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# DOMESTIC OPEN MARKET OPERATIONS DURING 2013

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April 2014

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*This report, presented to the Federal Open Market Committee by Simon Potter, Executive Vice President, Federal Reserve Bank of New York, and Manager of the System Open Market Account, describes domestic open market operations of the Federal Reserve System for the calendar year 2013. Samuel Cheun, J. Benson Durham, Melanie Huryn, and Deborah Leonard were primarily responsible for preparation of the report.*

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# OVERVIEW

The Federal Open Market Committee (FOMC) continued to provide additional policy accommodation to support a stronger economic recovery in the context of price stability in 2013. While maintaining its target range for the federal funds rate at 0 to ¼ percent throughout the year, the FOMC supplied accommodation through two tools: adjustments in the size and composition of the Federal Reserve's balance sheet, and forward guidance on short-term interest rates. Throughout the year, the FOMC undertook additional purchases of \$45 billion per month of longer-term U.S. Treasury securities and \$40 billion per month of agency mortgage-backed securities (MBS), while also continuing to reinvest principal payments from agency debt and MBS in MBS. These balance sheet actions were designed to put downward pressure on longer-term interest rates, to support mortgage markets, and to help foster more accommodative financial conditions. Additionally, throughout the year, the FOMC reaffirmed its threshold-based forward guidance describing the economic conditions under which it anticipated that the current exceptionally low target range would remain appropriate, and in December, made a qualitative modification to its rate guidance.

The FOMC's balance sheet actions resulted in cumulative additional purchases of \$1,020 billion of longer-term securities in 2013, boosting the total size of the domestic securities portfolio of the System Open Market Account (SOMA) to about \$3.8 trillion.<sup>1</sup> The allocation of the portfolio's holdings between Treasury securities and non-Treasury securities changed little, on balance, over 2013. Because

the FOMC had sold nearly all of its shorter-dated Treasury holdings during the Maturity Extension Program (MEP) in late 2011 and 2012, the maturity distribution of Treasury security holdings remained weighted toward longer-term securities; meanwhile, the coupon composition of the agency MBS portfolio shifted lower compared with year-ago levels.

The execution of the FOMC's policy directives required the conduct of extensive permanent open market operations throughout the year by the Open Market Trading Desk (the Desk) at the Federal Reserve Bank of New York (New York Fed). In carrying out the operations, the Desk closely monitored market conditions. Market functioning indicators suggested no significant adverse effects from the Desk's activity; markets appeared to absorb the volume of the Desk's asset purchases without disruption. Nevertheless, financial markets experienced an unexpectedly sharp rise in longer-term interest rates and volatility in the late spring and throughout the summer in part as investors reportedly perceived communications from Federal Reserve officials as signaling a somewhat earlier withdrawal of policy accommodation than previously expected.

This rise in interest rates prompted the SOMA domestic securities portfolio's unrealized gains to drop to a loss position. The sensitivity of the market value of the portfolio to interest rate movements is in part a reflection of the interest rate risk that the Federal Reserve has moved onto its balance sheet and away from private investors—a key channel through which its asset purchase programs are

believed to provide policy accommodation. Moreover, absent any actual sales of assets from the Federal Reserve's portfolio, unrealized gains and losses have no effect on the portfolio's income or the Federal Reserve's remittances to the U.S. Treasury Department. In fact, the large size of the SOMA portfolio, its considerable holdings of longer-term securities, and the low interest rates paid on the Federal Reserve's interest-bearing liabilities continued to generate high portfolio net income, which totaled \$84 billion in 2013. Of course, changes in the size and composition of the portfolio were intended to promote the FOMC's monetary policy objectives of maximum employment and price stability, not to produce a financial return.

A projection exercise illustrates how the portfolio's net income is expected to decline from the elevated levels of recent years as interest rates eventually rise and the stance of policy and the size of the portfolio are normalized. However, based on current survey-based expectations for the paths of the portfolio and interest rates, as well as discussions by the FOMC in June 2013 suggesting that agency MBS sales during the normalization process are unlikely, SOMA net income is projected to remain higher than pre-crisis levels, on average, through 2025 in the current baseline projection and many alternative scenarios.

In line with the substantial increase in the size of the SOMA portfolio, reserve balances increased to \$2.5 trillion—a historical high—at the end of 2013. During the year, elevated reserve balances and the

interest rate paid on excess reserves kept the effective federal funds rate within its target range, with no need for the Desk to conduct temporary open market operations. Although the current operating framework for monetary policy meant that the Desk did not actively manage the supply of reserves in 2013, as a matter of prudent planning, it continued to test and develop a range of tools that the FOMC could consider for managing short-term interest rates or providing additional liquidity to meet potential future policy objectives. Of note, in September, the Desk initiated a technical exercise to explore the use of overnight, fixed-rate reverse repurchase agreements (reverse repos, or RRP) with same-day settlement as a possible tool for strengthening the FOMC's ability to keep short-term interest rates at levels it deems appropriate to achieving its macroeconomic objectives.

This report summarizes characteristics of the domestic securities portfolio and how they changed in 2013, including projections about the possible evolution of the portfolio's net income under a range of illustrative scenarios. It then describes the Desk's domestic open market operations in 2013, outlines the policies governing those actions, and discusses an array of recent initiatives related to the Desk's operating systems, arrangements, and tools that have enhanced its technical efficiency, flexibility, and resiliency. The report also discusses developments in overnight funding markets and factors that affect the level of reserve balances.<sup>2</sup> Underlying data for the charts in this report are provided on the New York Fed's website.<sup>3</sup>

# DOMESTIC OPEN MARKET OPERATIONS

The FOMC authorizes and directs the New York Fed to conduct permanent and temporary operations, as necessary, to implement its domestic policy directives (Appendixes 1-4). The Desk conducts these operations in the open market with a range of counterparties (Appendix 5). The domestic SOMA includes dollar-denominated assets and liabilities acquired through open market operations in the course of implementing monetary policy directives.

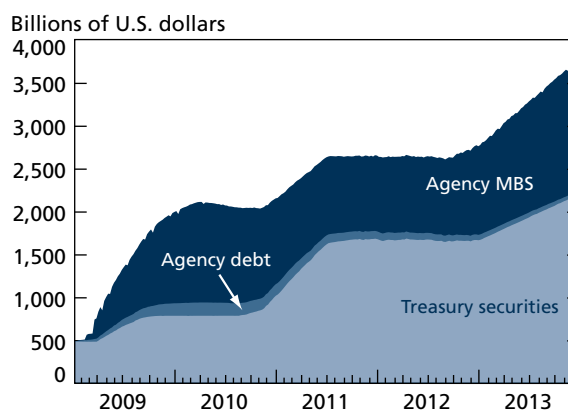
## DOMESTIC SECURITIES HOLDINGS

From the beginning of January 2013, the FOMC directed the Desk to purchase U.S. Treasury securities and agency MBS at a pace of \$45 billion and \$40 billion per month, respectively, and reaffirmed that pace of purchases throughout the year.<sup>4</sup> As a result, the total level of SOMA holdings of domestic securities increased steadily over the course of the year, from almost \$2.8 trillion to about \$3.8 trillion (Chart 1). The mix of Treasury and non-Treasury assets in the portfolio was relatively constant after a modest shift in composition toward agency MBS in 2012.

The Desk's purchases of Treasury securities and agency MBS were designed to advance the Committee's objectives in part by moving some of the risks that would otherwise have been borne by private investors onto the Federal Reserve's balance sheet.<sup>5</sup> In doing so, these actions help to make broader financial conditions more accommodative and hence promote a stronger economic recovery and help to ensure that inflation is consistent with the FOMC's dual mandate over time. The sizeable amount and

relatively long duration of Treasury holdings in the SOMA securities portfolio should, by removing duration risk from the market, maintain downward pressure on longer-term interest rates and reduce private sector borrowing costs relative to levels that would otherwise prevail. The large amount of agency MBS holdings also removes duration risk from the market, as well as the prepayment risk associated with the uncertain timing of principal cash flows, given the fact that homeowners can prepay their mortgages at any time. Consequently, SOMA purchases of agency MBS should also contribute to downward pressure on long-term rates and, all else equal, lower MBS rates, thereby helping to reduce primary mortgage rates, ease broader financial conditions, and ultimately stimulate demand for housing.<sup>6</sup>

Chart 1  
SIZE AND COMPOSITION OF SOMA DOMESTIC SECURITIES HOLDINGS



Source: Federal Reserve Bank of New York.

Notes: Figures are weekly averages of daily figures. They include unsettled holdings.

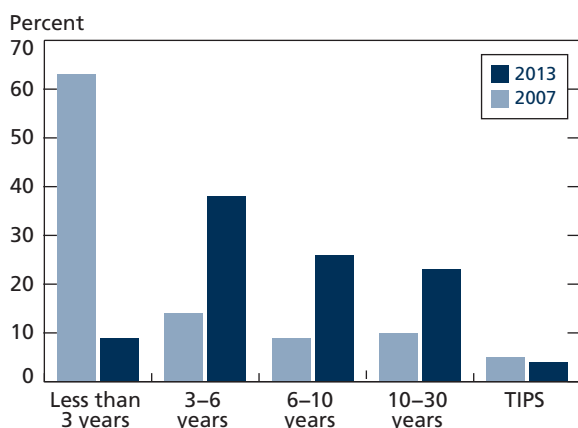
*Characteristics of Portfolio Holdings*

**SIZE AND COMPOSITION**

Purchases of Treasury securities and agency MBS boosted the size of the SOMA portfolio by \$1,020 billion in 2013 to a year-end level of \$3.8 trillion. The share of the domestic securities portfolio held in non-Treasury assets, comprising primarily agency MBS, increased slightly to 42 percent from 40 percent.

During the year, the level of SOMA Treasury securities holdings grew by \$543 billion, including inflation compensation, to a total value of \$2.2 trillion at year-end, representing 58 percent of the domestic securities portfolio. Nominal coupon securities made up about 95 percent of the SOMA Treasury holdings at the end of the year, with Treasury Inflation Protected Securities (TIPS) accounting for the remainder. Reflecting the effects of the FOMC's asset purchases and the MEP, holdings of Treasury securities were largely in intermediate to longer-dated maturities, in notable contrast to the maturity distribution that prevailed just prior to the financial crisis, when more than 60 percent of SOMA holdings had less than three years to maturity (Chart 2).

Chart 2  
Maturity Distribution of SOMA Treasury Holdings



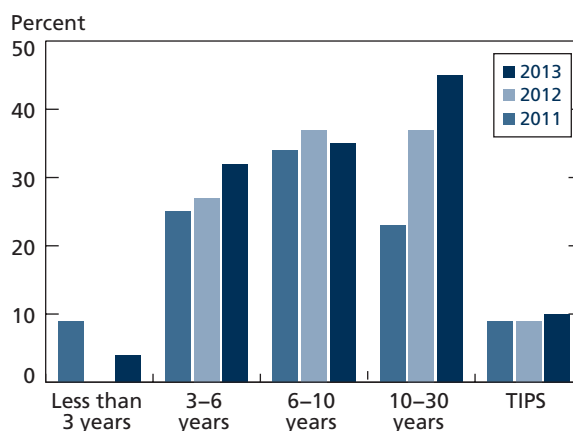
Source: Federal Reserve Bank of New York.

Notes: Figures are as of year-end. Maturity buckets apply to nominal Treasury securities.

The SOMA held just under 19 percent of all marketable Treasury securities by the end of the year, compared with 15 percent at the end of 2012 and 17 percent at the end of 2011.<sup>7</sup> The increase was driven by the Federal Reserve's ongoing purchases of longer-dated securities, which raised SOMA holdings to more than one-third of the total outstanding supply of those securities (Chart 3). Of note, the SOMA portfolio included nearly 45 percent of the market share of nominal securities with ten to thirty years to maturity. The SOMA's market share of TIPS remained around 10 percent.

The level of SOMA agency MBS holdings grew by \$509 billion in 2013, to a total face value of \$1.5 trillion at year-end, representing 41 percent of the domestic securities portfolio.<sup>8</sup> MBS holdings comprised securities guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae. Thirty-year securities accounted for approximately 87 percent of SOMA agency MBS holdings at the end of 2013, with most of the remaining holdings in fifteen-year securities (Chart 4).<sup>9</sup> Roughly two-thirds of the agency MBS holdings had coupons at or below

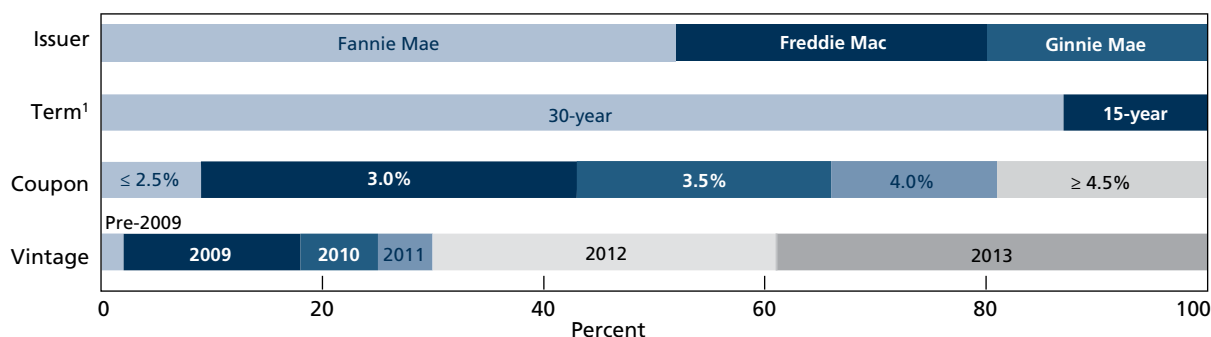
Chart 3  
SOMA Treasury Holdings as a Share of Outstanding Treasury Supply



Sources: Federal Reserve Bank of New York; U.S. Treasury Department.

Notes: Figures are as of year-end. Maturity buckets apply to nominal Treasury securities.

Chart 4  
DISTRIBUTION OF SOMA AGENCY MBS HOLDINGS



Source: Federal Reserve Bank of New York.

Notes: Figures are as of December 31, 2013. Holdings total \$1,490 billion, and consist of settled holdings only.

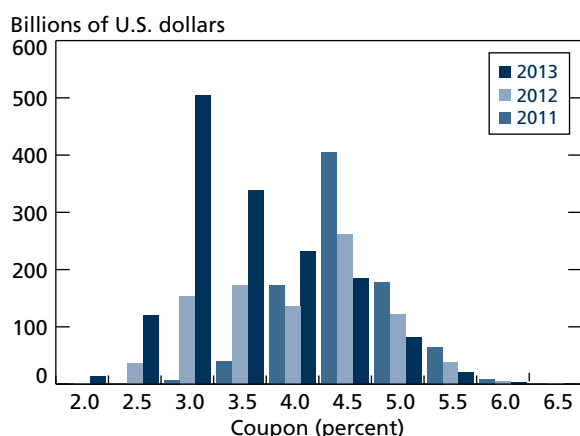
<sup>1</sup>Less than 1% of holdings are 10- and 20-year agency MBS, which may be delivered into 15- and 30-year TBA contracts, respectively.

3.5 percent, as the coupon distribution of portfolio holdings continued to shift lower compared with the distribution in the prior two years (Chart 5). In total, at the end of 2013, the SOMA held approximately 28 percent of outstanding fixed-rate agency MBS, up from 19 percent at the end of 2012.

The level of SOMA agency debt holdings fell by \$20 billion in 2013, to a total face value of \$57 billion

at year-end as the Desk reinvested maturing proceeds into agency MBS. At that level, holdings of direct obligations of Fannie Mae, Freddie Mac, and the Federal Home Loan Banks represented about 2 percent of the domestic securities portfolio. All but approximately \$2 billion of the agency debt portfolio were in securities with less than five years left to maturity (Chart 6).

