lower.

routinely paying higher-than-usual spreads for overnight Federal funds. These banks reportedly borrowed at rates that were 3/16 to 1/2 percentage point above rates paid by top-rated domestic names, compared with the typical past spread of 1/16 to 1/8 percentage point.[34] These pressures lifted rates paid by other participants in the funds market.

DIs managed their reserve positions cautiously during the December 26 maintenance period, which contained the first phasedown of requirements. The funds rate was often firm in the morning, especially in the second week, in part reflecting the funding pressures from Japanese banks. The Desk responded with what it estimated were generous reserve provisions so that a sizable cushion of excess reserves had been built up by the settlement day. Indeed, funds trading touched a low of 1/16 percent late on December 24. On the December 26 settlement day, the Desk refrained from market action to affect reserves because Federal funds were trading on the soft side, projections suggested that reserve supplies were ample, and the cushion of excess reserves was sizable. An unexpected shortfall in reserve supplies, a maldistribution of reserves, and sharply higher-than-anticipated demands for excess reserves all contributed to a late-day spike in the Federal funds rate, which reached a record high of 100 percent before closing at a lofty 80 percent. Reserve market pressures were aggravated that day by demands from Japanese and regional banks, some of which apparently had little or no collateral on deposit with the Federal Reserve to pledge against a loan from the discount window. In the end, a number of DIs borrowed; adjustment and seasonal borrowing soared to nearly $5 billion, while excess reserves averaged

[34]U.S. branches and agencies of Japanese banks have long paid a slight premium in the U.S. market partly because their funding needs are large relative to the size of their U.S. operations. Furthermore, many sellers feel that they know less about these institutions and thus restrict their willingness to lend to them.

Chart 9
Over-the-Turn Forward Federal Funds Rates Paid by Japanese Borrowers*
November - December 1990



*Rates reported to domestic trading desk by major brokers

$1.9 billion, compared with an average of about $900 million in the first 25 maintenance periods of the year.

The true extent of the demand for excess reserves was especially difficult to measure during the following maintenance period, which ended January 9, 1991. The demand for excess reserves is generally high around the year-end because DIs face uncertain reserve flows in view of the massive shifting of funds that occurs as entities dress up their balance sheets. Excess reserve demand was expected to be sharply above this elevated level because of the cut in requirements. On December 27, the first day of the period, the funds market reflected nervousness about funding over the year-end, in part because of the tight market at the close on the previous day. The Desk sought to assure market participants that it was prepared to provide ample liquidity by entering the market early to arrange a sizable round of overnight System repurchase agreements (RPs) for that day ($6 billion) and by taking the unprecedented step of making commitments for a two-day System RP on Monday, December 31, that would span the New Year's Day holiday. It arranged $15.7 billion of System RPs on this basis--one of the largest volumes ever arranged--out of requests for nearly $34 billion. Nonetheless, DIs bid up the funds rate in early trading on Friday and Monday, despite large cushions of accumulated excess. The Desk again entered the market early on Friday and arranged $11 billion of over-the-weekend System RPs. On December 31, it added another $2.7 billion of reserves with a two-day operation in addition to the substantial volume of prearranged transactions. The reserve additions wound up exceeding demand, as funds closed at zero at one broker on that day.

The Desk's generous reserve provision in the face of large demands from the banking system left DIs with roughly $10 billion of excess reserves during the first week of the period. Once the year-end passed, DIs sought to pare their excess reserve holdings. In order to do so, reserve balances had to drop to levels at which DIs were uncertain about their reserve needs for clearing purposes until late on most days. Accordingly, they apparently held onto their reserves for much of the day, thus keeping the funds rate on the firm side. Then, late in the day, they released the reserves into the Federal funds market, and the funds rate plunged. Consequently, the funds rate showed unusually large intraday swings (Chart 10).

Forecasting Reserves and Operating Factors

As the Desk formulated a strategy for meeting reserve needs, it took account of potential revisions to the estimated demand for and supply of reserves. On the demand side, these revisions could take the form of changes in estimated required reserve levels or in the banking system's desired excess reserve balances. On the supply side, revisions to operating factors could change the reserve outlook. In both cases, revisions late in the maintenance period were especially difficult to deal with since they could necessitate very large reserve operations.

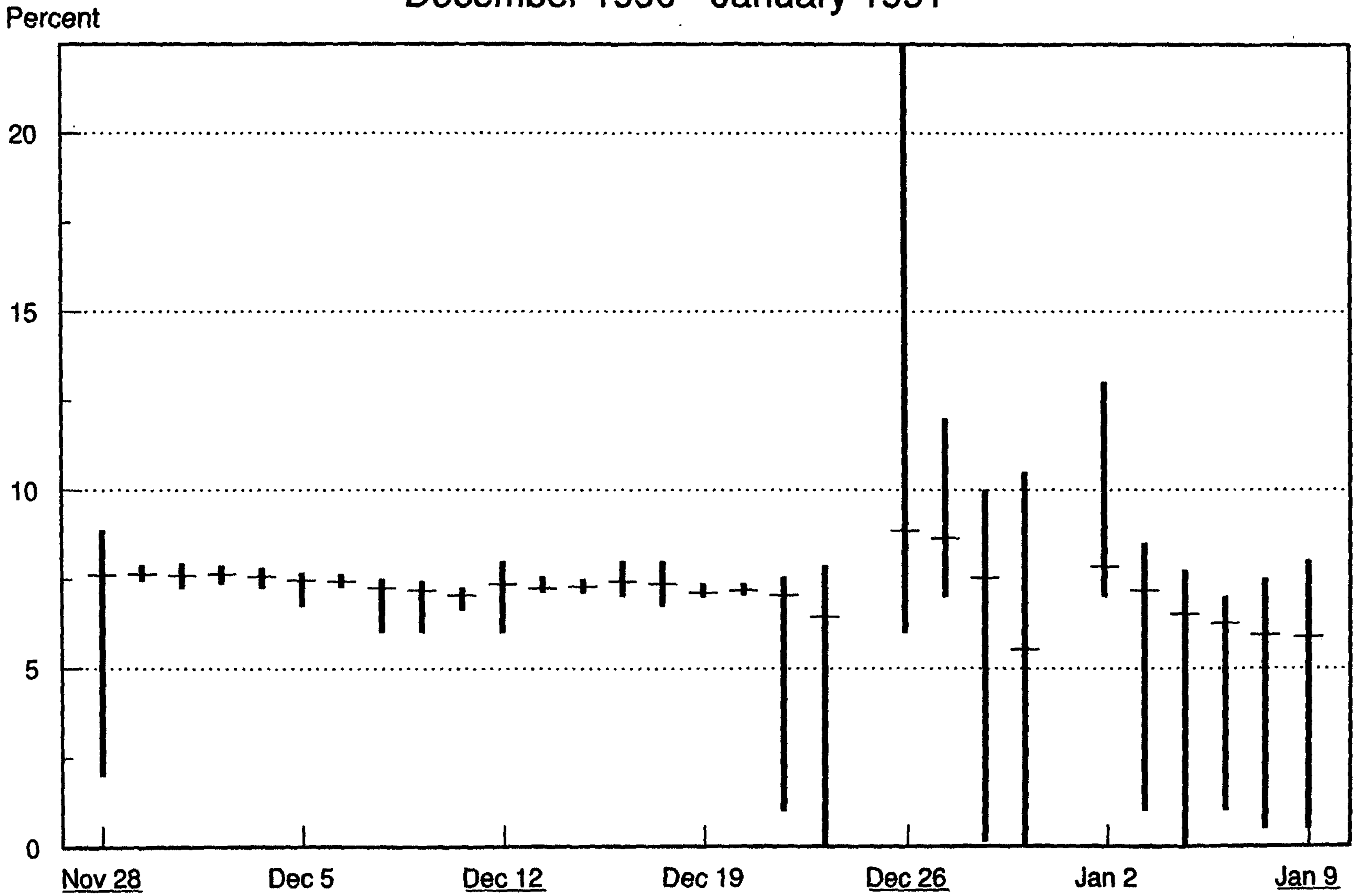
Staff forecasts of reserve levels in 1990 were about as accurate as those in 1989. Forecasts of required reserves and excess reserves improved modestly, on average, while those of operating factors were similar to those made in the previous year. As usual, forecasts of both the demand for and the supply of reserves improved as the maintenance period progressed because additional information became available. Mean absolute forecast errors were cut roughly in half by midperiod and reduced substantially by the final day of the period. (See Appendix A for details.)

The two operating factors that proved hardest to forecast in 1990 were the Treasury's balance at the Federal Reserve and currency growth. Large forecast errors for the Treasury balance were experienced in April and September, two months with major tax dates. In April, tax flows fell below expectations and differed substantially from typical historical patterns. In

Chart 10

Daily Federal Funds Rate Trading Ranges

December 1990 - January 1991



Note: Horizontal lines within the trading ranges indicate daily effective rates. Settlement days are underlined.

*On December 26, the Federal funds rate soared to 100 percent.

late September, tax receipts exceeded initial forecast levels, while expenditures were lower than expected. Meantime, forecasts of currency generally fell short of actual levels over the first three quarters of the year. The underpredictions were especially large following the Iraqi invasion of Kuwait, when shipments of U.S. currency abroad surged. In the fourth quarter, when the strong growth of currency abated somewhat, forecasts generally overestimated currency growth.

APPENDIX
A

DESK ACTIVITY FOR THE SYSTEM ACCOUNT

APPENDIX A

DESK ACTIVITY FOR THE SYSTEM OPEN MARKET ACCOUNT

The five sections of this appendix review the range of Desk activities carried out on behalf of the System Open Market Account. The first discusses the outright changes made in the System portfolio during the year and the factors that prompted them. The second summarizes the use of temporary transactions to affect reserve levels and discusses several operational changes instituted during the year. The third reviews the accuracy of staff estimates of the supply of and demand for reserves, a determinant in the Desk's reserve management strategy. The fourth discusses changes in the list of primary dealers with which the Desk conducted business during 1990, while the fifth summarizes System lending activity.

I. Outright Changes in the System Portfolio

Total System holdings of U.S. Government securities rose by $12.0 billion in 1990, to end the year at $247.6 billion.[1] (See Tables A-1 and A-2.) This rise contrasted sharply with the record $10.2 billion decline in 1989 but it was somewhat below the average increase recorded over the 1985-88 period. Over the first eleven months of 1990, when all of the increase for the year occurred, the $18.7 billion net expansion exceeded the pace set over the comparable period in 1988, when the portfolio expanded by $13.1 billion. The pre-December expansion in 1990 offset reserve drains from operating

[1]This level is reported on a so-called commitment basis. It reflects the commitment made on December 28 to sell $20 million of Treasury bills to foreign accounts for delivery on January 2, 1991 and the commitment, made on the final business day of 1990, to redeem $1 billion of Treasury bills on January 3. It excludes the temporary changes in the portfolio from the execution and repayment of matched sale-purchase transactions with foreign accounts because the sales include commitments to repurchase the securities.

TABLE A-1
System Portfolio: Summary of Holdings[a]
(In billions of dollars)

	Year-end 1990 Holdings	Change From Year-end 1989	1988	1987
Total Holdings	247.6	12.0	-10.2	14.5
Bills	118.7	11.8	-11.1	5.4
Coupons	122.6	0.4	1.3	9.7
Agency Issues	6.3	-0.2	-0.4	-0.6

[a]Commitment basis
Totals may not add due to rounding.

factors.[2] In December, however, the portfolio was reduced by $6.7 billion, in response to the cut in reserve requirement ratios. For the entire year, the System portfolio grew at less than half the pace of total marketable Treasury debt, and the System's share of such debt fell by nearly 1 percentage point to 11.1 percent.

Composition of the System Portfolio

The increase in the System portfolio was almost all in Treasury bill holdings. The expansion of the System's bill holdings slightly more than reversed the shrinkage of 1989. Meanwhile, coupon holdings rose modestly, and Federal agency holdings declined a bit. With the preference for bills, the weighted average maturity of the portfolio fell by 2.2 months to 40.5 months.

Bank Reserve Behavior

The expansion of the System portfolio over the year was prompted by the reserve drains from currency issuance. Currency issuance drained over $26 billion of reserves between the reserve maintenance period ended

[2]Operating factors are sources and uses of nonborrowed reserves other than Desk-initiated open market operations in government securities. Operating factors include such items as the Treasury's Federal Reserve balance and the System's foreign currency assets.

TABLE A-2

SYSTEM PORTFOLIO OF TREASURY AND AGENCY SECURITIES *
(In millions of dollars)

		Treasury Securities											
				Coupon Issues									
End of	Total Portfolio	Bills	%	Under 1 year	%	1-5 years	%	5-10 years	%	Over 10 years	%	Federal Agency Securities	%
1960	26,984	2,900	10.7%	11,955	44.3%	10,680	39.6%	1,178	4.4%	271	1.0%	0	0
1965	40,478	9,101	22.5%	15,478	38.2%	14,066	34.7%	1,448	3.6%	385	1.0%	0	0
1970	62,142	25,965	41.8%	10,373	16.7%	19,089	30.7%	6,046	9.7%	669	1.1%	0	0
1975	93,290	37,708	40.4%	8,730	9.4%	30,273	32.5%	6,425	6.9%	4,082	4.4%	6,072	6.5%
1980	131,344	46,994	35.8%	12,749	9.7%	34,505	26.3%	13,354	10.2%	15,002	11.4%	8,739	6.7%
1981	139,835	52,331	37.4%	13,968	10.0%	36,025	25.8%	11,752	8.4%	16,634	11.9%	9,125	6.5%
1982	147,889	57,771	39.1%	17,411	11.8%	35,102	23.7%	12,095	8.2%	16,574	11.2%	8,937	6.0%
1983	164,292	70,899	43.2%	20,143	12.3%	33,106	20.2%	13,485	8.2%	18,014	11.0%	8,645	5.3%
1984	171,452	74,875	43.7%	16,784	9.8%	37,072	21.6%	14,100	8.2%	20,233	11.8%	8,389	4.9%
1985	190,072	89,471	47.1%	20,179	10.6%	35,650	18.8%	14,785	7.8%	21,759	11.4%	8,227	4.3%
1986	210,249	108,571	51.6%	18,863	9.0%	36,469	17.3%	15,451	7.3%	23,066	11.0%	7,829	3.7%
1987	231,243	112,475	48.6%	22,966	9.9%	47,512	20.5%	15,313	6.6%	25,424	11.0%	7,553	3.3%
1988	245,756	117,910	48.0%	26,123	10.6%	55,279	22.5%	12,568	5.1%	26,909	10.9%	6,966	2.8%
1989	235,566	106,847	45.4%	28,883	12.3%	54,076	23.0%	12,529	5.3%	26,706	11.3%	6,525	2.8%
1990	247,586	118,675	47.9%	25,963	10.5%	58,749	23.7%	13,121	5.3%	24,736	10.0%	6,342	2.6%

* Commitment basis.
% As percent of total System Account portfolio.
Note: Figures may not add to totals due to rounding.

