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**DOMESTIC OPEN MARKET OPERATIONS**  
**DURING 2006**

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A Report Prepared for the Federal Open Market Committee by  
the Markets Group of the Federal Reserve Bank of New York  
February 2007

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FEDERAL RESERVE BANK OF NEW YORK, MARKETS GROUP

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# DOMESTIC OPEN MARKET OPERATIONS DURING 2006

## I. IMPLEMENTATION OF MONETARY POLICY IN 2006

### A. Introduction

The Federal Open Market Committee's (FOMC) domestic policy directive prescribes that the Trading Desk (Desk) of the Federal Reserve Bank of New York (FRBNY) foster conditions in the market for Federal Reserve balances consistent with maintaining the overnight federal funds (fed funds) rate at an average around a specified target rate. Accordingly, the Desk arranges open market operations to keep fed funds trading around the target rate and to simultaneously achieve other objectives for the structure of Federal Reserve holdings of domestic financial assets.

This report reviews the conduct of open market operations during 2006. First, the report describes operating procedures used by the Desk to influence the fed funds rate and summarizes key new developments in the policy implementation framework. Then, the report explains demand for balances at the Federal Reserve and the behavior of autonomous factors – balance sheet items outside the control of the Desk – that affect the supply of these balances. The composition of domestic financial assets held by the Federal Reserve and the various types of open market operations used to adjust them are then reviewed. Finally, the report discusses the behavior of the fed funds rate in 2006 and addresses the use of the discount window by depository institutions.

### B. Overview of Operational Procedures to Influence the Federal Funds Rate

Continuing a series of monetary tightening measures begun in June 2003, the FOMC increased the fed funds target at each of its first four meetings in 2006, raising it from 4¼ percent at the start of the year to 5¼ percent, but there were no rate changes at the subsequent four meetings (Table 1). Associated with each increase in the fed funds target, the Board of Governors approved an increase in the primary credit rate, maintaining a spread of 100 basis points above the fed funds rate target.<sup>1</sup>

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<sup>1</sup> A spread of 150 basis points of the secondary credit rate over the federal funds rate target was also preserved.

*Adapted from a report to the Federal Open Market Committee by William Dudley, Executive Vice President of the Federal Reserve Bank of New York and Manager of the System Open Market Account.*

Table 1

**FEDERAL FUNDS TARGET RATE AND PRIMARY CREDIT RATE (PERCENT)**

<i>FOMC Meeting Date</i>	<i>Federal Funds Target Rate</i>	<i>Primary Credit Rate</i>
December 13, 2005	4.25	5.25
January 31, 2006	4.50	5.50
March 28, 2006	4.75	5.75
May 10, 2006	5.00	6.00
June 29, 2006	5.25	6.25

To influence the fed funds rate, the Desk conducts open market operations to align the supply of balances held by depository institutions at the Federal Reserve – or Fed balances – with banks’ demand to hold balances consistent with maintaining the fed funds rate around the target. Each morning, the Desk considers whether open market operations are needed based on estimates of the supply of and demand for Fed balances.

The average level of Fed balances that banks demand over a two-week reserve maintenance period consistent with the fed funds rate remaining around the target is in large part determined by requirements to hold Fed balances, with only a small level of additional, or excess, balances typically demanded. While most large depository institutions generally demand balances equal to their requirements, many small institutions demand some excess as a precaution against the risk of being overdrawn in their Fed accounts.

Depository institutions holdings of Fed balances are averaged over the days within a reserve maintenance period to meet requirements, which gives them considerable leeway in day-to-day account management. This flexibility can absorb some volatility in the fed funds rate that might otherwise develop when reserve supply and demand are misaligned.

**C. New Developments in 2006**

*Development of Automated Auction Platform for Open Market Operations*

The Desk completed the rollout of the new FedTrade auction system, deploying it for temporary and permanent open market operations in March and May 2006, respectively. This rollout followed the deployment for securities lending operations in November 2005. FedTrade, with its up-to-date infrastructure and interface, replaced the mainframe-based Trading Room Automated Processing System (TRAPS), which had supported open market operations since 1994. FedTrade has resulted in several quantifiable improvements to operation processes, including allowing the time given for

tender submission in temporary operations to be reduced from 15 to 10 minutes, and allowing for much quicker results turnaround times for all operations types – averaging just over 1 minute for RPs, just over 2 minutes for outright operations, and near 1 minute for securities lending operations. Information on operations is also made available more quickly to the public, with details posted on the New York Fed’s website and distributed via newswires almost instantaneously.

#### *Expanded Dealer Limits for Securities Lending*

Effective January 9, changes were implemented to the limits on the amounts of securities dealers may borrow from the System Open Market Account (SOMA) in the Securities Lending program.<sup>2</sup> Dealers’ per issue borrowing limit changed from a fixed \$200 million to a variable amount according to the size of holdings. With the enhanced limits, a dealer may borrow up to 20 percent of the theoretical supply (65 percent of the SOMA holdings) of a security, up to \$500 million. In aggregate, a dealer can borrow up to \$3 billion across all securities, increased from a \$1 billion limit. All other program terms remained the same.

#### *Implementation of Payments System Risk Policy Changes*

On July 20, changes to the Payments System Risk (PSR) policy were implemented, ending the Federal Reserve’s provision of intraday credit for certain institutions for which it makes security principal and interest payments, most notably the Government-Sponsored Enterprises (GSEs). The Board of Governors initially announced the PSR change for public comment in February 2004. The policy change had broad potential implications for various financial institutions and markets, one of which was a possible impairment of liquidity in the fed funds market on days when the GSEs make large payments to investors. With the change, investors could have potentially received payments later in the day, which raised concerns among some market participants that there could be some disruption of the flow of money in the banking system, potentially pressuring fed funds rates higher. However, with the adequate lead time, the GSEs and other market participants were able to make arrangements such that the policy change has had virtually no impact on financial markets, including intraday behavior of the fed funds rate.

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<sup>2</sup> The change in the lending limits were announced to the public and may be found at the following link: <http://www.newyorkfed.org/newsevents/news/markets/2005/an051205.html>

### *Changes to Management of the System Open Market Account*

At the October FOMC meeting, the Committee concurred with a change proposed by the Account Manager to the domestic portfolio guidelines. The existing set of graduated per-issue limits applied to SOMA holdings of U.S. Treasury securities was changed to a single 35 percent per-issue holding limit to be applied equally across the maturity spectrum.<sup>3</sup> The low per-issue limits that had been applied to longer-dated maturities had the effect of increasing redemptions of securities, increasing the need to arrange permanent operations and reducing, and making less regular, subsequent auction participation. Prior to 2000, the SOMA portfolio had operated for some time under an informal 35 percent per-issue guideline for all issues.

### *Law Passed to Pay Interest on Reserves, Effective in 2011*

The Financial Services Regulatory Relief Act of 2006 authorized the Federal Reserve banks to pay interest on reserve balances and gave the Board of Governors authority to lower reserve requirements on all transaction deposits (applied to deposits above a certain threshold level) to as low as zero percent, from their previous minimum top marginal requirement ratio of eight percent. These changes are not effective until October 2011.

## **II. BANKS' DEMAND FOR FED BALANCES**

Total demand for Fed balances can be broken down into two components: the portion needed to meet all balance requirements and the portion held in excess of these requirements.

### **A. Total Balance Requirements**

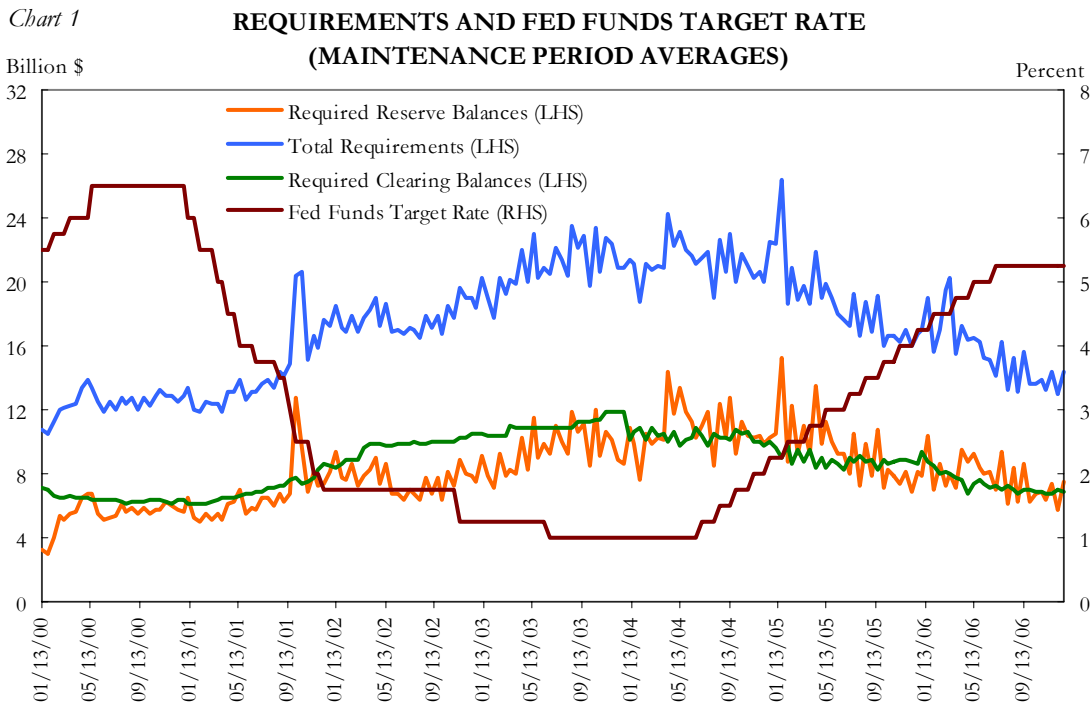
A bank's total balance requirement is the average level of balances it must hold at its Reserve Bank over a two-week maintenance period to meet all obligations. This requirement has regulatory and contractual components. The regulatory component is called the required reserve balance and is equal to the portion of reserve requirements not met with vault cash. The contractual component is called the clearing balance requirement. Total balance requirements may be affected by the application of "as-of" adjustments. Such adjustments may be made to correct Reserve Bank accounting transaction errors, to correct reporting errors (including deposit reporting errors), to recover float incurred by an institution, or to address other circumstances. **Required reserve**

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<sup>3</sup> The change in the limit structure was announced to the public and may be found at the following link: <http://www.newyorkfed.org/newsevents/news/markets/2006/an061113.html>

balances, clearing balance requirements, and most as-of adjustments are known at the start of each maintenance period, which facilitates the Desk's estimation of the overall demand for Fed balances.

