

Monetary Policy and Open Market Operations During 1986

Monetary policy in 1986 sought to sustain the ongoing economic expansion against a background that included restrained and often uneven economic growth and declining inflation. Indeed, as measured by the implicit gross national product (GNP) deflator, prices rose at their slowest pace since 1964, thanks in good part to the collapse of oil prices, a factor that many regarded as temporary. The monetary aggregates grew rapidly, lifting M1 well above its target range and taking the broader measures to the upper ends of their ranges, but the growth did not seem to have the same interpretation as it had in earlier times. In this instance, the increases seemed less likely to foster excessive economic growth or inflation. Hence, the Federal Open Market Committee (FOMC) accommodated the rapid M1 expansion and judged appropriate policy in the context of the growth of the broader aggregates, economic activity, inflation, financial market developments, and the foreign exchange value of the dollar. Total reserves grew a record 20 percent over the year, reflecting the unprecedented expansion of transactions balances. The relatively generous provision of reserves in combination with a series of discount rate

cuts accomplished a gradual reduction in the degree of pressure on reserve positions.

The financial markets responded with falling interest rates to the combination of modest economic expansion, low rates of inflation, and adjustments to the stance of monetary policy. Long-term rates fell sharply near the start of the year, and the rally extended to the short-term sector once the discount rate was cut in March. Interest rate movements were mixed later in the year, but rates, nonetheless, finished substantially lower.

M2 and M3 grew slowly near the start of the year, but accelerated during the spring, and each was generally near the 9 percent top of its annual range during the latter months of the year. Nominal income expanded just over 4 percent over the four quarters of 1986, which meant that M2 and M3 velocity—the ratio of nominal GNP to money—declined significantly. The declines in market interest rates apparently contributed to the increased demand for the broader aggregates by attracting some funds that might otherwise have been held in market instruments. In these circumstances, the FOMC judged growth near the upper ends of their ranges to be acceptable.

M1 grew a record 15 percent between the fourth quarter of 1985 and the fourth quarter of 1986, far exceeding the range that had been set at the February meeting. As the year proceeded, it became increasingly apparent that the demand for M1 was rising sharply and that its movements had become more interest-rate sensitive. The declines in interest rates made NOW account rates reasonably competitive with market rates when interest-rate ceilings on these deposits were phased out at the beginning of the year.

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A number of factors outside direct Federal Reserve control continued to serve as background to the policy process. Among the most important of these were the ongoing Federal budget and international current account deficits. The Gramm-Rudman (GR) deficit reduction process encouraged some steps to shrink future deficits but, in fiscal 1986, the deficit grew. Likewise, the current account deficit widened, even though the exchange value of the dollar had dropped substantially since its peak level in February 1985. Further declines in the value of the dollar in 1986 were viewed as acceptable. However, there were concerns at times that the dollar could fall too sharply with the declines feeding upon themselves, thereby promoting domestic inflationary pressures. In that context, the Federal Reserve was aware that it needed to be sensitive to the consequences of its monetary policy actions for the foreign currency markets.

The Trading Desk continued to take a flexible approach to implementing policy in the face of the uncertainties about the behavior of the monetary aggregates as the year went along. With the reserve pressures being generally maintained at relatively low levels, it met reserve needs promptly during much of the year. Reserve pressures were lowered near the end of 1985 and early in 1986 through reductions in the expected amount of discount window borrowing to \$300 million, an amount considered to be only modestly above frictional levels. Thereafter, further easing of reserve pressure was accomplished with four one-half-percentage-point cuts in the discount rate, which lowered the rate to 5½ percent by August.

The monetary aggregates

The broader monetary aggregates behaved about in line with the objectives during 1986 while M1 once again grew much more rapidly than anticipated. M1 velocity declined very sharply during 1986, making its behavior difficult to interpret. The FOMC was cautious in its reading of the growth of this measure and moved to deemphasize it as a policy indicator. The Committee tended to place its emphasis on the broader aggregates, economic expansion, inflation, domestic and international financial market conditions, and the exchange value of the dollar.

At its February meeting, the FOMC set growth rate ranges for fourth quarter 1985 to fourth quarter 1986. The ranges for the broader aggregates, M2 and M3, were left at 6 to 9 percent, the same as the tentative ranges set the preceding July. The Committee noted that growth in 1985 had been generally in line with expectations and that the behavior of M2 and M3 seemed to have been less affected than M1 by institutional and interest rate changes. The broader aggregates include

an array of deposit and money market instruments that have often exhibited offsetting movements. The range for M1 growth was widened by 2 percentage points to 3 to 8 percent to reflect the uncertainties already apparent in February about the appropriate behavior of that aggregate. The 1986 range for M1 was well below the actual 12 percent increase in 1985.

In evaluating the prospective growth of M1, the Committee assumed that its velocity would not decline so substantially as it had in 1985, when it had dropped 5 percent. The Committee recognized the possibility that velocity could decline rapidly in 1986 if there were a continuation of the recent trends, which might make it appropriate for M1 to run above its annual range. Of particular concern were factors shifting the public's allocation of savings, including the deregulation of interest-bearing NOW accounts. The Committee believed that it was appropriate to continue to be guided by all three monetary measures, as collectively they seemed to have more significance than they did individually.

Against a backdrop of low inflation and declining short- and long-term interest rates, M1 did not return to its traditional relationship to economic activity or to the broader aggregates. M1 appeared to have become more interest-sensitive than it had been when market rates were far above the regulated rates on M1 deposits. M1 grew 15.3 percent from the fourth quarter of 1985 to the fourth quarter of 1986, substantially above the upper end of its range (Chart 1).¹ M1 growth started out slowly, barely rising in January after rapid expansion in the last few months of 1985. Growth accelerated and M1 moved above the upper limit of its cone in March. Once short-term rates dropped in the wake of discount rate cuts in March and April, M1 growth accelerated further. By May, M1 exceeded the upper end of its parallel band. The above-path growth continued without pause for the rest of the year, with a further acceleration in December.

Both of the broader aggregates closed the year just about at the tops of their target ranges, with M2 growth of 9.1 percent, on a fourth quarter to fourth quarter basis, and M3 growth of 8.9 percent (Charts 2 and 3). M2 started 1986 somewhat below the lower bound of its cone, but soon quickened, and during the latter half

¹All money growth rates cited in this report are based on the data available before the benchmark and seasonal revisions in February 1987. The earlier data were used because they more closely represent the information available to the FOMC members at the time that their decisions were being made. The revisions were generally small for 1986 and had M1 growth at 15.2 percent over the four quarters. The fourth quarter to fourth quarter growth of M2 was lowered 0.2 percentage points to 8.9 percent. Growth of M3 was lowered from 8.9 percent to 8.8 percent. The quarterly growth patterns of the aggregates were modified slightly by the revisions. In particular, growth rates for M1 and M2 early in the year were raised modestly, while growth rates for subsequent months were lowered very slightly on balance.

Chart 1

M1: Levels and Target Ranges

Cones and tunnels

Billions of dollars

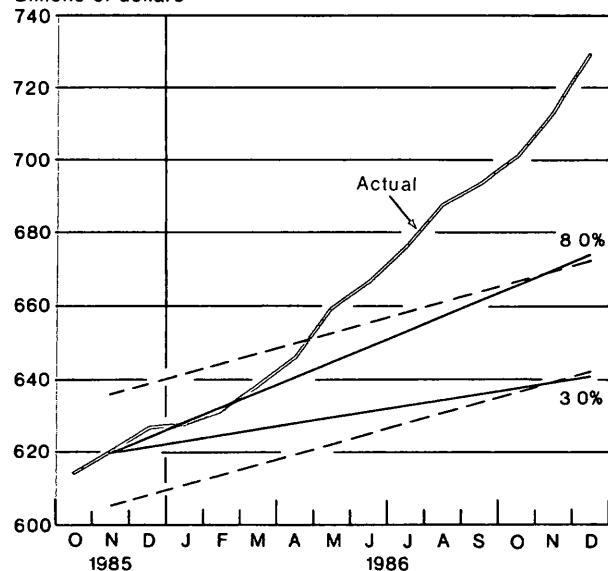


Chart 2

M2: Levels and Target Ranges

Cones and tunnels

Billions of dollars

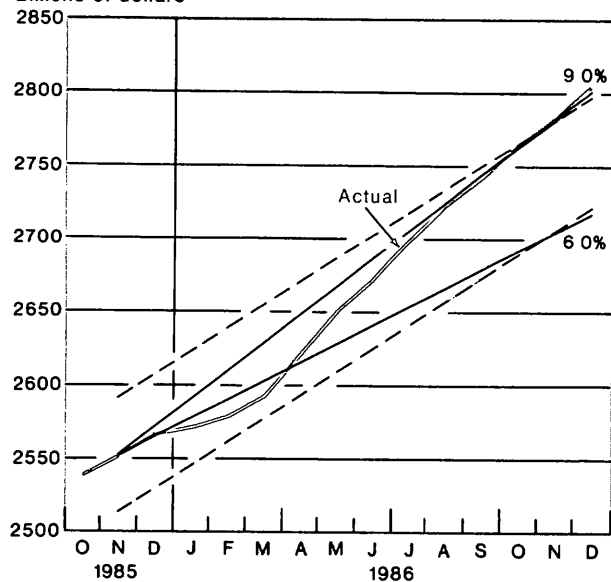


Chart 3

M3: Levels and Target Ranges

Cones and tunnels

Billions of dollars

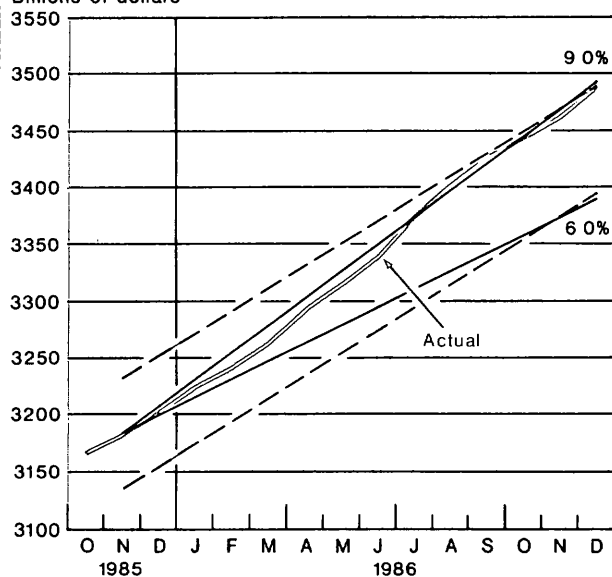
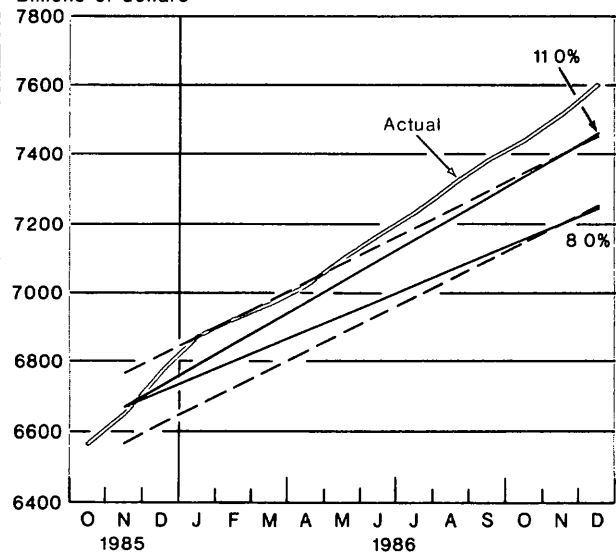


Chart 4

Total Domestic Nonfinancial Debt Levels and Monitoring Ranges

Cones and tunnels

Billions of dollars



of the year was generally around the upper end of its designated cone range. M3, meanwhile, showed a pattern of moderate growth and remained comfortably within its cone until the summer. It moved slightly above it for a time in late summer although it stayed within the parallel bands. The expansion of domestic nonfinancial debt continued to outpace the growth of GNP, registering a 13.2 percent increase over the four quarters and running above the Committee's 8 to 11 percent monitoring range for the year (Chart 4).