System Holdings of Treasury Securities as a Percentage of Total Marketable Debt Outstanding

		Within 1 year					
End of	Total Treasury Issues	Bills	Coupons	Total	1-5 years	5-10 years	Over 10 years
1960	14.3%	7.4%	34.8%	20.1%	14.8%	6.3%	1.1%
1965	18.9	15.1	46.6	26.3	23.2	4.2	1.5
1970	25.1	29.5	29.2	29.4	23.2	26.8	3.4
1975	24.0	23.9	20.7	23.3	27.0	24.3	16.5
1980	19.7	21.7	15.7	20.1	17.5	21.7	22.4
1981	18.1	21.4	14.7	19.5	15.8	18.5	18.9
1982	15.8	18.5	16.1	17.9	12.6	13.4	17.8
1983	14.7	20.6	13.9	18.6	10.0	11.1	15.5
1984	13.1	20.0	9.9	16.8	9.2	9.3	13.8
1985	12.8	22.4	10.2	18.4	7.7	8.2	11.8
1986	12.6	25.4	9.0	20.0	6.9	7.1	10.3
1987	13.1	28.9	9.4	21.3	8.2	6.4	9.9
1988	13.2	28.5	10.1	21.4	9.1	5.1	9.5
1989	11.9	24.8	10.5	19.2	8.5	4.7	8.3
1990	11.1	22.5	9.2	17.9	8.0	4.6	7.0

Weighted Average Maturity of Federal Reserve Holdings and Marketable Treasury Issues Outstanding

End of	System Account (a) #	Total Outstanding	Public Holdings (b)
1960	19.4 months	55 months	58 months
1965	16.1 "	60 "	63 "
1970	24.0 "	40 "	41 "
1975	31.4 "	33 "	29 "
1980	55.2 "	48 "	45 "
1981	53.1 "	50 "	48 "
1982	49.2 "	47 "	46 "
1983	50.0 "	51 "	51 "
1984	51.6 "	55 "	55 "
1985	48.6 "	59 "	60 "
1986	45.9 "	62 "	64 "
1987	44.0 "	66 "	69 "
1988	42.3 "	67 "	70 "
1989	42.7 "	69 "	72 "
1990	40.5 "	68 "	71 "

(a) System Account holdings are on a commitment basis.
(b) Total less System and Government accounts.
\# Includes matched transactions but does not include System RPs and agency issues; weighted by par value of holdings.

January 10, 1990 and that ended January 9, 1991, as shown in Table A-3.[3] Currency growth in 1990 was boosted by a dramatic surge in currency shipments to foreign countries. Estimated average monthly shipments during 1990 were nearly $1 billion larger than during 1989.[4] Early in the year, strong demand for U.S. currency arose in Latin America, especially Argentina, in the face of political uncertainties and hyperinflation. Large shipments to Switzerland, which is a conduit for funds to Eastern Europe and the Middle East, were also recorded. Currency growth accelerated again following the Iraqi invasion of Kuwait; shipments to Saudi Arabia and Bahrain were above their trends at the time. The volume of shipments subsided after August but still remained quite large.

Operating factors other than currency, on net, added to reserve levels over the year. They added about $2 1/2 billion of reserves, compared with the substantial $26 billion injected in 1989. The difference is largely explained by the behavior of foreign currency holdings. In 1989, foreign currency added over $22 billion to reserve levels, primarily reflecting dollar sales in foreign exchange markets and the Treasury's warehousing of foreign currency with the Federal Reserve System. This substantial volume of reserves more than covered the reserve drain from domestic currency growth and prompted the Desk to reduce the System's portfolio of U.S. Government securities. In contrast, foreign currency added only about $1.7 billion to reserve levels

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[3]Unlike recent years, this discussion is based on reserve behavior measured from the first reserve maintenance period of 1990 to the first reserve maintenance period of 1991 in order to capture the full impact of the cut in reserve requirement ratios. Table A-8 presents data on the December-to-December basis that has been used in recent years.

[4]Several large banks do most of the international shipments of U.S. currency. They voluntarily provide shipments data to the Federal Reserve. The data only indicate the recipient of the shipment from the U.S. and do not necessarily reflect the location of the end user. Nonetheless, the data give some indication of where demand for U.S. currency is strong.

TABLE A-3

Bank Reserves
(In millions of dollars)

	Maintenance Period Ended 1/9/91	Change during: 1990*	1989**
Nonborrowed Reserves			
Excluding extended credit	54779	-9844	1245
Including extended credit	54800	-9841	57
Extended Credit Borrowing	22	3	-1189
Borrowed Reserves@			
Including extended credit	295	-44	-1709
Adjustment plus Seasonal	274	-47	-521
Adjustment	233	-30	-485
Seasonal	41	-17	-36
Required Reserves #	51481	-12363	-412
Excess Reserves	3592	2475	-52

System Portfolio and Operating Factors***
(In billions of dollars)

System Portfolio	247.6	12.0	-10.2
Operating Factors:			
Foreign Currency ##	33.0	1.7	22.1
U.S. Currency	286.5	-26.7	-13.0
Treasury Balance	7.4	-1.6	1.5
Float	2.7	1.5	-0.3
SDRs	10.0	1.5	3.5
Gold Deposits	11.1	-	-
Foreign Deposits	0.3	0.1	-0.1
Applied Vault Cash	28.9	0.6	1.7
Other Items	15.7	0.3	-2.4
Foreign RP Pool ###	6.7	-1.2	-0.2

* Change from maintenance period ended January 10, 1990 to that ended January 9, 1991.
** Change from maintenance period ended January 11, 1989 to that ended January 10, 1990.
*** Sign indicates impact on bank reserves.
# Not adjusted for changes in required reserve ratios.
Market value.
Includes customer-related repurchase agreements.
@ Adjustment borrowing includes $85 million of special situation borrowing.
Note: Figures may not add due to rounding.

over 1990, in part because net warehousing activity reduced foreign currency holdings and intervention was only modest.[5] Meantime, interest earnings lifted foreign currency holdings by about $2.6 billion. The net depreciation of the dollar provided reserves because it lifted the dollar value of the System's foreign currency portfolio.

Total reserve demand contracted in 1990 reflecting a drop in required reserves. Required reserves fell by $2.3 billion between the maintenance period ended January 10 and that ended December 12, largely reflecting weak money growth. In the next two maintenance periods, required reserves fell by about $10 billion. This drop was less than the $13 1/2 billion released by the reserve requirement cut because transactions deposits rose to their seasonal highs. Excess reserves were sharply higher in these two maintenance periods, reflecting the adjustment of depository institutions (DIs) to the new requirements and year-end funding pressures.

The supply of total reserves fell markedly during the year. When required reserves fell, nonborrowed reserves were permitted to decline, although by somewhat less than the decline in requirements because borrowing fell modestly and excess reserves rose. The decline in borrowing was concentrated in the adjustment credit component, reflecting the easing of reserve pressures during the year. Borrowings under both the seasonal and the extended credit programs were roughly unchanged, on balance, over the year.

Outright Transactions

The Desk conducted outright operations when reserve projections suggested large, sustained needs to add or drain reserves. As shown in

[5]In order to complete one "dewarehousing" transaction, the Federal Reserve monetized $1 1/2 billion of special drawing rights for the Exchange Stabilization Fund (ESF), which added to reserves. The ESF used the proceeds to repurchase a portion of its warehoused foreign currency.

Table A-4, the total volume of outright activity was moderately smaller than in 1989, but much larger than in 1988.[6] Virtually all of the Desk's outright activity took place in Treasury bills, and nearly two-thirds of that activity consisted of purchases. Nonetheless, sales and redemptions, about half of which occurred in December, were larger than those in most other reserve-adding years because of the need to drain reserves following the cut in requirements.

The distribution of outright transactions by counterparty was similar to that of 1988. Roughly half of the Desk's outright activity was conducted in the market and about one-third was carried out with foreign accounts. The remainder was accounted for by redemptions of securities. The Desk entered the market on six occasions to conduct outright transactions, all of which were in Treasury bills.[7]

As has been true since 1982, the Desk did not conduct outright purchases or sales of Federal agency securities in 1990. Total redemptions were small. The Desk rolled over maturing issues if there was a replacement issue, unless the new issue was small relative to the size of the maturing issue. A redemption also occurred when a portion of one issue was called early by an issuer. The share of agency holdings in the System portfolio continued its downward trend in 1990 and stood at its lowest level since 1973, two years after the Desk began purchasing these securities.

II. Temporary Transactions

The Desk also met reserve needs through self-reversing transactions to add or drain reserves temporarily. Such transactions help to smooth the

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[6]Data cover all outright transactions conducted during the calendar year.

[7]The Desk sold \$3 billion on January 31. It bought \$4.4 billion on April 4, \$3.2 billion on May 30, \$2.8 billion on August 29, \$3.3 billion on October 31, and \$2.9 billion on November 28.

TABLE A-4

System Outright Operations*
By Type of Transaction and By Counterparty
(In billions of dollars)

	1990	1989	1988
Total Outright	38.4	43.8	23.2
By Type of Transaction:			
Purchases	25.2	16.8	18.9
Bills	24.5	14.5	8.2
Coupons	0.7	2.3	10.6
Sales	7.6	13.3	1.6
Bills	7.3	12.8	0.6
Coupons	0.3	0.5	1.0
Redemptions	5.6	13.7	2.8
Bills	5.4	12.7	2.2
Coupons	0.0	0.5	0.0
Agency Issues	0.2	0.4	0.6
By Counterparty:			
Total Outright in Market	19.6	19.9	13.0
Purchases	16.6	12.2	13.0
Bills	16.6	10.1	3.0
Coupons	0.0	2.2	10.1
Sales	3.0	7.6	0.0
Bills	3.0	7.6	0.0
Coupons	0.0	0.0	0.0
Total Outright with Foreign Accounts	13.2	10.3	7.4
Purchases	8.6	4.6	5.8
Bills	7.9	4.4	5.2
Coupons	0.7	0.2	0.6
Sales	4.6	5.7	1.6
Bills	4.3	5.2	0.6
Coupons	0.3	0.5	1.0

* Commitment basis.
Note: Figures may not add due to rounding.

uneven patterns of reserve availability that arise from the daily movements in operating factors. By arranging repurchase agreements (RPs) or matched sale-purchase (MSP) transactions in the market, the Desk adds or drains reserves. MSP transactions are also arranged each day with foreign official accounts to meet their demand for an overnight investment facility. On occasions when the Desk desires to make a reserve injection, some of these orders can be arranged in the market, as customer-related RPs.

Temporary transactions in 1990 were more like those of 1988 than those of 1989, as shown in Table A-5. System RPs accounted for about two-thirds of the total volume of temporary reserve additions, with the remainder provided by customer-related RPs. About half of the System RPs had terms exceeding one business day.[8] To combat unusually strong year-end funding pressures, the Desk entered the market early on two occasions.[9] It also conducted its first-ever forward RP, as described in the text. The highest balance of outstanding RPs was $18.3 billion on December 31.

Roughly 10 percent of the temporary transactions arranged in the market drained reserves. Most of the MSP transactions were executed early in the year, when currency and required reserves fell seasonally. The Desk also drained reserves temporarily in December and early January 1991 following the cut in reserve requirements, but it was predominantly adding reserves on a temporary basis at this time to counter year-end funding demands. About half of the MSP transactions conducted in the market had terms exceeding one business day.

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[8]Customer-related RPs routinely mature on the next business day because participation in the foreign investment pool varies daily.

[9]Early market entry is infrequent but not unusual. The Desk generally enters the market early to ensure adequate propositions, although on the occasions cited above it also sought to allay concerns about adequate liquidity over the year-end.

TABLE A-5

System Temporary Transactions
(In billions of dollars)

	1990 Number*	1990 Volume	1989 Number*	1989 Volume	1988 Number*	1988 Volume
Repurchase Agreements						
System:	61	261.5	28	168.4	51	209.9
Maturing next bus. day	29	128.7	12	57.5	27	119.8
Term	32	132.8	16	110.8	24	90.1
Customer-related	67	128.4	61	108.2	85	142.6
Matched Sale-Purchase Agreements						
In Market:	21	48.3	69	151.1	22	62.6
Maturing next bus. day	11	20.6	22	40.4	14	36.1
Term	10	27.7	47	110.8	8	26.5
With foreign accounts**	251	1320.7	251	1172.3	251	1105.9
Total Temporary Transactions	400	1758.9	409	1600.0	410	1521
In Market	149	438.2	158	427.7	159	415.1

* Number of rounds. The forward RP announced on December 27 for December 31 is scored as one round. RPs with different maturities that are arranged on the same day are also marked as one round. The Desk arranged multiple RPs on 2 days in 1990 (excluding the forward RP) and on 2 days in 1989. There were no such occasions in 1988.
** Excludes those arranged as customer-related RPs.
Note: Figures may not add due to rounding.

Operational Changes

The Desk instituted two technical operational changes during 1990. Effective June 14, the Desk set the deadline for withdrawal of collateral from multiday System RPs at 11:00 a.m. rather than 1:00 p.m. The earlier deadline facilitated the planning of open market operations when System RPs were outstanding by ensuring that the Desk knew the magnitude of withdrawals before conducting its operations. The change also brought the Desk's deadline closer to the typical 10:00 a.m. deadline for withdrawals from continuing contract RPs between market participants.