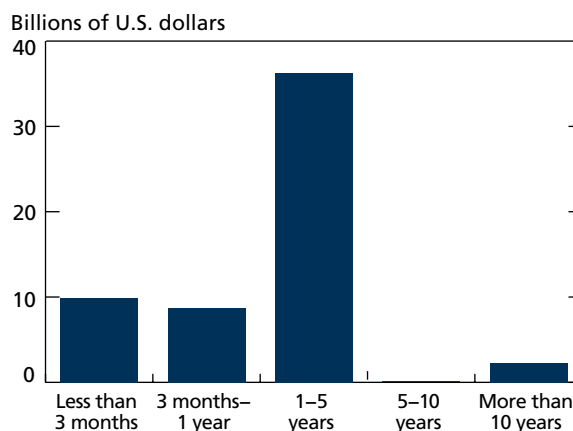
Chart 5  
COUPON DISTRIBUTION OF SOMA AGENCY MBS HOLDINGS



Source: Federal Reserve Bank of New York.

Note: Figures are as of year-end.

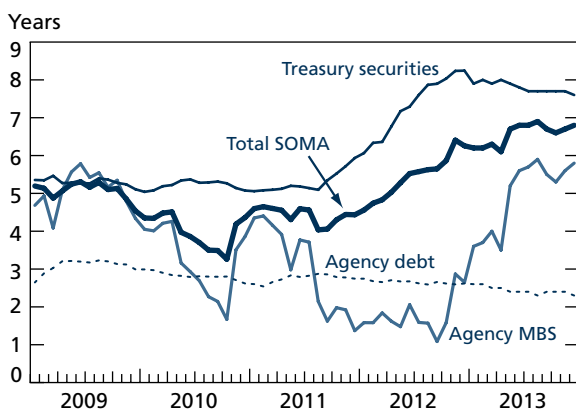
Chart 6  
MATURITY DISTRIBUTION OF SOMA AGENCY DEBT HOLDINGS



Source: Federal Reserve Bank of New York.

Note: Figures are as of December 31, 2013.

Chart 7  
AVERAGE DURATION OF SOMA HOLDINGS



Source: Federal Reserve Bank of New York.

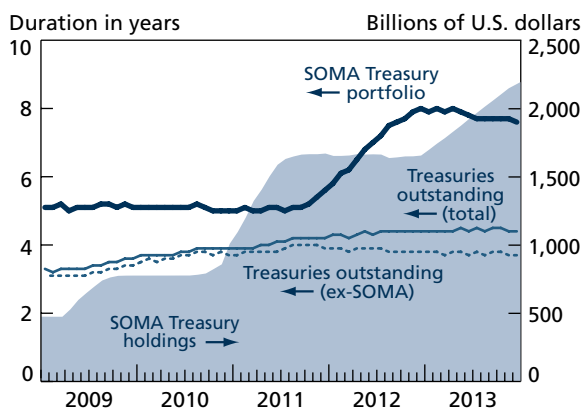
Note: Figures are monthly.

#### DURATION

The SOMA portfolio's duration, which captures the weighted average term to maturity of the cash flows from the portfolio or, alternatively, the portfolio's sensitivity to interest rate changes, edged up from 6.3 years to 6.8 years over the course of 2013, driven by a notable increase in the effective duration of the agency MBS portfolio (Chart 7).<sup>10</sup> The effective duration of the agency MBS portfolio nearly doubled in 2013, from 2.9 to around 5.7 years, reflecting two developments.<sup>11</sup> First, the notable rise in interest rates during 2013 lowered borrowers' incentives to refinance their mortgages and thereby lengthened the period of time over which investors receive the principal cash flows of agency MBS. Second, throughout 2013, the Desk continued to purchase and to reinvest in relatively low-coupon MBS, which are less likely to prepay in the future and will thereby extend the portfolio's duration.

Meanwhile, the duration of the Treasury portfolio declined from 8.2 years to 7.6 years as the routine aging of the existing portfolio outweighed the addition of relatively long-duration Treasury securities to the portfolio from new purchases.<sup>12</sup> It

Chart 8  
SOMA TREASURY HOLDINGS AND  
TREASURY DURATION



Sources: Federal Reserve Bank of New York; U.S. Treasury Department.

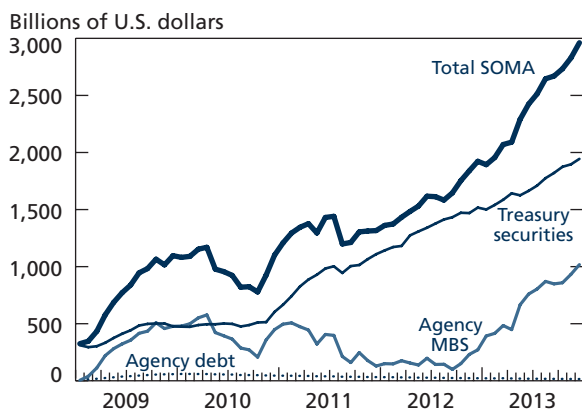
Note: Figures are monthly.

is notable that the average duration of the Treasury portfolio remains more than twice that of the remainder of Treasury debt outstanding (Chart 8). Moreover, the average duration of the Treasury securities held by the private sector edged lower even as the average duration of the total outstanding Treasury supply largely remained constant, consistent in part with the notion that SOMA purchases remove duration from the market.

Another gauge of the degree to which the growing SOMA portfolio supported the Committee's directive to provide additional accommodation is the ten-year-equivalent measure of the portfolio. This dollar-weighted duration measure in effect incorporates both the size and the average duration of aggregate holdings and illustrates the amount of ten-year Treasury notes that an investor would have to hold to be exposed to the same degree of overall interest rate risk in the SOMA portfolio. Although the SOMA portfolio's total weighted average duration increased only modestly in 2013, its ten-year-equivalent measure continued to rise, reaching an equivalent of \$3.0 trillion by the end of 2013, from about \$1.9 at the start of the year (Chart 9). The



Chart 9  
SOMA PORTFOLIO IN TEN-YEAR EQUIVALENTS



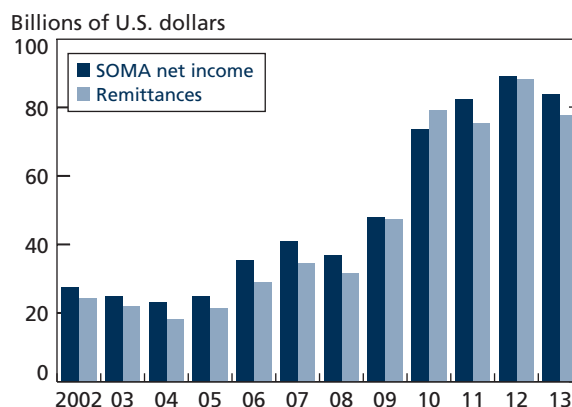
Source: Federal Reserve Bank of New York.  
Note: Figures are monthly.

increase stemmed not only from increases in the size and duration of agency MBS holdings but also from the increase in the level of holdings of Treasury securities, even though the weighted average duration of Treasury holdings declined over the year.<sup>13</sup>

### *SOMA Income and Federal Reserve Remittances*

The FOMC's directives in recent years to alter the size and composition of the SOMA portfolio have aimed to promote its dual mandate to foster maximum employment and price stability; thus, portfolio changes have been motivated by monetary policy objectives rather than profit. Nevertheless, as has been the case in recent years, the large size of the portfolio, its concentration in longer-term securities, and the current low interest rates paid on interest-bearing liabilities have continued to generate significant portfolio income and large remittances to the Treasury. In 2013, total SOMA income was \$89 billion, derived primarily from interest income on its domestic securities holdings (Chart 10).<sup>14,15</sup> SOMA net income takes into account the costs of funding the portfolio, namely the interest paid on

Chart 10  
SOMA NET INCOME AND FEDERAL RESERVE REMITTANCES TO TREASURY



Source: Federal Reserve Bank of New York.

reserve balance liabilities created by SOMA assets in amounts in excess of Federal Reserve notes outstanding.<sup>16</sup> Those reserve balance liabilities have grown with the ongoing expansion of the SOMA portfolio and, in 2013, generated more than \$5 billion of interest expense. On balance, the SOMA portfolio's net income of \$84 billion for the year remained high.

Overall, this figure represents a decline in SOMA net income compared with 2012, when realized capital gains from sales of shorter-dated Treasury securities under the MEP further boosted the SOMA portfolio's income. With no sales of assets from the SOMA portfolio in 2013, there were no such realized gains. However, unrealized gains, defined as the difference between the market value of the portfolio and its accounting or book value (which reflects amortized cost), dropped to an unrealized loss of \$53 billion at the end of 2013, down from \$215 billion at the end of 2012. Unrealized gains reached a 2013 month-end peak of \$221 billion in April amid declines in longer-term interest rates that were driven by a deterioration in global economic data and market expectations for global monetary policy to remain accommodative. From late spring through

the summer, however, interest rates rose, in part as investors perceived Fed communication as signaling a somewhat earlier-than-expected withdrawal of policy accommodation. The rise in longer-term rates consequently reduced the market value of securities held in the SOMA portfolio. Carrying unrealized losses is not unprecedented for the portfolio.<sup>17</sup> Moreover, the portfolio's sensitivity to interest rate movements is indeed to a large extent a predictable result of the FOMC's large-scale asset purchases, which in part are intended to absorb interest rate risk from the market. Unless the Federal Reserve sells assets from its portfolio, unrealized gains or losses have no direct impact on actual SOMA income or Federal Reserve remittances to the Treasury Department.

Primarily as a result of net income from the domestic SOMA portfolio, Federal Reserve remittances to the Treasury were almost \$78 billion in 2013, high by historical standards but down from more than \$88 billion in 2012.<sup>18</sup> On a cumulative basis, remittances from 2008 to 2013 totaled \$400 billion, about \$250 billion more than the cumulative amount suggested by the average pre-crisis pace of about \$25 billion per year, and a reflection of elevated portfolio income associated with policy measures taken to respond to the crisis and to strengthen the recovery.

### *Income Projections*

Although SOMA net income has been elevated in recent years, it is likely to decline from its unusually high levels when the stance of monetary policy is eventually normalized and interest rates rise in keeping with the evolving economic outlook. Even so, average levels of income are expected to be close to or higher than pre-crisis averages. The actual path of future income will ultimately be determined by a number of factors, some within the control of the Federal Reserve and others not. A projection exercise based on publicly available

financial forecasts and expectations for policy, as well as the FOMC's communications about its anticipated approach to policy normalization, illustrates the sensitivity of the portfolio's income profile to changes in some of these factors.<sup>19</sup>

In the baseline scenario that follows, the assumed paths of the target federal funds rate and longer-term interest rates were taken from the "Survey of Primary Dealers" conducted by the Desk before the January 2014 FOMC meeting.<sup>20</sup> The survey's results show median dealer expectations for the federal funds target rate beginning to rise from the current range in the fourth quarter of 2015 and reaching a level of 4 percent over the long run. Median expectations are for the ten-year Treasury yield and the thirty-year fixed primary mortgage rate to rise gradually to almost 5 percent and slightly more than 6 percent, respectively, by the end of 2018.

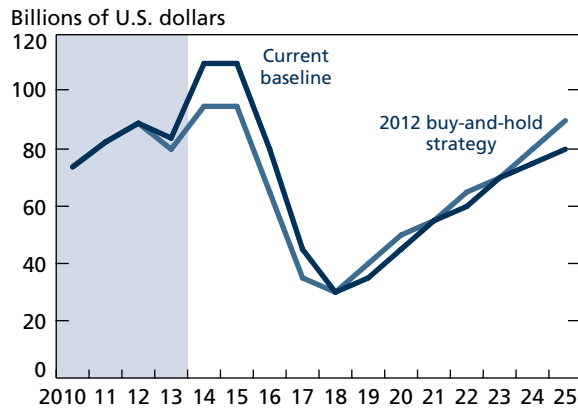
The projected evolution of the SOMA portfolio starts with actual holdings as of December 31, 2013, plus assumptions about additional asset purchases drawn from the Desk's January 2014 "Survey of Primary Dealers." Survey results suggest a median expectation for roughly \$450 billion in additional asset purchases in 2014, comprising \$250 billion of Treasury securities and \$200 billion of agency MBS. The pace of purchases in each asset class is expected to decline by \$5 billion after each FOMC meeting starting in January 2014, with purchases ending altogether at the end of October 2014. The portfolio is then assumed to evolve in a manner consistent with the discussion of guidelines for policy normalization at the June 2013 FOMC meeting. That meeting's minutes indicate that participants viewed the broad exit principles set out in June 2011 as still applicable, but that most participants now anticipated that the Committee would not sell agency MBS securities as part of the normalization process.<sup>21</sup> For the purpose of these projections, portfolio normalization steps are assumed to begin with the FOMC ceasing to

reinvest payments of principal on the SOMA's securities holdings two quarters prior to the first increase in the federal funds target rate. For simplicity, no explicit assumption is made about the use of liability management tools, and reserve balances are assumed to return to their pre-crisis levels.

Based on these assumptions, the size of the SOMA portfolio is projected to grow from its year-end 2013 level to a peak of about \$4.2 trillion in late 2014. Portfolio balances would remain relatively unchanged through early 2015, as principal payments from portfolio holdings continued to be reinvested according to the current policy directives, before then declining steadily for more than seven years during the normalization period. Reserve balances peak at \$3.0 trillion at the end of 2014 before gradually declining in line with the passive wind-down of the portfolio. The size of the portfolio normalizes in early 2022. At that point, purchases of Treasury securities resume in order to offset the ongoing runoff of agency debt and MBS holdings and to support normal balance sheet growth. By the end of the projection period in 2025, the portfolio composition is estimated to be 70 percent Treasury securities and 30 percent agency MBS.

Under this baseline scenario, SOMA net income is projected to remain at historically elevated levels through 2015, boosted by interest income from the large size of the domestic securities portfolio (Chart 11). However, as interest rates rise and SOMA portfolio holdings decline during the normalization process, SOMA net income is projected to fall beginning in 2016, reaching a trough of about \$30 billion in 2018, a level roughly in line with pre-crisis averages. The declines are driven by rising interest rates, which require higher interest payments on reserve balances. Although the impact of this interest expense diminishes over time as the level of reserves shrinks, interest income also declines as the size of the portfolio returns to lower levels. As the size of the portfolio

Chart 11  
PROJECTED SOMA NET INCOME:  
BASELINE VS. 2012 BUY-AND-HOLD STRATEGY



Source: Federal Reserve Bank of New York.

Notes: Figures for 2010-13 (shaded area) are realized returns for the current baseline. Projected figures are rounded.

normalizes and purchases of Treasury securities eventually resume in a higher interest rate environment, SOMA net income is projected to rebound from this trough. Rising interest rates during the normalization process are also expected to amplify the portfolio's unrealized losses, which are sensitive to interest rate changes, but unrealized losses steadily shrink as holdings of securities purchased during the low-rate environment, particularly agency MBS holdings, decline. Nevertheless, even if unrealized losses become large, they will affect income only if and when assets are sold from the portfolio.