The FOMC confronted the question of how to handle the M1 overshoot at the May meeting. It decided to accept the rapid growth that had already occurred, but it set a range for the March-to-June period that anticipated a deceleration in money growth over the balance of the quarter. While the desired slowing in M1 did not occur, the pace of economic activity seemed to be slowing, giving further evidence that the relationship between M1 and GNP had changed.

By the time the Committee met in July, it took account of the mounting evidence that the relationship of M1 to income had been significantly altered by changes in the composition of the aggregate, making it very difficult to assess or predict the implications of M1 growth for the future course of economic activity and the rate of inflation. It believed that the operational significance of M1 could only be judged in the perspective of concurrent economic and financial developments, including the behavior of the broader aggregates. The Committee decided to retain the annual range for M1 for its continued information value for policy, even if the range were used only as a benchmark for measuring deviations. It rejected raising or rebasing the range, since such an adjustment might imply greater certainty about the future performance of the measure than in practice existed. The FOMC indicated that growth above the existing range would be acceptable for the year.

Both of the broader aggregates were well within their ranges at the time of the July review. The growth ranges set near the beginning of the year continued to be seen as consistent with the Committee's overall policy objectives, so those ranges were retained. Growth rates for both measures accelerated somewhat over the balance of the year. They, nonetheless, ended near the upper ends of their annual target ranges, despite the explosive growth in the M1 component, reflecting the slow growth or declines in some of the less liquid nontransactions components.

All three measures outpaced GNP growth during the year, resulting in velocity declines. From the fourth quarter of 1985 to the fourth quarter of 1986, M2 velocity fell 4.5 percent while M3 velocity fell 4.3 percent. The velocity declines in the broader aggregates held them below their long-term trends (Charts 5 and

6), but the distortion was far less than that to M1. Much of the below-trend performance reflected the weakness in M1 velocity. To some extent, the declining velocity may have reflected shifts from market instruments to liquid nontransactions components of M2 and M3. As spreads of market rates over those available on more liquid nontransactions M2 components narrowed, increased inflows to these accounts became apparent.

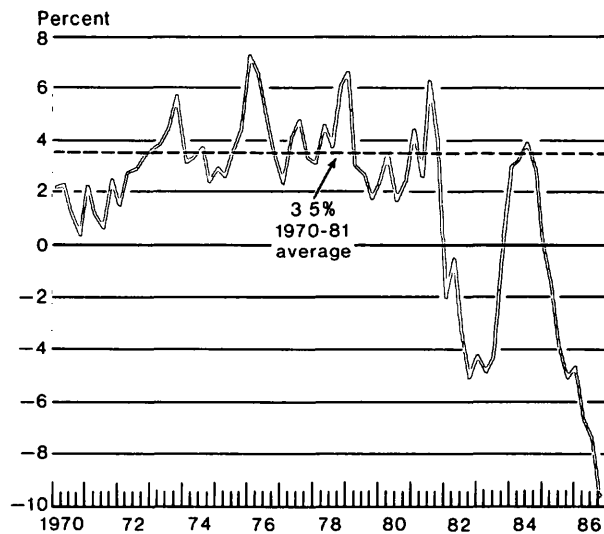
There was also a shift in the composition among the nontransactions components within M2, as interest rates on various components were adjusted at different speeds, creating incentives for customers to change the mix of their deposit holdings. Interest-rate ceilings on passbook savings accounts were eliminated April 1, by which point market rates had fallen enough that the ceilings were no longer binding. As market rates fell further, bank and thrift institutions were reluctant to lower their passbook savings rates below previous interest-rate ceilings since rates had been at the ceiling level for so many years. There was concern that any bank that led such a move could lose previously loyal customers and market share. Rates on time deposits, meanwhile, were adjusted more promptly as market rates fell, leading to a decline in the spread of the rates on small time deposits over those on passbook accounts. These changes were associated with a surge in savings deposits and a net runoff in small time deposits (Chart 8). Some of the dropoff in small time deposits may have been associated with inflows to money market deposit accounts (MMDAs) which were sought for their liquidity (minimum balances on these accounts were eliminated at the start of the year). MMDAs showed a more modest narrowing of the yield spread to Treasury issues as compared to time deposits over the course of the year.

M3 velocity fell more than it had in 1985 when it was only slightly below its declining trend. Growth of its non-M2 components was mixed, with large time deposits decelerating while term Eurodollar deposits, RPs, and institutional money market mutual funds were accelerating. Inflows into institution-only money market mutual funds (MMMFs) increased at times when declines in short-term market interest rates outpaced those on the MMMFs and periodically made yields on these investments relatively more attractive (offering rates on institution-only MMMFs leveled off and moved into alignment with market yields in September).

M1 velocity declined about 9½ percent during 1986, more steeply than it had in 1985 (Chart 7). The decline during 1986 was again attributed to the interaction of lower interest rates with the changed composition of M1. As market rates fell, the opportunity cost of holding wealth in transactions form declined, which caused increases in consumer holdings of checkable deposits.

Chart 5

M1 Velocity Growth*



*Data from four quarters earlier

Shaded areas represent periods of recession, as defined by the National Bureau of Economic Research

Corporate treasurers also had less incentive to keep demand deposits at minimal levels since the interest foregone was reduced. Furthermore, many banks raised compensating balances required to pay for bank services to offset the impact of earnings lost from lower rates.

The effect of declining rates on flows into NOW accounts was even more pronounced than in 1985 because market rates fell below the previous ceilings on these accounts. These ceilings and the minimum balance requirements on Super NOW accounts were eliminated at the start of 1986. Depository institutions were slow to reduce NOW account interest rates below these ceilings for fear of an adverse customer reaction. The lower levels of market rates made NOW account rates competitive with other short-term instruments. This minimized the incentive for the public to separate savings from transactions balances and inspired transfers from time and savings accounts and money market instruments into NOW accounts.

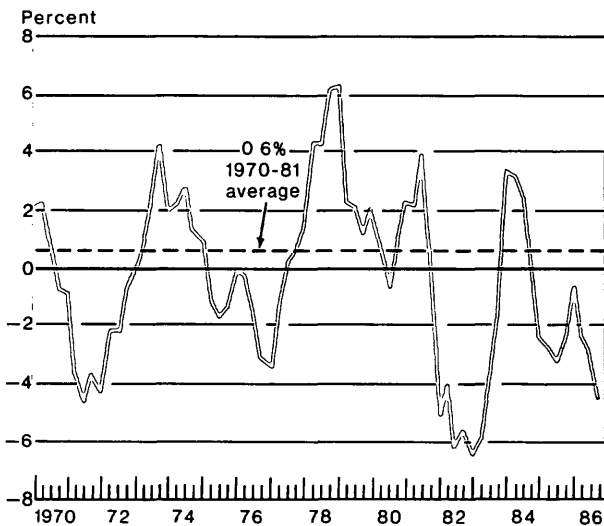
The economy and financial markets

Economy

Economic growth continued at a modest pace in 1986, the fourth year of an expansion that is now one of the

Chart 6

M2 Velocity Growth*

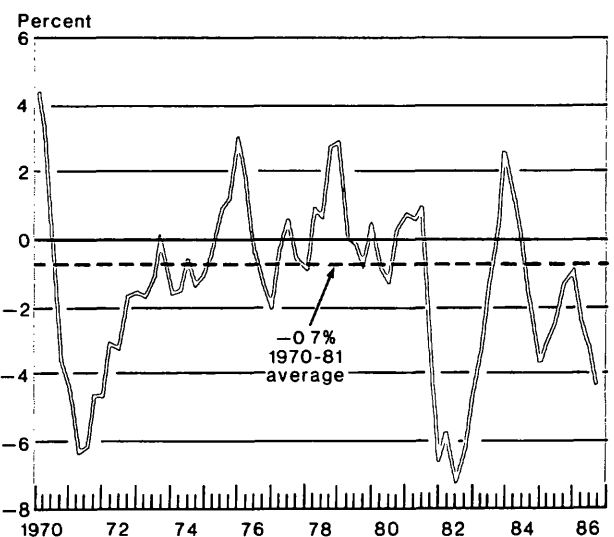


*Data from four quarters earlier

Shaded areas represent periods of recession, as defined by the National Bureau of Economic Research

Chart 7

M3 Velocity Growth*



*Data from four quarters earlier

Shaded areas represent periods of recession as defined by the National Bureau of Economic Research

longest in peacetime. From the fourth quarter of 1985 to the fourth quarter of 1986, real GNP expanded 2.0 percent, somewhat below the 2.9 percent growth rate in 1985. For the year as a whole, growth was spurred by personal consumption expenditures, residential construction, and inventory investment. But as in 1985, the more rapid growth of imports than exports was a drag on the economy, as was weak business fixed investment. Growth was uneven both over the year and across different sectors of the economy.

In the first quarter, strong private construction, inventory accumulation, and a temporary pick-up in net exports helped the economy grow at a robust 3.8 percent

rate,² considerably ahead of the 1985 fourth-quarter pace. Real GNP growth slowed to an almost negligible 0.6 percent rate in the second quarter of 1986, as the dramatic plunge in the price of oil led to a contraction in energy-related industries. The slowdown occurred despite an increase in consumer spending and continued strong residential construction. Having absorbed much of the negative impact on the energy sector of falling oil prices, economic activity rebounded in the third quarter of 1986, expanding at a 2.8 percent rate. This growth was supported by particularly strong consumer spending that was partly attributable to automobile sales incentive programs. Growth in the final quarter decelerated to a 1.1 percent rate, inhibited by the termination of automobile incentive programs and weak inventory investment.