On the afternoon of October 3, the Desk notified dealers that it had increased the minimum size that it would accept for an item of RP collateral. The new minimum was set at $10 million, up from the previous limit of $2 million. The change was made to simplify the processing of RPs without sacrificing significantly the volume of propositions received.[10]

A temporary change in collateral terms was made on September 13. On that day, the Desk arranged four-day withdrawable and seven-day fixed-term System RPs. Typically, dealers cannot substitute one form of collateral for another on multiday transactions once the collateral has been received. On this day, however, the Desk permitted dealers to make one substitution on the fixed-term operation after the first day on one of the issues presented to the Desk. The change was designed to provide the dealers with some flexibility and to improve the rate received by the Desk on the transaction. The action was taken following the Desk's experience on September 6 when, for similar transactions, the spread between the average rate on the seven-day fixed-term

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[10]Between August 16 and 20, the Federal Reserve operated with limited electrical power and reduced computer facilities. During that period, when it arranged RPs, it limited minimum collateral size to $25 million to ease back office processing demands.

and the four-day withdrawable RPs was 17 basis points, considerably wider than the historical norm of 3 to 6 basis points. (The large spread may have also resulted from dealers' reluctance to tie up collateral in advance of the August employment report, released September 7.) For the operation on the September 13, the spread narrowed to 8 basis points.

III. Forecasting Reserves and Operating Factors

When the Desk formulated a strategy for meeting reserve needs, it took account of potential revisions to the estimated demand for and supply of reserves. Large revisions late in the maintenance period were especially troublesome because they could necessitate very large reserve operations. In 1990, staff forecasts of reserve demand improved modestly, while those of total operating factors were similar to those of the preceding year, as shown in Table A-6.[11]

The accuracy of first-day required reserve forecasts was slightly better in 1990 than in 1989, while that of mid- and late-period forecasts was about unchanged. The improvement in early-period forecasts was accomplished despite a $150 million increase in the mean absolute period-to-period change in required reserves. Some challenges faced when preparing these forecasts included dealing with uncertainty about deposit levels following large tax payment dates and deciphering distortions in deposit flows during the power failure in Manhattan in mid-August. As the maintenance period progressed, forecasts became more accurate as additional deposit information became available. The mean absolute prediction error was over one-third smaller at midperiod and was sharply lower on the final day.

[11]The Trading Desk uses forecasts of required reserves, excess reserves, and operating factors made by staffs at the Federal Reserve Bank of New York and the Board of Governors. The Desk also takes into account a forecast of the Treasury's Federal Reserve balance, an operating factor, made by Treasury staff.

TABLE A-6

Approximate Mean Absolute Forecast Errors for
Various Forecasts of Reserves and Operating Factors*
(In millions of dollars)

	1990			1989		
	First Day	Midperiod	Final Day	First Day	Midperiod	Final Day
Reserves						
Required	300-320	195	70	330	195-215	70-90
Excess**	125-150	115-135	n.a.	135-150	130	n.a.
Factors	1010-1030	530-570	70-95	890-1080	440-460	70-90
Treasury	630-670	380-430	45	730-810	390-420	40
Currency	500	210-280	30	350-390	160-200	25
Float	190-225	140-170	35-40	200-230	130-175	30-40
Pool	260	120	10	275	110	10

* A range indicates varying degrees of success by the New York Reserve Bank and Board of Governors Staffs.

** The reported forecast errors overstate the degree of uncertainty about excess reserves. The Desk supplements beginning-of-period and midperiod forecasts with informal adjustments that are based on the observed pattern of estimated excess reserve holdings as each maintenance period unfolds.

n.a. Not applicable.

The excess reserves forecasting performance in 1990 was similar to that in 1989, despite the uncertainties about excess reserve demand in the December 26 maintenance period. The mean absolute period-to-period change in excess reserves was about the same as in 1989. The largest prediction errors, excluding the December 26 period, occurred at times when large banks ran sizable deficiencies in order to make use of their large carryovers. Actual excess reserves, which were relatively low during these periods, were initially substantially overpredicted.[13]

The accuracy of the forecasts of operating factors in 1990 was roughly in line with that in 1989. As usual, the forecast errors shrank as the maintenance period progressed. Overall, there was a tendency to overestimate the supply of reserves from operating factors. This tendency was especially apparent over the last six periods of the year, when forecasts made on the final day of the period overpredicted the supply of reserves by an average $100 to $135 million (on a period-average basis), which equal final-day misses of about $1.4 to $1.9 billion. These misses at times aggravated settlement-day pressures in the funds market.

The forecast errors for the Treasury's balance at the Federal Reserve were slightly smaller than in 1989. The largest error occurred in the period ended May 2. Individual income tax receipts, which were forecast to be quite

[13]The carryover privilege permits DIs to apply a limited amount of excess reserves held in one period to their requirements in the following period or to cover a small deficiency one period later. Large banks monitor their reserve balances closely. Before the cut in reserve requirements in December, they were reasonably successful in keeping non-interest-bearing excess reserves within the carryover allowances so that their average holdings of excess reserves over a year typically were close to zero. Carryovers therefore tended to produce a sawtooth pattern of excess reserve holdings at large banks. This pattern at times has shown through to aggregate excess reserve holdings. The Desk does not receive much information about carryins until midperiod.

large, were expected to fill the Treasury's accounts in the banking system to their capacity, thus causing large remittances which swell the Fed balance.[14] However, tax receipts fell short of projections. Sizable errors began to appear in mid-April, but they were first attributed to timing problems. To compound the problem, larger-than-necessary direct investments were placed based on the estimated data, thus pushing the balance below the $5 billion level. The Treasury balance averaged only $4.3 billion during the May 2 maintenance period, compared with initial projections of around $9 billion and an average of $15.1 billion during the comparable period in 1989.[15] On the other hand, large forecast errors in the October 3 period drained reserves as taxes came in higher, and spending came in lower, than expected.

An additional feature that contributed to forecast errors in 1990 was the change in tax remittance regulations. Previously, employers remitted all withheld taxes to the Treasury on a fixed schedule, depending on the size of tax withholdings. Beginning in August, employers were required to remit these taxes as soon as withholdings reached $100,000. For large firms, this change resulted in a considerable speedup in tax remittances. It became much more difficult to predict daily flows to the Treasury because the historical patterns used by the forecast staffs were based on the former withholding

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[14]DIs must fully collateralize and pay interest on funds held with them in so-called Treasury tax and loan (TT&L) accounts. DIs set limits on the total amount of funds that they will accept based on their profitable use of these funds and the availability of collateral. A DI that receives funds in excess of its collateral limit remits the excess to the Treasury's Federal Reserve balance. (The excess funds come either from the taxes the DI collects on behalf of the Treasury or from investments made directly by the Treasury.) Large remittances typically occur around major tax dates, when the volume of funds flowing into TT&L accounts substantially exceeds capacity.

[15]All three staffs overestimated the size of the Treasury's Fed balance during the May 2 maintenance period. On a day-ahead basis and weighting Friday's error three times, the Treasury had an average miss of $850 million, the Board staff registered a $1.3 billion error, and New York staff had a $1.2 billion forecast miss.

schedule. After several months of observing the data flows, the forecast staffs were able to discern a new tax remittance pattern; by year-end, major forecast misses due to the change were largely eliminated.

For the year as a whole, the Treasury's Fed balance was less volatile than in previous years. It rose above the $5 billion target level because of capacity limitations on only about 15 business days, compared with about 55 business days in 1989.

Forecasting U.S. currency in circulation proved to be more demanding than usual in 1990, while the forecasting performance for other reserve factors was similar to those in previous years. Growth in currency was unusually strong throughout the first three quarters of 1990 and initial estimates fairly consistently underpredicted this strength. In the fourth quarter, after the volume of currency shipped abroad subsided somewhat, initial forecasts of currency in circulation tended to overpredict currency growth.

IV. Trading Relationships

The Trading Desk transacts business in Treasury and Federal agency securities on behalf of the System Open Market Account with a select number of primary dealers. The number of these dealers stood at 40 at the end of the year, a decline of one from year-end 1989. Five dealers were deleted from the list of dealers with which the Desk conducts business, while four were added. Two dealers, First National Bank of Chicago and Shearson Lehman Government Securities, Inc., changed their organizational form and remained on the list under different names. Another name change was recognized. Continental Illinois Bank and Trust Company of Chicago changed its name to Continental Bank, N.A. (The list of reporting primary dealers, which includes those with which the Desk trades, appears at the end of Appendix D.)

Most of the dealers deleted from the list were removed after their parent companies decided to shut down the primary dealership because of poor profitability or to redeploy capital to other subsidiaries. These dealers were: Westpac Pollock Government Securities, Inc. (June 25), Midland Montagu Securities, Inc. (July 23), BNY Securities, Inc. (August 13), and Wertheim Schroder and Company, Inc. (November 2).[16]

Drexel Burnham Lambert Government Securities Inc. (Drexel GSI) was officially deleted from the primary dealer list on March 12; however, the Desk discontinued arranging open market operations with the entity on February 13. The trading halt came after its parent company announced that it would file for bankruptcy court protection. (For a more detailed discussion, refer to Appendix D.) Drexel officially remained on the list to assist in an orderly liquidation of its positions.

The Desk began to trade with four dealers during the year, three of which were foreign owned. Of the four, three were on the list of primary reporting dealers at the start of the year. The Desk commenced trading with Dillon, Read & Co. Inc. on May 2, UBS Securities Inc. on May 3, and Barclays de Zoete Wedd Securities Inc. on May 4. SBC Government Securities Inc., which became a primary dealer in March, was added to the list of authorized dealers on December 17.

V. System Lending Operations

The FOMC permits the Desk to lend securities from the System portfolio to primary dealers to assist the completion of transactions in the U.S. Government securities market. The loans are collateralized with government securities of greater value than those borrowed. The Committee restricts loans to $50 million per dealer for any Treasury bill issue and

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[16]Security Pacific National Bank withdrew on January 15, 1991.

$10 million per dealer for any coupon issue, with an overall limit of $150 million per dealer. No loans may be made against short sales.

On February 16, the FOMC temporarily broadened these terms to facilitate the orderly liquidation of Drexel GSI. The liberalized terms suspended the size limits and the restriction on loans against short sales. After the FOMC's decision, Drexel GSI borrowed $16 million of a Treasury bond issue and $11 million of a Treasury note. The firm did not need the securities to cover a short position. Both issues were returned on February 22. The liberalized rules were in place until February 26.

For the year, lending of Treasury securities fell dramatically, as shown in Table A-7. The total number of loans reached its lowest level since 1980. The bulk of the lending operations remained centered in Treasury bills, but the share of bills in total lending volume dropped to 79 percent of the total from 88 percent in 1989. Moreover, daily average outstanding loans of bill issues slid nearly 75 percent.

The sharp contraction in System lending occurred because market inventories of short-term securities, especially bills, were generally more plentiful in 1990 than they had been in recent years. Several factors contributed. With expectations favoring interest rate declines during much of the year, dealers tended to be more willing to hold inventories. Heavy issuance of bills by the Treasury added to market supplies. Furthermore, there were some indications that Japanese trading accounts, which were the prime Japanese participants during the year in the U.S. Treasury market, were willing to lend securities on RP, in contrast to the more traditional Japanese investment accounts. Moreover, it may also be the case that lower levels of risk capital reined in aggressive trading practices in the RP market. All of these factors combined to make securities more plentiful in the market and

TABLE A-7

FEDERAL RESERVE LENDING OF TREASURY SECURITIES TO PRIMARY DEALERS
(In million of dollars)

	1990	1989	PERCENTAGE CHANGE IN TOTAL 1989-1990
Number of Loans	2,348	6,323	-62.9%
Amount	$38,305	$104,092	-63.2%
Daily Averages			
Number of Loans	9	25	-64.0%
Amount	$153.2	$416.4	-63.2%
Balance Outstanding	$227.7	$790.2	-71.2%
Size of Each Loan	$17.0	$16.7	+1.8%
Distribution of Loans (daily averages)			
Bills	$180.4	$698.9	-74.2%
Coupon Issues	47.3	91.3	-48.2%
Total	$227.7	$790.2	-71.2%

greatly reduced the number of securities on "special." An issue is on special when demand for the security for delivery purposes exceeds supply, and the RP rate for transactions involving it falls sharply. In such circumstances, dealers often turn to the System to obtain the needed issue. With fewer issues on special, loans to dealers for this purpose dropped.

TABLE A-8

Bank Reserves
(In millions of dollars*)

	December 1990	Change during**: 1990	1989	1988	Annual Average: 1990	1989	1988
Nonborrowed Reserves							
Excluding extended credit	58795	-3749	514	667	60197	59553	59526
Including extended credit	58818	-3746	-711	1429	60665	60172	61357
Extended Credit Borrowing	23	3	-1224	761	468	620	1831
Borrowed Reserves							
Including extended credit	326	61	-1451	939	924	1137	2361
Adjustment plus Seasonal	303	57	-226	178	456	518	530
Adjustment	227	65	-180	141	233	243	294
Seasonal	76	-8	-46	37	223	275	236
Required Reserves #	57456	-4432	-811	1605			
On transactions deposits #	49001	889	-34	1506			
On nontransactions deposits #	8454	-5321	-776	98			
Excess Reserves	1665	742	-125	1	967	967	1036
Operating Factors (in billions)	-194.9				-181.6	-177.6	-176.6
Foreign Currency ##	27.4	-	19.7	2.1	29.2	17.1	6.3
U.S. Currency	283.0	-26.1	-12.3	-17.2	267.1	247.3	233.1
Treasury Balance	5.8	-1.0	0.6	-1.2	5.5	7.3	5.0
Float	1.9	0.8	-0.1	-0.1	0.9	0.9	1.0
SDRs	10.0	1.5	3.5	-	8.8	7.4	5.0
Gold Deposits	11.1	-	-	-	11.1	11.1	11.1
Foreign Deposits	0.3	-	-	-	0.2	0.2	0.2
Applied Vault Cash	28.8	1.5	1.5	1.5	28.2	26.5	24.9
Other Items	21.1	2.9	-0.8	0.8	18.7	19.2	18.3
Foreign RP Pool ###	6.6	-0.8	-0.4	-0.5	5.7	5.0	4.9

* Unless otherwise noted.
** December over December. Sign indicates impact on bank reserves.
# Not adjusted for changes in required reserve ratios.
Acquisition value.
Includes customer-related repurchase agreements.
Note: Figures may not add due to rounding.