Both required reserve balances and clearing balance requirements contracted significantly over 2006, continuing a trend seen through the monetary tightening cycle begun in mid-2004 (Chart 1). Total requirements fell to as low as \$13.1 billion at the end of 2006, down from near \$17 billion in late 2005, and have erased most of the gains that occurred from the trough reached in 2000.<sup>4</sup> While the precise factors behind the declines in requirements are not certain, historically, both reserve requirements and clearing balance requirements have tended to move inversely with short-term interest rates, consistent with recent behavior. Rising rates raise the opportunity cost to households and businesses of holding reservable deposits at banks, and reduced deposits result in lower requirements for banks. Additionally, given the fact that clearing balances generate income credits that banks use to pay for Federal Reserve priced services, higher interest rates reduce banks' incentive to hold clearing balances due the fact that a lower level would be needed to generate credits sufficient to cover their use of priced services.



<sup>4</sup> Total requirements fell dramatically over the 1990s as a result of cuts in reserve requirement ratios and declines in reserve requirements associated with the growth of retail deposit sweep accounts at depository institutions.

The decline in total requirements challenges banks by limiting their flexibility in distributing balance holdings over a maintenance period consistent with meeting their total requirements over a maintenance period. Experience suggests that there is some level of aggregate balances necessary to maintain liquidity in the reserves market. As the amount of available balances falls below this level, the risks of a spike in fed funds rates in late-day trading and sizable borrowing from the discount window increases significantly. Evidence suggests that the critical level of balances may vary over time, but it is currently thought to be around \$11 billion, although it may be higher on high payment flow days. In 2006, total requirements were as low as \$13.1 billion. When requirements are that low, targeting daily deficiencies below, say \$1.5 billion after allowing some cushion for autonomous factor forecast errors, introduces an elevated risk that trading conditions could become very illiquid late in the day.

### **B. Excess Balances**

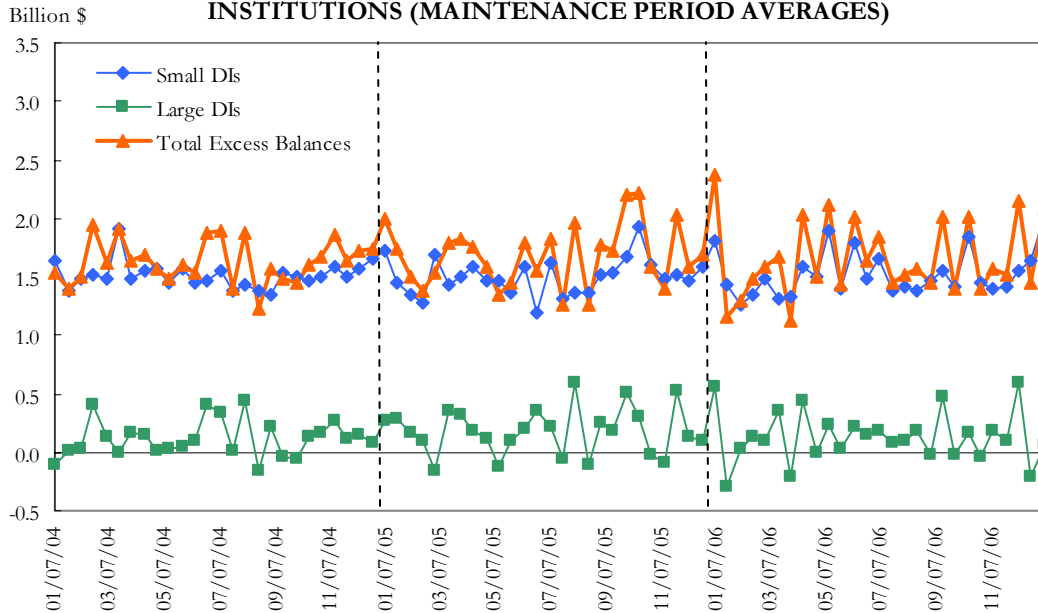
Excess balances are those accumulated by institutions over a maintenance period that are above the level needed to meet their total requirements. Excess balances earn no interest and therefore represent a lost investment opportunity. But many institutions, especially small banks that lack access to wholesale funding markets, routinely hold a modest amount of balances above the level of their requirements each day in a maintenance period to mitigate the potential for end-of-day overdrafts. Demand for excess is an important component of the total demand for Fed balances, which the Desk accounts for in its provision of balances.

Excess levels averaged \$1.63 billion in 2006, a modest increase from 2005 levels. Maintenance period-average levels of excess exhibit only moderate volatility around a relatively steady long-term average (Chart 2).



Chart 2

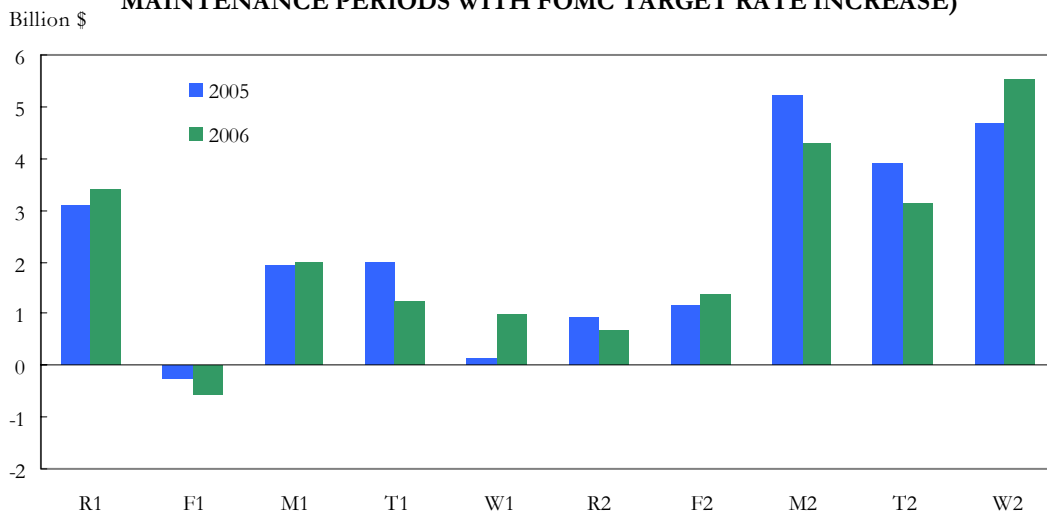
**EXCESS BALANCES AT SMALL AND LARGE DEPOSITORY INSTITUTIONS (MAINTENANCE PERIOD AVERAGES)**



In designing open market operations, the Desk aims to satisfy banks' demand for holding Fed balances on a daily as well as on a maintenance period-average basis. Excluding maintenance periods in which patterns were strongly influenced by expectations of a policy change, daily reserve demand in 2006 was again heavily weighted towards the last three days of each maintenance period. This continued the long-standing pattern of demand, and average levels of excess for each maintenance period day were very similar in 2005 and 2006 (Chart 3).

Chart 3

**EXCESS LEVELS BY MAINTENANCE PERIOD DAY (EXCLUDING MAINTENANCE PERIODS WITH FOMC TARGET RATE INCREASE)**



During the maintenance periods when the FOMC raised rates, each move was widely anticipated by market participants, and thus fed funds traded at elevated rates in the days ahead of the meetings. The Desk provided reserves in an effort to lean against these anticipatory pressures while taking account of the reserve management implications of such operations for the remainder of the maintenance period.<sup>5</sup>

### **III. AUTONOMOUS FACTORS AFFECTING THE SUPPLY OF FED BALANCES**

The supply of Fed balances is determined by the size of the Federal Reserve's domestic financial assets, discount window loans, and the levels of the various autonomous factors on the Federal Reserve's balance sheet over which the Desk has little or no control. In absolute size, autonomous factors consist primarily of currency liabilities issued by the Federal Reserve (F.R. notes). Autonomous factors also include other balance sheet items, although the net value of these items typically is small when compared to F.R. notes.

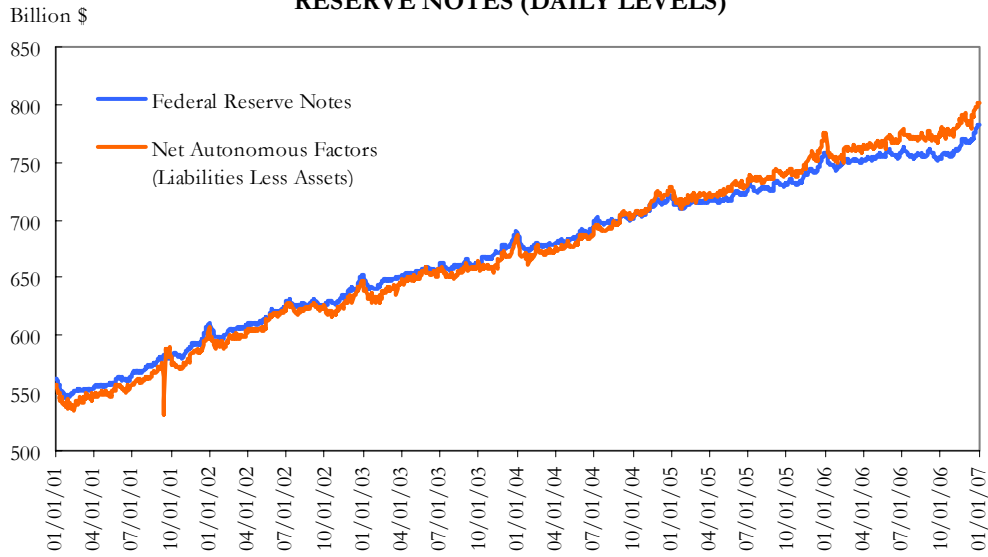
The net level of autonomous factor liabilities, measured as liabilities less assets, increased by \$29 billion in 2006, which is the smallest amount by which it increased since 2000 (Chart 4). F.R. notes grew at an exceptionally slow rate in 2006, and this development was the primary reason for the slow growth of net autonomous factors during 2006.

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<sup>5</sup> The day on which an FOMC meeting falls within a maintenance period can affect the daily pattern. In 2005, most of the FOMC dates fell on the first Tuesday of the periods, while in 2006 they fell in the latter part of the periods. A discussion of the behavior of the federal funds rate on these occasions appears in section V.A.