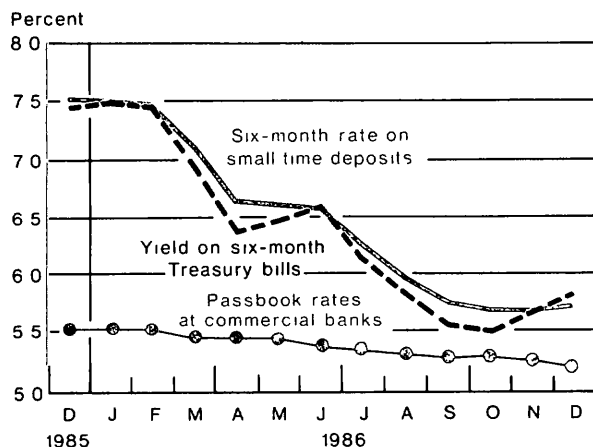
Civilian employment rose by 2.3 percent from December 1985 to December 1986, somewhat above the 1985 growth rate. In absolute terms, employment grew most rapidly in the retail trade and service sectors, while manufacturing and mining saw declining employment until late in the year. Employment in agriculture also fell as the problems of the farm sector continued. Unemployment receded only slightly during 1986 as labor force expansion nearly kept pace with job creation. The unemployment rate hovered around the 7.0 percent mark for most of the year, dropping to 6.7 percent in December.

The inflation picture continued to improve in 1986 as falling energy costs restrained the growth of both consumer and producer prices. Measured by the broad implicit GNP deflator, prices increased by 2.1 percent in 1986 (1985-IV to 1986-IV), compared to a 3.3 percent increase in 1985. Measured by the consumer price index (CPI), the inflation rate fell even more dramatically from 3.7 percent in 1985 to 1.1 percent in 1986 (December to December). However, excluding the energy component, 1986 consumer prices rose by 3.8 percent, just below the 4.0 percent increase in 1985.

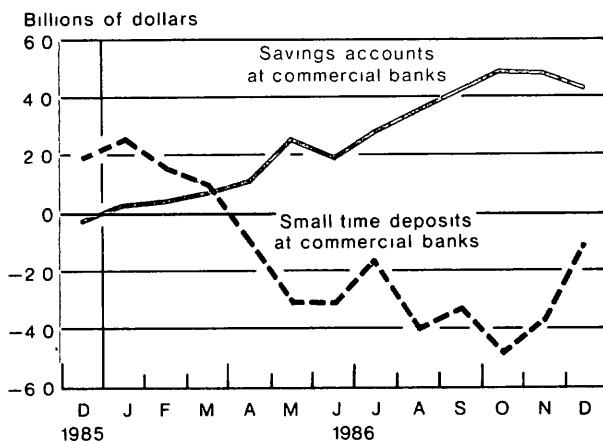
Little progress was made towards reducing the Federal budget deficit. It came in at \$221 billion for fiscal 1986, up \$9 billion from fiscal 1985 (including both on- and off-budget items). The year began with doubts about the constitutionality of the Gramm-Rudman (GR) budget reduction measure that was signed in December 1985. Indeed in February, a key provision of GR that gave the Comptroller General budget-cutting authority was struck down in a Federal court. The decision was later upheld by the Supreme Court. In October, Congress approved a fiscal year 1987 budget that nominally met the GR-prescribed deficit of \$144 billion. While achievement of the target relied on a variety of one-time revenue-raising and bookkeeping measures, it should be

Chart 8

Consumer Deposit Rates versus Treasury Bill Rates



Changes in Selected Consumer Deposits in M2



*All monthly and quarterly data referred to in this section, with the exception of foreign trade figures, are seasonally adjusted. The data reflect revisions made through mid-April 1987.

noted that in the first quarter of the new fiscal year, October-December 1986, the deficit was running appreciably below the year-earlier level. This partly reflected temporary tax law effects, but it encouraged some observers to expect a noticeably smaller deficit for fiscal year 1987.

The foreign trade deficit also remained high in 1986. Despite a 15.3 percent decline in the trade-weighted dollar over the year, following a 15.7 percent decline in the previous year, the merchandise trade deficit swelled to \$166 billion from \$140 billion in 1985.³ While the value of exports increased by \$3.8 billion over the 1985 level, growth in demand for U.S. exports was limited by sluggish economic growth abroad. Signs of a reduction in imports that emerged in the spring were contradicted by a sharp deterioration in July, leading to a record third-quarter trade deficit. Though the nominal fourth-quarter trade deficit was little changed from that of the third quarter, real net exports picked up substantially, offering some hope of a turnaround in the trade picture.

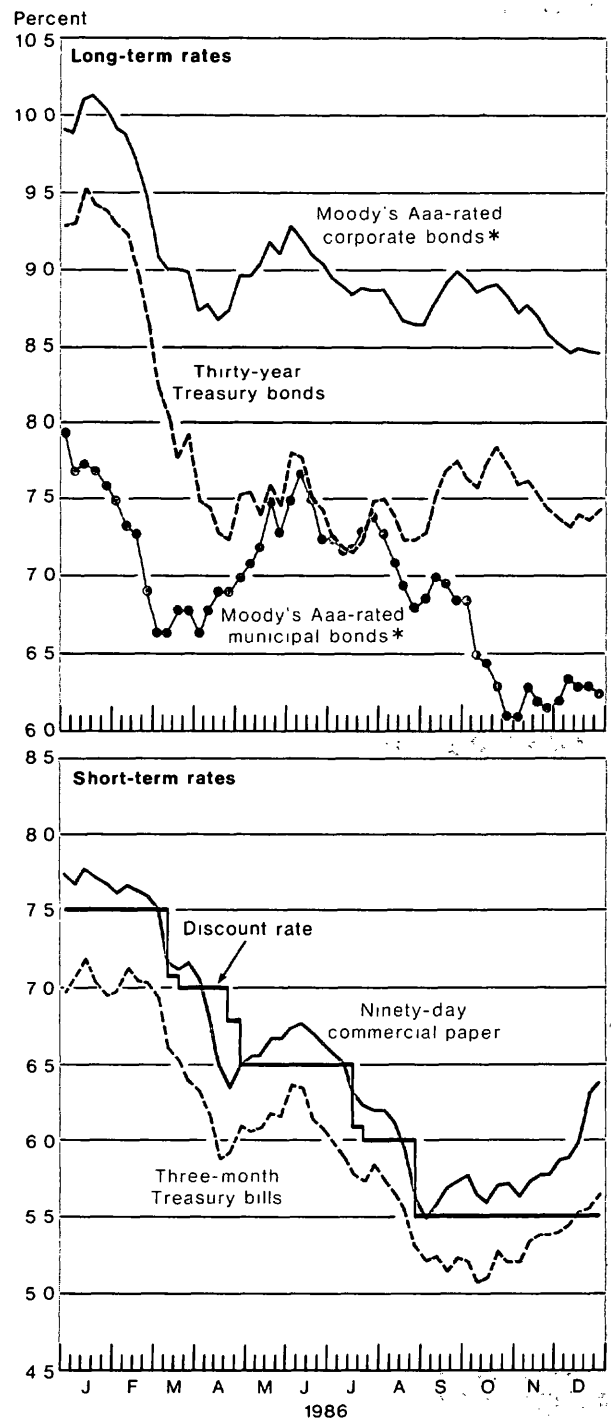
Domestic financial markets

Both long- and short-term interest rates fell substantially in 1986. The rally in the long-term bond market that began in 1984 continued until April (Chart 9). Long-term Treasury bond rates declined by about 250 basis points from mid-January until mid-April, while corporate yields fell less sharply. From mid-April until the end of the year, long-term yields changed little, on balance. A springtime run-up in coupon rates was reversed by the end of June. For the year as a whole, long-term Treasury rates eased by roughly 180 basis points.

Although short-term yields fell as well, the patterns were a little different. Short-term rates fell in March-April and again in June-August in association with discount rate cuts (Chart 9). For the year, the decline in short-term yields was less abrupt than long-term yield decline. Three- and six-month Treasury bill rates fell by about 145 basis points in 1986. Hence the Treasury yield curve became flatter than in 1985 (Chart 10). Interest rates on short-term private securities showed similar patterns to Treasury bills for much of the year, but rose sharply at year-end in the face of extraordinary credit demands.

The spectacular decline in oil prices was the dominant market influence in early 1986 and, on and off, through much of the year; from the beginning of the year until April, the spot price of Texas crude oil fell from more than \$25 per barrel to less than \$10 per barrel (Chart 11). The drop in energy prices contributed to the bond market rally by diminishing inflationary expectations and increasing the

Chart 9
Interest Rates



³The reported dollar depreciation (December to December) is based on the Federal Reserve Board's trade-weighted index. The merchandise trade figure is on a revised Census basis.

perceived likelihood of discount rate cuts. However, the rally was tempered by concern over the falling value of the U.S. dollar in the exchange markets, signs of an economic pick-up that could be inflationary once oil prices stopped falling, and the fate of the GR budget reduction measure. Short-term issues did not participate in the rally until early March when a coordinated discount rate cut by the United States, Japan, and West Germany was announced. Before the discount rate reduction, the 200-basis-point spread between 10-year Treasury issues and three-month Treasury bills that had prevailed at the beginning of the year was roughly halved.

The increase in yields between mid-April and early June was prompted by a temporary back-up in oil prices, indications of stronger economic growth, and renewed concerns about inflation and the sagging dollar. In particular, a reported 3.7 percent growth rate of first-quarter GNP (as of mid-May) was surprisingly large and was followed by reports of stronger production and sales in April. The Treasury announced the suspension of 20-year bond sales in late April, which meant the 30-year bond auctions held at midquarter would provide the Treasury's only new long-term debt. There were fears that Japanese investors would limit their participation in the Treasury's May refunding in the face of the large yield declines since February. However, Japanese demand for 10- and 30-year issues was reported to be quite strong. Moreover, Japanese and other holders did not sell the February 30-year issue to finance purchases of the new 30-year bond to the extent that was expected by dealers; hence a "short squeeze" developed in which dealers found it difficult to deliver the February issue

and some market participants experienced delivery fails and significant losses.

The decline in rates resumed in early June as new data contradicted the view that economic activity was heating up. These included reports of weak May employment growth and a downward revision of first-quarter GNP growth announced in mid-June. Although first-quarter GNP was revised back upwards in July, very slow second-quarter growth reported in late July reaffirmed the impression of economic sluggishness. While two discount rate cuts helped short-term rates to continue falling until the end of August, yield changes on longer term securities were mixed. Market participants were initially hopeful that debt-ceiling limitations would reduce the size of the Treasury's August refunding and then disappointed when the issue size was not cut. Concern over the willingness of Japanese investors to continue buying Treasury issues in view of the dollar's weakness and a bottoming out of oil prices in July also led to uneasiness among investors.