TABLE A-9

DOLLAR VOLUME OF TRANSACTIONS EXECUTED BY TRADING DESK 1990 AND 1989*
(In millions of dollars)
Source Account

	Total		System		Foreign		Treasury Investment Accounts		Member Banks	
	1990	1989	1990	1989	1990	1989	1990	1989	1990	1989
Counterparty										
Market	547,765	506,537	329,421	339,344	218,341	167,189	(a)	3	3	(a)
System Account	1,333,925	1,182,643	-	-	1,333,925	1,182,643	-	-	-	-
Treasury	5,583	13,672	5,583 #	13,672 #	-	-	-	-	-	-
Foreign	1,335,679	1,183,732	1,333,925	1,182,643	1,754	1,089	-	-	-	-
Total	3,222,952	2,886,583	1,668,929	1,535,659	1,554,020	1,350,921	(a)	3	3	(a)
Outright Transactions										
Purchases										
Treasury Bills	59,110	36,015	24,539	14,484	34,570	21,531	-	-	-	-
Treas. Coupon Issues	8,865	5,742	675	2,334	8,187	3,408	-	-	3	(a)
Agency Issues	428	3	-	-	428	-	-	3	-	-
Cert. of Deposit	200	91	-	-	200	91	-	-	-	-
Bankers' Acceptances	1,155	824	-	-	1,155	824	-	-	-	-
Total Purchases	69,758	42,674	25,214	16,818	44,540	25,853	-	3	3	(a)
Sales and Redemptions										
Treasury Bills:										
Sales	34,314	30,729	7,311	12,817	27,003	17,913	(a)	-	-	-
Redemptions	5,400	12,730	5,400	12,730	-	-	-	-	-	-
Treasury Coupon Issues:										
Sales	9,061	5,214	300	519	8,761	4,695	-	-	-	(a)
Redemptions	-	500	-	500	-	-	-	-	-	-
Agency Issues:										
Sales	-	-	-	-	-	-	-	-	-	-
Redemptions	183	442	183	442	-	-	-	-	-	-
Cert. of Deposit	-	-	-	-	-	-	-	-	-	-
Bankers' Acceptances	10	119	-	-	10	119	-	-	-	-
Total Sales and Redemptions	48,969	49,734	13,194	27,008	35,774	22,727	(a)	-	-	(a)
Net Purchases (+) or Sales and Redemptions (-)	+20,789	-7,060	+12,020	-10,190	+8,766	+3,127	(a)	+3	+3	(a)
Temporary Transactions										
RPs										
In Market	389,872	276,555	261,468	168,354	128,404	108,201				
With System Account	1,320,709	1,172,342	-	-	1,320,709	1,172,342				
MSPs										
In Market	48,343	151,138	48,343	151,138	-	-				
With Foreign	1,320,709	1,172,342	1,320,709	1,172,342	-	-				
Fed Funds sales	24,793	21,799	-	-	24,793	21,799				

# Reflects the following transactions:	1990	1989
Redemptions of maturing Treasury bills..........	5,400	12,730
Redemptions of maturing Treasury coupons........	-	500
Redemptions of maturing Federal agency issues...	183	442

* *Commitment basis except for repurchase agreements.*

(a) Less than $0.5 million.

Note: This table includes only the initiation of the matched transactions and repurchase agreements. Figures may not add to totals due to rounding.

APPENDIX
B

SUMMARY OF POLICY GUIDES AND ACTIONS

APPENDIX B

SUMMARY OF POLICY GUIDES AND ACTIONS

Open market operations during 1990 were conducted under the Authorization for Domestic Open Market Operations. At its February meeting, the Committee permanently raised the authorized limit on intermeeting-period changes in System Account holdings of U.S. Government and Federal agency securities from $6 billion to $8 billion. It later lifted the authorized leeway temporarily on two occasions during the year. These actions, taken upon the recommendation of the Manager for Domestic Operations, were made to accommodate anticipated movements in various operating factors and required reserves that were expected to require outright operations in excess of the $8 billion intermeeting limit. The table gives the details.

Effective Date	Original Limit on Change in System Holdings	Amended Limit	Actual Maximum Usage	Intermeeting Period
3/28/90	$8 billion	$12 billion	$6.0 billion	3/28/90 - 5/15/90
12/19/90	$8 billion	$14 billion	$3.6 billion	12/19/90 - 2/ 6/91

It turned out that the temporarily expanded leeway was not required on either occasion. During the March-to-May interval, Treasury balances fell well below original expectations and thus diminished the need to add reserves. During the December-to-February period, Treasury balances and currency were sharply higher than expected and therefore reduced the size of the draining operations needed to absorb reserves released by the cut in reserve requirements.

The Authorization for Domestic Open Market Operations in effect for most of 1990, except when amended as above, is reprinted below:

Authorization for Domestic Open Market Operations

1. The Federal Open Market Committee authorizes and directs the Federal Reserve Bank of New York, to the extent necessary to carry out the most recent domestic policy directive adopted at a meeting of the Committee:

   (a) To buy or sell U.S. Government securities, including securities of the Federal Financing Bank, and securities that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States in the open market, from or to securities dealers and foreign and international accounts maintained at the Federal Reserve Bank of New York, on a cash, regular, or deferred delivery basis, for the System Open Market Account at market prices, and, for such Account, to exchange maturing U.S. Government and Federal agency securities with the Treasury or the individual agencies or to allow them to mature without replacement; provided that the aggregate amount of U.S. Government and Federal agency securities held in such Account (including forward commitments) at the close of business on the day of a meeting of the Committee at which action is taken with respect to a domestic policy directive shall not be increased or decreased by more than $8.0 billion during the period commencing with the opening of business on the day following such meeting and ending with the close of business on the day of the next such meeting;

   (b) When appropriate, to buy or sell in the open market, from or to acceptance dealers and foreign accounts maintained at the Federal Reserve Bank of New York, on a cash, regular, or deferred delivery basis, for the account of the Federal Reserve Bank of New York at market discount rates, prime bankers acceptances with maturities of up to nine months at the time of acceptance that (1) arise out of the current shipment of goods between countries or within the United States, or (2) arise out of the storage within the United States of goods under contract of sale or expected to move into the channels of trade within a reasonable time and that are secured throughout their life by a warehouse receipt or similar document conveying title to the underlying goods; provided that the aggregate amount of bankers acceptances held at any one time shall not exceed $100 million;

(c) To buy U.S. Government securities, obligations that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States, and prime bankers acceptances of the types authorized for purchase under 1(b) above, from dealers for the account of the Federal Reserve Bank of New York under agreements for repurchase of such securities, obligations, or acceptances in 15 calendar days or less, at rates that, unless otherwise expressly authorized by the Committee, shall be determined by competitive bidding, after applying reasonable limitations on the volume of agreements with individual dealers; provided that in the event Government securities or agency issues covered by any such agreement are not repurchased by the dealer pursuant to the agreement or a renewal thereof, they shall be sold in the market or transferred to the System Open Market Account; and provided further that in the event bankers acceptances covered by any such agreement are not repurchased by the seller, they shall continue to be held by the Federal Reserve Bank or shall be sold in the open market.

2. In order to ensure the effective conduct of open market operations, the Federal Open Market Committee authorizes and directs the Federal Reserve Banks to lend U.S. Government securities held in the System Open Market Account to Government securities dealers and to banks participating in Government securities clearing arrangements conducted through a Federal Reserve Bank, under such instructions as the Committee may specify from time to time.

3. In order to ensure the effective conduct of open market operations, while assisting in the provision of short-term investments for foreign and international accounts maintained at the Federal Reserve Bank of New York, the Federal Open Market Committee authorizes and directs the Federal Reserve Bank of New York (a) for System Open Market Account, to sell U.S. Government securities to such foreign and international accounts on the bases set forth in paragraph 1(a) under agreements providing for the resale by such accounts of those securities within 15 calendar days on terms comparable to those available on such transactions in the market; and (b) for New York Bank account, when appropriate, to undertake with dealers, subject to the conditions imposed on purchases and sales of securities in paragraph 1(c), repurchase agreements in U.S. Government and agency securities, and to arrange corresponding sale and repurchase agreements between its own account and foreign and international accounts

maintained at the Bank. Transactions undertaken with such accounts under the provisions of this paragraph may provide for a service fee when appropriate.

Other FOMC Policy Actions

At its November 13 meeting, the FOMC agreed to delete a sentence in the operational paragraph of the domestic policy directive that referred to the possibility of a Committee consultation in the event that the Federal funds rate fluctuated persistently outside a relatively wide range. That range had been set at 4 percentage points for many years and was based on the now-outdated operating procedures that had been in place in the early 1980s.

Policy Actions of the Board of Governors

On December 4, 1990, the Board of Governors announced a reduction in reserve requirements on nontransactions deposits. The Board reduced the reserve ratio on nonpersonal time deposits with an original maturity of less than 18 months and on net Eurocurrency liabilities in two steps for institutions that report weekly. The reserve ratio was lowered to 1.5 percent, from 3 percent, in the reserve maintenance period that began December 13, and was reduced to zero in the following maintenance period, which began December 27. For small institutions that report and have fixed required reserves on a quarterly basis, a reduction to zero was made on January 17, 1991. The change eliminated all reserve requirements computed under the two-period lagged accounting schedule.

On December 18, the Board announced that it had approved a half-point cut in the discount rate to 6 1/2 percent.[1] The discount rate had been

[1]The decrease became effective on December 19 at the Federal Reserve Banks of Boston, New York, Richmond, Atlanta, Chicago, St. Louis, Minneapolis, Kansas City, and Dallas. The Board subsequently approved similar requests by

7 percent since the start of the year. The reduction was made against the background of weakness in the economy, constraints on credit, and slow growth in the monetary aggregates. It also realigned the discount rate with market interest rates.

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the Federal Reserve Banks of Philadelphia, Cleveland, and San Francisco, also effective December 19.

APPENDIX
C

DESK ACTIVITY FOR CUSTOMER ACCOUNTS

APPENDIX C

DESK ACTIVITY FOR CUSTOMER ACCOUNTS

The Desk's trading for customer accounts picked up substantially in 1990. Total outright activity for these accounts rose for the first time in six years, while temporary transactions were up for an eighth consecutive year.

Outright Transactions

Total outright transactions for customer accounts rose sharply (Table C-1). As usual, virtually all outright transactions were conducted on behalf of official foreign and international accounts; activity on behalf of Treasury accounts and Second District member banks remained negligible.

The higher volume of outright transactions reflected increased activity undertaken on behalf of several Asian countries. The introduction of new accounts for Mexico and Costa Rica, which was related to their ongoing debt restructuring efforts, also added to the overall increase in outright activity. Total outright activity amounted to $306 million for Mexico and $64 million for Costa Rica. The countries with the largest volumes of transactions arranged through the Desk were Canada, Thailand and Taiwan (Table C-3). Canada's total activity of $20 billion included purchases and sales in the market of $10 billion and $7 billion, respectively, and $3 billion of sales to the System, each being the highest in its category.

After declining modestly early in the year, activity rose sharply, reaching a peak for the year in March. Activity dropped in April, then jumped in June and again in August, and it fluctuated modestly over the balance of the year. Activity in the first three quarters of 1990 ranged from about 50 to 200 percent above year-earlier levels, but in the fourth quarter it was only about 15 percent above its corresponding 1989 level. For all of 1990, purchases grew 71 percent, while sales were 57 percent higher. Purchases accounted for 55 percent of all outright activity during the year.

As is typically the case, almost all outright transactions for foreign accounts--about 98 percent--were conducted in Treasury securities (Table C-2 and Table A-9 of Appendix A). The remaining outright transactions for foreign accounts involved bankers' acceptances (BAs), large denomination certificates of deposit (CDs), and agency issues. As in previous years, the bulk of these other transactions were purchases. The overall volume of BA transactions rose about 24 percent in 1990. The volume of CD purchases in 1990 was nearly double that of 1989, but was still well below levels in previous years. Meanwhile, agency issues were purchased for foreign accounts for the first time since 1987. In March, a swap was arranged for the first time in four years--$100 million for Canada.[1]

Temporary Transactions

The total volume of repurchase agreements arranged on behalf of foreign customers, also known as the foreign RP "pool," increased by 13 percent to $1,449 billion in 1990. Customer-related RPs executed in the market accounted for 9 percent of the total, while the remainder were arranged as matched sale-purchase agreements with the System Account. The average daily volume of the foreign RP pool was $5.7 billion, compared with about $5.0 billion in each of the previous two years.[2] Despite the higher volume,

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[1]Foreign accounts generally find it more attractive to arrange swaps directly in the market rather than through the Desk. Arranging swaps through the Desk involves time lags between the Desk's receipt of customer orders from the Foreign Department and solicitation of competitive propositions from a number of dealers before completing the trade. Trades in the market can be executed more quickly.

[2]The average daily volume is computed by weighting each transaction by the number of calendar days it was outstanding, including weekends and holidays. The unweighted average volume was $5.8 billion.

total foreign account earnings from repurchase agreements, at $470 million, were slightly lower than in 1989. The average daily yield on these RPs was 8.14 percent (bond-equivalent basis), down from 9.21 percent in 1989.