Chart 4

**NET VALUE OF ALL AUTONOMOUS FACTORS AND FEDERAL RESERVE NOTES (DAILY LEVELS)**



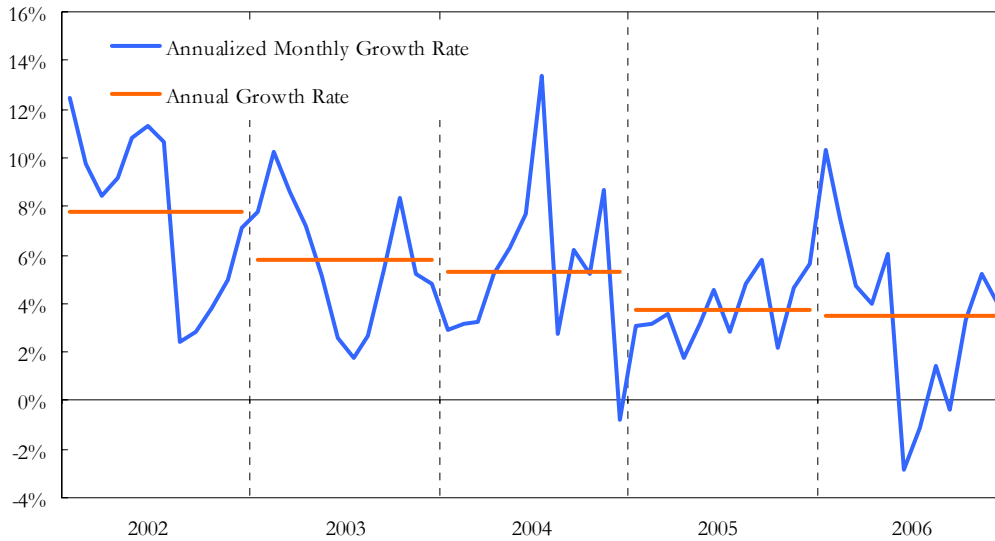
*Developments in Federal Reserve Notes*

The quantity of F.R. notes outstanding increased by \$24.5 billion during 2006. The rate at which it grew in 2006 (3.2% year-end-over-year-end) was the slowest since the early 1960s, excluding 2000 which was affected by the return of currency to the Fed after Y2K.

As represented by the seasonally adjusted currency component of M1, monthly currency growth rates were erratic (Chart 5). Variations in the net volume of currency shipments to foreign destinations contributed substantially to monthly swings. Although it remains difficult to measure the international component of currency demand, the steady downward trend in currency growth rates appears to be related to more stable economic and political conditions abroad and the relative attractiveness of alternatives to physical U.S. currency.

Chart 5

**SEASONALLY ADJUSTED CURRENCY COMPONENT OF M1  
GROWTH RATES**



*Developments in the Foreign RP Pool*

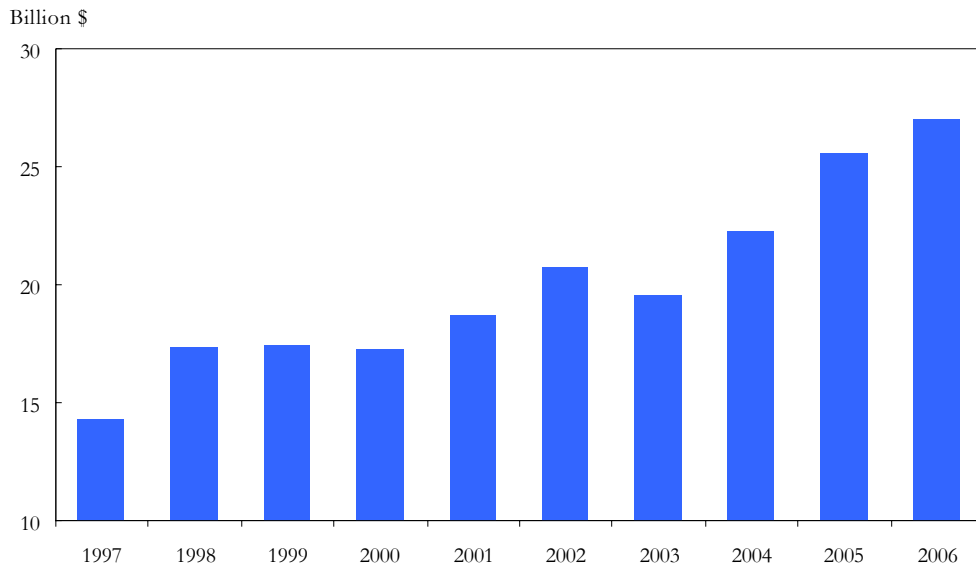
The foreign RP pool<sup>6</sup> continued to increase during 2006, albeit at a slower rate than in prior years (Chart 6). When measured in terms of average annual levels, the foreign RP pool grew during 2006 at a rate slightly below 6 percent (\$1.4 billion), which is well below the roughly 15 percent rate at which it grew in 2004 and 2005.

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<sup>6</sup> The foreign RP pool is an overnight repurchase agreement between the Federal Reserve System and foreign central bank and international account customers, using SOMA holdings as collateral. The pool is offered to customers as an investment vehicle to help meet their cash management needs.

Chart 6

### AVERAGE ANNUAL FOREIGN RP POOL LEVELS



#### *Developments in the Treasury Balance*

Treasury's total operating balance, defined as funds held in the Treasury's account with the Federal Reserve (the Treasury General Account) plus balances held in Treasury Tax and Loan (TT&L) note accounts at commercial banks (which includes term investments and reverse repurchase agreements), was higher on average in 2006 than in 2005 (Chart 7).

Similar to 2005, TT&L capacity was on average lower, and more volatile in 2006 compared to years prior to 2005. As Treasury held larger and more frequent auctions in the Term Investment Option (TIO) program, commercial banks responded by actively managing the collateral pledged to the TT&L program. As a result, TT&L capacity became more elastic and became more closely correlated with Treasury's total operating balance. During high tax receipt periods, for instance, a significant portion of Treasury's total operating balance was invested under the TIO program (Chart 8).

Treasury began investing excess funds overnight with depository institutions via reverse repurchase (repo) agreements in March 2006. This pilot program, which supplements the TIO program, will run through March 2007.

This program differs from the TIO program in that funds are placed on a same-day basis, whereas funds in TIO are placed the day after auction. Treasury currently only accepts Treasury securities to be pledged against repo transactions. Even though Treasury temporarily buys back its own securities during these transactions, these transactions do not reduce debt subject to the Federal debt limit.

Chart 7

**TREASURY'S TOTAL OPERATING BALANCE & TT&L CAPACITY  
(DAILY LEVELS)**

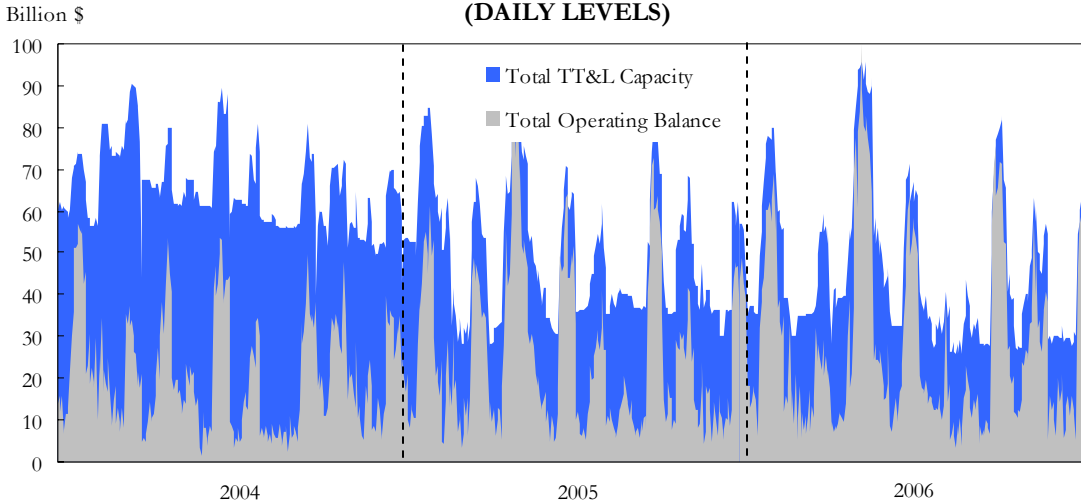
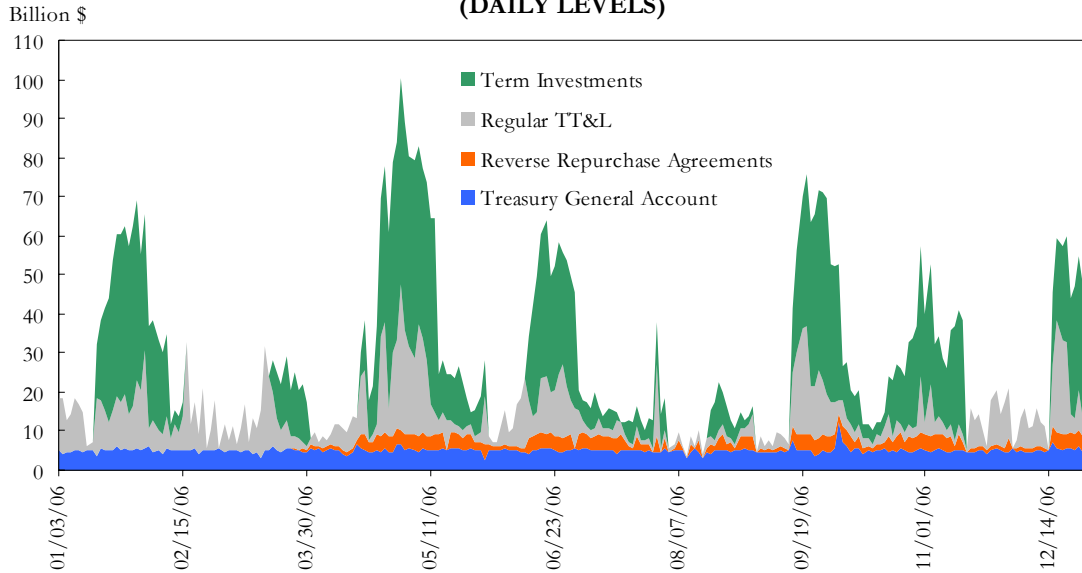


Chart 8

**DISTRIBUTION OF TREASURY'S TOTAL OPERATING BALANCES  
(DAILY LEVELS)**



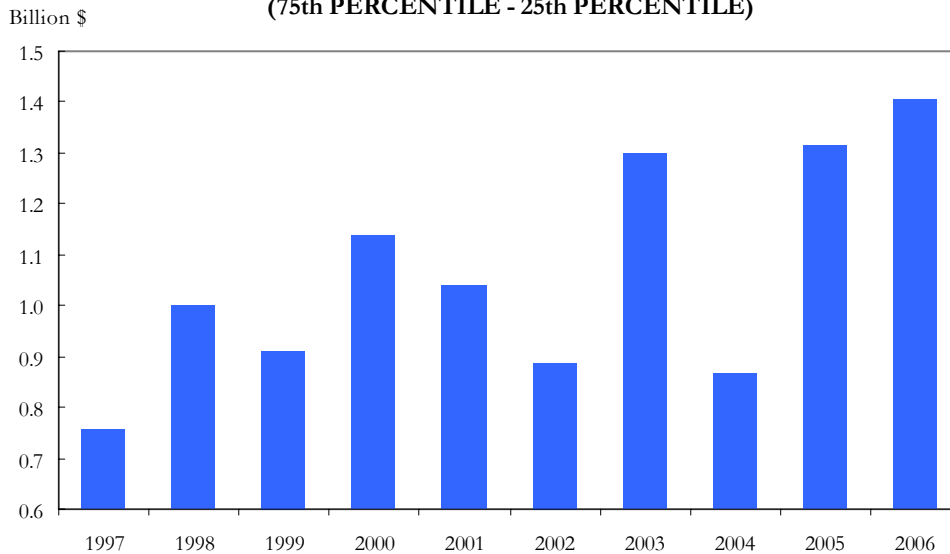
*Developments in Statement Float*

Federal Reserve float levels exhibited greater variability in 2006 than in prior years, with the difference between the 75th and 25th annual percentile levels of daily float increasing to about \$1.4 billion (Chart 9). The greater variability appeared, in part, to be related to sporadic check processing disruptions involving the hardware and software used to implement the Check 21 initiative. The ongoing consolidation of Federal Reserve check processing operations has concentrated check processing activity at fewer check processing sites, so that a disruption of work at one or more of these consolidated operations or delays in the transportation of checks between any two offices have a larger effect on float levels.