From the beginning of September until the end of the year, long-term rates were nearly unchanged while short-term rates rose moderately. Coupon rates rose somewhat through mid-October after evidence of faster growth emerged, especially the broad-based employment gains in August. The soaring price of gold and

Chart 10

Yield Curves for Selected U.S. Treasury Securities

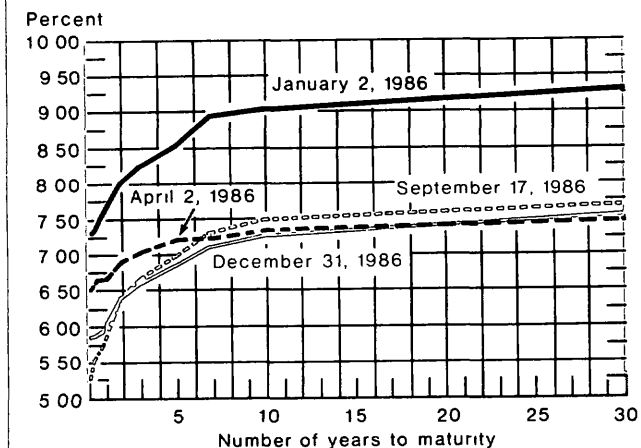
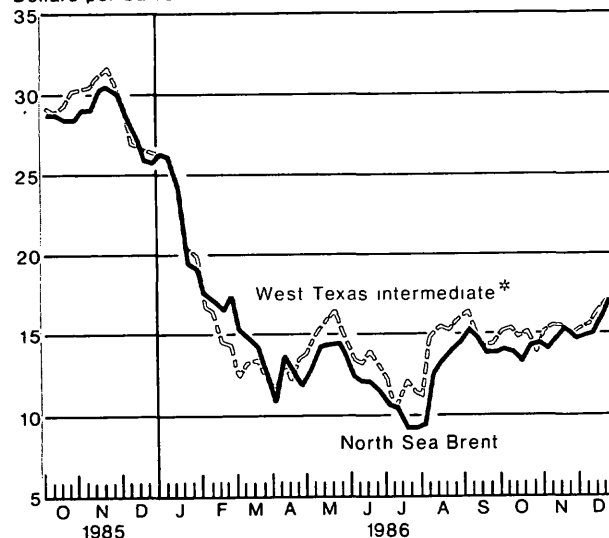


Chart 11

Spot Oil Prices

Weekly average quotations

Dollars per barrel



*Based on the Cushing Oklahoma quoted price

moderate increases in other commodity prices aroused greater inflationary concern. Long-term rates drifted a bit lower near year-end after the Bank of Japan lowered its discount rate and economic data pointed to a sluggish economy. Price movements often reflected oil price changes, particularly as the December OPEC agreement to limit production approached, which helped lift prices from the \$15-per-barrel area to around \$18 per barrel by year-end. The dollar also staggered in the second half of December in thin trading. It fell sharply on December 31 following the report of a record trade deficit for November.

Short-term rates drifted higher from October until year-end as strong credit demands emerged. Lower 1986 capital gains taxes encouraged sales of appreciated assets and stimulated corporate mergers and acquisitions and leveraged buyouts before 1987. The new tax law also prompted automobile purchases in 1986 before the elimination of sales tax deductibility. Except for Treasury bills, which were heavily in demand for dressing up balance sheets, short-term rates rose quite sharply in December in response to these pressures.

Private foreign investors modestly expanded net purchases of U.S. financial instruments in 1986 above the 1985 level. However, the pattern of investment changed. Private foreigners cut back on net investment in U.S. Treasury issues and sharply increased acquisitions of equities; net purchases of corporate bonds and U.S. Government agency securities were slightly ahead of 1985 levels.⁴

The current account deficit grew more than private foreign capital inflows, contributing to the dollar weakness. When dollar declines became excessive in the eyes of official foreign institutions, they intervened to buy dollars, placing the proceeds in a mix of Treasury securities and bank deposits. Mostly in connection with foreign exchange market intervention, official foreign investors acquired at least a net of \$36 billion of Treasury bills and coupon issues.

In the Federally sponsored agency market, the Federal Farm Credit Banks System (FFCB) continued to suffer losses as a result of weakness in the agricultural sector. In the second and third quarters of 1986, losses exceeded earlier estimates, but did not significantly affect spreads of FFCB issues over Treasury issues. As demand for the FFCB's longer term issues waned, the agency reduced the average maturity of its offerings; the FFCB has not offered bonds with maturities exceeding one year since July 1986.

⁴According to Treasury data, private foreigners stepped up net purchases of U.S. corporate and municipal securities from \$40 billion in 1985 to \$44 billion in 1986 and more than tripled net equity investments to reach a level of \$19 billion. Private foreigners reduced their net acquisition of marketable Treasury issues from \$17 billion in 1985 to \$9 billion in 1986. Other sources suggest that the Treasury data understate net purchases by foreigners.

Early in the fall, Congress passed a bill that liberalized the FFCB's accounting rules with respect to amortization of loan losses and costs of outstanding high coupon debt. Despite the FFCB's troubles, its issues continued to attract enough demand to retain fairly narrow spreads against Treasury issues. This was partly because the FFCB reduced outstanding debt by \$6.5 billion over the year, and partly because investors largely retained confidence that "something would be done," perhaps through direct Federal assistance, to keep the entity solvent.

Corporate bonds

A record volume of corporate bonds was issued in 1986. According to the Federal Reserve Board, gross issuance in the United States totaled \$232 billion, nearly double the 1985 figure. But as interest rates fell to the lowest levels since 1979, some of the gross volume represented the refinancing of outstanding debt; net issuance was nearly \$100 billion below gross. Because of the increased risk to investors of bond calls, the spread between high-grade corporate securities and Treasury bonds (which offer better call protection) increased in 1986. Investors also grew wary of potential downgradings of outstanding debt should a firm announce take-over plans to be financed by additional bond sales.

Of the more than \$130 billion net corporate volume in 1986, a substantial proportion consisted of below-investment-grade "high-yield" or "junk" bonds. Many of these issues arose from merger and acquisition (M&A) and leveraged buyout activity; companies that financed take-overs by issuing debt often found that their outstanding debt issues were downgraded. The high-yield bond market suffered two major shocks in 1986. The first was the filing for Chapter 11 bankruptcy by the LTV Corporation in mid-July. The filing, which resulted from weaknesses in the energy and steel industries rather than M&A activity, caused a sharp decline in high-yield bond prices. Rising oil prices led to a partial reversal of the decline. The second major shock was the insider-trading scandal in November involving Ivan Boesky. The episode threatened to curtail M&As in general and brought into question the ability of a major underwriter of high-yield bonds to continue its active market-making role. After a plunge in high-yield bond prices, the market recovered some of its losses and activity picked up a bit. Still, some of the year-end financing of M&As that was supplied by banks would probably have been supplied by bond investors if the Boesky affair had not occurred.

The trend towards asset securitization continued in 1986. According to market estimates, new asset-backed issues totaled nearly \$70 billion in the year, about two-thirds of them collateralized by mortgages. But as falling long-term rates encouraged mortgage prepayments and the retirement of mortgage-backed securities, the

spreads between mortgage-backed issues and Treasuries widened to more than 200 basis points. After rates leveled off and substantial mortgage refinancing had already taken place, apparent prepayment risk diminished and spreads over Treasuries declined. The first security collateralized by credit card receivables appeared in 1986, and securities backed by automobile loan receivables were issued in substantial volume. In fact, the largest corporate offering of the year was a \$4.0 billion issue secured by General Motors Acceptance Corporation automobile and truck loans.

Municipal bonds

Changing perceptions of the impact of tax-reform legislation dominated the municipal bond market in 1986. This uncertainty and ultimate restrictions on municipal issuance contributed to the roughly 30 percent decline in the 1986 volume of new tax-exempt issues from the 1985 level, to perhaps \$160 billion; however, the rush of issues at the end of 1985 in advance of potential tax law changes made the slowdown look particularly dramatic. Until the tax reform bill took shape in August and September, uncertainty about the status of tax-exempt bonds weighed heavily on the market. In the first half of the year, the call risk that resulted from falling long-term interest rates added to investor uneasiness. Early in the year, a spread developed between bonds issued before January 1, 1986, and those issued afterwards since it appeared that post-January 1 issues might retroactively be subject to the alternative minimum tax. This spread disappeared in March as the Treasury and Congress dropped the notion of differential treatment.

Late in July, it appeared likely that bank investors would face restrictions on their ability to deduct the interest cost of financing municipal bond purchases. In the tax legislation that finally emerged, banks did indeed lose the deductibility of carrying costs. In addition, the legislation established three classes of municipal bonds: "public purpose" issues that remain tax-exempt, "private activity" (or industrial development) issues that are subject to the alternative minimum tax and volume limitations based on state population, and fully taxable securities. Shortly after the tax bill was passed, the first "stripped" municipal bond appeared in the market. Prior to the passage of the bill, tax-exempt issues could not be stripped without effectively losing their tax-exempt status.

Both tax-exempt bond mutual funds and property/casualty insurance firms stepped up their net purchases of municipal securities, particularly late in the year. According to Federal Reserve data, the bond funds increased their holdings by about \$60 billion over the year as few alternative tax shelters remained for household investors. Property/casualty insurance companies returned to the municipal bond market as major

investors for the first time in this decade; these firms increased their holdings of tax-exempt securities when improved profit performance gave rise to a need to shelter income.

Policy Implementation

Open market operations

The FOMC prescribed essentially the same approach to implementing policy in 1986 as it had since 1983 (modified in February 1984 with the implementation of contemporaneous reserve requirements). The Desk targeted levels of nonborrowed reserves over two-week reserve maintenance periods that were believed to be consistent with achieving the degree of reserve pressure sought by the FOMC. Specifically, an indicated level of adjustment plus seasonal borrowing at the discount window was estimated to be associated with the degree of reserve pressure sought by the Committee. A reduction in the borrowing level would mean that banks would be able to meet an enlarged share of their reserve needs away from the discount window. Since access to the window has been restricted by frequency, amount, and reason for borrowing, declines in the pressure for banks to use the window have tended to lower money market rates.

For each maintenance period, nonborrowed reserve objectives were constructed by estimating bank demands for total reserves to meet requirements and to provide a cushion of excess reserves. From that demand for total reserves, the intended amount of borrowing was subtracted. What remained was the nonborrowed reserve objective. The Desk received daily estimates of what nonborrowed reserves would be for the period in the absence of any additional open market operations beyond those already undertaken. The difference between these estimates and the nonborrowed reserve objective was an indication of the reserves to be added or absorbed during the period.

In formulating the strategy for achieving the nonborrowed reserve objective during a maintenance period, the Desk took account not only of the overall direction and size of reserve adjustments, but also the estimated distribution of reserves within the maintenance period and the likelihood of revisions to the estimates. These latter considerations encouraged the relatively heavy use of short-term self-reversing reserve transactions.

To meet the objective, the Desk chose an approach that tried to assure that reserves were not so scarce on any given day that banks would have great difficulty in avoiding overdrafts. Such days occurred even in periods when reserves were sufficient, on average, for banks to meet their requirements easily. If reserves were not provided on those days, the efforts of banks to avoid running overdrafts would introduce unusual

upward pressures on the Federal funds rate and unusual demands for accommodation at the discount window. On the other side, if reserves were exceptionally high relative to requirements on particular days, there was a risk that banks would try to get rid of unwanted reserves and would push down the Federal funds rate in a manner that could be misleading as to the general intent of policy. While there were no restrictions on holding excess reserves, a bank's ability to work them off on other days was limited by the need to maintain a positive daily balance in its Federal Reserve account.

Usually, the reserve variation within a period was modest enough that the Desk did not have to plan to both add and drain reserves in the same period. Generally, it was able to meet a period's reserve need by adding reserves on those days when they were especially deficient while taking no actions on the other days. Similarly, in periods of overabundant reserves, the Desk sought to drain reserves on those days when reserves were particularly plentiful. On occasion, however, it was necessary to both add and drain reserves within a period in response to very large swings in market factors or major revisions to projected reserve needs.