The size of the overall foreign RP pool grew. Poland, a negligible participant in 1989, became the second largest regular investor; its four accounts had a total average daily investment of about $250 million (Table C-4). Poland's activity rose because of loans and financial assistance received from other countries to help its transition to a market economy. Panama also showed a big jump in its investment participation; its accounts collectively rose from a daily average of $144 million to $348 million, making it the largest regular participant in 1990. Panama's increase reflected a stabilization of political and economic conditions and increased foreign aid following the ouster of General Noriega. In contrast, the volume of transactions arranged on behalf of many of the largest participants in 1989 fell in 1990. Argentina, the largest participant in 1989, reduced its average daily investment from $385 million to $209 million, dropping it to fourth among regular participants. Also showing big declines were the African Development Bank and Kuwait. (On the day Iraq invaded Kuwait, President Bush froze Kuwaiti assets in the U.S. Kuwait had $93 million in the pool at the time. That amount, plus interest earned, was rolled over through the end of the year.) At year-end there were 214 RP accounts, with 51 additions and 4 closures during the year.

The Desk also sold Federal funds on behalf of foreign accounts when the funds arrived too late in the day for investment in the RP pool. Total sales amounted to $25 billion (about $100 million per business day), a rise of $3 billion from the 1989 level. A total of 70 accounts participated in this activity.

TABLE C-1

DOLLAR VOLUME OF TRANSACTIONS FOR ACCOUNTS OTHER THAN SYSTEM
(millions of dollars)

	PURCHASES 1990	PURCHASES 1989	SALES 1990	SALES 1989	TOTAL 1990	TOTAL 1989	PERCENTAGE CHANGE IN TOTAL 1989-1990
Foreign & Int'l Accounts							
Outright:	44,540	25,853	35,774	22,727	80,314	48,580	+65%
Treasury bills	34,570	21,531	27,003	17,913	61,573	39,443	+56
Treasury coupons	8,187	3,408	8,761	4,695	16,948	8,103	+109
Federal Agencies	428	-	-	-	428	-	
Bankers' Acceptances	1,155	824	10	119	1,165	943	+24
Certificates of Deposit	200	91	-	-	200	91	+120
RPs:							
With System	1,320,709	1,172,342			1,320,709	1,172,342	+13
In Market	128,404	108,201			128,404	108,201	+19
Federal Funds	-	-	24,793	21,799	24,793	21,799	+14
Treasury	-	3	#	-	#	3	-96
Member Banks	3	#	-	#	3	#	
TOTAL	1,493,656	1,306,400	60,567	44,526	1,554,223	1,350,925	+15

Less than $0.5 million.

Notes: The above table (and Table C-3) includes only the initiation of RPs.
Figures may not add to totals due to rounding.

TABLE C-2

OUTRIGHT ACTIVITY CONDUCTED FOR CUSTOMER ACCOUNTS IN 1990
(millions of dollars)

Country	Purchases System	Purchases Market	Sales System	Sales Market	Total
Canada	200.0	9861.5	3290.0	7070.0	20421.5
Thailand	-	6502.9	2957.8	4333.6	13794.3
Taiwan	1250.0	4207.2	301.2	5118.3	10876.7
Japan	0.9	1289.7	1237.2	5232.8	7760.6
Indonesia	400.0	1942.9	379.0	1362.3	4084.2
Malaysia	175.0	1055.6	484.1	695.9	2410.6
India	225.0	1956.0	107.9	62.1	2351.0
Yugoslavia	25.0	1640.0	44.2	595.3	2304.5
Argentina	-	1820.0	-	-	1820.0
Poland	486.0	742.3	-	17.3	1245.6
Colombia	205.0	885.2	-	1.1	1091.3

TABLE C-3

DOLLAR VOLUME OF TRANSACTIONS IN 1990 BY TYPE OF ISSUE
(millions of dollars)

	TREASURY BILLS	TREASURY COUPON ISSUES	AGENCY ISSUES	BANKERS' ACCEPTANCES	CDs	TOTAL
Foreign & Int'l Accounts						
Outright	61,573	16,948	428	1,165	200	80,314
RPs						1,449,113
Federal Funds						24,793
Treasury	#	-	-	-	-	#
Member Banks	-	3	-	-	-	3
TOTAL	61,574	16,951	428	1,165	200	1,554,223

Less than $0.5 million.

TABLE C-4

FOREIGN RP POOL
daily average volume for largest customers
(millions of dollars)

RP Participant	1990	rank	1989	rank
Panama	$348	1	$144	9
Poland	252	2	2	148
Saudi Arabia	242	3	233	2
Argentina	208	4	385	1
BIS	200	5	200	6
Indonesia	185	6	216	5
Nigeria	163	7	122	11
Kuwait	155	8	267	3
Columbia	153	9	130	10
Brazil	136	10	152	8

TABLE C-5

DOLLAR VOLUME OF TRANSACTIONS IN 1990 BY DEALERS AND BROKERS ON BEHALF OF CUSTOMERS OF THE FEDERAL RESERVE
(In millions of dollars)

	OUTRIGHT		REPURCHASE AGREEMENTS*	
	Total Volume	Percentage Share	Total Volume	Percentage Share
Morgan Stanley & Co., Inc.	4,041	6.3%	1,095	0.9%
Manufacturers Hanover Securities Corp.	2,484	3.9%	3,072	2.4%
Salomon Brothers, Inc.	2,477	3.9%	2,725	2.1%
First Boston Corporation	2,455	3.8%	1,048	0.8%
Discount Corporation of New York	2,280	3.6%	2,648	2.1%
Citicorp Securities Markets, Inc.	2,199	3.4%	1,353	1.1%
Continental Bank, N.A. (g)	2,127	3.3%	2,571	2.0%
Chemical Securities, Inc.	2,126	3.3%	1,790	1.4%
Security Pacific National Bank	2,077	3.2%	760	0.6%
Chase Securities, Inc.	1,836	2.9%	1,620	1.3%
Harris Government Securities Inc.	1,761	2.8%	4,159	3.2%
Aubrey G. Lanston & Co., Inc.	1,715	2.7%	5,657	4.4%
Goldman, Sachs & Co.	1,647	2.6%	5,355	4.2%
J.P. Morgan Securities, Inc.	1,622	2.5%	9,010	7.0%
Yamaichi Int'l (America) Inc.	1,619	2.5%	2,688	2.1%
Lehman Government Securities, Inc. (i)	1,601	2.5%	7,289	5.7%
Dean Witter Reynolds, Inc.	1,600	2.5%	2,378	1.9%
Prudential-Bache Securities, Inc.	1,588	2.5%	643	0.5%
First Chicago Capital Markets, Inc. (a)	1,521	2.4%	3,021	2.4%
Carroll McEntee & McGinley, Inc.	1,479	2.3%	2,392	1.9%
Greenwich Capital Markets, Inc.	1,457	2.3%	5,026	3.9%
Merrill Lynch Government Securities, Inc.	1,402	2.2%	3,136	2.4%
Sanwa-BGK Securities Co., L.P.	1,392	2.2%	2,963	2.3%
Paine Webber Inc.	1,382	2.2%	2,031	1.6%
Daiwa Securities America Inc.	1,247	1.9%	7,745	6.0%
Wertheim Schroder & Co., Inc. (k)	1,245	1.9%	3,368	2.6%
BT Securities Corporation	1,244	1.9%	4,972	3.9%
Fuji Securities Inc.	1,234	1.9%	6,261	4.9%
Bear, Stearns & Co., Inc.	1,118	1.7%	1,255	1.0%
S.G. Warburg & Co., Inc.	1,053	1.6%	753	0.6%
Westpac Pollock Government Securities, Inc. (f)	1,023	1.6%	-	-
Bank of America N/T & S/A	976	1.5%	850	0.7%
Midland-Montagu Securities, Inc. (h)	954	1.5%	473	0.4%
Nomura Securities International, Inc.	913	1.4%	13,109	10.2%
Smith Barney, Harris Upham & Co., Inc.	903	1.4%	318	0.2%
CRT Government Securities, Ltd.	864	1.4%	4,860	3.8%
Barclays de Zoete Wedd Secs. Inc. (e)	839	1.3%	775	0.6%
Donaldson, Lufkin & Jenrette Securities Corp.	832	1.3%	4,342	3.4%
Dillon, Read & Co., Inc. (c)	774	1.2%	299	0.2%
Kidder, Peabody & Co., Inc.	764	1.2%	355	0.3%
The Nikko Securities Co., Int'l Inc.	658	1.0%	1,809	1.4%
UBS Securities Inc. (d)	604	0.9%	663	0.5%
BNY Securities, Inc. (j)	497	0.8%	1,494	1.2%
SBC Government Securities, Inc. (l)	107	0.2%	73	0.1%
Drexel, Burnham, Lambert Gov't Sec., Inc. (b)	100	0.2%	200	0.2%
# Societe Generale Bank	40	**		
# Mitsubishi Bank Ltd., New York	35	**		
# National Westminster Bank, USA	25	**		
# Credit Lyonnais, New York	25	**		
# Dai-ichi Kangyo Bank	10	**		
# Dresdner Bank	10	**		
# Barclays Bank	5	**		
Total	63,983	100%	128,404	100%

CROSSES BETWEEN ACCOUNTS	
Between Foreign Accounts and System Open Market Account:	
Outright	13,216
RP's	1,320,709
Other Crosses	1,754
FOREIGN ACCOUNT FEDERAL FUNDS SALES	24,793
GRAND TOTAL	1,360,472

TABLE C-5 (Cont'd)

DOLLAR VOLUME OF TRANSACTIONS IN 1990 BY DEALERS AND BROKERS ON BEHALF OF CUSTOMERS OF THE FEDERAL RESERVE

		Change Effective
(a)	Formerly First National Bank of Chicago.	Jan. 2
(b)	Removed from list of authorized dealers.	Mar. 12
(c)	Added to list of authorized dealers.	May 2
(d)	Added to list of authorized dealers.	May 3
(e)	Added to list of authorized dealers.	May 4
(f)	Removed from list of authorized dealers.	June 25
(g)	Formerly Continental Illinois National Bank and Trust Company of Chicago.	##
(h)	Removed from list of authorized dealers.	July 23
(i)	Formerly Shearson Lehman Government Securities, Inc.	Aug. 1
(j)	Removed from list of authorized dealers.	Aug. 13
(k)	Removed from list of authorized dealers.	Nov. 2
(l)	Added to list of authorized dealers.	Dec. 17

* Includes only the initiation of RP transactions.
** Less than .05 percent.
\# Involved transactions in securities other than Treasury issues under instructions from customers
\## Change was made December 1988. Desk learned of it in 1990.

Note: Includes Treasury securities, Federal agency securities and large CDs.
Figures may not add to totals due to rounding.
Ranked according to volume of outright transactions.

TABLE C-6

NUMBER OF TRANSACTIONS PROCESSED FOR CUSTOMER ACCOUNTS*

	1990	1989	PERCENTAGE CHANGE IN TOTAL 1989-1990
Foreign & Int'l Accounts			
Outright	4,843	3,806	25%
Customer-Related RPs	11,522	6,303	83
Treasury	2	1	100
Member Banks	18	11	64
Total	16,385	10,121	62

* Excludes transactions with System Account.

Note: Each transaction ticket is counted as one item. For RPs, both the purchase and return side are counted.

APPENDIX D

DEVELOPMENTS AMONG PRIMARY DEALERS

The year 1990 was marked by further net shrinkage in the number of primary dealers in the U.S. Government securities market. Early in the year, there was a major failure of a dealer firm's parent, the Drexel Burnham Lambert Group Inc. The Federal Reserve monitored carefully the winding down of this firm and its related entities, especially the primary dealer, to assure that the resulting strains on the financial system were minimal. The Federal Reserve also modified dealer reporting requirements in the middle of the year, moving from a daily to a weekly reporting system.

Changes in the List of Dealers

During the year, the number of primary dealers continued to decline from the peak of 46 reached in 1988. In 1990, five dealers withdrew from the list and two were added. With another withdrawal in early 1991, the number of primary dealers stood at 40 on January 17, 1991 (see attached list). The change in the number of primary dealers has had no discernible impact on the overall efficiency of the marketplace or on the Federal Reserve's ability to conduct open market operations.

For the primary dealers as a group, the earnings erosion seen in 1989 was halted. Nonetheless, 1990 was not a profitable year for securities activities generally, and many firms continued to suffer earnings problems which were responsible for the departures. (Developments related to the first firm to be removed from the primary dealer list during the year, Drexel Burnham Lambert Government Securities Inc. (Drexel GSI), are discussed in the next section.) The other four firms deleted from the list during 1990 withdrew voluntarily because their parent companies chose to pull back from the government securities business. Westpac Pollock Government Securities, Inc.

withdrew in June when its owner, Westpac Banking Corporation, decided to unwind the dealer operation and concentrate on its core businesses. Poor earnings were cited by the parent companies of the other three dealers: Midland Montagu Securities, Inc. withdrew in July; BNY Securities Inc., in August; and Wertheim Schroder and Company, Inc., in November. (In addition, Security Pacific National Bank withdrew in January 1991, indicating that it would continue to operate as a regional dealer.)

While some international and domestic firms reduced their commitment to the government market, two new international firms were named primary dealers in 1990. Swiss Banking Corporation's government dealer, SBC Government Securities Inc., was added in March, and the first German-owned primary dealer, Deutsche Bank Government Securities Inc., was named in December. Prior to the addition of the latter firm, the Federal Reserve determined that U.S. firms were accorded the same competitive opportunities as domestic firms in the government debt market in Germany in accordance with the Primary Dealers Act of 1988.

There were two name changes during the year. In January, the First National Bank of Chicago was replaced by First Chicago Capital Markets, Inc., as the dealer operations were transferred from the bank to a subsidiary of the holding company. In August, a reorganization of operations by parent American Express led to a redesignation of Shearson Lehman Government Securities Inc. as Lehman Government Securities, Inc. The primary dealer list was also revised in June to recognize an earlier name change from Continental Illinois National Bank and Trust Company of Chicago to Continental Bank, N.A.

The Unwinding of Drexel

Drexel GSI was unable to continue in business when its parent, the Drexel Burnham Lambert Group, and some of its subsidiaries filed for bankruptcy protection in February when they could not borrow in the commercial paper market and were unable to find an additional source of capital. Drexel GSI was not taken into bankruptcy right away and proceeded to work out an orderly liquidation.