Because the baseline scenario in *Domestic Open Market Operations during 2012*, last year's annual report, assumed that agency MBS would be sold during the normalization process, it is not comparable to the current baseline scenario. However, last year's report also presented, as part of its sensitivity analysis, a "buy-and-hold" portfolio strategy in which assets were not sold. The new baseline scenario, which also assumes that assets are not sold during normalization, exhibits contours for SOMA net income that are generally similar to those in the buy-and-hold strategy

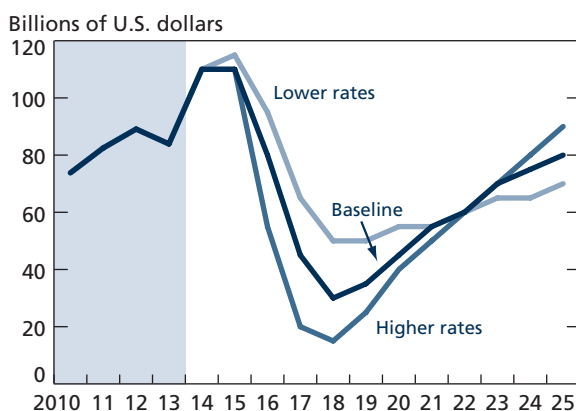
from last year's report. However, the current baseline is projected to generate higher SOMA net income in the near to medium term because of changes in several underlying assumptions: first, a larger and longer-lasting purchase program that results in a larger portfolio; and second, a longer reinvestment period associated with a later liftoff of the federal funds target rate. As in the 2012 buy-and-hold scenario, net income is then expected to fall as funding costs increase. However, it rebounds at a slightly slower pace from its trough, as the larger size of the portfolio prolongs normalization and the resumption of Treasury purchases by more than a year.<sup>22</sup>

To demonstrate the sensitivity of the projections to changes in other underlying assumptions, profiles for SOMA net income are also projected under a set of alternative scenarios. One set of alternative projections considers the sensitivity to interest rate changes (Chart 12).<sup>23</sup> A higher-rate scenario incurs a sharper reduction in net income through the normalization period, driven by higher interest expense relative to the baseline. After normalization, however, net income is projected to be higher

than it is in the baseline because Treasuries are purchased at higher yields in the future steady state. In contrast, a lower-rate scenario sees a more muted decline in net income during the normalization period, but net income grows at a slower pace after normalization is complete.

The composition of liabilities on the Federal Reserve's balance sheet can also alter portfolio and income projection results.<sup>24</sup> Currency is particularly important, as the Federal Reserve pays zero interest on it, and its level affects the level of reserves.<sup>25</sup> Compared with the baseline, a slower pace of currency growth causes a higher level of projected reserve balances; this in turn increases interest costs, pushes out the portfolio normalization date, and results in lower portfolio net income over the projection period (Chart 13). The reverse holds for a faster pace of currency growth, in which the level of reserves is lower relative to the baseline projection; in this case, interest costs decline, the portfolio normalizes earlier, and portfolio net income is higher over the projection period.

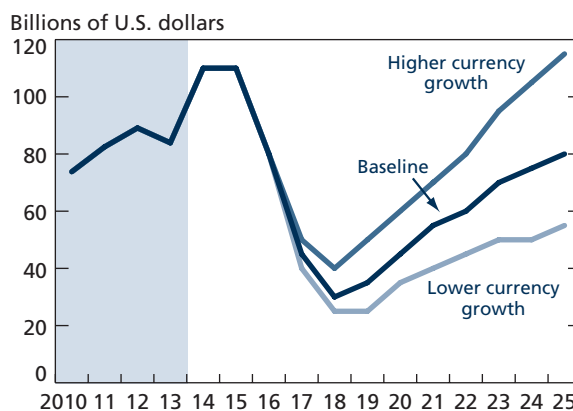
Chart 12  
PROJECTED SOMA NET INCOME:  
ALTERNATIVE INTEREST RATE PATHS



Source: Federal Reserve Bank of New York.

Notes: Figures for 2010-13 (shaded area) are realized returns. Projected figures are rounded. Higher- and lower-rate scenarios use baseline interest rates plus or minus 100 basis points.

Chart 13  
PROJECTED SOMA NET INCOME:  
ALTERNATIVE CURRENCY GROWTH SCENARIOS



Source: Federal Reserve Bank of New York.

Notes: Figures for 2010-13 (shaded area) are realized returns. Projected figures are rounded. Higher and lower currency growth scenarios use baseline annualized growth rates plus or minus 3 percentage points.

These projections are, of course, merely illustrative. Actual future income will be influenced by a number of factors, including the total size of the asset purchase program, which depends on the evolution of the economy and the FOMC's evaluation of the purchase program's efficacy and costs, as well as other balance sheet, interest rate, and economic developments. It is important to reiterate that the high income that the SOMA portfolio has generated in recent years reflects the FOMC's unprecedented efforts to promote its statutory dual mandate in the face of an exceptional financial crisis and subsequent tepid economic recovery. As these projections suggest, annual SOMA net income is likely to decline noticeably as the outlook for the economy and monetary policy normalizes. However, on a cumulative basis, net income earned from the Federal Reserve's balance sheet policies is very likely to remain quite high over the projection period, with SOMA net income exceeding pre-crisis levels, even under many alternative scenarios. Moreover, cumulative net income over the entire projection period is expected to be significantly higher than it would have been had large-scale asset purchases not been conducted.<sup>26</sup> A temporary reduction in net income, even

if large enough to prompt a halt to remittances to the Treasury, would not affect the Desk's capacity to conduct open market operations or the FOMC's ability to manage short-term interest rates.

## PERMANENT OPERATIONS

### *Treasury Securities Operations*

#### PURCHASES, SALES, AND REDEMPTIONS

The SOMA portfolio's \$543 billion increase in U.S. Treasury holdings in 2013 stemmed almost entirely from steady purchases of longer-term Treasury securities under the FOMC's directives to purchase \$45 billion of additional Treasury securities per month. These purchases started in January 2013, immediately following the conclusion of the Maturity Extension Program at the end of 2012.<sup>27</sup> They were conducted in the secondary market through a series of 216 operations across nominal securities and TIPS with at least four years to maturity. The largest number of operations and the total share of purchases were concentrated in the seven- to ten-year and the twenty- to thirty-year nominal maturity sectors (Table 1).

Table 1  
TREASURY OPERATIONS IN 2013

	Number of Operations	Par Amount Purchased (Billions of U.S. Dollars)	Percentage of Total
<b>Nominal Coupon Securities by Maturity Range</b>			
4–4¾ years	12	60	11
4¾–5¾ years	12	65	12
5¾–7 years	24	89	16
7–10 years	48	155	29
10–20 years	12	11	2
20–30 years	96	144	27
TIPS	12	17	3
<b>Total</b>	<b>216</b>	<b>540</b>	<b>100</b>

Source: Federal Reserve Bank of New York.

Note: Figures may not sum to totals because of rounding.

The Desk did not sell any Treasury securities in 2013. Also, after halting reinvestments under the MEP in the second half of 2012, the FOMC directed the Desk to resume rolling over maturing Treasury securities into new issues at auction.<sup>28</sup> However, for operational efficiency, when the proceeds received by the SOMA from maturing Treasury securities on a given day totaled less than \$2 million, the Desk allowed those securities to mature without reinvestment.<sup>29</sup> Owing to the sale of nearly all short-term holdings in the SOMA during the MEP, this daily threshold was not reached in 2013, and the Desk therefore redeemed about \$21 million of maturing Treasury securities without reinvestment.

#### OPERATIONAL APPROACH

The December 2012 FOMC statement indicated that Treasury purchases would continue at a pace of \$45 billion per month following the conclusion of the MEP at the end of the year. The Desk subsequently conducted additional open market purchases of Treasury securities in 2013 according to the operating policy released soon after that FOMC announcement. The policy stipulated the planned maturity distribution of the securities to be purchased (shown in Table 1) and other operational details through an official statement and a set of FAQs posted to the Federal Reserve Bank of New York's website.<sup>30</sup>

As in previous purchase programs, near the end of each month the Desk announced a tentative schedule of operations for the month ahead, including the expected date, eligible sector, and expected range of the size of each operation. The Desk also released pricing information for purchases in the prior month, including the weighted average accepted price for each security at every operation, the highest accepted price, and the percentage of propositions filled at the highest accepted price.<sup>31</sup>

As in past operations, the Desk refrained from purchasing securities that traded with heightened scarcity value in the repurchase agreement market for specific collateral or that were the cheapest to deliver into Treasury futures contracts. The Desk also did not purchase STRIPS or securities that traded in the when-issued market. At the start of each operation, the Desk announced specific issues to be excluded from consideration.

The Desk also maintained its framework of purchase and holding limits, which have been in place since November 2010 to avoid acquiring an excessive concentration of specific securities. This framework stipulates that holdings are limited to 70 percent of the outstanding supply of any single Treasury security. Once holdings of an individual security reach 30 percent, further purchases are allowed only in modest increments (Table 2). This practice moderates the pace at which holdings of individual securities are accumulated to avoid the risk of market disruption. At the end of 2013, SOMA holdings of thirteen securities were at the maximum limit of 70 percent of outstanding supply, compared with eight at the maximum in 2012. The seven- to ten-year and the twenty- to thirty-year maturity sectors had the largest numbers of individual securities for which the purchase limit had been reached (Chart 14).

Consistent with prior practices, the Desk conducted its purchases in the secondary market with primary dealers. Additionally, in July 2013, the Desk launched the Treasury Operations Counterparty Pilot Program (TOC), a one-year initiative in which a few small firms were selected to act as counterparties—along with primary dealers—in secondary market Treasury operations conducted for the SOMA.<sup>32</sup> Additional information about the TOC is presented in the “Operational Readiness and Flexibility” section and Appendix 5 of this report.

## DOMESTIC OPEN MARKET OPERATIONS DURING 2013

Table 2  
SOMA PURCHASE LIMITS FOR INDIVIDUAL TREASURY SECURITIES

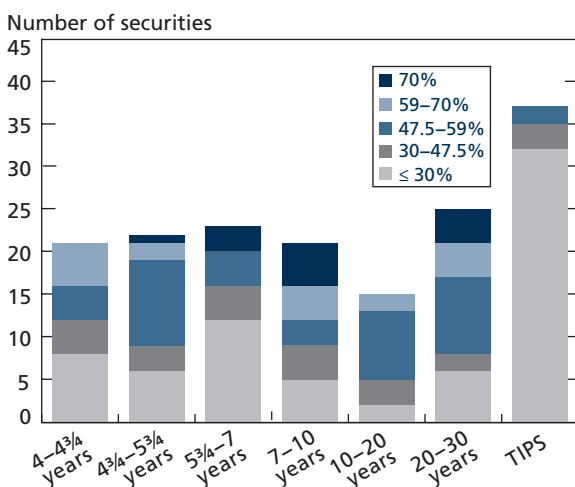
SOMA Security Ownership prior to Operation as a Percentage of Outstanding Issuance	Maximum Purchase Amount per Security in Operation Is Lesser of:	
	(A)	(B)
0–30	N/A	35% of outstanding less SOMA holdings
30–47.5	5.0% of outstanding	50% of outstanding less SOMA holdings
47.5–59	2.5% of outstanding	60% of outstanding less SOMA holdings
59–70	1.0% of outstanding	70% of outstanding less SOMA holdings
More than 70	Not eligible for purchase	

Source: Federal Reserve Bank of New York.

Treasury purchases were conducted through a series of competitive, multiple-price auctions conducted over FedTrade, the New York Fed’s proprietary trading platform. Auctions were typically held in the morning, although a second auction was occasionally conducted in the early afternoon. Within several minutes of each auction’s close, the Desk

simultaneously sent the aggregate auction results to participants, along with a list of their accepted propositions, and posted the aggregate results on the New York Fed’s website. Primary dealers were required to participate in each operation, and they submitted offers for themselves and on behalf of their customers. The Desk evaluated offers based on two criteria: their proximity to prevailing market prices at the close of the auction, and the Desk’s evaluation of their relative value. The latter criterion had the effect of tilting purchases toward securities that were perceived to be undervalued by market participants.

Chart 14  
CONCENTRATION OF SOMA TREASURY SECURITY OWNERSHIP BY PURCHASE SECTOR



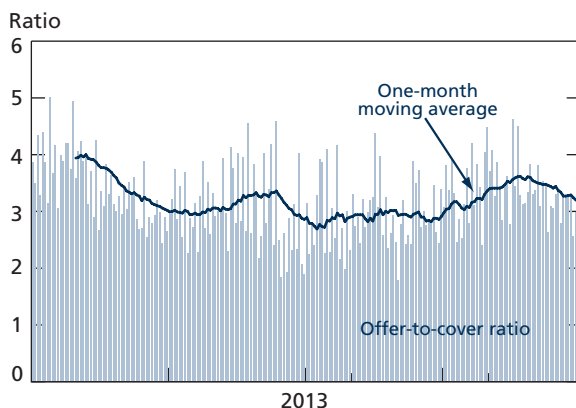
Sources: Federal Reserve Bank of New York; U.S. Treasury Department.

Note: Figures are as of year-end.

Participation in Treasury operations largely appeared to be both comparable to previous purchase programs and broadly consistent over the course of 2013. For example, coverage ratios were slightly higher than those for the operations under MEP purchases, but slightly lower than those for Treasury purchases under the Federal Reserve’s first two asset purchase programs. Offer-to-cover ratios remained close to their 2013 median of 3.1 throughout the year, even amid some of the volatility seen in financial markets midyear (Chart 15).



Chart 15  
COVERAGE OF SOMA TREASURY PURCHASE OPERATIONS



Source: Federal Reserve Bank of New York.

**MARKET FUNCTIONING AND SECURITIES LENDING**

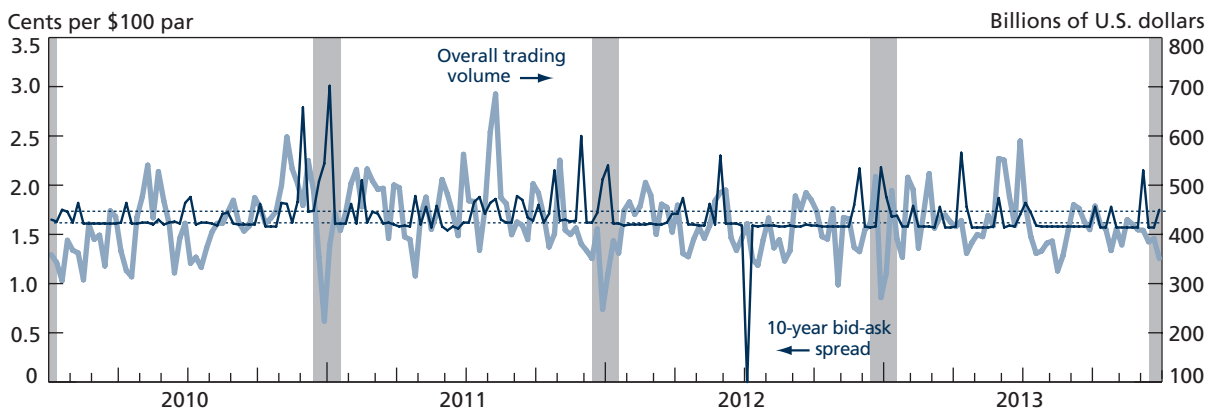
The Desk closely monitored market functioning and liquidity as it significantly increased its holdings of Treasury securities, and conditions in the market for Treasury coupon securities remained robust according to both anecdotal reports and market-based measures. Market participants suggested that purchases of Treasury securities had limited adverse

effects on market functioning, even as interest rates rose sharply and general financial market volatility increased during the late spring and summer.

Bid-ask spreads, quote sizes, and trading volumes generally remained within historical ranges throughout the year, and the overnight repo rate on most specific issues generally traded near the Treasury general collateral (GC) repo rate (Chart 16). The par value of Treasury market settlement fails rose somewhat relative to levels seen in the last several years, driven in large part by a greater number of fails in off-the-run securities. Meanwhile, on-the-run securities continued to experience occasional fails of much larger size, in line with typical auction-cycle dynamics and concentrated in sectors in which investors reportedly had large short positions. Aggregate fails rose most sharply alongside the midyear rise in Treasury yields and market volatility, though this trend ebbed later in the fall as yields leveled off and volatility subsided.

Most of the affected securities were those for which SOMA did not have significant ownership. Although SOMA purchases decrease private market

Chart 16  
TREASURY MARKET LIQUIDITY MEASURES

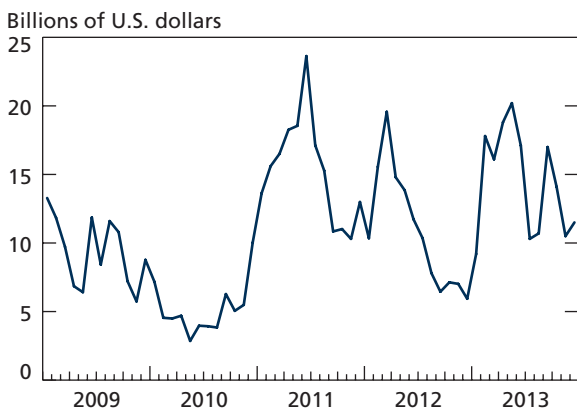


Source: Federal Reserve Bank of New York, based on non-unattributed data from BrokerTec.