Another consideration in planning a reserve strategy was the likelihood of revisions to staff estimates of reserve demands and supplies during the period. The staff made estimates of required reserves, the largest factor underlying reserve demand, by estimating levels of transactions deposits subject to reserve requirements and applying a reserve ratio. Estimating required reserves proved to be particularly difficult because of the unexpected strength in transactions deposits. The errors in required reserve forecasts grew on an absolute basis during 1986, and on average the forecasts tended to underpredict the final number for required reserves. Comparing the path estimate at the start of the maintenance period to the actual level showed an average absolute miss of \$400 million, well above the \$260 million absolute error in 1985. An unusually large \$1.8 billion underestimate in the period ended December 31, 1986, contributed to the miss.⁵ Excluding that period would reduce the average absolute error to \$340 million. On average there was an underprediction in 1986 of \$200 million, or \$135 million if the final period is excluded. While maintenance periods were in progress, the forecasts were revised as new data became available. The average absolute error in the required reserve estimates made on the final day of the maintenance period, the last time open market operations would be possible, was \$110 million, a bit higher than the \$70 million average in 1985.

⁵Some revisions to required reserves at small institutions are matched by revisions to applied vault cash—that portion of vault cash that meets requirements. For the larger institutions, vault cash is

Forecasting excess reserves, the other component of demand, continued to be a challenge in 1986. Average excess reserves, which had been increasing annually since 1980, rose somewhat further in 1986, showing a rise of \$100 million, or \$75 million excluding the maintenance periods with midyear or year-end statement dates. A variety of factors apparently played a role in the increase. The volume of reserve transactions continued to expand as shown by the growing volume of clearing over Fedwire (Chart 12). The increased volume probably added to the banks' uncertainty about closing reserve positions and prompted them to hold higher reserve balances to avoid overdrafts.

The demand for excess reserves was probably raised very little if at all during the initial phase of the Federal Reserve's new policy to reduce "daylight" overdrafts,

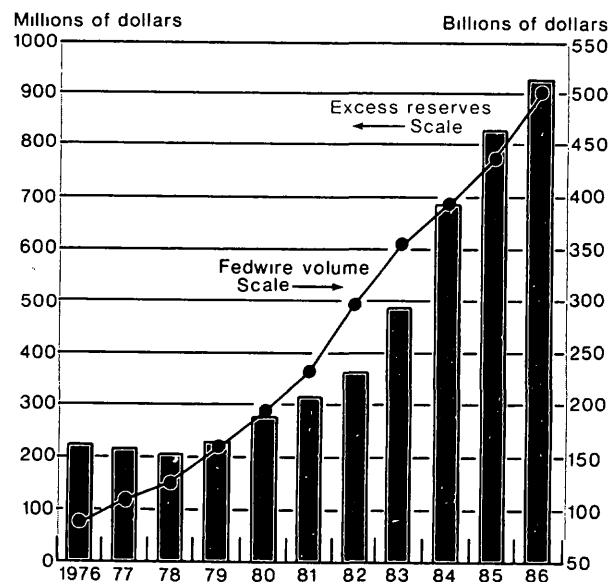
Footnote 5 continued

predetermined based upon holdings two periods earlier and is known at the start of the period. However, for banks that have excess vault cash, applied vault cash is equal to their requirements. For those institutions, revisions to required reserves, which change the nonborrowed reserve objective, result in revisions to applied vault cash, which change the volume of reserves available to meet the objective. Hence, such revisions to required reserves do not change the amount of reserves needed to meet the objective. For the final maintenance period of 1986, applied vault cash turned out to be \$300 million higher than the initial estimate, providing some offset to the large miss in the required reserve forecast.

Chart 12

Growth of Fedwire Activity and Excess Reserve Levels

Daily averages



which began in March 1986. "Daylight" overdrafts occur when more funds are sent out over Fedwire than the institution has in its account at the Federal Reserve.⁶ The new policy encouraged participants to establish debit caps or limits on the amount of funds they could send to other banks in excess of funds received. These caps, based upon a self-evaluation of creditworthiness, were expressed as a multiple of capital, ranging up to three times capital for a single day. Institutions which did not follow the self-evaluation procedure were not allowed to incur overdrafts on Fedwire. Concern about incurring outside overdrafts could have influenced behavior even though the incidence of such overdrafts was minimal. All but a handful of banks had no difficulty staying well within the initial relatively generous guidelines. The few banks that ran close to their limits did not increase their excess reserves.

The Monetary Control Act of 1980 (MCA) and the Garn-St Germain Act of 1982 had contributed to the rise in excess reserves in earlier years but probably played only a limited additional role in 1986.⁷ Both the MCA and the Garn-St Germain Act provide for annual upward indexing of the zero and low reserve tranches for all institutions.⁸ The automatic rises in these limits are, in effect, reserve requirement reductions, which have tended to result in higher excess reserves.

Between 1980 and 1984, the MCA gradually reduced reserve requirements of member banks. It also imposed reserve requirements on nonmember institutions which have risen in annual increments. The process is to be completed in September 1987. The initial impact of the phase-up of reserve requirements for nonmember banks and thrifts was to raise excess reserves. Before the MCA, these institutions' reserves had not been held in the form of deposits at the Federal Reserve so they had not been counted in the total. Initial requirements were low, and only the larger institutions had requirements that exceeded their holdings of vault cash.⁹ Each step in the phasing up of reserve requirements on nonmember institutions brought a new group of banks'

requirements above their normal vault cash holdings so that they had to begin holding balances with the Federal Reserve. As they opened reserve accounts and used them for clearing purposes, they became candidates to hold excess reserves. Initially, they often needed more balances for clearing than to meet requirements. However, with the phase-in well along, some of the larger nonmember institutions that had been maintaining reserve accounts for some time found that reserves needed to avoid overdrafts no longer exceeded requirements by a wide margin. Thus, they were able to reduce excess reserves.

The variability and uncertainties affecting the demand for reserves have been mirrored on the supply side. Factors other than open-market operations that affect the supply of nonborrowed reserves, often called "market factors," have varied both from day to day and from period to period. The average absolute period-to-period change in the sum of all market factors in 1986 came to \$1.9 billion. At times market factors have been difficult to forecast. In 1986, overall forecast accuracy improved, with about a \$510 million average absolute error in the estimates made the first day of maintenance periods, compared to \$770 million in 1985. By the final day it had been reduced to \$90 million, similar to 1985.

As in past years, the Treasury balance at the Federal Reserve was responsible for a sizable share of both the overall market factor variation and the forecast errors. In 1986, the period-to-period absolute changes in the Treasury balance averaged \$1.7 billion, and the average absolute forecast error on the first day of the maintenance period was \$510 million. The forecast error for the first day was substantially smaller than the \$760 million figure for 1985, even though variability increased by about \$300 million. Forecasting in 1985 had been hampered by disruptions to the regular patterns of Treasury cash flows during the protracted Congressional impasse over the debt ceiling which extended through the debate on GR legislation.

Currency in circulation also was subject to sizable period-to-period variation with absolute first differences averaging \$1.2 billion in 1986. Nonetheless, currency was easier to forecast than the Treasury balance, as recurring seasonal patterns played a dominant role. The average absolute miss in the first day's forecast was \$225 million, similar to the previous year.

The first-day forecasts of float and extended credit borrowing also improved from 1985, making more modest contributions to the reduced overall error. Float predictability was aided by improved communications between Federal Reserve Banks and the Desk as to the timing of reserve adjustments to offset previous float-distorted reserve transfers. Extended credit borrowing (which is treated as a market factor) became less

⁶Daylight overdrafts can also arise on the Clearing House Interbank Payments System (CHIPS) if a bank sends more funds over CHIPS than it has received.

⁷For greater detail on these developments see "Monetary Policy and Open Market Operations in 1985," this *Quarterly Review* (Spring 1986), and other sources cited there.

⁸The MCA imposes a reserve requirement of 3 percent on transactions deposits up to a size limit (and 12 percent over that limit). The Garn-St Germain act exempts from reserve requirements reservable liabilities up to a lower size limit. Both of these limits are linked to deposit growth. The 3 percent tranche under the MCA rose from \$29.8 million in 1985 to \$31.7 million in 1986, while the exempt level under the Garn-St Germain Act rose from \$2.4 to \$2.6 million.

⁹Vault cash in excess of requirements is not treated as part of total or excess reserves.

variable, making forecasting easier. Other factors showed minor net offsetting changes.

To accomplish the desired reserve adjustments while taking account of both the variability and uncertainties in the reserve estimates, the Desk made heavy use of temporary transactions, arranging \$202 billion of System repurchase agreements and passing through to the market \$160 billion of customer-related RPs, both representing significant increases over the previous year's totals. In contrast, the Desk made limited use of matched sale-purchase agreements, arranging only \$21 billion in the market.

The Committee made only one policy adjustment to the assumed level for adjustment plus seasonal borrowing during the year, lowering it from \$350 million to \$300 million following the February FOMC meeting, which brought it more into line with recent experience. Planned borrowing was then only modestly above what was considered to be frictional levels,¹⁰ so there was little room to cut it further. Instead, when additional changes were contemplated, the Committee planned its reserve strategies on the expectation that reductions in reserve pressures would be accomplished with cuts in the discount rate. The rate was cut one-half percentage point on each of four occasions, in March (in the context of a coordinated move with other central banks), April, July, and August. This means of reducing reserve pressures was viewed as more feasible than lowering the path level of borrowing to the frictional range.

Operating with a borrowing assumption around frictional levels could have presented some difficulties. A one-day spike in borrowing could make it impossible to achieve the desired average borrowing level because borrowing on other days of a maintenance period could never go below zero. When there is not much room within the reserve specifications for borrowing to vary from day to day, the banks are effectively prevented from reducing aggregate reserve availability. That situation can make the Federal funds rate sensitive to very small misses either of the nonborrowed reserve objective or of estimates of the demand for reserves. A small overabundance could introduce unwanted excess reserves which, collectively, the banks could not eliminate. Their attempts to do so would tend to drive the Federal funds rate close to zero. On the other hand, a small shortfall of reserves relative to the desired level would require banks to step up their

borrowing, and would lift the funds rate above the discount rate. Thus, relatively small misses in reserve availability could lead the funds rate to bounce around within a relatively wide range.

Even with the borrowing objective around \$300 million, the Desk occasionally faced a situation where banks overborrowed early in the period, precluding achievement of the intended borrowing level. Sometimes the Desk did see an abundance of excess reserves drive down the funds rate, while at other times it chose to miss the nonborrowed reserve objective to avoid that outcome.

Actual borrowing ran below path more often than not in the first half of the year. However, there was one large overshoot in February, reflecting weekend wire problems at large banks. Borrowing ran above path over most of the summer and fall. It was boosted in the summer by technical adjustments as banks in regions dependent on oil encountered difficulties and turned to the discount window. Informally this "special situation" borrowing was thought of as nonborrowed reserves (at first only partly but later entirely). In late August, such borrowing was formally classified as extended credit borrowing and treated as nonborrowed reserves. The above-path borrowing in the fall reflected either higher-than-intended borrowing before the settlement day that could not be reduced to the path average or reserve shortfalls on the settlement day. Exceptionally strong reserve demands on and before the year-end statement date led to very high borrowing in the final period.