Consistent with the Federal Reserve's interest in the continued orderly functioning of the financial markets, the Federal Reserve Bank of New York monitored closely the winding down of the Drexel organization. At the time of the bankruptcy filing in early 1990, the Drexel Group, including the registered broker/dealer and the primary government securities dealer, was among the largest U.S. investment banks. The firm had been the largest participant in the market for speculative debt (junk bonds) and was unable to survive when the market for that debt weakened dramatically. The Federal Reserve Bank of New York closely observed the developments at the Drexel Group because of the potential for the liquidity crisis at the firm to spill over more generally into domestic and international payment and settlement mechanisms. Officials maintained contacts with Drexel, market participants, the Securities and Exchange Commission, and other regulators, to monitor the progress and facilitate the orderly shrinkage of Drexel's operations.

The Bank gave particular emphasis to efforts aimed at the orderly liquidation of Drexel GSI in light of the primary dealer relationship and involvement with the government securities market. At the time of the bankruptcy filing by its parent, the government securities dealer had total assets of about $18 billion. Continuing contact was maintained with Drexel GSI and other market participants through frequent telephone conversations and an on-site presence as the dealer's operations were wound down. In addition, the Bank issued a statement that it was monitoring the situation carefully. Within about three weeks, the assets and liabilities of the government securities dealer were reduced below $1 billion without disruption to the Treasury market. To facilitate that liquidation and preserve the firm's ability to obtain collateralized loans of government securities from the Federal Reserve, the firm was left on the primary dealer list until mid-March.

Data Reporting

During 1990, the frequency of reporting by primary dealers to the Federal Reserve Bank of New York was reduced. Since the early 1960s, dealers had reported position and transaction data on a daily basis; beginning July 1, 1990, dealers were asked to report such data once a week. The reduction in reporting took into account the presence of regulation and examination of government securities firms under the Government Securities Act of 1986.

Daily average trading volume in the government securities market in 1990 by the primary dealers totaled about $120 billion. Volume of trading by primary dealers with their customers was about $48 billion on a daily average basis. Both total and customer trading volumes among primary dealers in 1990 were similar to the amounts recorded in each of the last two years but remain somewhat below the peak quarterly volumes reached in the second quarter of 1987.

TABLE D-1

LIST OF THE PRIMARY GOVERNMENT SECURITIES DEALERS REPORTING
TO THE MARKET REPORTS DIVISION OF THE FEDERAL RESERVE BANK OF NEW YORK

Bank of America NT & SA
Barclays de Zoete Wedd Securities Inc.
Bear, Stearns & Co., Inc.
BT Securities Corporation
Carroll McEntee & McGinley Incorporated
Chase Securities, Inc.
Chemical Securities, Inc.
Citicorp Securities Markets, Inc.
Continental Bank, National Association
CRT Government Securities, Ltd.
Daiwa Securities America Inc.
Dean Witter Reynolds Inc.
Deutsche Bank Government Securities, Inc.
Dillon, Read & Co. Inc.
Discount Corporation of New York
Donaldson, Lufkin & Jenrette Securities Corporation
The First Boston Corporation
First Chicago Capital Markets, Inc.
Fuji Securities Inc.
Goldman, Sachs & Co.
Greenwich Capital Markets, Inc.
Harris Government Securities Inc.
Kidder, Peabody & Co., Incorporated
Aubrey G. Lanston & Co., Inc.
Lehman Government Securities, Inc.
Manufacturers Hanover Securities Corporation
Merrill Lynch Government Securities Inc.
J. P. Morgan Securities, Inc.
Morgan Stanley & Co. Incorporated
The Nikko Securities Co. International, Inc.
Nomura Securities International, Inc.
Paine Webber Incorporated
Prudential-Bache Securities, Inc.
Salomon Brothers Inc.
Sanwa-BGK Securities Co., L.P.
Smith Barney, Harris Upham & Co., Inc.
SBC Government Securities Inc.
UBS Securities Inc.
S.G. Warburg & Co., Inc.
Yamaichi International (America), Inc.

January 17, 1991

Operations in United States Government Securities and Federal Agency Securities

The total of United States Government securities and Federal Agency securities held by the Federal Reserve System at the close of business on December 31, 1990, together with changes from holdings on December 31, 1989, are summarized in the following table on a delivery basis.

System Open Market Account	Purchases	Sales	Redemptions	Exchanges	Net Changes	Holdings 12/31/90	Holdings 12/31/89
Government Securities							
Treasury Bills:						112,519,895	104,580,590
Outright	24,739,200	7,291,340	4,400,000	± 241,085,680	+ 13,047,860		
Matched Transactions	1,363,943,585	1,369,052,140	-	-	- 5,108,555		
Market	48,343,000	48,343,000	-	-	-		
Foreign official	1,315,600,585	1,320,709,140	-	-	- 5,108,555		
Treasury Notes and Bonds maturing:							
Within 1 year	425,000	-	-	- 30,817,703	- 30,392,703 #	25,962,858	30,717,703
1 to 5 years	250,000	200,000	-	+ 27,768,414	+ 27,818,414 #	58,749,166	52,241,220
5 to 10 years	-	100,000	-	+ 2,273,410	+ 2,173,410 #	13,121,315	12,529,430
Over 10 years	-	-	-	+ 775,879	+ 775,879 #	24,736,354	26,706,340
Total Notes and Bonds	675,000	300,000	-	-	+ 375,000	122,569,693	122,194,693
Total Govt. Secs.							
Incl. Matched Trans.	2,753,301,370	2,745,695,620	4,400,000	-	+ 8,314,305	235,089,588	226,775,283
(Excl. Matched Trans.	25,414,200	7,591,340	4,400,000	-	+ 13,422,860	242,264,523	228,841,663)
Federally Sponsored Agency							
Issues maturing:				(+ 2,331,000			
Within 1 year	-	-	182,680	(- 2,954,710	- 806,390 ##	2,576,406	2,067,390
1 to 5 years	-	-	-	+ 496,710	+ 496,710 ##	2,554,925	3,197,621
5 to 10 years	-	-	-	+ 127,000	+ 127,000 ##	1,022,235	1,071,235
Over 10 years	-	-	375	-	- 375	187,990	188,365
Total Agency Issues	-	-	183,055	-	- 183,055	6,341,556	6,524,611
Total System Account							
Incl. Matched Trans.	2,753,301,370	2,745,695,620	4,583,055	-	+ 8,131,250	241,431,144	233,299,894
(Excl. Matched Trans.	25,414,200	7,591,340	4,583,055	-	+ 13,239,805	248,606,079	235,366,274
F.R.B. of New York							
Repurchase Agreements for System	261,468,100	245,231,100	-	-	+ 16,237,000	18,354,000	2,117,000
Customer-Related RPs passed through to the market	128,403,500	131,760,500	-	-	- 3,357,000	-	3,357,000

Does not include the following maturity shifts:
##

(In thousands of dollars)

	Within 1 year	1 to 5 years	5 to 10 years	Over 10 Years
#	+25,637,858	-21,310,468	-1,581,525	-2,745,865
##	+ 1,315,406	- 1,139,406	- 176,000	-

TRANSACTIONS BETWEEN FEDERAL RESERVE AND GOVERNMENT SECURITY DEALERS - 1990

Outright Transactions*
Gross purchases plus gross sales:
(In thousands of dollars)

	Outright Transactions	
	Dollar Volume	Percentage Share
Securities Dealers	Treasury Bills	Treasury Bills
Morgan Stanley & Co.,Inc.	2,194,000	11.2%
Lehman Government Securities, Inc. (i)	1,804,000	9.2%
Salomon Brothers, Inc.	1,800,000	9.2%
Daiwa Securities America Inc.	1,355,000	6.9%
Continental Bank, N.A. (g)	1,254,000	6.4%
Bear, Stearns & Co., Inc.	1,050,800	5.4%
Discount Corporation of New York	1,005,000	5.1%
J.P. Morgan Securities, Inc.	982,900	5.0%
First Boston Corporation	829,100	4.2%
Manufacturers Hanover Securities Corp.	766,000	3.9%
Goldman, Sachs & Co.	618,000	3.2%
Chemical Securities, Inc.	514,000	2.6%
Security Pacific National Bank	396,100	2.0%
Citicorp Securities Markets, Inc.	395,000	2.0%
Paine Webber Inc.	352,000	1.8%
Aubrey G. Lanston & Co., Inc.	338,000	1.7%
Fuji Securities Inc.	311,000	1.6%
UBS Securities Inc. (d)	279,000	1.4%
The Nikko Securities Co., Int'l Inc.	247,000	1.3%
Yamaichi Int'l (America) Inc.	245,000	1.2%
Merrill Lynch Government Securities, Inc.	235,000	1.2%
S.G. Warburg & Co.,Inc.	230,000	1.2%
Bank of America N/T & S/A	215,000	1.1%
Carroll McEntee & McGinley, Inc.	211,300	1.1%
First Chicago Capital Markets, Inc. (a)	211,100	1.1%
Chase Securities, Inc.	185,000	0.9%
Barclays de Zoete Wedd Secs. Inc. (e)	167,600	0.9%
Donaldson, Lufkin & Jenrette Securities Corp.	160,000	0.8%
Greenwich Capital Markets, Inc.	155,000	0.8%
Harris Government Securities Inc.	125,000	0.6%
Westpac Pollock Government Securities, Inc. (f)	113,000	0.6%
Nomura Securities International, Inc.	110,000	0.6%
BT Securities Corporation	100,000	0.5%
CRT Government Securities, Ltd.	100,000	0.5%
Dean Witter Reynolds, Inc.	97,000	0.5%
Wertheim Schroder & Co., Inc. (k)	92,000	0.5%
Prudential-Bache Securities, Inc.	88,000	0.4%
Dillon, Read & Co., Inc. (c)	65,000	0.3%
Smith Barney, Harris Upham & Co., Inc.	62,600	0.3%
Sanwa-BGK Securities Co., L.P.	55,000	0.3%
Kidder, Peabody & Co., Inc.	51,000	0.3%
BNY Securities, Inc. (j)	35,000	0.2%
Midland-Montagu Securities, Inc. (h)	10,000	0.1%
Drexel, Burnham, Lambert Gov't Sec., Inc. (b)	-	-
SBC Government Securities, Inc. (l)	-	-
Total	19,609,500	100%

Notes appear on the final page of the table.

TRANSACTIONS BETWEEN FEDERAL RESERVE AND GOVERNMENT SECURITY DEALERS - 1990

Temporary Transactions#
(In thousands of dollars)

Securities Dealers	Repurchase Agreements		Percentage Share Securities Dealers	Customer Related		Percentage Share Securities Dealers	Matched Transactions		Percentage Share Securities Dealers
Manufacturers Hanover Securities Corp.	20,355,600	(1)	7.8%	3,072,000		2.4%	1,200,000		2.5%
Goldman, Sachs & Co.	20,240,000	(2)	7.7%	5,355,000	(7)	4.2%	6,000,000	(1)	12.4%
Nomura Securities International, Inc.	19,542,600	(3)	7.5%	13,234,000	(1)	10.3%	883,000		1.8%
Lehman Government Securities, Inc. (i)	16,558,000	(4)	6.3%	7,289,000	(4)	5.7%	4,365,000	(2)	9.0%
J.P. Morgan Securities, Inc.	15,878,000	(5)	6.1%	9,010,000	(2)	7.0%	1,650,000		3.4%
Daiwa Securities America Inc.	13,119,000	(6)	5.0%	7,745,000	(3)	6.0%	3,400,000	(3)	7.0%
Morgan Stanley & Co.,Inc.	12,036,000	(7)	4.6%	1,095,000		0.9%	2,050,000	(7)	4.2%
BT Securities Corporation	10,944,000	(8)	4.2%	4,971,500	(8)	3.9%	3,362,000	(4)	7.0%
CRT Government Securities, Ltd.	9,467,000	(9)	3.6%	4,860,000	(9)	3.8%	-		0.0%
Greenwich Capital Markets, Inc.	8,491,000	(10)	3.2%	4,836,000	(10)	3.8%	275,000		0.6%
Fuji Securities Inc.	7,748,000		3.0%	6,261,000	(5)	4.9%	2,500,000	(6)	5.2%
Harris Government Securities Inc.	6,926,000		2.6%	4,349,000		3.4%	650,000		1.3%
Aubrey G. Lanston & Co., Inc.	6,404,000		2.4%	5,657,000	(6)	4.4%	145,000		0.3%
Carroll McEntee & McGinley, Inc.	6,121,500		2.3%	2,392,000		1.9%	-		0.0%
Donaldson, Lufkin & Jenrette Securities Corp.	5,518,400		2.1%	4,342,000		3.4%	550,000		1.1%
Salomon Brothers, Inc.	5,274,000		2.0%	2,725,000		2.1%	775,000		1.6%
Merrill Lynch Government Securities, Inc.	5,114,000		2.0%	3,136,000		2.4%	1,800,000	(10)	3.7%
First Boston Corporation	4,988,000		1.9%	1,048,000		0.8%	1,725,000		3.6%
Sanwa-BGK Securities Co., L.P.	4,727,000		1.8%	2,963,000		2.3%	550,000		1.1%
S.G. Warburg & Co.,Inc.	4,434,000		1.7%	753,000		0.6%	775,000		1.6%
Chemical Securities, Inc.	4,398,000		1.7%	1,790,000		1.4%	325,000		0.7%
Bear, Stearns & Co., Inc.	4,221,000		1.6%	1,255,000		1.0%	2,975,000	(5)	6.2%
Continental Bank, N.A. (g)	4,136,000		1.6%	2,571,000		2.0%	810,000		1.7%
Discount Corporation of New York	4,080,000		1.6%	2,598,000		2.0%	100,000		0.2%
Citicorp Securities Markets, Inc.	3,528,000		1.3%	1,353,000		1.1%	275,000		0.6%
Yamaichi Int'l (America) Inc.	3,455,000		1.3%	2,688,000		2.1%	1,250,000		2.6%
Chase Securities, Inc.	3,310,000		1.3%	1,620,000		1.3%	1,831,000	(9)	3.8%
First Chicago Capital Markets, Inc. (a)	3,130,000		1.2%	3,021,000		2.4%	1,844,000	(8)	3.8%
The Nikko Securities Co., Int'l Inc.	3,122,000		1.2%	1,734,000		1.4%	85,000		0.2%
Kidder, Peabody & Co., Inc.	2,815,000		1.1%	355,000		0.3%	850,000		1.8%
Paine Webber Inc.	2,457,000		0.9%	2,031,000		1.6%	325,000		0.7%
Prudential-Bache Securities, Inc.	2,353,000		0.9%	643,000		0.5%	1,500,000		3.1%
Dean Witter Reynolds, Inc.	2,293,000		0.9%	2,378,000		1.9%	455,000		0.9%
Barclays de Zoete Wedd Secs. Inc. (e)	2,141,000		0.8%	775,000		0.6%	440,000		0.9%
Wertheim Schroder & Co., Inc. (k)	2,025,000		0.8%	3,368,000		2.6%	1,120,000		2.3%
Bank of America N/T & S/A	1,812,000		0.7%	850,000		0.7%	375,000		0.8%
Dillon, Read & Co., Inc. (c)	1,580,000		0.6%	299,000		0.2%	-		##
Security Pacific National Bank	1,477,000		0.6%	760,000		0.6%	30,000		0.1%
UBS Securities Inc. (d)	1,384,000		0.5%	663,000		0.5%	150,000		0.3%
BNY Securities, Inc. (j)	1,213,000		0.5%	1,494,000		1.2%	75,000		0.2%
Drexel, Burnham, Lambert Gov't Sec., Inc. (b)	910,000		0.3%	200,000		0.2%	250,000		0.5%
Smith Barney, Harris Upham & Co., Inc.	658,000		0.3%	318,000		0.2%	363,000		0.8%
SBC Government Securities, Inc. (l)	531,000		0.2%	73,000		0.1%	-		##
Midland-Montagu Securities, Inc. (h)	428,000		0.2%	473,000		0.4%	250,000		0.5%
Westpac Pollock Government Securities, Inc. (f)	125,000		##	-		##	10,000		##
Subtotal	261,468,100		100%	128,403,500		100%	48,343,000		100%
Foreign & International Institutions	-			-			1,320,709,140		
Total	261,468,100			128,403,500			1,369,052,140		