These developments greatly affected the variability of float, especially on the second business day of the week, which are the days during which volumes of checks processed by the Fed typically are highest.

*Chart 9*

**ANNUAL DISTRIBUTION OF DAILY FLOAT LEVELS  
(75th PERCENTILE - 25th PERCENTILE)**



*Volatility and Predictability of Key Autonomous Factors*

The variability of autonomous factors, as measured by average absolute daily changes, increased from the prior year due largely to the increased variability of float (Table 2). The variability of currency and the foreign RP pool increased by smaller amounts while the variability of the Treasury's Fed balance decreased significantly.

Average same-day float and foreign RP pool forecasting misses increased from 2005 to 2006 along with the variability of the float and pool series. Overall same-day forecasting misses nonetheless decreased. The decreased variability of the Treasury's Fed balance coincided with improved accuracy in forecasting that balance, and currency forecast accuracy improved as well.

Table 2

**DAILY AUTONOMOUS FACTORS CHANGE AND FORECAST MISSES (MILLION \$)**

<b>Daily Change</b> (Absolute Values)	<u>2004</u>		<u>2005</u>		<u>2006</u>	
	<u>Average</u>	<u>Max.</u>	<u>Average</u>	<u>Max.</u>	<u>Average</u>	<u>Max.</u>
Currency in Circulation	918	3,510	855	2,930	927	3,112
Treasury balance	763	4,272	704	4,942	585	6,945
Foreign RP pool	599	5,219	756	6,773	805	5,666
Float	721	5,724	943	6,572	1,192	6,853
Net Value*	1,356	7,209	1,666	7,483	1,887	11,747

<b>Daily Forecast Miss</b> (Absolute Values)	<u>2004</u>		<u>2005</u>		<u>2006</u>	
	<u>Average</u>	<u>Max.</u>	<u>Average</u>	<u>Max.</u>	<u>Average</u>	<u>Max.</u>
Currency in Circulation	200	1,566	213	1,561	186	1,281
Treasury balance	415	2,353	444	4,277	404	7,040
Foreign RP pool	125	1,716	148	1,768	176	1,106
Float	374	2,811	594	5,803	629	5,624
Net Value*	654	3,920	879	8,156	854	7,524

\*Net value reflects offsetting movements and forecast misses of all autonomous factors.

**IV. DOMESTIC FINANCIAL ASSETS & OPEN MARKET OPERATIONS**

**A. Different Types of Open Market Operations and Their General Uses**

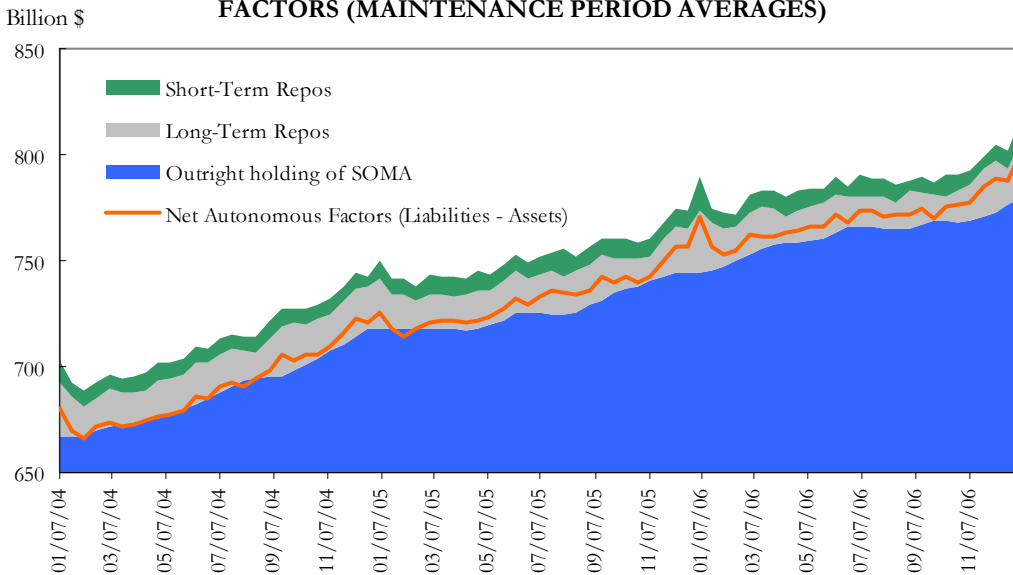
The Federal Reserve holds two general types of financial assets in its domestic financial portfolio to achieve monetary policy objectives: outright holdings of Treasury securities in the SOMA, which account for the bulk of the portfolio, and temporary repurchase (RP) agreements (Chart 10). The Federal Reserve may also issue temporary liabilities by delivering Treasury securities under reverse repurchase agreements (RRPs), although this has not occurred since January 2004.<sup>7</sup>

<sup>7</sup> The last time the Desk conducted a reverse RP was January 9, 2004.



Chart 10

**TOTAL DOMESTIC PORTFOLIO AND NET AUTONOMOUS FACTORS (MAINTENANCE PERIOD AVERAGES)**



The Desk structures its outright holdings to maintain a need to routinely add to balances by arranging RPs. The targeted magnitude of this structural deficiency allows the Desk to respond to volatility in the supply of and demand for balances and to autonomous factor forecast errors by adjusting the level of RPs outstanding, avoiding a routine need to drain reserves with RRP or to reduce the permanent portfolio.

In general, short-term RPs, defined as RPs with an original maturity of less than 13 days, are used to make marginal adjustments to the supply of Fed balances. Short-term RPs are arranged most days, after reserve supply and demand projections are complete. Less utilized, RRP are arranged when the level of Fed balances needs to be reduced temporarily (after accounting for all short-term RPs maturing that day).

The Desk also arranges long-term RPs, defined as RPs with original maturities of 13 days or more, to address seasonal volatility in autonomous factors or swings in demand for reserve balances that are expected to last for a number of weeks or even months. Long-term RPs with 14-day maturities are regularly arranged each Thursday. These operations are typically conducted early in the morning when the financing market is more liquid, and usually before daily reserve supply and demand projections are complete. Long-term RPs will be reduced before arranging RRP or reducing

outright holdings from the domestic portfolio in the event that net autonomous factors prove to persistently provide more reserves than are required to meet demand for reserves.

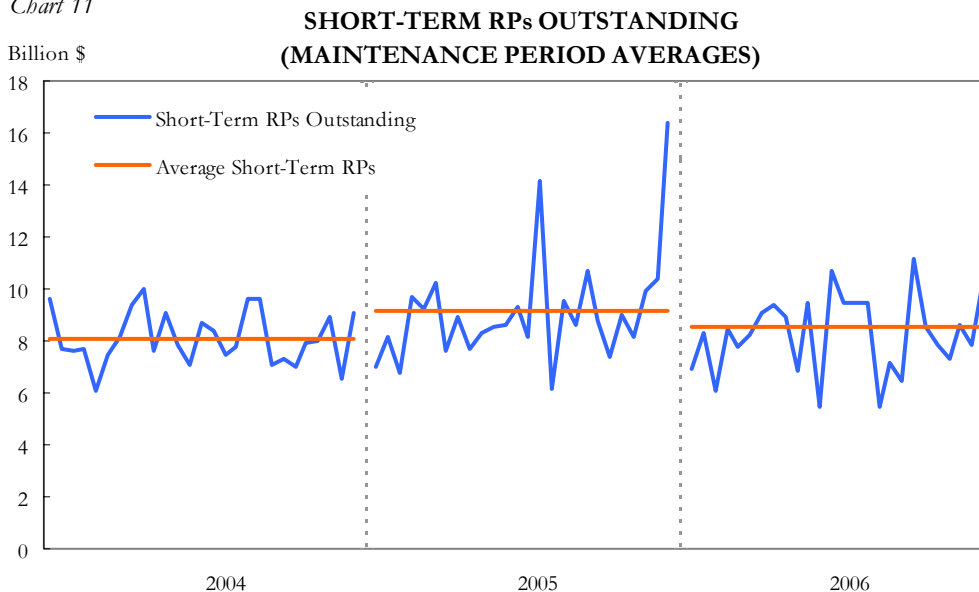
The Desk addresses permanent increases in the level of autonomous factor liabilities through outright purchases of Treasury securities for the SOMA. Maturing securities are routinely reinvested in new issues at auction. Much less commonly, redemptions and sales of portfolio holdings may be used to achieve reductions to the portfolio that are expected to be permanent.