With policy generally accommodative of the bulges in M1 and required reserves during 1986, the Desk tended to be in a reserve-adding posture. Excluding brief periods in May and again in early September, when a combination of strong growth in the broader monetary aggregates and signs of a strengthening in economic activity led to a more cautious approach, the Desk was generally prompt in meeting estimated reserve needs and cautious in accomplishing drains. It was often willing to permit overshoots of the nonborrowed reserve objective if it appeared that the demand for excess or required reserves might be exceeding the estimates used to build the path.

Nonborrowed reserves ran well above the final day's objective in 10 of the 26 maintenance periods. The overshoots reflected mostly a tendency for the Desk to meet excess reserve demands when they seemed to be running above the formal path allowance or to provide more reserves when the money market suggested reserves were less plentiful than forecast. Late in the year in particular, these decisions were vindicated by sizable upward revisions to required reserves after the period ended. Significant reserve misses on the low side of the objective occurred in six periods scattered around spring and summer. At those times, there tended to be

¹⁰Frictional borrowing is defined as the borrowing that would occur even if the Federal funds rate were generally at or below the discount rate. Borrowing takes place in such circumstances because individual banks make miscalculations of their reserve positions and because reserve transfer systems are subject to periodic disruptions that may leave reserves poorly distributed. It is difficult to estimate exactly how much borrowing would occur on a routine basis if the Federal funds rate were below the discount rate. It would probably vary over the year and might depend upon how long the banks expected the rate relationship to last.

downward revisions to required reserves, below path excess reserves, and shortfalls in reserve estimates.

With discount window borrowing generally low and the demand for total reserves growing dramatically to support the rapid expansion of M1, nonborrowed reserves expanded an unprecedented \$12.5 billion in 1986, slightly outpacing the \$11.7 billion increase in required reserves (measured between year-end statement period averages). To support the increase in nonborrowed reserves and a \$14.1 billion increase in currency, the System's portfolio of Treasury and agency securities rose by a record \$20.2 billion. The remaining supply of reserves came from several sources. The RPs arranged during the last maintenance period of 1986 provided \$3.5 billion more reserves on average than those arranged in the corresponding period the year before. Over the year, growth in applied vault cash provided \$1.8 billion. Foreign currencies provided most of the balance. The revaluation of the Federal Reserve's foreign currency holdings provided \$1.9 billion while holdings themselves rose by about \$500 million, over half of which represented interest earned on the currencies. The biggest offset was the foreign RP pool which drained an additional \$900 million in the last period of 1986 compared to the previous year.

The net increase in the System portfolio was accomplished by adding \$19.1 billion of Treasury bills and \$1.5 billion of coupon issues, while running off \$400 million of maturing Federally sponsored agency issues. In adjusting its portfolio, the Desk leaned toward shorter maturities during the year, thus tending to assure the ample liquidity of the portfolio. It bought coupon issues in the market only once, compared with two or three market entries in recent years. When rolling over maturing coupon issues, it weighted its tenders for the new issues more heavily than in the recent past toward the shorter maturities while cutting back in its takings of longer term issues.

This emphasis on increasing the liquidity of the portfolio continued a tendency already under way in the last few years, which saw the average maturity of the System's portfolio of Treasury issues decline from 55 months at the end of 1980 to 49 months at the end of 1985. During 1986 there was a further shortening to 46 months. At the end of 1986, \$109 billion of the System's \$202 billion portfolio of Treasury and Federally sponsored agency securities was in Treasury bills.

Dealer surveillance developments

The major developments in 1986 were the significant changes to the list of primary dealers, including the addition of several new foreign-owned firms, and the passage of the Government Securities Act of 1986

(GSA) that will result in federal regulation of all brokers and dealers in government securities.

During 1986, five new firms were added to the list of primary dealer firms. This represented the largest addition to the list since 1976. These firms report daily to the Federal Reserve Bank of New York. The group of firms with which the Bank conducts business on behalf of the System Open Market Account is drawn from the primary dealer list. Among the 40 primary dealer firms, about half are diversified securities firms or affiliated with such securities firms, seventeen are banks or are affiliated with banks, and others are firms that specialize in government securities. Thirty-two are controlled by U.S. interests and eight are foreign owned. Five different countries are represented by the foreign-owned firms, reflecting the increased international character of the market and increased importance of foreign investors as holders of dollar-denominated assets in general, and U.S. Government securities in particular.

In October, Congress enacted the GSA to provide for the first time federal regulation of all government securities brokers and dealers. Congress designated the Treasury Department as the rulemaker for government securities brokers and dealers, in consultation with the Federal Reserve Board and the Securities and Exchange Commission. The Act provided that the Treasury rely on existing SEC or depository institution regulations where appropriate and assigned enforcement and examination responsibilities to existing depository institution supervisors and to the SEC and self-regulatory organizations for securities firms. The Treasury published proposed rules for comment on February 24, 1987; the final rules will become effective July 25, 1987.

Conducting open market operations

January to late August

Monetary policy over the first eight months of the year generally accommodated the strong demand for reserves associated with the growth in the demand for transactions balances. The degree of pressure on bank reserve positions was eased gradually in view of apparently sluggish economic growth, well-contained price pressures and moderate growth in the broader monetary aggregates within the Committee's desired long-run ranges. The initial move toward easing began in late December 1985 with a \$100 million decrease in the path allowance for seasonal plus adjustment borrowing and was followed by an additional \$50 million downward adjustment in mid-February 1986. Subsequent adjustments to the stance of monetary policy took the form of four 50-basis-point cuts in the discount rate in early March, late April, mid-July, and late August. However, in late May, the Desk met reserve needs a bit more cautiously as money growth

exceeded expectations and data suggested that economic growth was accelerating.

At its December 1985 meeting, the FOMC directed the Desk to decrease somewhat the degree of pressure on reserve positions. Specifications from the FOMC directives, including guidelines for intermeeting period adjustments to the reserve posture, are presented in Table 1. The allowance for adjustment and seasonal borrowing used in construction of the nonborrowed reserve path was lowered to \$350 million from \$450

million. During that intermeeting period, the usual allowance for excess reserves was raised from \$700 million to \$800 million to reflect recent actual levels. In addition, the allowance was raised temporarily in the maintenance period ended January 1 to accommodate year-end pressures.

Overnight borrowing declined to fairly low levels relative to the path allowances in January and the first part of February. At times, against a background that included light borrowing, very firm conditions in the

Table 1

Specifications from Directives of the Federal Open Market Committee and Related Information

Date of Meeting	Short-term Annualized Rate of Growth Specified for Period Indicated			Borrowing Assumption for Deriving Nonborrowed Reserve Path	Discount Rate	Notes
	M1	M2	M3			
	(percent)			(millions of dollars)	(percent)	
12/16 to 12/17/85	7 to 9*	November to March 6 to 8	6 to 8	350	7½	The Committee sought to decrease somewhat the existing degree of pressure on reserve positions. Somewhat greater reserve restraint might, and somewhat lesser reserve restraint would, be acceptable depending on the behavior of the aggregates, the strength of the business expansion, developments in foreign exchange markets, progress against inflation, and conditions in domestic and international credit markets
2/11 to 2/12/86	7*	November to March 6	7	300	7½ 7 on March 7†	The Committee sought to maintain the existing degree of pressure on reserve positions. Somewhat greater or somewhat lesser reserve restraint might be acceptable depending on behavior of the aggregates, the strength of the business expansion, developments in foreign exchange markets, progress against inflation, and conditions in domestic and international credit markets
4/1/86	7 to 8*	March to June 7	7	300	7 6½ on April 18†	The Committee sought to maintain the existing degree of pressure on reserve positions. Somewhat greater or somewhat lesser reserve restraint might be acceptable depending on behavior of the aggregates, the strength of the business expansion, developments in foreign exchange markets, progress against inflation, and conditions in domestic and international credit markets

*It was noted that the behavior of M1 continued to be subject to unusual uncertainty

†Announcement date

money market, uncertainties in the reserve projections, and indications that the demand for excess reserves would be higher than formally allowed for, the Desk provided more nonborrowed reserves than suggested by the paths. Such provision was designed to avoid excessive pressures in the money market and to alleviate the need for borrowing to bulge on settlement days. As a result, in two of the first three periods of the year, nonborrowed reserves averaged above the formal objectives while borrowing averaged below path.

Table 2 presents period average levels of the reserve components.

The year began with a projected need to drain reserves as the year-end bulge in money unwound. However, the seasonal need to absorb reserves was delayed until early February, mostly because of unusually high levels of the Treasury's balance. The balance rose beyond the capacity of the Treasury tax and loan accounts when January tax revenues were added to balances already swollen by year-end sales of securities

Table 1

Specifications from Directives of the Federal Open Market Committee and Related Information (continued)

Date of Meeting	Short-term Annualized Rate of Growth Specified for Period Indicated			Borrowing Assumption for Deriving Nonborrowed Reserve Path	Discount Rate	Notes
	M1	M2	M3			
		(percent)		(millions of dollars)	(percent)	
5/20/86	12 to 14*	March to June 8 to 10	8 to 10	300	6½	The Committee sought to maintain the existing degree of pressure on reserve positions. This action was expected to be consistent with a deceleration in money growth over the balance of the quarter. If the anticipated slowing in monetary growth did not develop, somewhat greater reserve restraint would be acceptable in the context of a pickup in growth of the economy, taking account of conditions in domestic and international financial markets and the behavior of the dollar in foreign exchange markets. Somewhat lesser reserve restraint might be acceptable in the context of a marked slowing in money growth and pronounced sluggishness in economic performance.
7/8 to 7/9/86	n s ‡	June to September 7 to 9	7 to 9	300	6½ 6 on July 10†	The Committee sought to decrease somewhat the existing degree of pressure on reserve positions, taking account of the possibility of a change in the discount rate. Somewhat greater or lesser reserve restraint might be acceptable depending on the behavior of the aggregates, the strength of the business expansion, developments in foreign exchange markets, progress against inflation, and conditions in domestic and international credit markets.

*It was noted that the behavior of M1 continued to be subject to unusual uncertainty

†Announcement date

‡It was noted that while growth in M1 was expected to moderate from the exceptionally large increase during recent months, that growth would continue to be judged in light of the behavior of M2 and M3 and other factors

n s Not specified

Table 1

Specifications from Directives of the Federal Open Market Committee and Related Information (continued)

Date of Meeting	Short-term Annualized Rate of Growth Specified for Period Indicated			Initial Borrowing Assumption for Deriving Nonborrowed Reserve Path	Discount Rate	Notes
	M1	M2	M3			
		(percent)		(millions of dollars)	(percent)	
8/19/86	n s ‡	June to September 7 to 9	7 to 9	300	6 5½ on August 20†	The Committee sought to decrease slightly the existing degree of pressure on reserve positions. Somewhat greater or lesser reserve restraint might be acceptable depending on the behavior of the aggregates, the strength of the business expansion, developments in foreign exchange markets, progress against inflation, and conditions in domestic and international credit markets.
9/23/86	n s ‡	August to December 7 to 9	7 to 9	300	5½	The Committee sought to maintain the existing degree of pressure on reserve positions. Slightly greater reserve restraint would, or slightly lesser reserve restraint might, be acceptable depending on the behavior of the aggregates, taking into account the strength of the business expansion, developments in foreign exchange markets, progress against inflation, and conditions in domestic and international credit markets.
11/5/86	n s ‡	September to December 7 to 9	7 to 9	300	5½	The Committee sought to maintain the existing degree of pressure on reserve positions. Slightly greater or slightly lesser reserve restraint might be acceptable depending on the behavior of the aggregates, taking into account the strength of the business expansion, developments in foreign exchange markets, progress against inflation, and conditions in domestic and international credit markets.
12/15 to 12/16/86	n s Growth in M1 will continue to be appraised in light of the behavior of M2 and M3 and other factors in the directive	November to March 7	7	300	5½	The Committee sought to maintain the existing degree of pressure on reserve positions. Slightly greater reserve restraint or somewhat lesser reserve restraint would be acceptable depending on the behavior of the aggregates, taking into account the strength of the business expansion, developments in foreign exchange markets, progress against inflation, and conditions in domestic and international credit markets.