Notes: The chart shows the one-week average of the on-the-run 10-year Treasury bid-ask spread and the two-week moving average of primary dealer Treasury transaction volume (excluding TIPS). Dotted horizontal lines represent average levels since 2010. Shaded areas represent periods around year-ends.



Chart 17  
SOMA SECURITIES LENDING IN TREASURIES



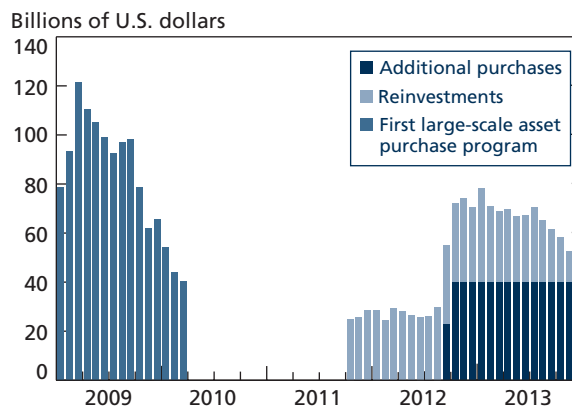
Source: Federal Reserve Bank of New York.  
Note: Figures are monthly averages.

holdings, the availability of specific issues held by SOMA through the Desk’s securities lending operations can help mitigate periods of extreme specialness or elevated fails.<sup>33</sup> Such pressures tend to take place in the on-the-run securities that have a small concentration in the SOMA portfolio. On average, primary dealers borrowed \$14 billion in Treasury securities each day from the SOMA portfolio in 2013, an increase over the daily average of \$11 billion in 2012 (Chart 17).

#### *Agency Mortgage-Backed Securities Operations* PURCHASES AND PRINCIPAL PAYMENTS

The Desk conducted transactions in agency MBS throughout 2013 under the FOMC’s directives to purchase \$40 billion of additional agency MBS per month as a continuation of the purchase program that was initiated in September 2012.<sup>34</sup> The Desk was also directed to maintain its policy of reinvesting principal payments from agency debt and agency MBS in agency MBS, a practice that began in September 2011. Under these directives, the Desk purchased a total of \$783 billion of agency MBS in 2013, of which \$480 billion, or about 61 percent,

Chart 18  
SOMA AGENCY MBS PURCHASES

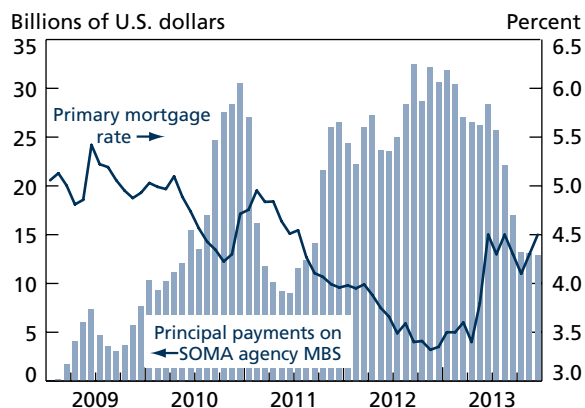


Source: Federal Reserve Bank of New York.  
Note: Figures are monthly.

were associated with the additional purchases, while the remaining \$303 billion were purchased in accordance with reinvestments (Chart 18).<sup>35</sup> The Desk did not sell any agency MBS outright, but did engage in sales through dollar roll transactions as necessary to facilitate settlement of the Federal Reserve’s agency MBS transactions.<sup>36</sup>

The average monthly pace of principal payments on agency MBS in the SOMA portfolio averaged \$28 billion in the first half of 2013, similar to the average pace seen throughout 2012. However, the pace declined to \$17 billion per month in the second half of the year as refinancing activity slowed when primary mortgage rates increased along with the rise in other longer-term interest rates (Chart 19). Agency MBS in the SOMA portfolio prepaid faster than the broader agency MBS market, in part reflecting the fact that SOMA holdings are concentrated in securities issued after 2010, which tend to exhibit faster prepayments, and that counterparties in the types of agency MBS transactions conducted by the Desk deliver pools with the greatest prepayment risk, all else equal.<sup>37</sup>

Chart 19  
SOMA AGENCY MBS PRINCIPAL PAYMENTS  
AND PRIMARY MORTGAGE RATE



Sources: Federal Reserve Bank of New York; Federal Home Loan Mortgage Corporation.

Note: Figures are monthly.

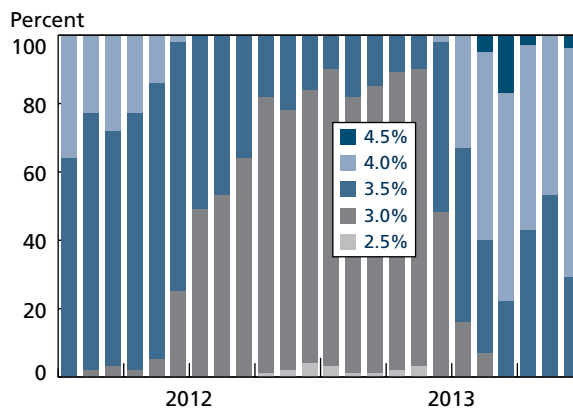
Eighty-four percent of purchases were concentrated in thirty-year as opposed to fifteen-year securities, while the vast majority of securities purchased had coupons of 3.0, 3.5, and 4.0 percent. As refinancing activity slowed midyear amid the generalized rise in longer-term interest rates, the Desk's purchases, along with anticipated issuance, shifted toward higher coupon securities (Chart 20).

**OPERATIONAL APPROACH**

The Desk's approach to purchases in 2013 conformed to the practices established in prior years, and the operating policy for these purchases was released soon after the FOMC announced agency MBS operations in September 2012.<sup>38</sup> These communications provided an overview of the planned operational approach.

Around the eighth business day of each month, the Desk announced its planned amount of purchases associated with the reinvestment of principal payments that it expected to receive from the agency debt and agency MBS between the middle

Chart 20  
SOMA PURCHASES OF AGENCY MBS BY COUPON



Source: Federal Reserve Bank of New York.

Notes: Figures are monthly and consist of 30-year purchases only.

of the current month and the middle of the following month. At the end of the month, the Desk also confirmed the monthly purchase amount related to the agency MBS purchase program. On a weekly basis, the Desk published a summary of its operational activity with respect to agency, coupon rate, and term, and settled agency MBS holdings at the security level. On a monthly basis, the Desk made additional detailed transaction information publicly available, including price, trade amount, agency, coupon, term, and settlement date.<sup>39</sup>

Purchases were executed in the "to-be-announced" (TBA) market.<sup>40</sup> In a TBA trade, the buyer and seller of MBS agree on a set of basic characteristics, including the price, face value, coupon rate, issuer, term, and settlement date. At the settlement date, TBA sellers have the option to deliver any agency MBS that meet the contract requirements. This trading convention permits a heterogeneous market consisting of thousands of different MBS backed by millions of individual mortgages to be reduced to only a few highly liquid, standardized contracts—an outcome conducive to implementing the Federal Reserve's large-scale purchases.<sup>41</sup> Within the TBA market, the Desk concentrated its

## DOMESTIC OPEN MARKET OPERATIONS DURING 2013

purchases in newly issued agency MBS because these securities have greater liquidity and are closely tied to primary mortgage rates, features that in turn further the FOMC's objective of providing additional accommodation and support for the housing market. Purchases were distributed across different agencies, maturities, and coupons in amounts that were roughly proportionate to anticipated gross issuance of those securities, although at times the purchase allocation was adjusted in response to concerns about the relative scarcity of particular securities (Table 3).

The Desk transacted with primary dealers through a competitive process using TradeWeb, an electronic commercial trading platform.<sup>42</sup> Given that TradeWeb limits the number of counterparties that can participate in each transaction, the Desk solicited offers from primary dealers on a rotating

basis. Therefore, agency MBS purchase operations were smaller and more frequent than Treasury operations, which were conducted over FedTrade. However, as described in the "Operational Readiness and Flexibility" section of this report, the Desk advanced its technical capability in 2013 to conduct agency MBS transactions over FedTrade.

All agency MBS purchases were conducted for settlement up to no more than three monthly settlement cycles forward. The forward-settling nature of these TBA transactions exposes the Federal Reserve to counterparty risk if the market value of the MBS between trade and settlement dates exceeds the purchase price. To mitigate such counterparty risk, the Desk requires primary dealers to post initial margin based on the net traded amount of all unsettled agency MBS trades. In addition, counterparties must post daily variation

Table 3  
AGENCY MBS OPERATIONS IN 2013

	SOMA Purchases (Billions of U.S. Dollars)	Issuance <sup>1</sup> (Billions of U.S. Dollars)	SOMA Purchases as a Share of Issuance (Percent)
<b>Term</b>			
30-year	656	1,170	56
15-year	127	243	52
<b>Agency</b>			
Fannie Mae	397	716	55
Freddie Mac	211	409	52
Ginnie Mae	176	375	47
<b>Coupon</b>			
≤ 2.5%	89	209	43
3.0%	317	641	49
3.5%	195	364	54
4.0%	167	226	74
≥ 4.5%	15	59	25

Sources: Federal Reserve Bank of New York; eMBS.

Note: Figures may not sum because of rounding.

<sup>1</sup> Figures represent gross issuance of fixed-rate agency MBS in 2013. Issuance figures by term exclude issuance of 10-, 20-, and 40-year agency MBS. Ten- and 20-year agency MBS may be delivered into 15- and 30-year TBA contracts, respectively.

margin if the New York Fed's replacement cost exceeds the value of collateral already posted.<sup>43</sup> Over 2013, the market made significant progress toward the adoption of the Treasury Market Practices Group's best-practice recommendation to margin forward-settling agency MBS transactions.<sup>44</sup>

**MARKET FUNCTIONING, LIQUIDITY, AND DOLLAR ROLLS**

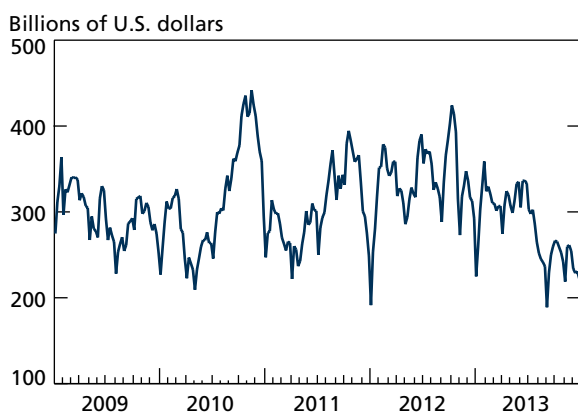
The Desk closely monitored market functioning and liquidity as it increased its holdings of agency MBS. Common market functioning indicators suggested that market liquidity was stable early in the year, but deteriorated in late spring and through the summer with the notable increase in interest rate volatility across financial markets. It then improved somewhat in the fourth quarter. Trading volume declined in June and subsequently recovered, albeit not to long-term averages, likely owing to a significant decline in mortgage originations resulting from the declines in refinancing activity (Chart 21).

The market appeared to absorb the volume of the Desk's agency MBS operations without

significant disruptions. On balance, the size of SOMA purchases represented over half of the gross issuance of thirty-year and fifteen-year fixed-rate agency MBS over the year, but this share rose markedly as new issuance declined around the middle of the year while the monthly pace of additional purchases remained constant (Chart 22). The size of purchases of certain TBA contracts at times exceeded the size of monthly issuance, as was sometimes the case during the Federal Reserve's first asset purchase program. Even so, there were few signs of significant market disruptions in 2013, in part because investors are able to deliver not only new-production but also more seasoned MBS into TBA obligations. As the Desk's purchases increased relative to gross issuance in the second half of the year, the outstanding stock of seasoned MBS remained abundant in the contracts in which the Desk concentrated its purchases. Indeed, agency MBS settlement fails declined throughout the year and remained at multiyear lows, indicating few large-scale scarcity issues in trade settlement (Chart 23).

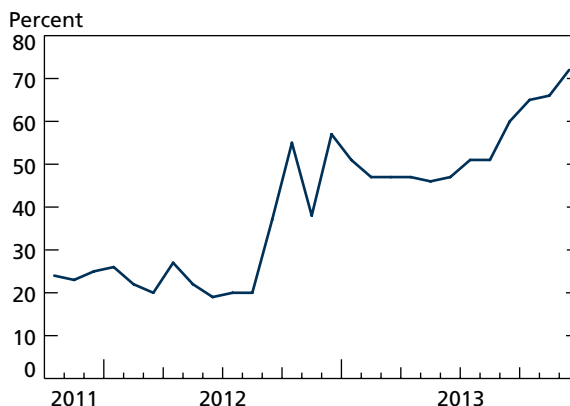
Throughout 2013, the FOMC directed the Desk to engage in dollar roll transactions as necessary to

Chart 21  
TOTAL AGENCY MBS TRANSACTION VOLUME



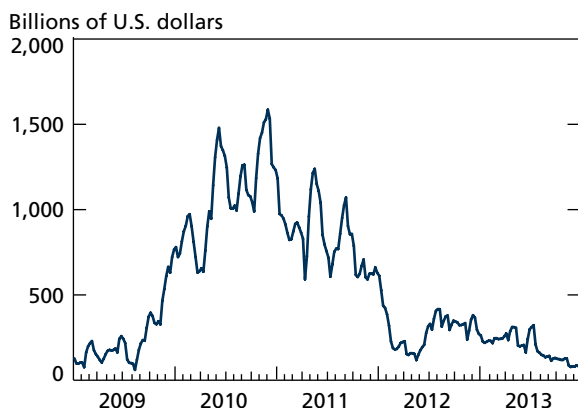
Source: Federal Reserve Bank of New York.  
Note: Figures are the par value, four-week moving average of total weekly transactions of primary dealers.

Chart 22  
SOMA AGENCY MBS PURCHASES AS A SHARE OF GROSS FIXED-RATE ISSUANCE



Sources: Federal Reserve Bank of New York; eMBS.  
Note: Figures are monthly.

Chart 23  
GROSS AGENCY MBS FAILS



Source: Federal Reserve Bank of New York.

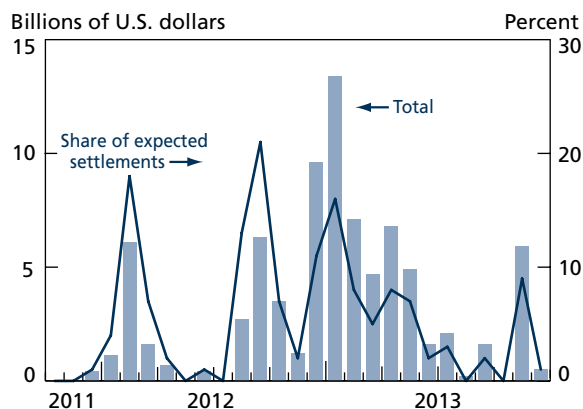
Note: Figures are the par value, four-week moving average of total gross weekly fails.

facilitate settlement associated with its unsettled agency MBS purchases. In 2013, dollar roll sales were conducted as needed, effectively postponing settlement of previously executed agency MBS purchase transactions, when implied financing rates for specific contracts were notably below the general level of short-term interest rates, as such conditions likely signaled a shortage of supply available for settlement. On net, dollar roll sales represented an average of roughly 5 percent of the Desk’s expected agency MBS settlements over 2013, down from an average of 7 percent in 2012 (Chart 24). The Desk did not purchase any dollar rolls during the year.