## B. Temporary Holdings and Operations

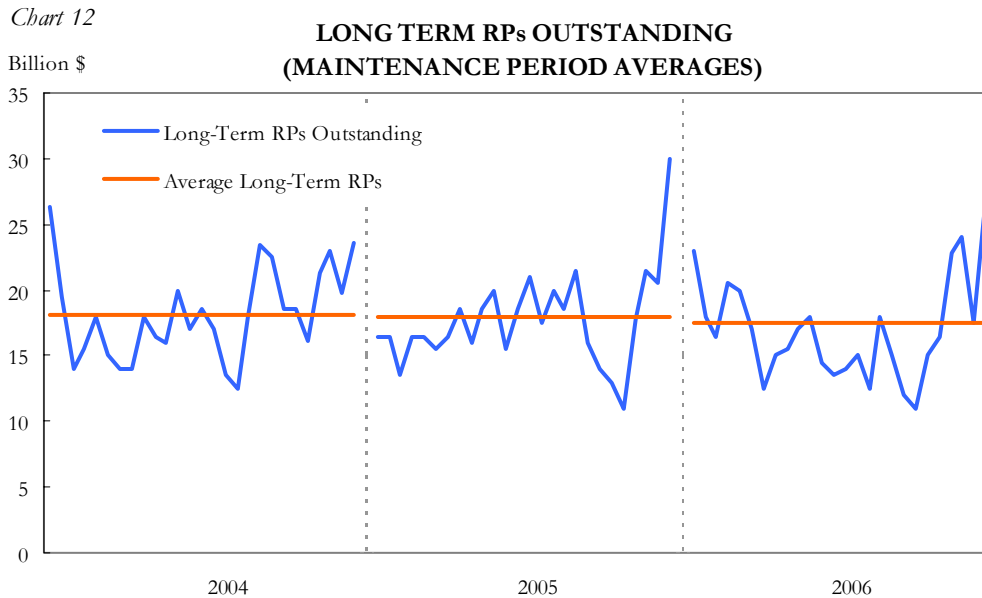
### *Outstanding Levels of Short-Term and Long-Term RPs*

Longer term financial assets (both outright holdings and long-term RPs) in the domestic portfolio are structured to allow for an expected level of short-term RPs, the size of which is built up or drawn down through more frequent market entry to offset short-term changes to net autonomous factors and reserve demand. The average level of short-term RPs (less RRP) outstanding was \$8.3 billion in 2006, little changed from the average of \$8.5 billion in 2005, and ranged between \$5.5 billion and \$11.1 billion on a maintenance period average basis (Chart 11). Daily amounts outstanding ranged from zero to \$28.0 billion.

Chart 11



The average level of outstanding long-term RPs was \$17.0 billion in 2006, similar to the \$17.6 billion average in 2005 (Chart 12). Daily levels of outstanding long-term RPs ranged from \$9.0 billion to \$28.0 billion.

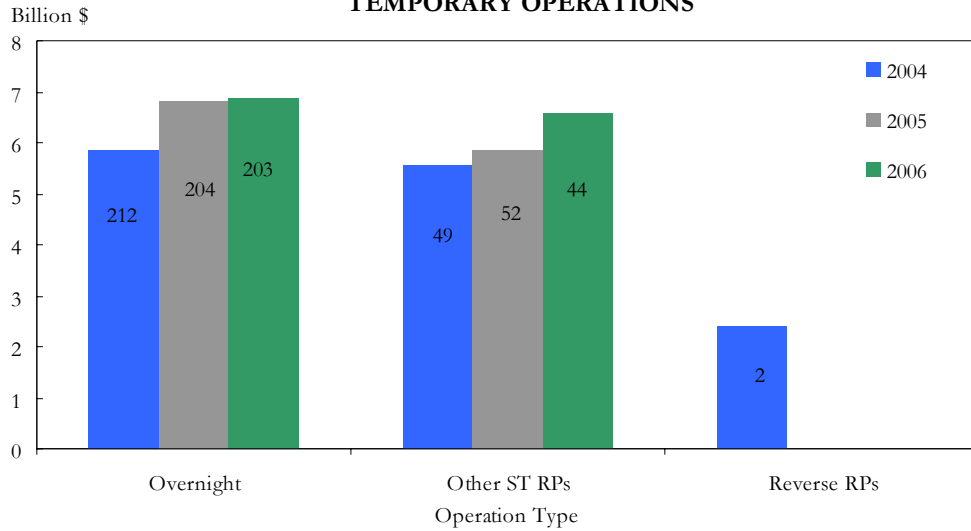


*Short-Term and Long-Term Temporary Operations*

The Desk arranged short-term RPs on all but 8 business days in 2006, compared to all but 7 days during 2005. A total of 203 overnight RPs were arranged in 2006 (including those spanning a weekend or a holiday), and the Desk arranged 44 other short-term RPs, both amounts similar to corresponding levels in the preceding year (Chart 13). In size, the average for all short-term temporary operations during 2006 was \$6.8 billion, and individual amounts ranged between \$1.5 billion and \$16.75 billion. The Desk again arranged no temporary draining operations (reverse RPs) in 2006.

Chart 13

### TOTAL NUMBER AND AVERAGE SIZE OF SHORT-TERM TEMPORARY OPERATIONS



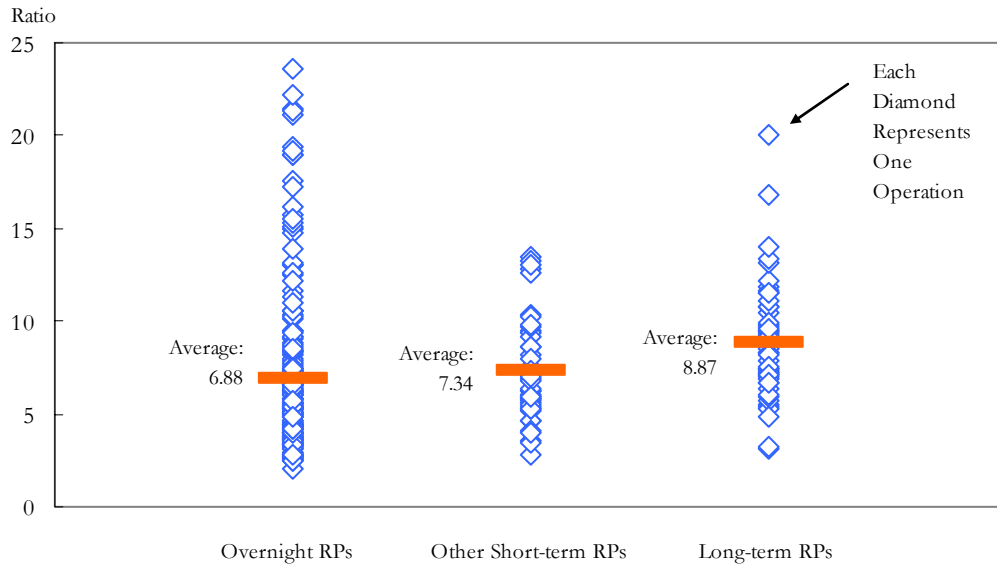
The Desk arranged a 14-day RP every Thursday morning. These operations averaged \$8.5 billion in size and ranged between \$4.0 billion and \$17.0 billion.<sup>8</sup>

Proposition levels provided more-than-adequate coverage in all temporary operations through 2006, with total propositions never less than double operation target amounts. The average bid-to-cover ratio for all RP operations during 2005 was 7.3. This ratio was volatile from operation to operation, but in general it was lower for overnight RPs than for other RPs (Chart 14). The Desk continued to minimize the potential for having insufficient coverage on its overnight RPs by arranging overlapping term operations to layer in balances ahead of days when dealer participation in overnight RPs has sometimes been low and projected balance needs high, such as quarter-end dates.

<sup>8</sup> These figures include long-term RPs of slightly greater or lesser maturity arranged around Thursday holidays.

Chart 14

**BID-TO-COVER RATIO BY OPERATION TYPE**



*Collateral Distribution in Repurchase Agreements*

The Desk accepts three types of collateral in its RPs, arranging the operations with three separate collateral tranches. In the first tranche, only Treasury securities are accepted; in the second, direct federal agency obligations are also eligible (in addition to Treasury securities); and, in the third, mortgage-backed securities are eligible in addition to the first two collateral types. The Desk selects from propositions across the three tranches according to the attractiveness of bids, measured relative to current rates in the financing market for each particular class of collateral. Benchmark rates for this purpose are based on an internal daily survey of financing rates paid by the primary dealers. Overall, in recent years the distribution by collateral tranche of outstanding RPs has been weighted heavily toward the Treasury tranche, which on average accounted for about 78 percent of all outstanding RPs in 2006, both long-term and short-term, very similar to their 2005 averages (Charts 15 and 16).

Chart 15

**QUARTERLY AVERAGE LEVELS OF SHORT-TERM RP<sub>s</sub>  
OUTSTANDING BY COLLATERAL TYPE**

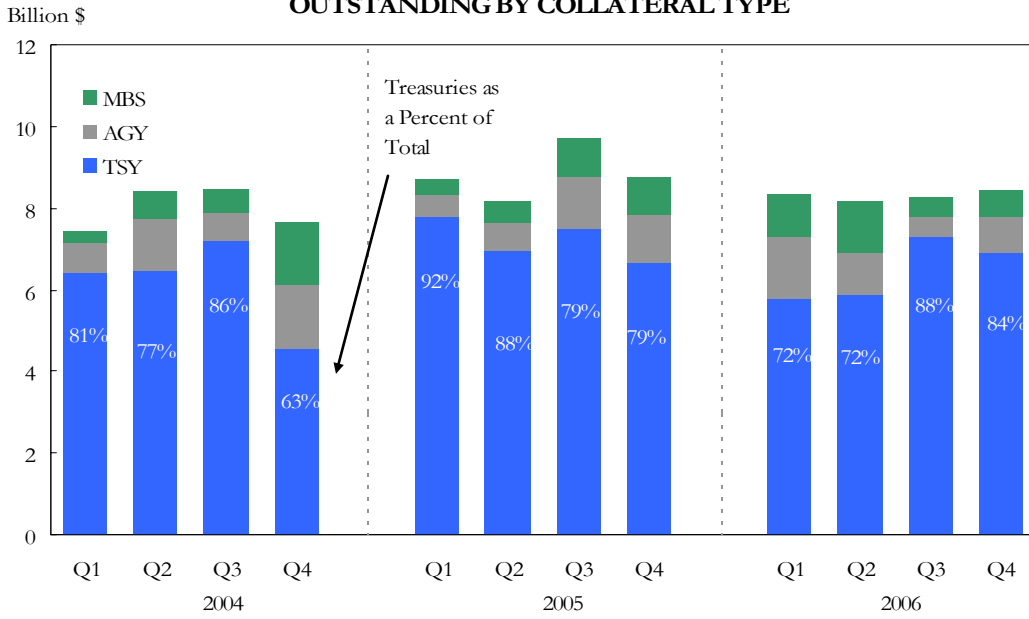
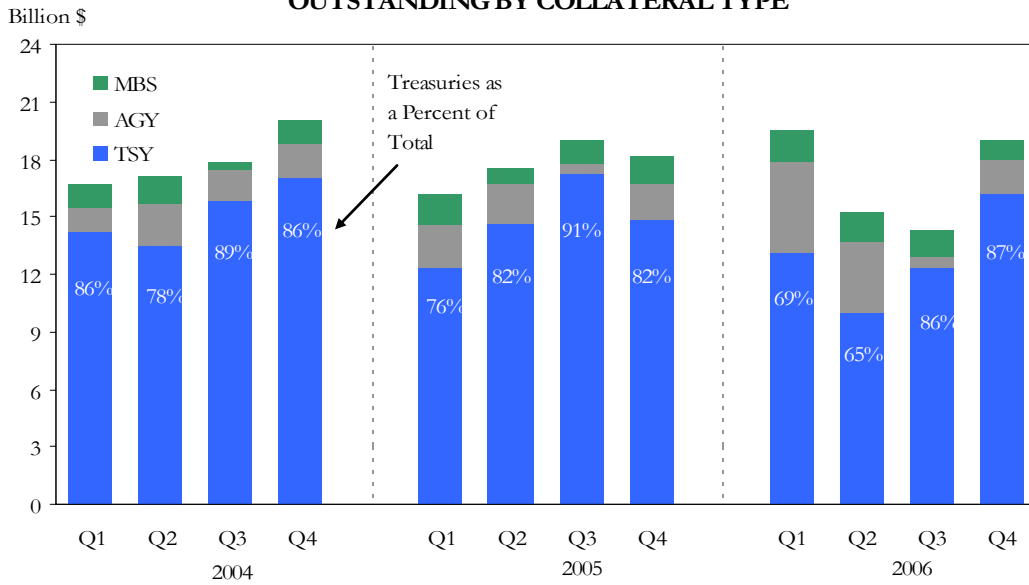