†Announcement date

‡It was noted that while growth in M1 was expected to moderate from the exceptionally large increase during recent months, that growth would continue to be judged in light of the behavior of M2 and M3 and other factors

n s Not specified

to state and local government entities. The Treasury balance ran as high as \$19.1 billion on January 22, creating massive reserve needs in a period that normally would involve seasonal draining. Uncertainties about reserve levels were compounded by wide swings in the size of the foreign investment pool. Against this background, the Desk provided reserves in January mostly through a combination of overnight and term System repurchase agreements and customer-related repurchase agreements. On occasion, the Desk preannounced a System RP to enlarge the feasible size. The Desk also arranged one 15-day RP operation for a customer to keep the order from unduly inflating the daily foreign investment pool.

The seasonal need to absorb reserves materialized in February and was accomplished primarily with sales of Treasury bills to foreign accounts totaling \$2.5 billion and redemptions of \$1 billion. The net decline in System holdings over the month of February was about \$3.5 billion. Matched sale-purchase transactions were

arranged on a number of occasions to reduce temporary reserve overages. The Federal funds rate hovered around 8 percent over much of January but moved into a range of $7\frac{3}{4}$ to $7\frac{7}{8}$ percent in early February as the heavy absorptions from market factors lessened.

In accordance with the decision of the Committee, Desk operations in February and March sought to maintain reserve conditions similar to those that prevailed in the weeks immediately preceding the February 11-12 meeting. At that meeting, there was concern that short-term rates had shown little tendency to decline and the Federal funds rate remained significantly above the discount rate despite the more accommodative policy stance since the previous meeting. With this in mind, it was noted that the discount rate might need to be reduced to permit or accommodate a market tendency toward lower rates and that such a move would be a desirable complement to open market operations, depending on evolving economic and financial circumstances; in light of the risks for the dollar in foreign exchange markets, there was particular concern that any

Table 2

1986 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*	Extended Credit BR
Jan. 1	47,644	47,620	1,307	1,306	48,950	866	48,084	48,060	48,252	472
15	48,294	48,489	1,276	1,252	49,570	143	49,427	49,598	48,875	471
29	45,743	45,873	921	792	46,663	374	46,289	46,291	46,306	529
Feb 12	45,629	45,701	1,187	1,186	46,815	182	46,633	46,706	46,216	480
26	45,408	45,399	1,038	1,003	46,445	594	45,851	45,808	45,917	506
Mar 12	46,142	46,241	976	909	47,118	229	46,889	46,921	46,861	475
26	46,187	46,412	926	804	47,113	234	46,879	46,981	47,007	535
Apr 9	47,479	47,571	622	621	48,101	298	47,803	47,894	48,145	576
23	48,703	48,646	873	956	49,575	190	49,386	49,413	49,134	671
May 7	47,612	47,548	888	928	48,500	344	48,156	48,131	48,148	637
21	47,554	47,481	688	739	48,241	256	47,985	47,964	48,060	571
June 4	47,600	47,558	1,014	1,074	48,613	305	48,308	48,327	48,123	566
18	49,627	49,482	636	707	50,262	193	50,070	49,997	50,087	526
July 2	48,755	48,733	1,247	1,324	50,002	354	49,648	49,703	49,465	525
16	50,871	50,882	679	599	51,550	316	51,234	51,166	51,539	442
30†	49,528	49,472	1,117	1,182	50,644	408	50,236	50,246	50,085	294
Aug 13†	50,592	50,557	585	589	51,177	386	50,791	50,760	51,149	373
27†	50,279	50,351	867	790	51,146	395	50,751	50,747	50,896	515
Sept 10	51,268	51,343	793	752	52,061	519	51,542	51,576	51,966	592
24	52,964	53,001	706	649	53,670	412	53,258	53,238	53,537	569
Oct 8	53,287	53,140	660	849	53,946	364	53,583	53,626	53,708	538
22	54,170	54,122	751	775	54,921	283	54,638	54,615	54,689	488
Nov 5	53,947	53,827	814	908	54,761	423	54,338	54,313	54,365	476
19	55,599	55,468	916	1,067	56,515	374	56,141	56,161	55,959	437
Dec 3	55,865	55,758	1,130	1,330	56,995	242	56,753	56,846	56,255	368
17	57,511	57,366	740	823	58,251	204	58,048	57,985	57,865	310
31	59,369	59,292	2,048	2,345	61,417	904	60,513	60,733	60,314	282

*As of final Wednesday of reserve period

†Special situation borrowing raised average adjustment borrowing in the July 30, August 13, and August 27 periods by about \$120 million, \$175 million, and \$102 million, respectively. It was classified as extended credit borrowing beginning August 21.

such measure be taken in the context of similar action by other important industrial countries to avoid a decline in the dollar that might feed upon itself. On March 7, following discount rate cuts in West Germany and Japan, and sizable declines in most market interest rates in recent weeks, the discount rate was reduced to 7 percent from $7\frac{1}{2}$ percent.

Consistent with the February directive and the lower average level of borrowing after year-end, the nonborrowed reserve paths were built with an allowance for \$300 million of adjustment plus seasonal borrowing subsequent to the February meeting. Borrowing was inflated by technical factors associated with wire transfer problems in the period following the meeting but was light in the two periods in March. The usual allowance for excess reserves was raised by \$100 million to \$900 million in late February to reflect recent experience.

Reserve availability in March fluctuated within a moderate range. Reserves were managed with relatively few temporary transactions and small purchases of bills from foreign accounts at the end of the month. The Federal funds rate generally ran close to expectations, occasionally drifting to the firm side, especially when there were wire problems. The funds rate eased at other times, including when the March discount rate cut was anticipated and when reserves were temporarily quite abundant. Over the first half of the February-March intermeeting period, Federal funds traded mostly in a range of $7\frac{3}{4}$ to 8 percent; following the discount rate reduction in early March, the rate moved into a range around $7\frac{3}{8}$ percent.

At its April 1 meeting, the Committee voted to maintain, at least initially, the existing degree of pressure on reserve positions. On April 21, after the announcement of a reduction of the discount rate to $6\frac{1}{2}$ percent, the Committee held a telephone conference and agreed to maintain this directive. Recognizing that partial data suggested a strengthening in all monetary aggregates in recent weeks, it was understood that in carrying out open market operations within the framework of the directive, a degree of caution should be exercised to avoid an impression that a further change in the discount rate was sought over the period immediately ahead.

The Desk faced generally large needs to add reserves over April and May reflecting, at various times, increases in required reserves, currency, the foreign RP pool, and the Treasury balance. The Treasury balance was subject to wide swings and proved difficult to predict. Mindful of the Committee directive and against the background of a frequently soft money market, weakness in the dollar in the foreign exchange markets, and uncertainty regarding the Treasury's balance, the Desk at times adopted a particularly cautious approach to timing its reserve injections.

The Desk addressed these reserve needs through a combination of Treasury bill purchases and repurchase agreements. Treasury bill purchases included purchases in the market in early April of \$1.95 billion and purchases from foreign accounts over April and May totaling \$1.7 billion. Both System and customer-related repurchase agreements were arranged to increase reserve supplies temporarily and were particularly large over a brief period between late April and May 1 when both the Treasury balance and foreign RP pools swelled to very high levels. On one occasion early in the first maintenance period, a round of matched sale-purchase agreements was arranged in the market when reserve injections proved to have been overdone.

Borrowing mostly averaged close to the path allowance in April and May, but was somewhat below the allowance in the April 23 period, in part because of exceptionally light use of the discount window around midperiod when the market anticipated a discount rate reduction. Also in that period, reserve needs were satisfied on the final day by an unanticipated bulge in float and a large shortfall in the Treasury balance. The Treasury ended with an unplanned overdraft of about \$300 million, despite having substantial cash in the tax and loan accounts. The balance was brought back above zero using cash inflows the next day. Excess reserves fell to low levels in early April and mid-May but were otherwise close to the path allowances.

Expectations of a discount rate cut caused the funds rate to move erratically around mid-April and the rate dropped sharply prior to the actual announcement of a rate reduction. Overall, the funds rate declined about one-half percentage point from the rate prevailing around the time of the previous meeting and funds generally traded in a range of $6\frac{3}{4}$ to 7 percent between late April and late May.

At the May 20 FOMC meeting, the Committee voted to maintain the prevailing degree of reserve restraint but, against a background of greater than anticipated growth in all of the aggregates, a majority of the members felt that policy implementation over the intermeeting period should be alert to the potential need for some firming of reserve conditions, especially if business indicators gave a clear signal of a pickup in the rate of economic expansion and monetary growth did not slow in line with expectations. Shortly after the meeting, in the face of stronger growth in both M1 and M2 than had been anticipated, the Desk was a bit cautious in the way it met reserve needs. However, in June, as economic data indicated that business activity was growing at a slower pace rather than picking up, the Desk moved to meet reserve needs a bit more promptly.

Borrowing averaged close to the path allowance over the May-July intermeeting period with occasional

misses. Borrowing was somewhat below the path in mid-June when the need to borrow was reduced by a much lower than normal demand for excess reserves. In the July 2 period, borrowing averaged above path as a result of a pickup near the close associated with wire problems and the quarter-end statement date. The Desk deliberately overshot the nonborrowed reserve objective to alleviate undesirably firm conditions in the money market. As a result, the excess reserve allowance, which had been temporarily raised to \$1.1 billion to accommodate heavy quarter-end and statement date demands, was also exceeded in that period.

The Desk continued to face sizable reserve needs in June. Required reserves showed more than seasonal strength reflecting the strong growth in checkable deposits. Currency demand was seasonally strong throughout the interval. Also absorbing reserves were higher than normal levels of the foreign overnight investment pool.

The Desk met the reserve needs by purchasing Treasury bills and arranging repurchase transactions. It bought \$2.5 billion of bills in the market in late May and another \$1.9 billion from foreign accounts gradually over the period. Desk plans for additional market purchases of bills were postponed as persistent shortfalls in the Treasury's balance reduced the projected reserve needs for late June and July. The Federal funds market was often on the comfortable side, with funds trading in a narrow range around $6\frac{7}{8}$ percent, although conditions were occasionally firmer when statement and Treasury note settlement date pressures or wire problems developed.