E-2 (Cont'd)

U.S. TREASURY AND FEDERAL AGENCY SECURITY HOLDINGS
IN SYSTEM OPEN MARKET ACCOUNT
(In thousands of dollars)

Treasury Bonds		Holdings* 12/31/90	Net change since 12/31/89
Matured in 1990			(426,300)
Issues outstanding			
4.250%	08/15/92	509,200	-
7.250%	08/15/92	91,785	-
4.000%	02/15/93	24,300	-
6.750%	02/15/93	69,550	-
7.875%	02/15/93	137,000	-
7.500%	08/15/93	438,217	-
8.625%	08/15/93	164,050	-
8.625%	11/15/93	164,500	-
9.000%	02/15/94	99,976	-
4.125%	05/15/94	76,625	-
8.750%	08/15/94	51,605	-
10.125%	11/15/94	70,800	-
3.000%	02/15/95	2,100	-
10.500%	02/15/95	46,150	-
10.375%	05/15/95	57,000	-
12.625%	05/15/95	372,317	-
11.500%	11/15/95	32,000	-
7.000%	05/15/98	157,275	-
3.500%	11/15/98	30,750	-
8.500%	05/15/99	1,085,755	-
7.875%	02/15/00	680,490	-
8.375%	08/15/00	2,065,375	-
11.750%	02/15/01	160,803	-
13.125%	05/15/01	159,726	-
8.000%	08/15/01	489,210	-
13.375%	08/15/01	199,092	-
15.750%	11/15/01	162,904	-
14.250%	02/15/02	95,800	-
11.625%	11/15/02	172,650	-
10.750%	02/15/03	147,250	-
10.750%	05/15/03	38,000	-
11.125%	08/15/03	185,000	-
11.875%	11/15/03	147,240	-
12.375%	05/15/04	182,786	-
13.750%	08/15/04	11,000	-
11.625%	11/15/04	109,200	-
8.250%	05/15/05	1,492,660	-
12.000%	05/15/05	64,476	-
10.750%	08/15/05	248,000	-
7.625%	02/15/07	1,389,164	-
7.875%	11/15/07	264,500	-
8.375%	08/15/08	753,500	-
8.750%	11/15/08	1,578,500	-
9.125%	05/15/09	696,205	-
10.375%	11/15/09	1,025,939	-
11.750%	02/15/10	663,400	-
10.000%	05/15/10	1,164,556	-
12.750%	11/15/10	972,865	-

Treasury Bonds(cont'd)		Holdings* 12/31/90	Net change since 12/31/89
13.875%	05/15/11	955,542	-
14.000%	11/15/11	687,291	-
10.375%	11/15/12	1,022,441	-
12.000%	08/15/13	2,390,772	-
13.250%	05/15/14	407,050	-
12.500%	08/15/14	570,720	-
11.750%	11/15/14	840,000	-
11.250%	02/15/15	908,733	-
10.625%	08/15/15	680,000	-
9.875%	11/15/15	166,500	-
9.250%	02/15/16	268,000	-
7.250%	05/15/16	900,000	-
7.500%	11/15/16	335,000	-
8.750%	05/15/17	194,000	-
8.875%	08/15/17	230,000	-
9.125%	05/15/18	200,000	-
9.000%	11/15/18	20,000	-
8.875%	02/15/19	210,000	-
8.125%	08/15/19	400,000	-
8.500%	02/15/20	225,879	225,879
8.750%	05/15/20	150,000	150,000
8.750%	08/15/20	400,000	400,000
Total Treasury Bonds		31,163,174	349,579
Total Treasury Security Holdings		235,089,588	8,314,305

* Delivery basis.

Note: Declines in holdings are shown in parentheses.

U.S. TREASURY AND FEDERAL AGENCY SECURITY HOLDINGS IN SYSTEM OPEN MARKET ACCOUNT
(In thousands of dollars)

U.S. Government-Sponsored Agency Issues

FHLB		Holdings* 12/31/90	Net Change since 12/31/89
Matured in 1990			(610,800)
Issues outstanding			
8.00%	01/25/91	12,000	12,000
9.10	01/25/91	15,000	-
8.30	01/25/91	13,000	-
7.95	01/25/91	35,000	35,000
9.30	01/25/91	10,000	-
9.60	01/25/91	20,000	-
11.875	02/25/91	25,000	-
7.10	02/25/91	50,000	-
8.20	02/25/91	10,000	10,000
8.65	03/25/91	30,000	5,000
10.00	03/25/91	7,000	-
7.125	03/25/91	13,000	13,000
7.75	03/25/91	25,000	25,000
7.35	04/25/91	23,000	-
9.65	04/25/91	12,000	-
7.875	05/27/91	20,000	-
8.375	05/28/91	30,000	30,000
8.50	05/28/91	17,000	-
9.25	05/28/91	15,000	-
7.15	06/25/91	8,000	8,000
8.30	06/25/91	10,000	-
8.60	06/25/91	8,000	-
8.25	06/25/91	3,000	3,000
7.50	07/25/91	25,000	-
8.15	07/25/91	19,700	-
8.60	08/26/91	35,000	-
11.10	08/26/91	130,000	-
7.40	09/25/91	3,000	-
8.80	09/25/91	2,000	-
11.75	09/25/91	26,000	-
7.90	09/25/91	10,000	10,000
9.95	10/25/91	10,000	-
7.80	10/25/91	5,000	5,000
8.70	10/25/91	28,000	-
7.15	11/25/91	15,000	-
7.45	11/25/91	40,000	40,000
7.00	12/26/91	25,000	-
11.40	12/26/91	20,000	-
7.00	01/27/92	10,000	-
8.35	02/25/92	10,000	10,000
11.45	02/25/92	31,700	-
8.85	03/25/92	30,000	30,000
10.00	03/25/92	3,000	-
7.10	03/25/92	40,000	-
11.70	04/27/92	31,000	-
9.65	04/27/92	8,000	-
8.30	04/27/92	5,000	-
8.60	05/26/92	10,000	-
9.15	05/26/92	5,000	-
8.60	05/26/92	30,000	30,000
8.45	06/25/92	4,000	4,000
8.40	06/25/92	5,000	-
8.25	07/27/92	15,000	-
8.60	08/25/92	5,000	-
10.35	08/25/92	17,000	-
8.25	09/25/92	6,000	-
8.15	10/26/92	16,000	-
8.00	10/26/92	33,000	33,000
10.85	10/26/92	4,000	-
8.80	11/25/92	17,000	-
8.00	11/25/92	30,000	-
7.65	11/25/92	53,000	53,000

FHLB (Cont'd)		Holdings* 12/31/90	Net Change since 12/31/89
11.10	11/25/92	20,000	-
9.40	12/28/92	3,000	-
7.95	12/28/92	20,000	-
7.375	12/28/92	14,000	14,000
9.50	01/25/93	16,000	-
9.35	01/25/93	10,000	-
8.30	01/25/93	12,000	12,000
8.10	03/25/93	1,200	-
7.55	04/26/93	28,000	-
9.125	05/25/93	5,000	-
8.90	05/25/93	10,000	-
10.75	05/25/93	16,100	-
8.125	05/25/93	10,000	-
7.75	07/26/93	10,000	-
11.70	07/26/93	3,000	-
9.00	07/26/93	6,900	-
11.95	08/25/93	40,000	-
8.18	08/25/93	60,000	60,000
7.95	09/27/93	2,000	-
8.30	09/27/93	23,000	23,000
7.875	10/25/93	5,000	-
8.80	10/25/93	15,000	-
7.375	11/26/93	115,335	-
9.125	11/26/93	15,000	-
12.15	12/27/93	61,000	-
7.50	12/27/93	10,000	10,000
7.375	12/27/93	10,000	-
7.30	01/25/94	5,000	-
7.45	02/25/94	1,700	-
9.60	02/25/94	20,000	-
12.00	02/25/94	25,000	-
9.55	04/25/94	6,000	-
8.625	06/27/94	3,000	3,000
8.60	06/27/94	7,000	-
8.30	07/25/94	20,000	-
8.60	08/25/94	17,900	-
8.30	10/25/94	18,000	-
8.20	11/25/94	15,000	-
8.05	12/26/94	7,000	-
8.40	01/25/95	7,000	7,000
8.60	02/27/95	5,000	5,000
9.00	03/27/95	20,000	20,000
8.875	06/26/95	8,000	-
10.30	07/25/95	18,000	-
9.50	12/26/95	3,000	-
8.10	03/25/96	10,000	-
9.80	03/25/96	3,000	-
7.75	04/25/96	33,000	-
8.25	05/27/96	16,000	-
8.00	07/25/96	15,000	-
8.25	09/25/96	2,000	-
8.25	11/25/96	10,000	-
7.875	02/25/97	40,730	-
9.15	03/25/97	5,000	5,000
7.65	03/25/97	12,000	-
9.25	11/25/98	5,000	-
9.30	01/25/99	2,000	-
8.60	06/25/99	3,900	-
8.45	07/26/99	5,000	-
8.60	08/25/99	11,000	-
8.375	10/25/99	10,000	-
8.60	01/25/00	6,000	6,000
		2,161,165	(89,800)

* Delivery basis

Note: Declines in holdings are shown in parentheses.

E-3 (Cont'd)

U.S. TREASURY AND FEDERAL AGENCY SECURITY HOLDINGS
IN SYSTEM OPEN MARKET ACCOUNT
(In thousands of dollars)

U.S. Government-Sponsored Agency Issues (Cont'd)