Chart 16

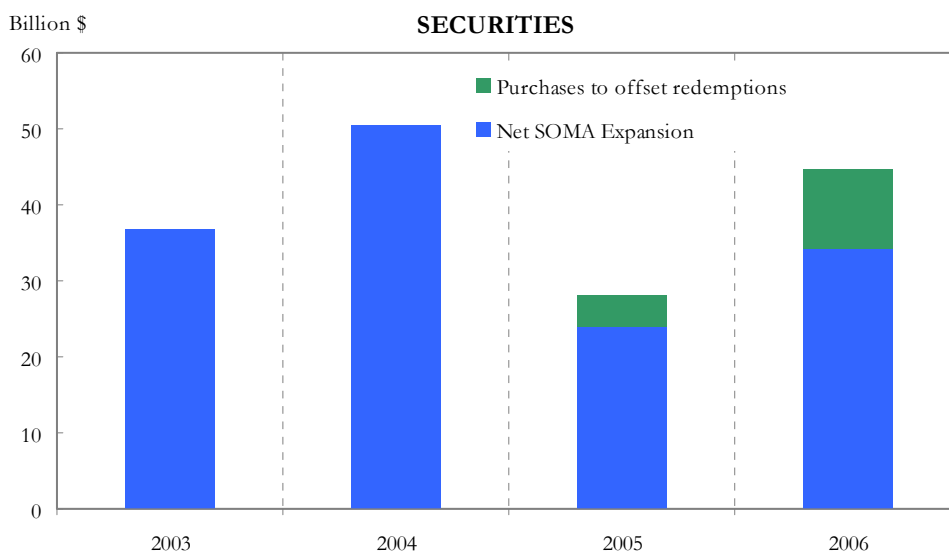
**QUARTERLY AVERAGE LEVELS OF LONG-TERM RP<sub>s</sub>  
OUTSTANDING BY COLLATERAL TYPE**



### C. Permanent Holdings and Operations

During 2006, the value<sup>9</sup> of the permanent holdings in the SOMA portfolio increased by \$34.2 billion, ending the year at \$775.0 billion.<sup>10</sup> The expansion was achieved by \$44.7 billion of outright purchases, mostly in the secondary market from primary dealers, supplemented by some purchases for the SOMA of Treasury bills from foreign central banks and other international institutions that hold accounts with the Federal Reserve. The total level of purchases relative to portfolio growth was elevated this year compared to last due to an increased level of redemptions of maturing securities (Chart 17).

Chart 17  
**TOTAL SECONDARY MARKET PURCHASES OF TREASURY SECURITIES**



Purchases in both the secondary and primary markets are aimed at maintaining a liquid portfolio, while avoiding significantly distorting prices or liquidity of specific Treasury securities. Consequently, SOMA holdings comprised an array of Treasury securities with varying remaining maturities, and are constrained by per-issue holding limits for individual Treasury issues.

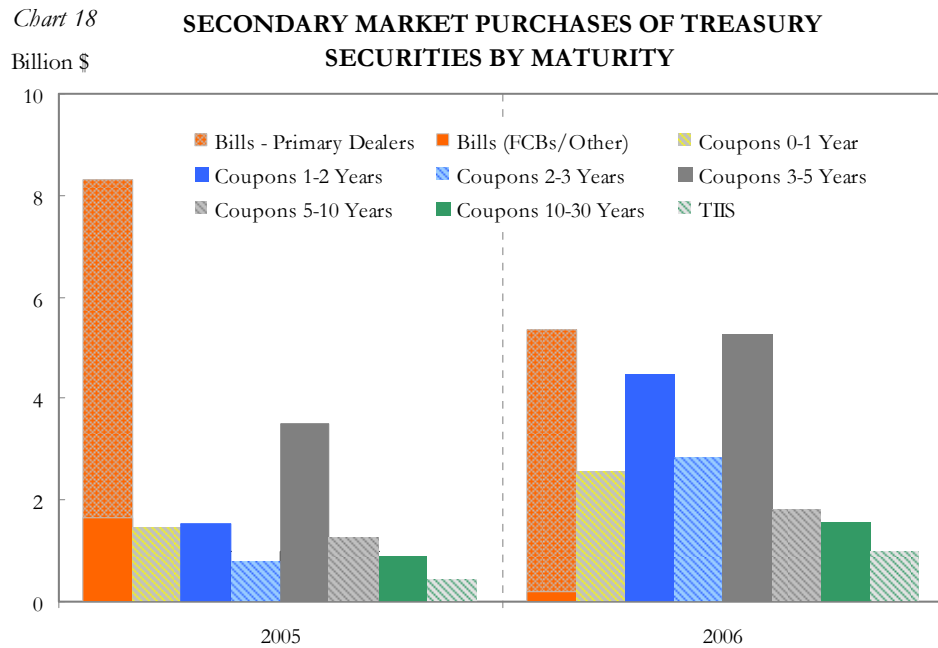
#### *Secondary Market Purchases*

Relative to 2005, the SOMA purchased fewer bills and more coupon securities, particularly in the 1- to 2-year sector in 2006 (Chart 18). As bill holdings began approaching their per-issue limit levels,

<sup>9</sup> All values cited in this section of the report represent par value.

<sup>10</sup> This level excludes \$3.9 billion in inflation compensation on Treasury inflation-indexed securities. The inflation compensation component in the portfolio increased by \$0.6 billion over the year.

purchasable room increased in coupon securities as percent of total purchasable room.



Outright operations with the primary dealers are typically conducted mid-morning, when market liquidity is relatively high, and are scheduled to avoid coinciding with major economic data releases, Treasury auctions, or other events that are likely to influence Treasury yields. Outright operations generally settle on the following business day and, therefore, do not have a same-day impact on Fed balances. Purchases from foreign central banks and international institutions are made in notably smaller amounts on a day-to-day basis when there is a need to expand Fed balances and sell orders from these accounts are in line with the SOMA portfolio guidelines. These trades are typically arranged for same-day settlement.

Treasury coupon operations continued to be segmented into separate tranches across different portions of the yield curve to facilitate efficient execution. The selection of specific issues in each operation was based on the relative attractiveness of propositions and on per-issue limit considerations. In addition to remaining within the per-issue limits, the Desk avoided purchases that would be expected to cause a sizable redemption on any day within the foreseeable future, and it bought no issues in the secondary market that had less than five weeks remaining until maturity. The Desk also refrained from purchasing issues that were trading with significant scarcity value (“specialness”) in the repo market in order to avoid impairing the liquidity of individual securities



that were in greater demand elsewhere. In a similar vein, the Desk refrained from purchasing newly issued securities in the secondary market.

Altogether, in 2006 the Desk bought \$44.3 billion in 39 outright operations arranged in the market, and it bought another \$0.4 billion (all bills) for the SOMA from foreign accounts. In the preceding year, the Desk purchased \$24.8 billion in 24 operations arranged in the market, while buying \$3.3 billion from foreign accounts.

#### *Primary Market Activity*

Growth in the SOMA portfolio is achieved through outright purchases of Treasury securities in the secondary market, which is then sustained by replacing maturing holdings with newly issued debt at Treasury auctions. The auction rollover process differs slightly between coupon and discount securities. For coupons, the Desk rolls over maturing securities by placing add-on bids for the SOMA at auction equal to the lesser of (a) its maturing holdings on the issue date of a new security or (b) the amount that would bring the SOMA holdings as a percentage of the issue to the percentage guideline limits. Prior to the change in the limits, in scenarios when two or more coupon securities settle on the same date, the Desk allocated funds primarily in proportion to the pertinent limits of the auctioned securities outlined in the guidelines, which were higher for shorter dated issues. When the new limits were announced on November 13, the rollover algorithm was adjusted to allocate maturing funds primarily in proportion to the auctioned amounts of securities settling on the same day as maturing proceeds and this led to only marginal changes in the Desk's purchases at Treasury auctions. For bill rollovers, the maturing amount is allocated across newly issued bills to maintain roughly an equal percentage amount of ownership in each security settling on the same date.

Prior to the change in limits, there were five redemptions in 2006, totaling \$10.5 billion. On these occasions, the size of maturing issues exceeded the percentage guideline limits for holdings of specific issues multiplied by the size of the newly auctioned notes.

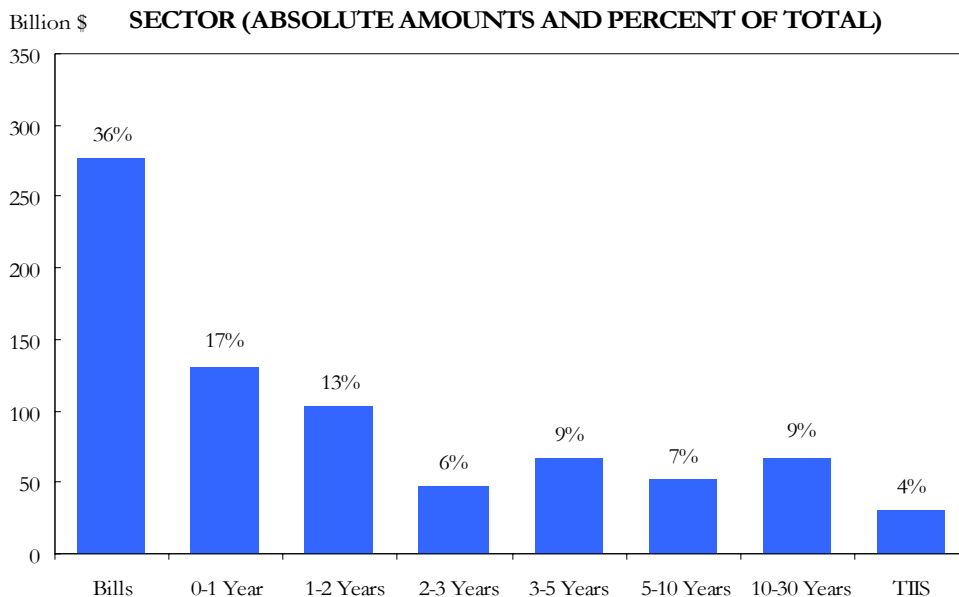
In 2006, the SOMA rolled over maturing holdings into \$8.2 billion of Treasury inflation-indexed securities (TIIS) in five primary auctions. In 2005, the SOMA had rolled over maturing holdings of only \$3.0 billion of TIIS in only one primary auction, largely because maturing funds coincided with fewer auction dates, and thus had rolled off without investment.