#### Agency Debt Operations

In 2013, the Desk did not purchase or sell any direct obligations of the housing-related government-sponsored enterprises (GSEs). About \$20 billion of agency debt holdings matured in 2013, and proceeds were reinvested in agency MBS throughout the year. Agency debt securities in the SOMA were added to the Desk’s securities lending program in 2009, and average lending volumes of agency debt

Chart 24  
SOMA DOLLAR ROLL SALES



Source: Federal Reserve Bank of New York.

Note: Figures are monthly by settlement month.

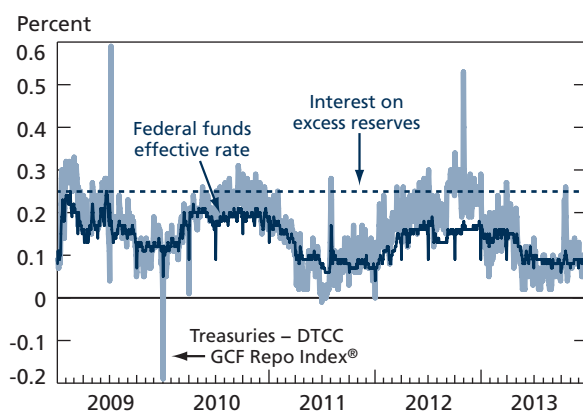
securities were less than \$1 billion per day in 2013, relatively unchanged from 2012 levels.<sup>45</sup>

## TEMPORARY OPERATIONS AND FUNDING MARKETS

### Money Market Operations

The FOMC continued to maintain its target for the federal funds rate in a range of 0 to ¼ percent throughout 2013. Additionally, it offered guidance that the target would be appropriate at least as long as the unemployment rate remained above 6½ percent, inflation between one and two years ahead was projected to be no more than a half percentage point above the Committee’s 2 percent longer-run goal, and longer-term inflation expectations continued to be well anchored. In December, the Committee added that it would likely be appropriate to maintain the current target range well past the time that the unemployment rate declined below 6½ percent, especially if projected inflation continued to run below the Committee’s 2 percent longer-run goal.<sup>46</sup>

Chart 25  
OVERNIGHT MONEY MARKET RATES



Sources: Federal Reserve Bank of New York; The Depository Trust & Clearing Corporation.

Note: Figures are daily.

Throughout 2013, the FOMC directed the Desk to undertake open market operations to maintain conditions in reserve markets such that federal funds traded in a range of 0 to  $\frac{1}{4}$  percent. However, an elevated level of reserve balances and the payment of interest on excess reserves (IOER) continued to keep the federal funds effective rate (FFER) within the target range without a need for any temporary open market operations. The FFER was 0.11 percent on average in 2013, after declining from an average of 0.13 percent during the first half of the year to an average of 0.09 percent during the second half (Chart 25).

### *Money Market Developments*

Daily trading volumes and volatility in the federal funds market remained at relatively low levels. In general, the FFER was pulled lower during 2013 by downward pressures on rates in other overnight funding markets, particularly those in overnight repo markets used by securities dealers and others to finance general collateral Treasury holdings. Overnight GC Treasury repo rates declined in 2013 to an average of 0.16 percent in 2013 from

an average of 0.21 percent in 2012 (Chart 25).<sup>47</sup> This downward shift in money market rates likely reflected an easing of prior upward pressures associated with the Federal Reserve's sales of short-term Treasury securities under the Maturity Extension Program, which ended in December 2012, as well as the rising level of reserves.

The trend toward low and generally stable money market rates was interrupted briefly in late September and the first half of October, ahead of the October 17 date by which the Treasury stated it could exhaust its borrowing authority under the statutory federal debt limit. A sharp rise in volatility and rates on short-term Treasury GC repo agreements and certain Treasury bills reflected market participants' mounting desire to avoid risk as the deadline approached.<sup>48</sup> Money market rates began to return to their prior levels after Congress passed legislation on October 16 suspending the debt limit until early February 2014.

The payment of IOER remains an important policy instrument that has likely helped to keep money market rates at positive levels in an operating environment with an elevated level of excess reserves. Without it, short-term interest rates could fall to zero or negative levels. Because interest on excess reserves represents the rate of return on a riskless overnight deposit for depository institutions (banks) with accounts at the Federal Reserve, it represents the opportunity cost of making an alternative investment, such as a loan or the purchase of a security. Theoretically, it should therefore set a minimum rate (or "floor") on the rates at which institutions with access to earning IOER are willing to lend in financial markets. This floor could additionally extend further, to all counterparties in the market, not just to those with access to the facility. Banks eligible to earn IOER could borrow funds or take deposits from institutions that cannot and then hold those funds at the Federal Reserve, earning the

spread between the rate they paid for the funds and the IOER rate. Competition among banks to conduct such arbitrage activities should pull up other money market rates, close to the IOER rate, until there is no longer an economic benefit from doing so.

However, overnight money market rates have traded consistently at levels well below the 25 basis point IOER rate, suggesting in part that IOER has not provided as hard a floor for comparable overnight instruments as theory would suggest. Many lenders in money markets, such as government-sponsored enterprises and money market funds, do not have access to the IOER rate, either because they cannot earn interest on Federal Reserve account balances or do not have Federal Reserve accounts. As a result, they may be willing to place funds in the market at sub-IOER rates. Uncertain or rising balance sheet costs—related in part to regulatory changes in recent years, including higher capital requirements, leverage and liquidity requirements, and changes in the fee assessment calculation for FDIC deposit insurance—may have exhausted the economic benefit of arbitraging the differences among rates, despite the high spread between market rates and the IOER rate.<sup>49</sup> Further, if there is not strong competition among banks with access to IOER to hold those excess balances, the rates offered in the market for short-term deposits may remain lower still. These factors have shaped U.S. dollar money market dynamics in an environment with abundant reserves.

#### OPERATIONAL READINESS AND FLEXIBILITY

Over the course of 2013, an array of initiatives enhanced the Desk's technical flexibility, efficiency, and resilience. Improvements in the Desk's operating tools and capacity supported its ability to structure and execute open market operations to achieve the current and future objectives of policymakers.

#### *Operating Tools*

Although the Desk did not actively manage the supply of reserves in 2013, as a matter of prudent planning, it continued to test and develop a range of tools that the FOMC could consider for managing short-term interest rates or providing additional liquidity in order to meet potential future policy needs.

#### SMALL-VALUE OPERATIONS

Drawing on provisions in its Authorization for Domestic Open Market Operations, the Desk continued to enhance its operational readiness to conduct various types of already-approved operations through technical exercises that are limited in size and scope (Appendix 1).

As it has done since 2010, the Federal Reserve continued to conduct periodic exercises of tools that could eventually be used for the large-scale draining of reserves. In April and August of 2013, the Desk conducted a series of tri-party reverse repo exercises. These operations involved the primary dealers and the expanded set of reverse repo counterparties, offered all three types of SOMA collateral, and had maturities ranging from overnight to five days. Operations took the form of fixed-quantity, multiple-price auctions, with \$5 billion being the largest outstanding amount.

As part of the ongoing testing of its Term Deposit Facility, the Federal Reserve conducted bi-monthly auctions of term deposits to eligible depository institutions throughout 2013.<sup>50</sup> The January and March operations were conducted as competitive, single-price, fixed-quantity auctions offering \$3 billion of twenty-eight-day term deposits. In contrast, the four operations executed between May and November were conducted as fixed-rate offerings with full allotment of tenders. These operations offered twenty-eight-day term deposits with an interest rate of 0.26 percent and a maximum



tender amount of \$1.25 billion per institution. The fixed-rate operations, on average, awarded total amounts of about \$12 billion, and saw an average of twenty-seven institutions participate.

The Desk also conducted small-value exercises of tools that would allow it to add reserves through temporary operations. In order to maintain operational readiness in light of changes to support tri-party reform, the Desk undertook a series of tri-party repo exercises in January and June 2013. These operations involved only the primary dealers, accepted all three types of collateral eligible for open market operations, and had maturities ranging from overnight to five days. Operations took the form of fixed-quantity, multiple-price auctions, with \$610 million being the largest outstanding amount.

Additionally, the Desk conducted the first of what are expected to become periodic, pre-arranged, small-value exercises that test the operational readiness of standing liquidity swap arrangements the Federal Reserve now maintains with some foreign central banks.<sup>51</sup> On December 12, 2013, the Bank of England and Swiss National Bank drew on their U.S. dollar liquidity swap lines in the amount of \$500 thousand each for an overnight term with an annualized interest rate of 0.58 percent. Additional information about U.S. dollar liquidity swap lines is found in the “Additional Federal Reserve Activity Affecting Reserves” section of this report.

#### OVERNIGHT FIXED-RATE REVERSE REPURCHASE AGREEMENTS

In support of its longer-run planning for improvements in the technical execution of monetary policy, the FOMC in 2013 began to consider a further use of reverse repurchase agreement operations—in this case, overnight, fixed-rate reverse repos (ON RRP) with same-day settlement—as an additional tool for managing money market interest rates. Reverse

repos are an operation in which eligible counterparties place cash temporarily at the Federal Reserve in exchange for securities from the SOMA portfolio, economically the same as a collateralized deposit. In theory, conducting fixed-rate ON RRP would allow the FOMC to offer an overnight, risk-free investment directly to a broader range of money market participants, including certain types of nonbank financial institutions. For such counterparties, the ability to invest funds in reverse repos at a fixed rate might widen the universe of counterparties that should generally be unwilling to lend at rates below those available from the central bank. In this way, ON RRP might complement IOER and help support a floor on short-term interest rates, ultimately improving the FOMC’s ability to keep short-term market rates at levels it deems appropriate to achieve its macroeconomic objectives.

In order to gain operational experience with larger transaction flows associated with these operations and to investigate how ON RRP might improve interest rate control regardless of the size of the Federal Reserve’s balance sheet, on September 17, 2013, the FOMC approved a resolution authorizing the Desk to conduct a limited technical exercise consisting of a series of daily overnight, fixed-rate RRP operations (Appendix 2).<sup>52</sup> The exercise began on September 23 and was authorized to run until January 29, 2014.<sup>53</sup> This exercise, like other technical exercises conducted by the Desk, was not intended to signal any change in the Committee’s views about policy going forward or to materially affect the current level of short-term interest rates. Maximum bid amounts per counterparty and the fixed interest rate offered by the New York Fed for ON RRP operations were therefore capped by the FOMC, but allowed to vary within the pre-established, narrow limits.<sup>54</sup>

ON RRP operations were conducted via FedTrade with the Desk’s expanded set of reverse repo counterparties and primary dealers. Terms for the



operations were published in advance, with operations occurring daily in the late morning. The operations initially began with a fixed rate of 1 basis point and a counterparty bid cap of \$500 million. Through the course of the exercise in 2013, the rates and counterparty bid caps were adjusted numerous times in order to test operational capabilities with varying levels of usage, and to gain additional information about how such operations might improve interest rate control (Table 4).

The ON RRP exercise provided the Desk, its counterparties, and the tri-party clearing banks with the opportunity to utilize and process overnight operations with same-day settlement. It also provided some insight on factors influencing demand for ON RRP, which included priced-based factors as well as nonprice factors such as dealer balance sheet capacity to offer competing investments to Federal Reserve counterparties. Exercise results, outside of usage around month-ends, generally showed that participation levels increased on days when market rates were relatively low compared with the fixed rate offered on ON RRP (Chart 26). Participation also tended to be higher at month-ends, and

particularly at quarter-ends, when access to overnight secured investments is generally more limited and lower unsecured overnight rates increase the attractiveness of the Fed’s ON RRP operations. This effect was particularly evident on the 2013 year-end date, when—according to anecdotal reports—the availability of overnight investments through ON RRP operations supported market functioning in overnight money markets by reducing the likelihood of more pervasive negative short-term interest rates trading in a low-rate environment.

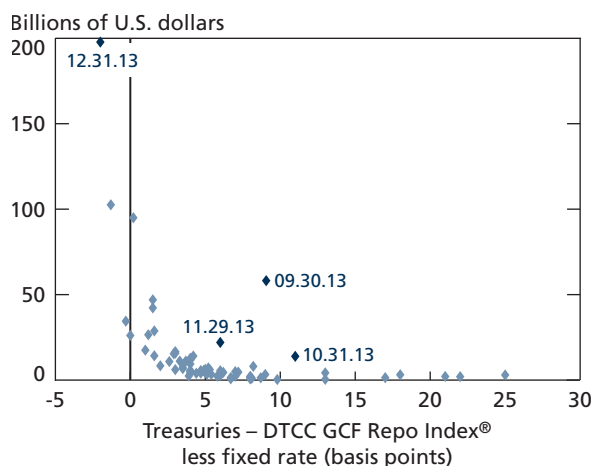
Through the end of December 2013, daily awards in the Desk’s operations averaged \$15 billion from 24 counterparties. Quarter-end financial statement dates, when investors generally have less certain access to secured and unsecured investments, experienced the largest levels of participation; for example, the September quarter-end saw substantial volume as 87 counterparties bid a total of \$58 billion, compared with a daily average of 60 counterparties and \$11 billion in take-up earlier that month (Chart 27).

Table 4  
TERMS OF OVERNIGHT FIXED-RATE REVERSE REPO OPERATIONAL EXERCISE

	Fixed Rate (Basis Points)	Maximum Allotment per Counterparty (Billions of U.S. Dollars)
09.23.13–09.26.13	1	0.5
09.27.13–10.20.13	1	1.0
10.21.13–11.03.13	2	1.0
11.04.13–11.11.13	3	1.0
11.12.13–11.18.13	4	1.0
11.19.13–12.22.13	5	1.0
12.23.13–01.29.14	3	3.0

Source: Federal Reserve Bank of New York.

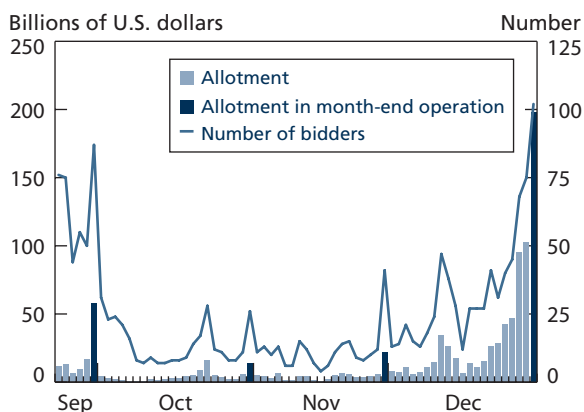
Chart 26  
OVERNIGHT FIXED-RATE REVERSE REPO OPERATIONAL EXERCISE ALLOTMENT VS. RATE SPREAD IN 2013



Sources: Federal Reserve Bank of New York; The Depository Trust & Clearing Corporation.

Note: Figures are daily.

Chart 27  
OVERNIGHT FIXED-RATE REVERSE REPO  
OPERATIONAL EXERCISE RESULTS IN 2013



Source: Federal Reserve Bank of New York.

Note: Figures are daily.

Leading up to and including the year-end, participation and the total amount awarded increased steadily, from \$29 billion across 31 counterparties on December 23 to \$103 billion across 75 counterparties on December 30. Usage peaked at \$198 billion on December 31 with participation across 102 counterparties. Excluding month-ends, daily awards averaged \$11 billion from 22 counterparties from the start of the exercise through December. In general, money funds have been the largest participants in the exercise.

### *Operational Capacity*

Over the course of the year, the Desk further enhanced its operating systems and arrangements, including counterparty relationships and geographic dispersion of resources, in ways that continued to expand its operational capacity.

On November 18, 2013, the Desk announced that it had developed the technical capability to conduct agency MBS transactions over its proprietary FedTrade trading platform. At the same time, the Desk published a schedule for testing this capability

through an exercise consisting of a series of small-value purchase and sale operations of agency MBS and running through January 2014.<sup>55</sup> The operations conducted as part of the exercise did not exceed a total of \$500 million and were conducted under the Desk's authorization to conduct domestic open market operations for the purpose of testing operational readiness; they did not count as part of the monthly agency MBS additional purchases and reinvestments being conducted under the FOMC's policy directives. The Desk completed four small-value agency MBS purchase operations in both multiple- and single-price auction formats over FedTrade for a total of \$237 million in 2013. Results were published following the completion of each operation.