		Holdings* 12/31/90	Net Change since 12/31/89
FNMA			
Matured in 1990			(167,715)
Issues outstanding			
6.90%	02/11/91	40,000	-
7.65	02/11/91	15,000	-
7.20	04/10/91	20,000	-
8.00	04/10/91	60,000	-
8.55	06/10/91	45,650	-
7.65	07/10/91	15,000	-
8.40	08/12/91	25,000	-
8.70	08/12/91	35,000	-
7.00	09/10/91	48,000	-
7.375	10/10/91	75,000	-
7.80	10/10/91	28,265	-
9.55	11/12/91	58,700	-
11.75	12/10/91	30,000	-
8.50	01/10/92	25,000	-
7.00	03/10/92	42,000	-
7.00	03/10/92	78,000	-
12.00	04/10/92	20,000	-
7.05	06/10/92	31,100	-
10.125	06/10/92	9,000	-
8.45	07/10/92	12,200	-
9.15	09/10/92	80,000	-
10.60	10/12/92	4,700	-
9.875	12/10/92	55,000	-
7.95	02/10/93	75,000	-
7.90	03/10/93	75,000	-
10.95	03/10/93	35,000	-
7.55	04/12/93	13,000	-
10.875	04/12/93	45,000	-
8.80	06/10/93	25,000	-
8.45	07/12/93	15,000	-
7.375	12/10/93	25,000	-
7.65	04/11/94	15,000	-
9.60	04/11/94	100,000	-
9.30	05/10/94	25,000	25,000
8.60	06/10/94	24,650	-
8.65	07/11/94	20,000	20,000
8.90	08/10/94	15,000	-
10.10	10/11/94	30,000	-
8.30	12/12/94	46,000	6,000
9.00	01/10/95	15,000	-
11.95	01/10/95	12,000	-
10.50	09/11/95	20,000	-
8.80	11/10/95	100,000	-
8.50	06/10/96	10,000	-
8.75	06/10/96	10,000	-
8.00	07/10/96	31,500	-
7.70	12/10/96	12,000	-
7.60	01/10/97	160,000	-
9.25	04/10/97	15,000	15,000
9.20	06/10/97	27,000	-
8.95	07/10/97	10,000	-
9.15	09/10/97	20,000	20,000
9.55	09/10/97	35,000	-
7.40	10/01/97	49,410	-
7.10	12/10/97	26,195	-
8.65	02/10/98	10,000	-
9.15	04/10/98	30,000	-
9.40	08/10/98	50,000	-
9.55	03/10/99	25,000	-
8.70	06/10/99	23,000	-
8.45	07/12/99	5,000	-
9.00	10/11/99	44,000	-
8.35	11/10/99	7,000	7,000
FNMA (Cont'd)			
8.65	12/10/99	30,000	-
9.05	04/10/00	10,000	10,000
9.80	05/10/00	30,000	30,000
9.15	07/10/00	19,000	19,000
9.20	09/11/00	10,000	10,000
9.15	10/10/00	5,000	5,000
8.20	07/10/02	34,000	-
10.35	12/10/15	10,000	-
8.20	03/10/16	15,000	-
		2,346,400	(715)
FFCB			
Matured in 1990			(1,266,814)
Issues outstanding			
7.83%	01/02/91	90,000	90,000
7.85	01/02/91	30,000	30,000
8.20	01/02/91	80,000	80,000
7.95	02/01/91	50,000	50,000
8.20	02/01/91	19,000	19,000
7.75	02/01/91	45,000	45,000
7.95	03/01/91	110,000	110,000
7.65	03/01/91	43,000	-
8.35	03/01/91	40,000	40,000
7.45	03/01/91	110,000	110,000
8.50	04/01/91	30,000	30,000
7.90	04/01/91	65,000	65,000
14.10	04/22/91	5,000	-
7.55	04/22/91	45,000	-
7.65	05/01/91	34,000	34,000
8.70	05/01/91	20,000	20,000
7.40	06/03/91	80,000	80,000
8.35	06/03/91	46,000	46,000
8.30	07/01/91	35,000	35,000
14.70	07/22/91	12,000	-
9.10	07/22/91	42,626	-
8.00	08/01/91	20,000	20,000
8.05	09/03/91	50,000	50,000
8.05	10/01/91	40,000	40,000
10.60	10/21/91	10,275	-
7.70	11/01/91	20,000	20,000
7.45	12/02/91	51,000	51,000
13.65	12/02/91	12,000	-
11.50	01/20/92	7,000	-
15.20	01/20/92	28,000	-
13.75	07/20/92	15,000	-
8.40	07/23/92	50,000	50,000
8.25	09/01/92	15,000	15,000
8.60	09/01/92	10,000	-
7.63	12/01/92	20,000	20,000
8.13	01/20/93	25,000	25,000
10.65	01/20/93	40,000	-
11.80	10/20/93	30,000	-
12.35	03/01/94	10,000	-
14.25	04/20/94	3,700	-
13.00	09/01/94	8,000	-
8.63	09/01/94	10,000	-
11.45	12/01/94	7,000	-
8.30	01/20/95	21,710	21,710
11.90	10/20/97	15,000	-
		10,000	-
Total		1,560,311	(70,104)

* Delivery basis.

Note: Declines in holdings are shown in parentheses.

U.S. TREASURY AND FEDERAL AGENCY SECURITY HOLDINGS
IN SYSTEM OPEN MARKET ACCOUNT
(In thousands of dollars)

U.S. Government-Sponsored Federal Agency Issues (Cont'd)

		Holdings* 12/31/90	Net Change since 12/31/89
FLB			
Matured in 1990			(22,061)
Issues outstanding			
7.92%	04/22/91	41,190	-
7.95	10/21/96	49,795	-
7.35	01/20/97	16,650	-
		107,635	(22,061)

U.S. Government Agency Issues**

U.S. Postal Service			
6.875%	02/01/97	37,055	-
Total		37,055	-
Washington Metro Area Transit Auth.			
Issues outstanding			
7.30%	07/01/12	44,950	-
7.35	07/01/12	35,410	-
8.15	07/01/14	36,410	-
Total		116,770	-
General Service Administration			
7.15%	12/15/02	12,220	(375)
Total		12,220	(375)
Total Agency Issues		6,341,556	(183,055)
Total Treasury & Agency Issues		241,431,144	8,131,250

* Delivery basis.

** The Federal Reserve is no longer authorized to buy debt of these Government entities because they are eligible to borrow from the Federal Financing Bank.

Note: Declines in holdings are shown in parentheses.

Holdings of Treasury Bills by the System Open Market Account
(In thousands of dollars)

December 31, 1990 Maturity	Holdings*	Percent of the Total Amount Outstanding
1990		
1/ 3	4,649,835	25.2%
1/10#	469,720	24.0%
1/17#	3,594,195	23.4%
1/24	4,858,060	27.3%
1/31	3,955,200	20.2%
2/ 7	4,758,015	24.7%
2/14	7,477,210	25.6%
2/21	4,813,385	24.8%
2/28	4,327,600	22.7%
3/ 7	4,330,430	22.4%
3/14	6,429,555	21.6%
3/21	3,970,180	20.5%
3/28	3,174,410	16.5%
4/ 4	2,524,900	26.9%
4/11	4,750,000	24.7%
4/18	2,627,000	26.3%
4/25	2,914,600	14.1%
5/ 2	2,708,000	27.2%
5/ 9	5,058,200	25.1%
5/16	2,809,800	26.6%
5/23	2,500,000	23.8%
5/30	2,732,000	26.1%
6/ 6	4,905,000	23.4%
6/13	1,927,500	19.2%
6/20	1,849,800	17.6%
6/27	1,549,600	15.5%
7/ 5	2,800,000	26.5%
8/ 1	2,428,500	22.7%
8/29	2,657,600	25.0%
9/26	2,227,000	21.0%
10/24	1,456,000	14.4%
11/21	2,987,000	23.9%
12/19	2,299,600	19.5%
Total #	112,519,895	21.3%

* Delivery basis.

Holdings exclude $4,008,010 thousand of January 10 maturities and $3,166,925 thousand of January 17 maturities that were sold under matched sale-purchase agreements. The percentages include matched transactions.

Participation In the System Open Market Account

The following table shows the net change in each Reserve Bank's participation during 1990 as a result of reallocations.

Reallocations of Participation in the System Open Market Account During 1990

	Reallocations	Participations December 31, 1990
Boston	$1,139,000,000	$16,219,701,441.73
New York	3,832,000,000	89,124,307,695.50
Philadelphia	61,000,000	7,031,044,318.73
Cleveland	547,000,000	14,463,572,315.91
Richmond	2,344,000,000	22,470,862,115.40
Atlanta	(2,472,000,000)	8,430,838,251.77
Chicago	728,000,000	29,445,626,930.84
St. Louis	(412,000,000)	7,000,495,608.68
Minneapolis	(198,000,000)	3,856,630,230.70
Kansas City	(1,691,000,000)	7,879,102,094.84
Dallas	(1,453,000,000)	8,617,227,247.18
San Francisco	(2,425,000,000)	26,891,735,748.72
	$8,651,000,000	
	($8,651,000,000)	$241,431,144,000.00

Note: Declines are shown in parentheses.

Reallocation of participation in the System Open Market Account occurs each April and is based on net reserve flows between the districts. Gold certificates are reassigned among the districts according to the balance in each district's interdistrict settlement account. Those districts that are left with a below-average proportion of gold certificates to their Federal Reserve notes outstanding would receive additional gold certificates to return the proportion to the System average by paying for them with securities. A district which loses gold certificates is, in turn, compensated with additional securities. The Federal Reserve Bank of New York carries out the changes in portfolio shares on instruction from the Board of Governors. The resulting percentage of each Bank's participation in the System Account is used throughout the year to apportion the daily SOMA transactions.

System Account Earnings

Earnings from U.S. Government and Federal agency securities held in the System Open Market Account during the calendar year 1990 totaled $19,869,947,435 a decrease of $81,276,847 from earnings in 1989.

The average earnings rate was 8.44 percent in 1990, compared with 8.61 percent in 1989. The earnings rate, which was 8.46 percent on January 2, 1990, closed the year at 8.04 percent. Average holdings increased to $234.9 billion in 1990 from $230.9 billion in 1989.

Note: Earnings reflect a 2 basis-point charge to foreign accounts for repurchase agreements.

The System Open Market Account earnings rate and the net daily accrual of earnings based on the holdings at the close of 1990, compared with those at the close of 1989, are shown in the following table:

(In thousands of dollars)

	12/31/90	12/31/89	Net Change
Total Portfolio*	$241,431,144	$233,299,894	$8,131,250
Earnings Rate**	8.04%	8.46%	(.42%)
Net Daily Accrual of Earnings#	$53,211	$54,080	($869)
Coupon Issues	$31,290	$32,044	($754)
Treasury Bills	$21,921	$22,036	($115)

* Delivery Basis.

** The earnings rate on the last day of each year excludes interest earnings on holdings of most Federal agency issues. Most agency securities accrue interest on a 30-day per month basis. Thus, for accounting purposes, in 31-day months, no interest accrues on the last day and in February, interest earnings on the last day are adjusted to make the month's earnings equivalent to that of a 30-day month.

\# Net after accrual of discount and amortization of premium balances.

Market Value of Portfolio

The net appreciation of System Open Market Account holdings of Treasury notes and bonds and Federal agency issues on December 31, 1990, as measured by the difference between book value and market bid quotations on notes and bonds, is shown below:

(In thousands of dollars)

	Par Value Holdings	Book Value	Market Value	Appreciation or (Depreciation)
Notes	91,406,519	91,577,129	94,054,292	2,477,163
Bonds	31,163,174	31,816,926	35,563,183	3,746,257
Agencies	6,341,556	6,327,826	6,444,665	116,840

Note: Declines are shown in parentheses.

Repurchase Agreements Against U.S. Government and Federal Agency Securities
Federal Reserve Bank of New York
(In thousands of dollars)

	1990	1989	1988
Purchases	261,468,100	168,354,200	209,871,300
Sales	245,231,100	173,098,400	207,970,805
Year-end Balance	18,354,000	2,117,000	6,861,200
Earnings on Repurchase Agreements	124,561	113,338	96,059

Matched Transactions
System Open Market Account
(In thousands of dollars)

	1990	1989	1988
Sales	1,369,052,140	1,323,479,615	1,168,486,250
Purchases	1,363,943,585	1,326,541,010	1,168,142,950
Outstanding transactions at year-end	7,174,935	2,066,380	5,127,775

Customer-Related Transactions
(In thousands of dollars)

	1990	1989	1988
Sales	131,760,500	104,843,500	142,565,100
Purchases	128,403,500	108,200,500	142,565,100
Outstanding transactions at year-end	-	3,357,000	-

APPENDIX F

PERSONNEL CHANGES

As of February 28, 1991, there were 68 positions in the Open Market Group, an increase of one from the previous year. There were no changes in the official staff. Seven officers were assigned to the Open Market Group. The nonofficial staff of the Open Market Function consisted of 61 positions, all of which were filled at the end of February 1991.[1] Six officers' secretaries were assigned to the Group administration staff. The remaining 55 positions were distributed across the three divisions and automation area of the Open Market Department as follows: 21 in the Trading Division, 20 in the Accounting Division, 12 in the Analysis Division, and two in the Open Market Automation Staff.

During the year ended February 28, 1991, four people left the Open Market Group, one of whom was reassigned within the Bank. These departures represent a turnover rate of about 6 percent, down from about 13 percent in the previous year. Two positions were open at the start of the year. Seven individuals assigned to other areas of the Bank were brought in to fill the six openings. The net increase in staffing was made in anticipation of future turnover.

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[1]This number, and all others cited, exclude a person on loan to the Analysis Division from the Research Department under a regular six-month rotation program.

APPENDIX G

EXPENSE AND BUDGET DATA RELATING TO OPEN MARKET GROUP FEDERAL RESERVE BANK OF NEW YORK

The data in Table G-1 indicate charges to the activity budget codes of the Open Market Group that relate directly to transactions for the System Open Market Account. Handling of repurchase agreements on behalf of the account of the Federal Reserve Bank of New York is also included. Not included are services performed by other departments for which the Open Market Group is not billed that are related to processing and recordkeeping for open market transactions.

The 1991 budget estimates include the full-year costs of running the Securities Trading and Clearing System (STACS) and the Information Distribution System (IDS). The estimates also incorporate expenses associated with several automation initiatives. The projects started in 1991, which will likely extend into 1992, include:

- Automating the submission and evaluation of tenders at U.S. Treasury security auctions by primary dealers in the Second Federal Reserve District.

- Developing STACS contingency capabilities.

- Installing the Bank's Office Support System (OSS) and integrating it with IDS.

TABLE G-1

Expenses and Budgets for Open Market Group

Federal Reserve Bank of New York

	Estimated Expenses 1990 As of August 1990	Actual Expenses 1990	Estimated Expenses 1991	
Salaries--Employees (a) (b)	$1,749,000	$1,815,033	$1,884,600	
Retirement and other benefits (b)	355,303	382,464	450,285	
Printing and supplies (b)	103,519	83,541	105,643	
Equipment:				
Rentals and Depreciation	184,490	179,095	248,874	
Repair & Maintenance	111,560	83,833	101,550	
Data Processing/Data Communications	197,400	88,742	565,074	(c)
Telephone	64,756	59,499	67,993	
Travel	21,500	28,365	27,500	
Purchased Information	343,321	330,139	342,310	
Software and System Development	1,135,805	1,190,613	1,590,442	(d)
Other Expenses	16,155	9,196	13,445	
Total	4,282,809	4,250,520	5,397,716	
Officers				
Salaries	651,671	686,594	727,754	
Retirement and other benefits	132,250	157,916	169,150	
Total	783,921	844,510	896,904	
Grand total	$5,066,730	$5,095,030	$6,294,620	

(a) Includes overtime.
(b) Excludes reimbursable expenditures on behalf of the Treasury.
(c) Full year implementation of STACS and IDS.
(d) Includes installation of OSS.

Please replace page A-10 (Table A-5) in the "MONETARY POLICY AND OPEN MARKET OPERATIONS DURING 1990" with the attached page. With respect to the number of rounds in 1990, the table reflects a more explicit and appropriate treatment of forward RPs.