The Treasury announced “calls” for two coupon securities held in the SOMA portfolio in 2006, totaling \$2.0 billion. The Desk rolled over nearly all of these funds into securities with settlement dates matching the redemption dates.

*General Characteristics of the SOMA at Year End*

The distribution of the SOMA holdings by remaining maturity at the end of 2006 is shown in Chart 19. The average remaining maturity of the SOMA portfolio was 40.0 months at the end of the year, compared to an average remaining maturity of 54.5 months on all outstanding marketable Treasury debt. At the end of 2005, the average remaining maturity of the SOMA portfolio and of outstanding Treasury debt were 38.0 months and 53.9 months, respectively. The increase in the average remaining maturity of the SOMA portfolio relative to that of all outstanding marketable Treasury debt is largely explained by a partial reallocation of funds from two-year to five-year auctions following the change in the settlement date of the five-year auctions from mid-month to month-end in February 2006. At the end of 2006, 18.0 percent of total outstanding marketable Treasury debt was held in the portfolio, up slightly from 17.8 percent one year earlier.

*Chart 19* **SOMA HOLDING OF TREASURY SECURITIES BY MATURITY SECTOR (ABSOLUTE AMOUNTS AND PERCENT OF TOTAL)**



*SOMA Securities Lending Activity*

The FRBNY provides a secondary and temporary source of securities to the Treasury financing market via a securities lending program, to promote smooth clearing of Treasury securities. The

program offers for loan, on an overnight basis, outright holdings in the SOMA portfolio in accordance with specified terms and conditions.<sup>11</sup> Securities are awarded to primary dealers based on competitive bidding in an auction held each business day at noon Eastern Standard time. To prevent securities lending operations from affecting overnight Fed balances, securities loans are collateralized with Treasury securities rather than cash. Over the course of 2006, the Desk maintained the minimum fee for the SOMA securities lending program at 1 percent.

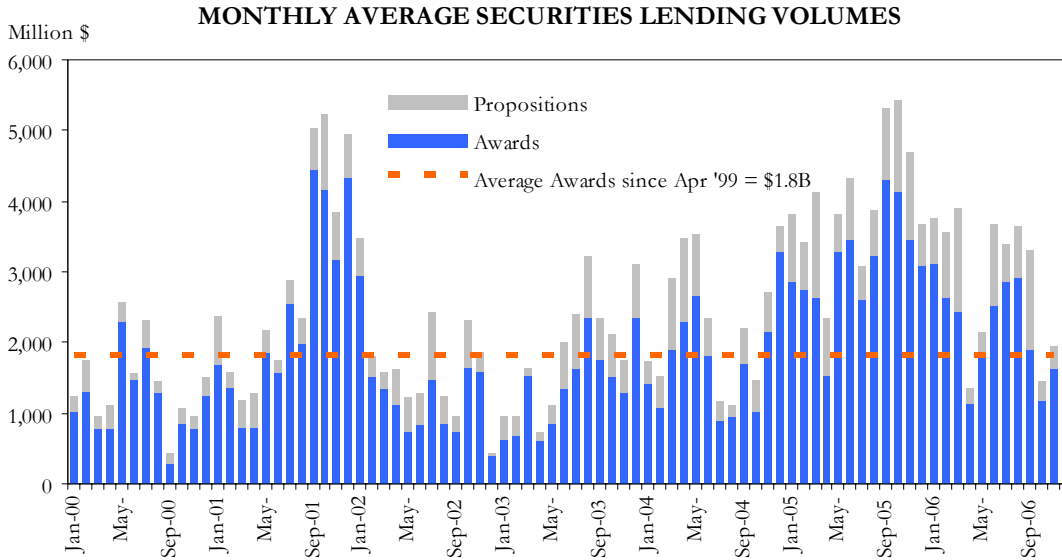
On January 9, 2006, the FRBNY broadened dealer borrowing limits in an effort to more efficiently allocate SOMA holdings to the primary dealers, particularly during periods of collateral market dislocation. The new borrowing limits in conjunction with the gradual rise of overnight funding costs and the FRBNY's relatively attractive lending rate contributed to the above average daily lending volumes over the year.

Although average daily securities lending volume declined to \$2.2 billion in 2006 from \$3.1 billion in 2005, lending activity continued to surpass long-run averages (Chart 20). Occasional collateral market dislocations, particularly during a period of increased speculation over the path of official rates, in addition to seasonal quarter-end factors, contributed to this year's elevated borrowing activity. Unlike 2005, there were few incidents of increased borrowing demand for cheapest-to-deliver securities ahead of Treasury note futures delivery dates.

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<sup>11</sup> For terms and conditions of the Federal Reserve's securities lending program, see: [http://www.newyorkfed.org/markets/sec\\_terms.html](http://www.newyorkfed.org/markets/sec_terms.html)

Chart 20



## V. THE FEDERAL FUNDS MARKET AND DISCOUNT WINDOW CREDIT

### A. The Federal Funds Market

In 2006, measures of intraday rate volatility in the fed funds market were at similar levels to 2005, for comparisons both including and excluding maintenance periods when there was an increase in the target level of the fed funds rate (Table 3). Overall, deviations of daily effective rates from the target rate declined, averaging just 3 basis points in 2006 compared with 5 basis points in 2005, but were little changed when periods with an increase in the target fed funds rate were excluded from the measures. Notably, the deviations on high payment flow days, were significantly lower in 2006, averaging just 5 basis points, compared to 9 basis points in 2005.

Table 3

**FEDERAL FUNDS RATE BEHAVIOR (BASIS POINTS)**

<b>All Days</b>	<u>2001<sup>b</sup></u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>non-</u>	<u>non-</u>
						<u>FOMC<sup>a</sup></u>	<u>FOMC<sup>a</sup></u>
<i>Intraday Standard Deviation</i>						<u>2005</u>	<u>2006</u>
Median	7	5	4	3	4	4	5
Average	9	6	5	4	7	6	7
<i>Daily Trading Ranges</i>							
Median	56	31	25	19	38	31	50
Averages	80	44	33	30	55	53	77
<i>Absolute Deviation of Effective Rate from Target</i>							
Median	5	3	2	1	2	2	2
Averages	7	4	4	3	5	3	3
<b>High Payment Flow Days<sup>c</sup></b>							
<i>Intraday Standard Deviation</i>							
Median	8	7	6	4	7		7
Average	12	9	8	7	9		12
<i>Absolute Deviation of Effective Rate from Target</i>							
Median	11	8	6	4	7		3
Averages	12	6	8	4	9		5

<sup>a</sup> Excludes all data from maintenance periods when the FOMC increased the target rate.

<sup>b</sup> Statistics for 2001 exclude data from September 11 through October 3.

<sup>c</sup> High payment flow dates include the first and last business days of each month, and the first business day after the 14th of each month.

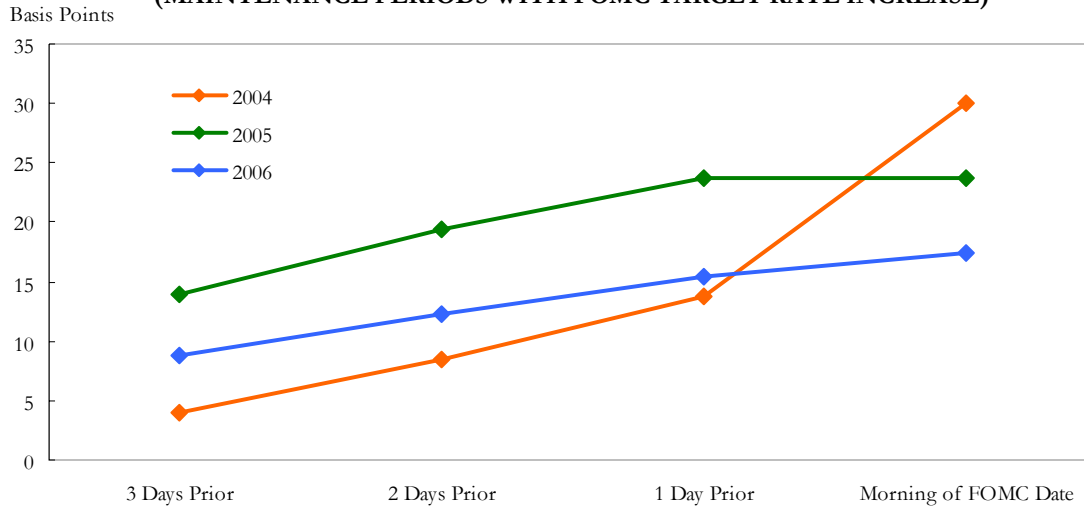
Participants in the fed funds market continued to anticipate the FOMC's policy decisions accurately through 2006, predicting with a high degree of certainty the four rate increases in the first half of the year and the decisions to leave the target unchanged at the subsequent four meetings. The anticipation ahead of rate increases pressured fed funds to trade higher for several days ahead of those meetings and contributed to higher rate volatility in the corresponding maintenance periods.<sup>12</sup> However, the impact of these expectations for a policy change on the fed funds rate in the days ahead of FOMC meetings was in general less pronounced in 2006 than in the preceding year (Chart 21).<sup>13</sup>

<sup>12</sup> For a discussion of how expectations of a policy change in general have affected the behavior of the federal funds rate since the start of the rate firming cycle in June 2004, please refer to pp. 32-33 of the report of Domestic Open Market Operations in 2006 at the following link: <https://marketsource.ny.frb.org/annual/2004/annual2004.html>

<sup>13</sup> To control for other circumstances that can have an impact on rates, observations included in Chart 21 are limited to periods in which there were no high payment flow dates in the period ahead of the FOMC meeting.

Chart 21

**MORNING FED FUNDS RATE MINUS TARGET RATE  
(MAINTENANCE PERIODS WITH FOMC TARGET RATE INCREASE)**



**B. Discount Window Credit**

The Federal Reserve’s primary credit facility serves as a backup source of very short-term liquidity for depository institutions in generally sound financial condition and with appropriate collateral. Reserve Banks extended primary credit at a rate 100 basis points above the fed funds target rate.