The Desk also continued to broaden its operational capacity by expanding its set of trading counterparties for several types of open market operations (Appendix 5). In January 2013, the New York Fed added several more banks, government-sponsored enterprises, and money funds to its list of reverse repo counterparties. By the end of 2013, the list totaled 139 counterparties, including the primary dealers.

Additionally, in February 2013, the Desk announced the Treasury Operations Counterparty Pilot Program, through which a few small firms would be selected to act as counterparties in secondary market Treasury operations conducted for the SOMA, along with primary dealers.<sup>56</sup> The year-long pilot program, which was launched in July 2013 and is expected to run until July 2014, was initiated to explore ways to broaden access to monetary policy operations and to determine the extent to which additional counterparties can augment the New York Fed's resiliency in its monetary policy operations. The Desk therefore aimed to select a small subset of firms that was diverse in size, geographic reach, and other characteristics in order to

maximize the information to be gained from the pilot. On June 6, 2013, following an application and evaluation period, the New York Fed announced that four firms would participate in the pilot program.<sup>57</sup> Pilot program participants are expected to meet a range of business requirements—including the observance of standards for operational participation, trade execution, and competitive pricing; adherence to responsible trading practices; and proactive provision of useful information on Treasury market developments—as well as other operational, financial, and compliance requirements. In 2013, the Desk accepted a total of \$395 million in propositions in Treasury purchase operations from program participants.

Significantly, the New York Fed, with the support of the Federal Reserve System more broadly,

continues to invest in a range of flexible operating arrangements and staffing plans that will ensure business continuity. As of the end of 2013, the Markets Group had expanded the geographic dispersion of resources for supporting various aspects of its operations across five locations throughout the Federal Reserve System, including the establishment of an on-site Desk presence at another Reserve Bank in 2013. This split operation is intended to provide resilience for the execution of all of the Desk's critical operations and analytical activities should a contingency scenario affect the greater New York area. Over the course of the year, the Desk seamlessly executed numerous domestic open market operations under this arrangement.

# THE SUPPLY OF RESERVES

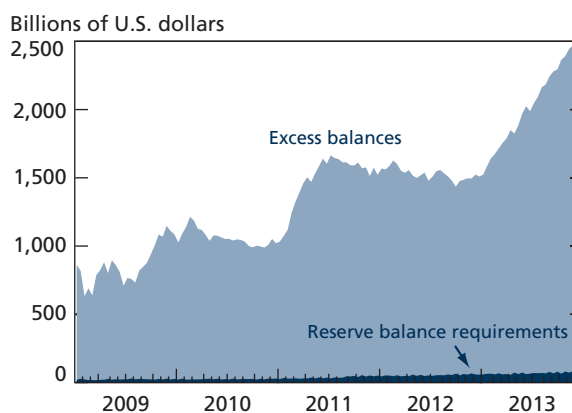
Reserve balance liabilities increased to historically elevated levels during 2013, driven by the FOMC's decisions to expand the Federal Reserve's balance sheet in order to provide additional monetary policy accommodation. Throughout the year, the level of reserve balances grew roughly in line with the increase in the size of the SOMA portfolio. However, reserve balances did not increase to quite the same extent as SOMA assets, because of offsetting changes in the Federal Reserve's consolidated balance sheet.

## RESERVE BALANCES

On a biweekly average basis, reserve balances increased steadily from \$1.5 trillion in early January to \$2.5 trillion at the end of December (Chart 28). Most of the additional reserve balances were excess reserves, which increased from \$1.5 trillion in early January to \$2.4 trillion at the end of year.<sup>58</sup>

Reserve balance requirements grew by 19.7 percent to \$72 billion owing to a significant increase in the quantity of transaction deposits for which depository institutions are required to hold reserves. Market commentators had anticipated a significant decrease in transaction deposits following the December 31, 2012, expiration of the FDIC's Transaction Account Guarantee program as mandated by the Dodd-Frank Wall Street Reform and Consumer Protection Act. That decrease never materialized, however, and transaction deposits grew during 2013 by \$137 billion (8.7 percent).

Chart 28  
RESERVE BALANCES



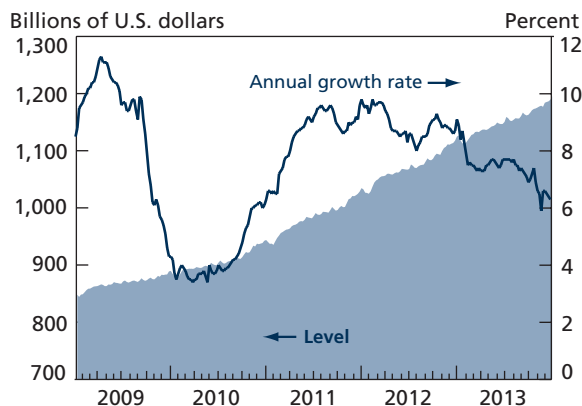
Source: Board of Governors of the Federal Reserve System.

Notes: Figures are biweekly. Data prior to June 27, 2013, are reserve balance requirements and excess balances. Data beginning June 27, 2013, are balances maintained to satisfy reserve balance requirements and balances that exceed the upper bound of the penalty-free band.

## AUTONOMOUS FACTORS

Reserve balances are affected by a number of "autonomous factors" that are outside the direct control of the Federal Reserve. Prior to the 2008 financial crisis, the ability to forecast accurately the net value of these factors over short time horizons was important for maintaining the supply of reserves in a narrow band that was consistent with the targeted federal funds rate. In recent years, such control over the supply of reserves has been less critical, partly because of the introduction of IOER in 2008 and the shift from a targeted rate to a range of rates, developments that changed the operating environment for monetary policy.

Chart 29  
FEDERAL RESERVE NOTES OUTSTANDING



Source: Board of Governors of the Federal Reserve System.  
Note: Figures are weekly, net of holdings of Federal Reserve Banks.

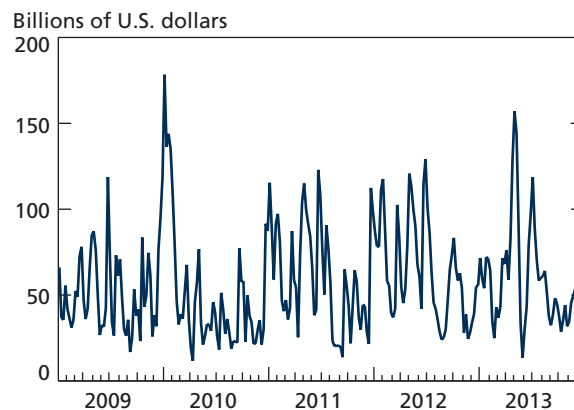
### *Federal Reserve Notes*

The largest autonomous factor is the quantity of Federal Reserve notes outstanding.<sup>59</sup> Federal Reserve notes increased \$71 billion in 2013 to a year-end level of \$1.2 trillion, representing an annual growth rate of 6.3 percent (Chart 29). The pace of currency growth slowed throughout 2013 owing to reduced demand for U.S. currency abroad amid decreasing global economic and financial uncertainty. New restrictions introduced by several foreign governments on U.S. currency imports also slowed the pace of Federal Reserve note growth during 2013.<sup>60</sup>

### *Treasury Balances*

Although smaller in size than Federal Reserve notes outstanding, other factors frequently play a larger role in determining short-run swings in the supply of reserves. The Treasury's cash balances held at the Federal Reserve have been one of the most volatile autonomous factors since late 2008, when the Treasury ceased targeting a fixed level of cash balances at the Federal Reserve and investing the excess in

Chart 30  
TREASURY GENERAL ACCOUNT



Source: Board of Governors of the Federal Reserve System.  
Note: Figures are weekly averages.

various short-term programs. Prompted by the very low rates of return available on alternative investments, the Treasury began keeping almost all of its funds at the Federal Reserve.

Throughout 2013, as in the previous year, the Treasury made no use of its short-term investment tools. As a result, the Treasury General Account (TGA) at the Federal Reserve absorbed all of the Treasury's cash flow volatility, typically swelling when auctions of Treasury securities settled and on tax payment dates and declining when large payouts were made (Chart 30).<sup>61</sup> Treasury balances ranged from \$12 billion to \$214 billion during 2013 and ended the year at around \$162 billion. The average balance during 2013 was \$61 billion, which was \$4 billion lower than the average during 2012.<sup>62</sup>

Despite disruption to the operation of various federal agencies, the partial government shutdown in October had only a minimal effect on the TGA, causing some categories of Treasury spending to be lighter during the first part of October and heavier during the end of the month.

*Other Autonomous Factors*

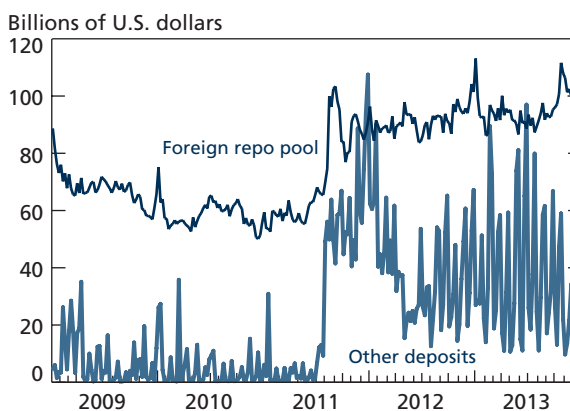
Changes in other autonomous factors marginally reduced reserve balances on net during 2013. These factors are driven by activity in a number of accounts the New York Fed maintains for certain nondepository institutions, such as foreign official institutions and U.S. government-sponsored enterprises.<sup>63</sup>

An overnight reverse repo facility (the “foreign repo pool”) has long existed as an investment vehicle for foreign central banks and international accounts that hold dollars in their accounts at the New York Fed.<sup>64, 65</sup> Investments in this facility are pooled, giving each participant an undivided interest, proportional to its investment, in an identified pool of domestic securities held in the SOMA portfolio. The daily rate offered on investments in the facility is derived from comparable market-based rates. This facility is unrelated to the fixed-rate, reverse repo exercise that was introduced in September 2013 for the purpose of exploring improvements in the technical execution of monetary policy. The foreign repo pool increased to a weekly average of \$96 billion in 2013 from an average of \$92 billion in 2012. Separately, foreign official deposits increased to an average of \$9 billion from an average of \$3 billion, while average “other deposits,” including balances held by GSEs, were roughly unchanged at \$36 billion (Chart 31).<sup>66</sup>

#### ADDITIONAL FEDERAL RESERVE ACTIVITY AFFECTING RESERVES

While open market operations are the principal tool for implementing monetary policy, the Primary Credit Facility (PCF) and central bank liquidity swap arrangements are also tools for providing liquidity to relieve pressures in short-term money markets. Activities in these facilities represent additional types of autonomous factors that affect reserve balances.

Chart 31  
SELECT AUTONOMOUS FACTORS



Source: Board of Governors of the Federal Reserve System.

Note: Figures are weekly averages.

*Primary Credit Facility*

The Primary Credit Facility serves as a backup source of liquidity for depository institutions in generally sound financial condition and with appropriate collateral pledged to a Reserve Bank. Loans are generally limited to overnight maturities and are initiated by depository institutions and approved by Reserve Banks. The facility is intended to limit upward pressure on overnight interest rates, including the federal funds rate, which might develop when there is a net reserve shortage or a disruption to payment flows.

The borrowing rate for primary credit loans remained at 75 basis points throughout 2013, 50 basis points above the upper limit of the target range for the federal funds rate. Borrowing activity remained low throughout the year as the elevated level of excess reserves held by banks and an improvement in funding conditions since the financial crisis restrained demand by banks to borrow from the PCF. Average and peak daily loan balances were both lower than levels seen in the recent past and in the pre-crisis period (Table 5). Nevertheless, the total number of loans

Table 5  
PRIMARY CREDIT FACILITY: DAILY AGGREGATE  
LOAN BALANCES (MILLIONS OF U.S. DOLLARS)

Year	Average	Peak
2006	59	3,676
2007	552	8,620
2008	32,179	113,709
2009	40,165	93,769
2010	4,364	19,697
2011	26	900
2012	22	314
2013	13	105

Source: Federal Reserve System.

edged higher in 2013 as test loan activity continued to increase, a trend driven by banks' efforts to strengthen their backup liquidity arrangements in the wake of the financial crisis.<sup>67</sup>

### Central Bank Liquidity Swaps

Central bank liquidity swaps are designed to improve conditions in global money markets and to minimize the risk that strains abroad could spread to U.S. markets. Through a temporary exchange of currencies between central banks under these arrangements, foreign central banks have the capacity to deliver U.S. dollar funding to institutions in their jurisdictions, and the Federal Reserve has the capacity to deliver foreign currency to U.S. institutions if conditions warrant.

Since May 2010, the Federal Reserve has maintained dollar liquidity swap lines with the Bank of Canada, Bank of England, European Central Bank, Bank of Japan, and Swiss National Bank. In addition, since November 2011, the Federal Reserve has

Chart 32  
CENTRAL BANK LIQUIDITY SWAPS OUTSTANDING



Source: Federal Reserve Bank of New York.

Note: Figures are weekly.

maintained foreign currency swap lines with the same institutions. On October 31, 2013, the FOMC announced the conversion of existing temporary currency swap lines to standing arrangements that will remain in place until further notice.<sup>68</sup>

The use of dollar liquidity swap lines was almost \$9 billion at the start of 2013 and declined throughout the year (Chart 32). Outstanding swaps, which were almost entirely attributable to drawings by the European Central Bank, totaled \$300 million at year-end, the lowest level since September 2011. Actions taken by European policymakers in 2012 and 2013 boosted broader market sentiment and eased near-term liquidity and funding stresses, resulting in the low level of usage during the year.

Throughout 2013, the rate on the swap arrangements remained at the U.S. dollar overnight index swap rate for the relevant tenor plus 50 basis points. The Fed did not draw on its foreign currency liquidity swap lines.

# CONCLUDING OBSERVATIONS

In addition to providing forward guidance regarding the future path of the federal funds rate, the FOMC continued to purchase longer-term Treasury security and agency MBS assets at a combined pace of \$85 billion per month and to reinvest principal payments from agency debt and MBS in MBS. This use of the size and composition of the SOMA portfolio to implement monetary policy was undertaken in support of the Federal Reserve's dual mandate of maximum employment and price stability. Over the course of 2013, \$1,020 billion in additional asset purchases boosted the size of the portfolio to a year-end level of \$3.8 trillion, which generated a further increase in the level of reserve balances and continued to contribute to elevated portfolio income. These policy actions were designed to put downward pressure on longer-term interest rates, to support mortgage markets, and to help make broader financial conditions more accommodative.

The execution of the FOMC's policy directives required the Desk to conduct an intensive schedule of permanent open market operations throughout the year. The Desk closely monitored market

conditions, and despite a notable increase in the level of interest rates and a rise in general financial market volatility starting in late spring and lasting throughout the summer, its activities did not appear to affect market functioning adversely. No temporary operations were required to maintain the federal funds rate within the FOMC's target range of 0 to ¼ percent, given the elevated level of reserves that has resulted from policy actions taken in recent years and the payment of interest on excess reserves.

Over the course of 2013, the Desk undertook an array of initiatives to enhance its technical efficiency and resiliency. Although the Desk did not actively manage the supply of reserves in 2013, it maintained and expanded its readiness to conduct a range of operations in short-term money markets to meet the FOMC's current and future policy objectives. To this end, the Desk began conducting an overnight, fixed-rate reverse repo exercise to gain operational experience and explore the potential impact of such operations in helping to manage short-term interest rates.



## APPENDIX 1: AUTHORIZATION FOR DOMESTIC OPEN MARKET OPERATIONS

On January 29, 2013, by unanimous vote, the FOMC approved the Authorization for Domestic Open Market Operations with two amendments. The first broadened the actions that the Open Market Desk may take, at the Chairman's instruction during an intermeeting period, to include transactions to address temporary disruptions of an operational or highly unusual nature in U.S. dollar funding markets. Consistent with Committee practice, the Chairman, if feasible, would consult with the Committee before making any such instruction. The second amendment harmonized the language referring to the Committee's longer-run objectives with that in the Committee's Statement on Longer-Run Goals and Monetary Policy Strategy.