At the July meeting, against the background of a sluggish expansion in economic activity and a subdued rate of inflation, most Committee members believed that some easing was desirable. Taking account of the likelihood that the discount rate would be reduced within a few days after the meeting, a majority indicated a preference for implementing the easing, at least initially, through a lower discount rate rather than through open market operations. The discount rate was reduced to 6 percent shortly after the meeting.

In the periods between late July and mid-August, borrowing averaged about \$100 million above the \$300 million path allowance, in part as a result of special situation borrowing by banks experiencing problems related to oil industry loans. The special situation borrowing not classified as extended credit averaged about \$120 million in the late July maintenance period and about \$175 million in the next period. Nonborrowed reserves also diverged from path levels, reflecting informal adjustments for swings in the demand for excess reserves as well as unanticipated movements in market factors late in each period. However, in the mid-August period, most of the reserve miss was

deliberate, after taking into consideration the special borrowing and expected low excess reserve demand. Excess reserves were either moderately above or below the path allowance in each maintenance period, reflecting unusually large swings in reserve carryover positions as well as the nonborrowed reserve misses.

The seasonal need to add reserves tapered to a moderate size in the second half of July. The Desk addressed the reserve needs primarily by arranging customer-related repurchase agreements in the market, although System repurchase agreements were arranged early in the intermeeting period when the need was still considerable. In addition, the Desk purchased a total of \$1.4 billion of bills from foreign accounts as opportunities developed. Federal funds generally traded in the $6\frac{1}{4}$ to $6\frac{3}{8}$ percent area after the July 10 announcement of the discount rate cut, down from $6\frac{7}{8}$ percent at the time of the July meeting.

Late August to year-end

Open market operations over the final four months of the year were generally directed toward implementing the slightly more accommodative stance adopted at the August FOMC meeting and embodied in the 50-basis-point reduction in the discount rate that closely followed that meeting. While average borrowing exceeded the path allowances in September and early October, the desired easing was reflected in the money market, where Federal funds traded mostly around $5\frac{7}{8}$ percent or a shade lower. The borrowing overages generally reflected reserve needs that did not show through to the market until late on settlement day, or a clearing need resulting from an unexpected late-day outflow. However, over November and much of December, while nonborrowed reserve objectives were mostly achieved or even exceeded and borrowing averaged close to the \$300 million allowance, the Federal funds rate tended to firm. Desk efforts to alleviate the unusual money market pressure and keep pace with reserve needs were repeatedly frustrated by relentless upward revisions to required reserves, a lessened use of the discount window, and unpredictably high demands for excess reserves.

At the August FOMC meeting, the Committee issued a directive that called for a slight decrease in reserve pressure, taking account of the possibility of a change in the discount rate. The reduction in the discount rate to $5\frac{1}{2}$ percent shortly thereafter accomplished the desired easing and the Desk operations continued to aim for \$300 million of seasonal plus adjustment borrowing and \$900 million of excess reserves. However, in early September, the Desk was a shade more cautious in injecting reserves to meet projected needs against a background that included continuing strength

in the monetary aggregates, scattered indications of a pickup in economic growth, and increased market concern about inflation.

Borrowing tended to exceed the formal path allowance between late August and late September. In the August 27 period, special situation borrowing raised daily borrowing above path until the second week when it was reclassified as extended credit borrowing. Excluding the special borrowing, borrowing was very close to the path objective. Average borrowing in the next period was lifted about \$200 million above path, largely because an upward revision to required reserves of \$400 million on the last day of the period introduced a need that could not be completely met (total propositions for the Desk's RP operation that day fell short of the desired injection), and the demand for excess reserves exceeded expectations. In the September 24 period, unexpected late-day outflows caused a bulge in borrowing which contributed to another borrowing overage.

In allowing for excess reserves over the August-September intermeeting period, the Desk took into account the likelihood that demand would fall below path. The lower demand was suggested by money market conditions, the distribution of excess reserves as the maintenance periods progressed and, in the September 24 period, the phase-up of reserve requirements at nonmember institutions. However, downward revisions to required reserves after the periods ended lifted excess reserves somewhat closer to path allowances.

The Desk faced fairly sizable reserve needs in September as first currency, and then the Treasury balance, rose. A large portion of the reserve needs was met by the Desk's purchase of \$2.1 billion of Treasury bills in the market in late August and purchases from foreign accounts totaling about \$900 million. Temporary transactions supplemented these reserve injections.

With the Desk making informal allowance for low excess reserve demand, nonborrowed reserves fell somewhat short of path in the periods between late August and late September. On a number of occasions, nonborrowed reserves averaged somewhat below the level expected on the final day, partly as a result of reserve shortfalls. Federal funds generally traded in a narrow range around $5\frac{7}{8}$ percent following the August 20 announcement of the discount rate cut to $5\frac{1}{2}$ percent.

At the September FOMC meeting, the Committee adopted a directive that called for maintaining the prevailing degree of pressure on reserve positions but indicated that it would be more likely to move toward slightly greater rather than lesser reserve restraint depending on monetary, economic, and foreign exchange conditions. In the absence of further developments calling for adjustment of reserve positions, no changes were made to the path allowance for borrowing. The typical allowance for excess reserves was

lowered by \$50 million to \$850 million on October 22 to reflect the recent behavior of excess reserves.

Over the September-November intermeeting period, borrowing frequently averaged higher, and excess reserves lower than expected, in part because underestimates of required reserves repeatedly understated reserve needs. Nonborrowed reserves averaged modestly below the objectives, mostly as a result of the lower than anticipated levels on the last day of the maintenance periods.

Overnight borrowing ran above path in late September but then tapered down to very low levels in October, except on settlement days, as small banks made less use of the window and as seasonal borrowing worked lower. Heavy settlement day use of the discount window raised average borrowing considerably above its objective in the early October and November periods. Upward revisions to required reserves after the maintenance periods ended more than offset the effects of these unexpected borrowings on the level of excess reserves and reduced average excess reserves below expected levels. The comfortable tone in the money market until very near the periods' ends suggested that the level of reserve needs may have been underestimated by bank reserve managers as well.

High levels of the Treasury's balance continued into early October, which, together with an increase in the foreign investment pool, created a sizable need. Reserve needs were more moderate later in the month. Over the intermeeting period, guided by the size and duration of the reserve needs, the Desk arranged both System and customer-related repurchase agreements, with a number of the former extending over multiple days. The Desk also purchased a total of \$1.3 billion of Treasury bills from foreign accounts. Federal funds generally traded close to $5\frac{7}{8}$ percent although the range of trading was quite broad at the quarter-end and on most settlement days.

Over the fall, economic activity continued to show signs of moderate growth while growth of the broader aggregates tempered somewhat. Against this background, at its November and December meetings, the Committee voted to maintain the existing degree of reserve restraint. However, in December, economic data suggested a greater possibility for slower rather than faster growth over the near term. With this in mind, while the Committee called for no immediate change in reserve pressure, it expressed a slightly greater willingness to move toward lesser rather than greater restraint, depending on the behavior of the monetary aggregates, taking account of the strength of the economy, developments in the foreign exchange markets, domestic and international financial market conditions, and the outlook for inflation.

Policy was implemented over the final two months of the year against a background of persistently stronger than expected demands for reserves. Hence, while nonborrowed reserve supplies on average were about in line with or above the objectives, the pressures on reserve positions were sometimes greater than intended. Extraordinarily strong credit demands and accelerating growth in deposits subject to reserve requirements helped push overnight and other short-term interest rates far above normal levels earlier and more persistently than in recent years. The strong credit demands, particularly for commercial, industrial, and real estate loans from large banks, added to the volume of flows through reserve accounts and to the uncertainty about reserve levels. These developments may have made banks a little hesitant to use up their access to the discount window, especially those banks that had borrowed in recent periods. Aggressive foreign agency bank buying of term Federal funds to cover year-end needs, which were enlarged by strong credit demands, may have contributed to the firmness as early as mid-November. During November, Federal funds traded mostly in a range around $5^{15}/_{16}$ percent. December trading conditions were generally firmer with the funds rate most frequently between 6 and $6^{1}/_{2}$ percent.

The demand for bank loans soared over the final weeks of 1986 as businesses and investors rushed to complete transactions which would receive less favorable tax treatment beginning in 1987. The loans may have been the dominant factor underlying the unusual acceleration in deposit growth as some loans were taken in the form of demand deposits. The higher balances may have been retained to handle the increased transactions volume and to meet increased compensating balance requirements.

The extraordinary growth of bank loans and reservable deposits made it very difficult to estimate reserve demands. Often, upward revisions to required reserve levels were as big as \$500 million during a period and pushed another \$100 million to \$150 million higher after the period ended. The required reserve revisions in the year-end period cumulated to \$1.6 billion during the period, and to \$1.8 billion when final reserve requirements were known shortly thereafter. It was also difficult to project the desired levels of excess reserves because banks, uncertain of their needs, became more cautious about releasing funds.

Between mid-November and year-end, nonborrowed reserves exceeded the formal objectives, but most of the overages were intended. Against the background of special seasonal and technical factors, the Desk made frequent allowances for higher excess reserve demands.

In the December 17 period, the Desk provided more reserves than formally called for because of a string of shortfalls during the period and a taut money market which suggested the need might be greater than projected. Borrowing until the final day averaged only \$90 million, and the Desk was willing to mitigate the bulge in settlement day borrowing that would have been needed to attain the path objective.

In the year-end period, although the nonborrowed reserve objective allowed for \$1.4 billion of excess reserves (\$100 million more than occurred in the equivalent period a year earlier), the Desk provided more reserves than formally indicated in light of the extreme money market pressures. While the very generous overage was reduced somewhat by a much higher than anticipated Treasury balance on the final day, reserve supplies more than met the banks' needs and the funds rate plunged from 38 to 0 percent over the course of the final day. Some banks actually paid a brokerage fee to have the excess reserves, an obvious nonearning asset on their year-end balance sheets, taken off their books, even though the funds had value on January 1, 1987, the first day of a new maintenance period.

While excess reserves initially appeared to end most periods substantially over the levels anticipated on the final day, later upward revisions to required reserves placed excess reserve levels more in line with those expectations. However, in the year-end period, even after taking account of subsequent upward revisions to required reserves, excess reserves averaged \$2.0 billion, far above the expected level. A number of banks turned to the discount window in that period to satisfy these extraordinary demands, particularly near year-end, raising the average level of borrowing in that period to slightly over \$900 million.

The large reserve needs over the final two months of the year were addressed with a combination of outright and temporary transactions. On an outright basis, the Desk purchased about \$10.2 billion of Treasury securities, including about \$6.2 billion of bills and \$1.5 billion of coupon issues in the market, and \$2.5 billion of bills from foreign accounts. The coupon purchase was the first in almost a year and tended to emphasize the short and intermediate maturity range more than past coupon issue purchases, reflecting the Committee's preference for portfolio liquidity. Temporary transactions were also used to provide reserves. Large System RP operations were necessary on a number of occasions. At the close of the year, a record \$16.0 billion of System RPs was on the books, including \$9.2 billion of RPs arranged that day.