The frequency with which banks borrowed more than certain threshold amounts increased moderately in 2006 from recent years (Table 4). There were 25 occasions of more than \$100 million in borrowing from the primary credit facility, compared to 15 in 2005.

Table 4

**AVERAGE AND FREQUENCY OF ADJUSTMENT/ PRIMARY CREDIT BORROWING**

	<u>2001</u>	<u>*2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
<i>Daily Averages, \$ million</i> (business days)	\$439	\$81	\$48	\$43	\$43	\$55	\$70
<i>Number of business days when borrowing was.....</i>							
\$100 million or more	36	33	13	13	18	15	25
\$500 million or more	13	11	6	3	3	5	9

\* Exclude dates from 9/11/01 to 09/13/01

Chart 22

**PRIMARY CREDIT BORROWING FOR DAYS WHEN BORROWING WAS AT LEAST \$100 MILLION OR FED FUNDS TRADED ABOVE THE PRIMARY CREDIT RATE**

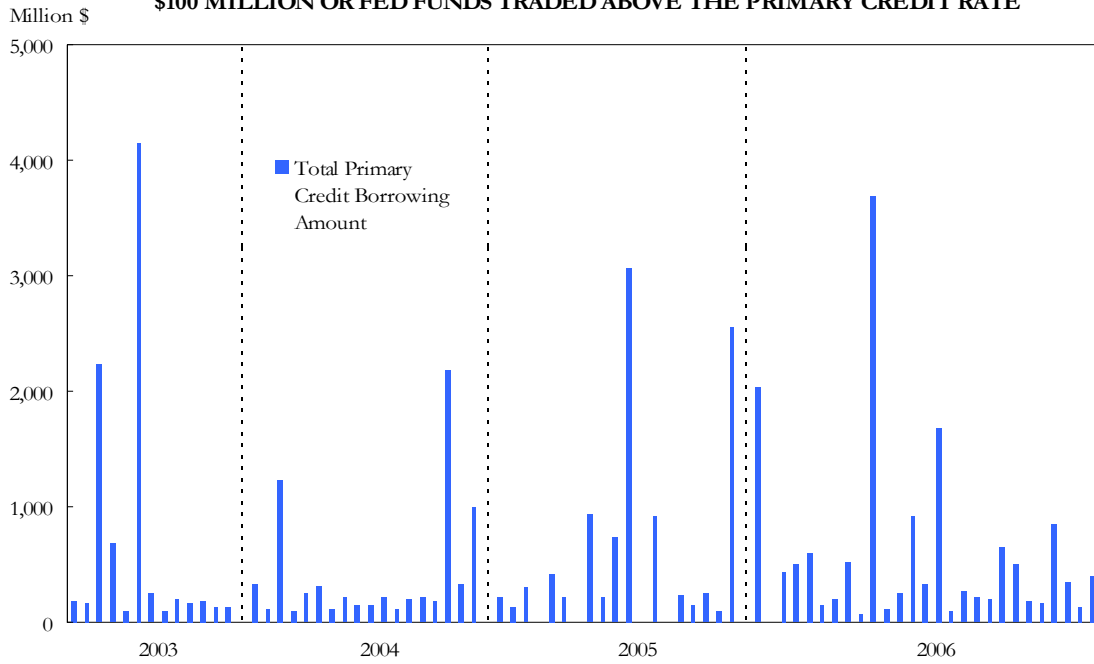
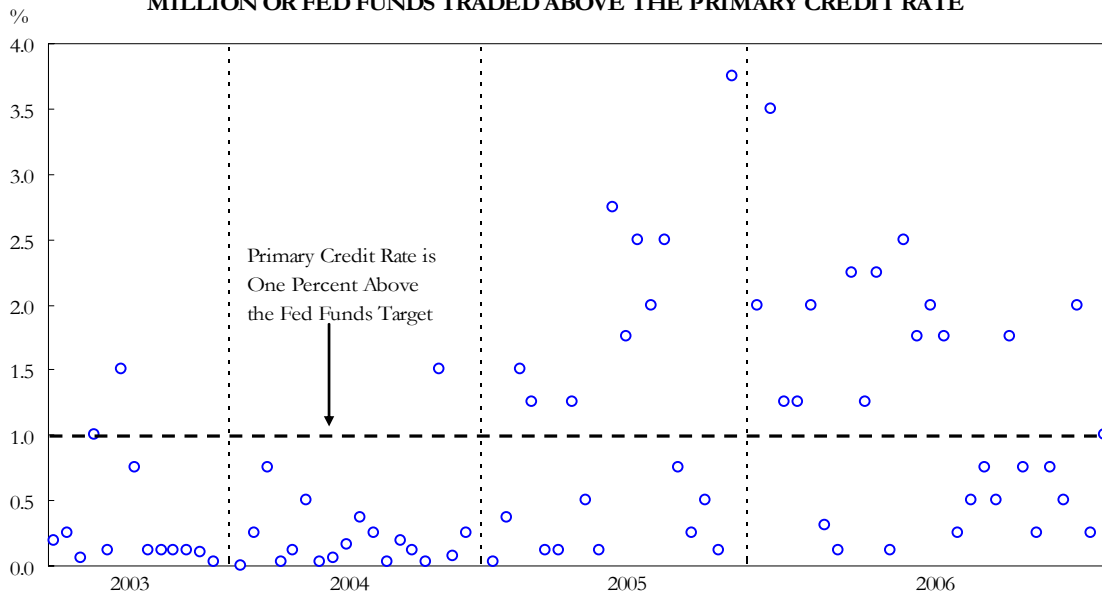


Chart 23

**SPREAD BETWEEN HIGHEST BROKERED FED FUNDS RATE AND THE TARGET FOR DAYS WHEN PRIMARY CREDIT BORROWING WAS AT LEAST \$100 MILLION OR FED FUNDS TRADED ABOVE THE PRIMARY CREDIT RATE**



Since the inception of the primary credit facility in January 2003, there have been 26 occasions when fed funds brokers reported some trading in the market at rates in excess of the primary credit rate, 14

of which occurred in 2006 (Charts 22 and 23). Thus, some institutions have continued to show a preference to pay a higher rate in the market, at least for relatively small amounts. However, on most of these occasions, there was also a substantial amount of borrowing from the primary credit facility, indicating that the new facility likely helped limit upward rate pressures even on those days. In at least some of these instances, some banks borrowed from the primary credit facility to finance lending in the fed funds market at rates above the primary credit rate.



## **APPENDIX A: AUTHORIZATION FOR DOMESTIC OPEN MARKET OPERATIONS**

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

(a) To buy or sell U.S. Government securities, including securities of the Federal Financing Bank, and securities that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States in the open market, from or to securities dealers and foreign and international accounts maintained at the Federal Reserve Bank of New York, on a cash, regular, or deferred delivery basis, for the System Open Market Account at market prices, and, for such Account, to exchange maturing U.S. Government and Federal agency securities with the Treasury or the individual agencies or to allow them to mature without replacement;

(b) To buy U.S. Government securities, obligations that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States, from dealers for the account of the Federal Reserve Bank of New York under agreements for repurchase of such securities or obligations in 65 business days or less, at rates that, unless otherwise expressly authorized by the Committee, shall be determined by competitive bidding, after applying reasonable limitations on the volume of agreements with individual dealers; provided that in the event Government securities or agency issues covered by any such agreement are not repurchased by the dealer pursuant to the agreement or a renewal thereof, they shall be sold in the market or transferred to the System Open Market Account.

(c) To sell U.S. Government securities and obligations that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States to dealers for System Open Market Account under agreements for the resale by dealers of such securities or obligations in 65 business days or less, at rates that, unless otherwise expressly authorized by the Committee, shall be determined by competitive bidding, after applying reasonable limitations on the volume of agreements with individual dealers.

2. In order to ensure the effective conduct of open market operations, the Federal Open Market Committee authorizes the Federal Reserve Bank of New York to lend on an overnight basis U.S. Government securities held in the System Open Market Account to dealers at rates that shall be determined by competitive bidding. The Federal Reserve Bank of New York shall set a minimum lending fee consistent with the objectives of the program and apply reasonable limitations on the total amount of a specific issue that may be auctioned and on the amount of securities that each dealer may borrow. The Federal Reserve Bank of New York may reject bids which could facilitate a dealer's ability to control a single issue as determined solely by the Federal Reserve Bank of New York.

3. In order to ensure the effective conduct of open market operations, while assisting in the provision of short-term investments for foreign and international accounts maintained at the Federal Reserve Bank of New York and accounts maintained at the Federal Reserve Bank of New York as fiscal agent of the United States pursuant to Section 15 of the Federal Reserve Act, the Federal Open Market Committee authorizes and directs the Federal Reserve Bank of New York (a) for System Open Market Account, to sell U.S. Government securities to such accounts on the bases set forth in paragraph 1(a) under agreements providing for the resale by such accounts of those securities in 65 business days or less on terms comparable to those available on such transactions in the market; and

(b) for New York Bank account, when appropriate, to undertake with dealers, subject to the conditions imposed on purchases and sales of securities in paragraph l(b), repurchase agreements in U.S. Government and agency securities, and to arrange corresponding sale and repurchase agreements between its own account and such foreign, international, and fiscal agency accounts maintained at the Bank. Transactions undertaken with such accounts under the provisions of this paragraph may provide for a service fee when appropriate.

4. In the execution of the Committee's decision regarding policy during any intermeeting period, the Committee authorizes and directs the Federal Reserve Bank of New York, upon the instruction of the Chairman of the Committee, to adjust somewhat in exceptional circumstances the degree of pressure on reserve positions and hence the intended federal funds rate. Any such adjustment shall be made in the context of the Committee's discussion and decision at its most recent meeting and the Committee's long-run objectives for price stability and sustainable economic growth, and shall be based on economic, financial, and monetary developments during the intermeeting period. Consistent with Committee practice, the Chairman, if feasible, will consult with the Committee before making any adjustment.

**APPENDIX B: GUIDELINES FOR THE CONDUCT OF SYSTEM OPEN MARKET OPERATIONS IN FEDERAL AGENCY ISSUES**

The FOMC has established specific guidelines for operations in agency securities to ensure that Federal Reserve operations do not have undue market effects and do not serve to support individual issuers. The guidelines are reprinted below.

*Guidelines for the Conduct of System Open Market Operations in Federal Agency Issues*

1. System open market operations in Federal agency issues are an integral part of total System open market operations designed to influence bank reserves, money market conditions, and monetary aggregates.
2. System open market operations in Federal agency issues are not designed to support individual sectors of the market or to channel funds into issues of particular agencies.