### AUTHORIZATION FOR DOMESTIC OPEN MARKET OPERATIONS

As amended effective January 29, 2013

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; and
  - B. To buy or sell in the open market U.S. government securities, and securities that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States, for the System Open Market Account under agreements to resell or repurchase such securities or obligations (including such transactions as are commonly referred to as repo and reverse repo transactions) 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 counterparties.
2. The Federal Open Market Committee authorizes the Federal Reserve Bank of New York to undertake transactions of the type described in paragraphs 1.A and 1.B from time to time for the purpose of testing operational readiness. The aggregate par value of such transactions of the type described in paragraph 1.A shall not exceed \$5 billion per calendar year. The outstanding amount of such transactions of the type described in paragraph 1.B shall not exceed \$5 billion at any given time. These transactions shall be conducted with prior notice to the Committee.
3. 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 use agents in agency MBS-related transactions.
4. 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 and securities that are direct obligations of any agency of the United States, 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 that could facilitate a dealer's ability to control a single issue as determined solely by the Federal Reserve Bank of New York. The Federal Reserve Bank of New York may lend securities on longer than an overnight basis to accommodate weekend, holiday, and similar trading conventions.

5. In order to ensure the effective conduct of open market operations, while assisting in the provision of short-term investments or other authorized services 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 the System Open Market Account, to sell U.S. government securities and securities that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States 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;
- B. For the New York Bank account, when appropriate, to undertake with dealers, subject to the conditions imposed on purchases and sales of securities in paragraph 1.B, repurchase agreements in U.S. government securities and securities that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States, and to

arrange corresponding sale and repurchase agreements between its own account and such foreign, international, and fiscal agency accounts maintained at the Bank; and

- C. For the New York Bank account, when appropriate, to buy 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 from such foreign and international accounts maintained at the Bank under agreements providing for the repurchase by such accounts of those securities on the same business day.

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

- 6. 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 (i) adjust somewhat in exceptional circumstances the degree of pressure on reserve positions and hence the intended federal funds rate and to take actions that result in material changes in the composition and size of the assets in the System Open Market Account other than those anticipated by the Committee at its most recent meeting or (ii) undertake transactions of the type described in paragraphs 1.A and 1.B in order to appropriately address temporary disruptions of an operational or highly unusual nature in U.S. dollar funding markets. Any such adjustment as described in clause (i) 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 to foster maximum employment and price stability, 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 instruction under this paragraph.

## APPENDIX 2: RESOLUTIONS AUTHORIZING FIXED-RATE, OVERNIGHT REVERSE REPURCHASE OPERATIONS

On September 17, 2013, by unanimous vote, the FOMC approved a resolution providing the Desk with the authority to conduct an exercise of fixed-rate overnight reverse repurchase operations through January 29, 2014. An additional resolution was unanimously approved on December 17, 2013, to increase the maximum allotment cap per counterparty in the operations.

### RESOLUTION APPROVED ON SEPTEMBER 17, 2013

The Federal Open Market Committee (FOMC) authorizes the Federal Reserve Bank of New York to conduct a series of fixed-rate, overnight reverse repurchase operations involving U.S. Government securities, and securities that are direct obligations of, or fully guaranteed as to principal and interest by, any agency of the United States, for the purpose of assessing operational readiness. The reverse repurchase operations authorized by this resolution shall be (i) offered at a fixed rate that may vary from zero to five basis points, (ii) offered

at up to a capped allotment per counterparty of \$1 billion per day and (iii) for an overnight term, or such longer term as is warranted to accommodate weekend, holiday, and similar trading conventions. The System Open Market Account Manager will inform the FOMC in advance of the terms of the planned operations. These operations may be announced when authorized by the Chairman, may begin when authorized by the Chairman on or after September 23, 2013, and shall be authorized through the FOMC meeting that ends on January 29, 2014.

### RESOLUTION APPROVED ON DECEMBER 17, 2013

The Federal Open Market Committee authorizes an increase in the maximum allotment cap for the series of fixed-rate, overnight reverse repurchase operations approved on September 17, 2013, to \$3 billion per counterparty per day from its previous level of \$1 billion per counterparty per day. All other aspects of the resolution remain unchanged.

### APPENDIX 3: GUIDELINES FOR THE CONDUCT OF SYSTEM OPEN MARKET OPERATIONS IN FEDERAL-AGENCY ISSUES

The Guidelines for the Conduct of System Open Market Operations in Federal-Agency Issues, which were temporarily suspended on January 27, 2009, remain suspended.

## APPENDIX 4: DOMESTIC POLICY DIRECTIVES ISSUED TO THE FEDERAL RESERVE BANK OF NEW YORK

In 2013, the FOMC directed the Federal Reserve Bank of New York to execute transactions in the System Open Market Account in accordance with the following domestic policy directives:

### DIRECTIVE ISSUED ON JANUARY 30

Consistent with its statutory mandate, the Federal Open Market Committee seeks monetary and financial conditions that will foster maximum employment and price stability. In particular, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to undertake open market operations as necessary to maintain such conditions. The Desk is directed to continue purchasing longer-term Treasury securities at a pace of about \$45 billion per month and to continue purchasing agency mortgage-backed securities at a pace of about \$40 billion per month. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions. The Committee directs the Desk to maintain its policy of rolling over maturing Treasury securities into new issues and its policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

### DIRECTIVE ISSUED ON MARCH 20

Consistent with its statutory mandate, the Federal Open Market Committee seeks monetary and financial conditions that will foster maximum employment and price stability. In particular, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to undertake open market operations as necessary to maintain such conditions. The Desk is directed to continue purchasing longer-term Treasury securities at a pace of about \$45 billion per month and to continue purchasing agency mortgage-backed securities at a pace of about \$40 billion per month. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions. The Committee directs the Desk to maintain its policy of rolling over maturing Treasury securities into new issues and its policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

### DIRECTIVE ISSUED ON MAY 1

Consistent with its statutory mandate, the Federal Open Market Committee seeks monetary and financial conditions that will foster maximum employment and price stability. In particular, the

Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to undertake open market operations as necessary to maintain such conditions. The Desk is directed to continue purchasing longer-term Treasury securities at a pace of about \$45 billion per month and to continue purchasing agency mortgage-backed securities at a pace of about \$40 billion per month. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions. The Committee directs the Desk to maintain its policy of rolling over maturing Treasury securities into new issues and its policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

### DIRECTIVE ISSUED ON JUNE 19

Consistent with its statutory mandate, the Federal Open Market Committee seeks monetary and financial conditions that will foster maximum employment and price stability. In particular, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to undertake open market operations as necessary to maintain such conditions. The Desk is directed to continue purchasing longer-term Treasury securities at a pace of about \$45 billion per month and to continue purchasing agency mortgage-backed securities at a pace of about \$40 billion per month. The Committee also directs the Desk to engage in dollar roll and coupon swap

transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions. The Committee directs the Desk to maintain its policy of rolling over maturing Treasury securities into new issues and its policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

### DIRECTIVE ISSUED ON JULY 31

Consistent with its statutory mandate, the Federal Open Market Committee seeks monetary and financial conditions that will foster maximum employment and price stability. In particular, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to ¼ percent. The Committee directs the Desk to undertake open market operations as necessary to maintain such conditions. The Desk is directed to continue purchasing longer-term Treasury securities at a pace of about \$45 billion per month and to continue purchasing agency mortgage-backed securities at a pace of about \$40 billion per month. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions. The Committee directs the Desk to maintain its policy of rolling over maturing Treasury securities into new issues and its policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet

that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

### DIRECTIVE ISSUED ON SEPTEMBER 18

Consistent with its statutory mandate, the Federal Open Market Committee seeks monetary and financial conditions that will foster maximum employment and price stability. In particular, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to  $\frac{1}{4}$  percent. The Committee directs the Desk to undertake open market operations as necessary to maintain such conditions. The Desk is directed to continue purchasing longer-term Treasury securities at a pace of about \$45 billion per month and to continue purchasing agency mortgage-backed securities at a pace of about \$40 billion per month. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions. The Committee directs the Desk to maintain its policy of rolling over maturing Treasury securities into new issues and its policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

### DIRECTIVE ISSUED ON OCTOBER 30

Consistent with its statutory mandate, the Federal Open Market Committee seeks monetary and financial conditions that will foster maximum employment and price stability. In particular, the Committee seeks conditions in reserve markets

consistent with federal funds trading in a range from 0 to  $\frac{1}{4}$  percent. The Committee directs the Desk to undertake open market operations as necessary to maintain such conditions. The Desk is directed to continue purchasing longer-term Treasury securities at a pace of about \$45 billion per month and to continue purchasing agency mortgage-backed securities at a pace of about \$40 billion per month. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions. The Committee directs the Desk to maintain its policy of rolling over maturing Treasury securities into new issues and its policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The System Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.

### DIRECTIVE ISSUED ON DECEMBER 18

Consistent with its statutory mandate, the Federal Open Market Committee seeks monetary and financial conditions that will foster maximum employment and price stability. In particular, the Committee seeks conditions in reserve markets consistent with federal funds trading in a range from 0 to  $\frac{1}{4}$  percent. The Committee directs the Desk to undertake open market operations as necessary to maintain such conditions. Beginning in January, the Desk is directed to purchase longer-term Treasury securities at a pace of about \$40 billion per month and to purchase agency mortgage-backed securities at a pace of about \$35 billion per month. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement



of the Federal Reserve's agency mortgage-backed securities transactions. The Committee directs the Desk to maintain its policy of rolling over maturing Treasury securities into new issues and its policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The System

Open Market Account Manager and the Secretary will keep the Committee informed of ongoing developments regarding the System's balance sheet that could affect the attainment over time of the Committee's objectives of maximum employment and price stability.



## APPENDIX 5: FEDERAL RESERVE BANK OF NEW YORK COUNTERPARTIES FOR DOMESTIC OPEN MARKET OPERATIONS

The Open Market Trading Desk requires a robust network of trading counterparties in order to provide the necessary operational capacity for the implementation of monetary policy. As of the end of 2013, there were two categories of standing counterparties for the conduct of domestic open market operations. In addition, in July 2013, the Desk established trading relationships with several small firms in certain Treasury market operations under a pilot program that is expected to run through mid-2014.

### PRIMARY DEALERS

The New York Fed trades U.S. government and other securities with designated primary dealers, which include banks and securities broker-dealers.

The role of the primary dealer includes the obligations to: (i) participate consistently as a counterparty to the New York Fed in its execution of open market operations to carry out U.S. monetary policy pursuant to the direction of the FOMC; (ii) provide the Desk with market information and analysis helpful in the formulation and implementation of monetary policy; (iii) participate in all auctions of U.S. government debt; and (iv) make reasonable markets for the New York Fed when it transacts on behalf of its foreign official account holders.

Primary dealer relationships are administered through an operating policy that sets standards that must be met initially and on an ongoing basis.<sup>69</sup> These include business standards, which define the expectations of primary dealers in carrying out their responsibility as counterparties, including minimum participation requirements in U.S. government debt auctions, as well as expectations that the primary

dealers act as responsible market participants in their overall conduct and support of market efficiency and liquidity. Primary dealers are also expected to meet certain minimum capital requirements and maintain a robust compliance program under the standards.

As of December 31, 2013, there were twenty-one primary dealers. There were no changes to the list of primary dealers in 2013.<sup>70</sup>

### REVERSE REPO COUNTERPARTIES

To prepare for the potential need to conduct large-scale reverse repurchase agreement transactions, the New York Fed has been developing arrangements with an expanded set of counterparties with whom it can conduct just these transactions. These counterparties augment the existing set of primary dealer counterparties with whom the Federal Reserve can already conduct reverse repurchase agreements. The expanded set of reverse repo counterparties are also eligible to participate in the New York Fed's overnight, fixed-rate reverse repo exercise.

As of December 31, 2013, there were 118 reverse repo expanded counterparties—18 banks, 6 government-sponsored enterprises, and 94 money funds (representing 25 fund families)—and the 21 primary dealers, bringing the total number of reverse repo counterparties to 139.<sup>71</sup>

### TREASURY OPERATIONS COUNTERPARTY PILOT PROGRAM

On February 20, 2013, the New York Fed announced a pilot program for a few small firms to act as counterparties in Treasury market operations it conducts for the SOMA portfolio.<sup>72</sup> The intent in

conducting the Treasury Operations Counterparty (TOC) pilot program is to explore ways to broaden access to open market operations, and to determine the extent to which firms beyond the primary dealer community can augment the New York Fed's operational capacity and resilience in its monetary policy operations. The year-long program launched in July 2013 and is expected to run until the end of July 2014.

Pilot program participants take part in Desk operations to conduct secondary market outright purchases or sales of U.S. Treasury securities, along with primary dealers. They are subject to appropriate size limitations on aggregate daily bids and unsettled awards, determined by the New York Fed, commensurate with the firm's capital position. Participation in the pilot program does not mean that a firm has been designated as a primary dealer,

and does not guarantee the ability to participate in any permanent program the New York Fed may establish in the future.

Participants in the pilot program were expected to meet a range of business, operational, financial, and compliance requirements. In order to maximize the information to be gained from the pilot, the New York Fed aimed to select a small subset of eligible firms that was diverse with respect to characteristics such as size and geographic reach.

Following an application and evaluation period for eligibility, on June 6, 2013, the New York Fed announced that four firms would participate in the TOC pilot program.<sup>73</sup> The small number of firms in the pilot program was intended to keep the New York Fed's operational costs relatively low and reduce the time needed to onboard new counterparties.

## ENDNOTES

<sup>1</sup>Unless otherwise stated, all dollar values of securities held in the domestic SOMA portfolio refer to par (face) values and include both settled and unsettled amounts. Values of agency MBS refer to the current face value of the securities (that is, the remaining principal balance of the underlying securities). The Federal Reserve reports SOMA securities holdings at par (face) value and any unamortized premiums or discounts separately in its weekly statistical release on the balance sheet. For financial statement reporting purposes, SOMA securities holdings are reported at amortized cost, and gains and losses resulting from sales of securities are determined by specific issue based on average cost.

<sup>2</sup>Activities affecting foreign reserves held in the SOMA are reported separately. See [http://www.newyorkfed.org/markets/quar\\_reports.html](http://www.newyorkfed.org/markets/quar_reports.html).

<sup>3</sup>See <http://www.newyorkfed.org/markets/omo/omo2013.xlsx>.

<sup>4</sup>The Committee decided to reduce the pace of purchases at its December 2013 meeting, but the new purchase pace only became effective in January 2014.

<sup>5</sup>A number of studies in recent years address the mechanisms through which the Federal Reserve's asset purchase programs may affect financial variables and the real economy. For example, see Canlin Li and Min Wei, "Term Structure Modelling with Supply Factors and the Federal Reserve's Large-Scale Asset Purchase Programs," Board of Governors of the Federal Reserve System *Finance and Economics Discussion Series*, no. 2012-37, May 2012; Joseph Gagnon, Matthew Raskin, Julie Remache, and Brian Sack, "Large-Scale Asset Purchases by the Federal Reserve: Did They Work?" Federal Reserve Bank of New York *Staff Reports*, no. 441, March 2010; Arvind Krishnamurthy and Annette Vissing-Jorgensen, "The Ins and Outs of LSAPs," *Federal Reserve Bank of Kansas City Economic Policy Symposium*, Jackson Hole; and Jonathan H. Wright, "What Does Monetary Policy Do to Long-Term Interest Rates at the Zero Lower Bound?" NBER Working Paper no. 17154, June 2012.

<sup>6</sup>For further analyses on agency MBS purchases, see Diana Hancock and Wayne Passmore, "Did the Federal Reserve's MBS Purchase Program Lower Mortgage Rates?" *Journal of Monetary Economics* 58, July 2011: 498-514. See also <http://www.newyorkfed.org/newsevents/speeches/2013/pot130301.html> and <http://www.newyorkfed.org/newsevents/speeches/2009/sac091202.html>.

<sup>7</sup>As of December 31, 2013, \$11.8 trillion (excluding intragovernmental holdings) of outstanding marketable bills, notes, bonds, and Treasury inflation-protected securities (TIPS) had been issued by the Treasury, up from \$11.0 trillion at the end of 2012.

<sup>8</sup>These totals include unsettled commitments of \$58 billion as of year-end associated with forward-settling purchase transactions. Unsettled commitments at the end of 2012 were \$112 billion. The SOMA's settled agency MBS holdings increased by \$564 billion over 2013, resulting in a year-end level of \$1.5 trillion.

<sup>9</sup>About \$7 million of SOMA agency MBS holdings are of ten- and twenty-year securities.

<sup>10</sup>Duration is generally greater for longer-maturity and lower-coupon securities. Duration measures differ across instruments. For Treasury and agency debt securities, which have fixed cash flows, "modified duration" approximates the price sensitivity of an asset to a parallel shift in the yield curve. For agency MBS, "effective duration" also approximates the percentage change in price for a parallel shift but, in addition, incorporates the fact that cash flows vary as interest rates change because of the embedded option in MBS. Nonetheless, effective duration is an incomplete estimate of the price sensitivity of MBS because it does not fully account for the changes in cash flows attributable to changes in borrowers' prepayment behavior.

<sup>11</sup>The effective duration numbers for agency MBS cited in this report are computed by BlackRock Solutions, which provides to the New York Fed daily analysis of the SOMA agency MBS portfolio.

Effective duration estimates are subject to frequent model changes, and those changes can cause significant variations in duration estimates.

<sup>12</sup>Trends during 2013 in the weighted-average maturity of SOMA holdings largely reflected the general patterns in duration. For example, the weighted average life of SOMA agency MBS holdings, which requires subjective assumptions about the prepayment behavior of the underlying mortgages in the portfolio, increased from 3.3 to 6.5 years amid changes in interest rates and the existing composition of the portfolio. Also, the weighted-average maturity of Treasury holdings edged down from 10.4 to 10.1 years, as new purchases of longer-dated securities offset only in part the natural aging of the existing portfolio of Treasury securities.

<sup>13</sup>The ten-year-equivalent measure for MBS fluctuates because the duration of MBS is highly sensitive to interest rates.

<sup>14</sup>*SOMA income* reflects the interest income earned on outright holdings of domestic securities, as well as other earnings (including interest income from foreign-currency-denominated assets and central bank liquidity swaps, any realized capital gains or losses, foreign currency translation gains or losses, and noninterest sources of income), less direct interest expenses, such as interest paid on reverse repurchase agreements associated with the SOMA portfolio. *SOMA net income* is SOMA income less the interest paid on the reserve balance liabilities created by some SOMA assets. See <http://www.federalreserve.gov/newsevents/press/other/20140314a.htm>.

<sup>15</sup>SOMA income in 2013 included, among other line items, \$90 billion of interest income generated by its domestic securities portfolio and \$60 million of interest expense, which includes \$56 million related to reverse repos conducted with foreign official and international accounts and \$1 million related to tri-party reverse repos conducted with primary dealers and expanded counterparties.

<sup>16</sup>Federal Reserve notes (currency) represent another large liability category on the Federal Reserve's balance sheet. Although the Federal Reserve pays no interest on these notes, Reserve

Banks pay expenses incidental to the issuance and retirement of currency (such as costs related to manufacturing, shipping, issuance, retirement, educational services, and research and development). These expenses do not vary with the level of interest rates, unlike certain other liabilities. Currency costs were \$705 million in 2013, down from \$721 million in 2012.

<sup>17</sup>The SOMA has at times reflected periods of unrealized losses, particularly in the early 1980s when interest rates were high and volatile as the FOMC followed policies to reduce inflation and stabilize inflation expectations. Remittances to the Treasury were not affected. See <http://libertystreeteconomics.newyorkfed.org/2014/04/just-released-the-2013-soma-annual-report-in-a-historical-context.html>.

<sup>18</sup>Remittances to the Treasury are generated by net SOMA income as well as by proceeds from other Federal Reserve accounts, and reflect all Federal Reserve earnings in excess of those needed for operating costs, dividends, and capital maintenance.

<sup>19</sup>A similar projection exercise for various scenarios and more detail on the modeling approach and other balance sheet assumptions can be found in Seth B. Carpenter, Jane E. Ihrig, Elizabeth C. Klee, Daniel W. Quinn, and Alexander H. Boote, "The Federal Reserve's Balance Sheet and Earnings: A Primer and Projections," Board of Governors of the Federal Reserve System *Finance and Economics Discussion Series*, no. 2013-01, January 2013 (revised in September 2013 to reflect the FOMC's June 2013 change in portfolio normalization guidance).

<sup>20</sup>See [http://www.newyorkfed.org/markets/survey/2014/January\\_result.pdf](http://www.newyorkfed.org/markets/survey/2014/January_result.pdf).

<sup>21</sup>See <http://www.federalreserve.gov/monetarypolicy/files/fomcminutes20130619.pdf>.

<sup>22</sup>Compared with the 2012 report's baseline scenario, which assumed that agency MBS would be sold during normalization, the current baseline is projected to generate a higher level of SOMA net income throughout most of the normalization period. The shift to a passive roll-off of the

agency MBS portfolio keeps the size of the portfolio elevated. Although this increases funding costs at a time when interest rates are rising, it increases interest income from the holdings and eliminates the realization of losses from asset sales.

<sup>23</sup>The higher- and lower-rate scenarios assume that all interest rates are 1 percentage point (100 basis points) higher or lower, respectively, than the rates used in the baseline scenario. The shocks are phased in over two quarters, beginning in the fourth quarter of 2015 when the federal funds target rate is assumed to rise above its current level. In both cases, all other assumptions, including changes in the size and composition of the portfolio, were held constant.

<sup>24</sup>Projection results are also sensitive to assumptions about future portfolio management strategies. The effect on projected income of the FOMC's June 2013 guidance suggesting a reduced likelihood of agency MBS sales during normalization can be seen by comparing results from the current baseline scenario (which assumes such sales) with an alternative scenario that actively reduces the size of the portfolio through agency MBS asset sales, while keeping all other assumptions the same. With asset sales, the size of the portfolio is normalized approximately two years sooner than in the baseline. While this portfolio normalization strategy reduces funding costs, the lower coupon income associated with lower portfolio balances and the realization of capital losses from asset sales reduces SOMA net income to a trough close to zero. Data associated with this scenario can be found at <http://www.newyorkfed.org/markets/omo/omo2013.xlsx>.

<sup>25</sup>In the baseline, growth of Federal Reserve notes in the near term is forecasted to be in line with recent trends. In the medium and longer term, it is assumed to grow in line with nominal GDP growth. The higher and lower currency growth scenarios apply 3 percentage point annualized shocks across the entire forecast period in the construction of the scenario.

<sup>26</sup>Additional discussion of income projections under a counterfactual scenario can be found at <http://libertystreeteconomics.newyorkfed.org/2014/04/just-released-the-2013-soma-annual-report-in-a-historical-context.html>.

[org/2014/04/just-released-the-2013-soma-annual-report-in-a-historical-context.html](http://libertystreeteconomics.newyorkfed.org/2014/04/just-released-the-2013-soma-annual-report-in-a-historical-context.html).

<sup>27</sup>The FOMC reaffirmed the pace of \$45 billion per month in Treasury security purchases throughout 2013, but on December 18, 2013, announced that the pace of additional purchases would decline to \$40 billion per month starting in January 2014.

<sup>28</sup>In accordance with long-standing practice, rollovers are accomplished by placing bids at Treasury auctions as noncompetitive tenders, treated as add-ons to announced auction sizes and equal in par amount to the value of the maturing holdings on the issue date of the new security.

<sup>29</sup>See [http://www.newyorkfed.org/markets/longertermtreas\\_faq.html](http://www.newyorkfed.org/markets/longertermtreas_faq.html).

<sup>30</sup>See [http://www.newyorkfed.org/markets/opolicy/operating\\_policy\\_121212.html](http://www.newyorkfed.org/markets/opolicy/operating_policy_121212.html) and [http://www.newyorkfed.org/markets/longertermtreas\\_faq\\_12122012.html](http://www.newyorkfed.org/markets/longertermtreas_faq_12122012.html), respectively.

<sup>31</sup>In addition to the monthly information on prices paid, in accordance with Section 1103 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, complete details of individual open market transactions—including transactions in Treasury securities, agency MBS, repo and reverse repo agreements, and securities lending—as well as discount window advances, are published quarterly, approximately two years after the transactions were conducted. Details include the date and amount of the transaction, the counterparty to the transaction, the price or interest rate at which the transaction was conducted, and other relevant terms. See [http://www.federalreserve.gov/newsevents/reform\\_quarterly\\_transaction.htm](http://www.federalreserve.gov/newsevents/reform_quarterly_transaction.htm).

<sup>32</sup>See [http://www.newyorkfed.org/markets/toc\\_announcement.html](http://www.newyorkfed.org/markets/toc_announcement.html).

<sup>33</sup>The program offers specific Treasury and agency debt securities for loan from the SOMA portfolio under specified terms and conditions. Securities loans are awarded to primary dealers for a fee, based on competitive bidding in an auction held each business day at noon. All securities loans

are margined and collateralized with Treasury securities. The “Agency Debt” section of this report discusses agency debt securities lending activity in 2013.

<sup>34</sup>The FOMC reaffirmed a pace for agency MBS purchases of \$40 billion per month throughout 2013, but on December 18, 2013, announced that the pace of additional purchases would decline to \$35 billion per month starting in January 2014.

<sup>35</sup>Together, these operations, along with dollar roll transactions, resulted in 5,030 agency MBS transactions in 2013, compared with about 3,100 in 2012. This number includes both outright purchases and dollar roll transactions.

<sup>36</sup>A dollar roll is a transaction that generally involves the purchase or sale of agency MBS for delivery in the current month, with the simultaneous agreement to sell or purchase substantially similar (although not necessarily the same) securities on a specified future date. Selling dollar rolls effectively postpones the settlement of outstanding forward purchase commitments, while purchasing dollar rolls effectively brings settlement forward.

<sup>37</sup>In the “to-be-announced” (TBA) transactions that the Desk typically conducts, sellers have an incentive to identify securities that are the most economical to deliver while also meeting an agreed-upon set of basic characteristics. (See the “Operational Approach” discussion of this report for more information about the TBA market.) These so-called “cheapest-to-deliver” agency MBS are generally the least valuable because their underlying mortgages tend to have higher prepayment risk. Of course, buyers in a TBA transaction understand that sellers will look to exercise their option of delivering these relatively less valuable pools, and the price of the TBA contract will reflect the expected value of these securities.

<sup>38</sup>See [http://www.newyorkfed.org/markets/opolicy/operating\\_policy\\_120913.html](http://www.newyorkfed.org/markets/opolicy/operating_policy_120913.html).

<sup>39</sup>See <http://www.newyorkfed.org/markets/amb/>.

<sup>40</sup>Only fixed-rate agency MBS securities guaranteed by Fannie Mae, Freddie Mac, or Ginnie Mae are

eligible for purchase. Eligible assets include, but are not limited to, thirty- and fifteen-year securities of the issuers. Collateralized mortgage obligations, real estate mortgage investment conduits, trust interest-only securities/trust principal-only securities, and other mortgage derivatives or cash equivalents are excluded under the additional purchase program and reinvestments.

<sup>41</sup>For more information about the TBA market, see James Vickery and Joshua Wright, “TBA Trading and Liquidity in the Agency MBS Market,” Federal Reserve Bank of New York *Staff Reports*, no. 468, August 2010.

<sup>42</sup>Settlement services were provided by Wellington Management. JPMorgan Chase provided custodial and administrative support.

<sup>43</sup>The New York Fed established margin agreements with all primary dealers with whom it trades agency MBS in November 2011. Sales transactions, such as dollar roll sales, are also included in the New York Fed’s daily variation margin calculation because their forward settlement generates counterparty risk if the market value (replacement cost) is below the transaction price.

<sup>44</sup>See [http://www.newyorkfed.org/tmp/g/bestpractices\\_052313.pdf](http://www.newyorkfed.org/tmp/g/bestpractices_052313.pdf).

<sup>45</sup>The Desk accepts Treasury securities as collateral for these transactions.

<sup>46</sup>See <http://www.federalreserve.gov/newsevents/press/monetary/20131218a.htm>.

<sup>47</sup>The rates cited in this report use as an indicator the General Collateral Finance (GCF) Treasury Repo Index<sup>®</sup>, a weighted average of the interest rates paid each day on GCF repurchase agreements for Treasury securities, calculated by The Depository Trust & Clearing Corporation.

<sup>48</sup>On October 16, the FOMC met by video-conference to discuss contingency issues in the event the Treasury was temporarily unable to meet its obligations because the debt limit was not raised. Meeting participants saw no legal or operational need in the event of delayed payments on Treasury securities to make changes



in the conduct or procedures employed in then-authorized Desk operations. They also noted that under certain circumstances, the Desk might act to facilitate the smooth transmission of monetary policy through money markets and to address disruptions in market functioning and liquidity. See <http://www.federalreserve.gov/monetarypolicy/files/fomcminutes20131030.pdf>.

<sup>49</sup>See <http://www.newyorkfed.org/newsevents/speeches/2013/pot131202.html>.

<sup>50</sup>See [http://www.federalreserve.gov/monetarypolicy/tdf\\_2013.htm](http://www.federalreserve.gov/monetarypolicy/tdf_2013.htm).

<sup>51</sup>The New York Fed's authority to maintain standing dollar liquidity swap arrangements with designated foreign central banks and to undertake small-value exercises in them for the purpose of testing operational readiness is granted by the FOMC in a separate authorization for foreign currency operations. See [http://federalreserve.gov/monetarypolicy/files/FOMC\\_ForeignAuthorization.pdf](http://federalreserve.gov/monetarypolicy/files/FOMC_ForeignAuthorization.pdf).

<sup>52</sup>See <http://www.federalreserve.gov/monetarypolicy/files/fomcminutes20130918.pdf> and [http://www.newyorkfed.org/markets/opolicy/operating\\_policy\\_130920.html](http://www.newyorkfed.org/markets/opolicy/operating_policy_130920.html).

<sup>53</sup>At its January 2014 meeting, the FOMC subsequently authorized an extension of the fixed-rate ON RRP exercise through January 30, 2015.

<sup>54</sup>The FOMC's September 17, 2013, resolution specified that the per-counterparty bid limit would be no more than \$1 billion and that the allowable range for the fixed rate offered on ON RRPs was 0 to 5 basis points. On December 17, 2013, the FOMC amended the original resolution to allow the per-counterparty bid limit to be increased to no more than \$3 billion. Details on operational changes can be found at [http://www.newyorkfed.org/markets/op\\_policies.html](http://www.newyorkfed.org/markets/op_policies.html).

<sup>55</sup>See [http://www.newyorkfed.org/markets/opolicy/operating\\_policy\\_131118a.html](http://www.newyorkfed.org/markets/opolicy/operating_policy_131118a.html).

<sup>56</sup>See [http://www.newyorkfed.org/markets/toc\\_announcement.html](http://www.newyorkfed.org/markets/toc_announcement.html).

<sup>57</sup>See [http://www.newyorkfed.org/markets/toc\\_announcement\\_130606.html](http://www.newyorkfed.org/markets/toc_announcement_130606.html).

<sup>58</sup>The definition of excess reserve balances changed on June 27, 2013, as a consequence of revisions to Federal Reserve Regulation D, which governs the administration of reserve requirements. Prior to June 27, excess reserves were defined as the difference between actual reserve balances held by depository institutions and their reserve balance requirements. Effective June 27, changes to Regulation D introduced penalty-free bands around reserve requirements. In light of this change, the excess balances listed by the Federal Reserve Board in its weekly H.3 report since June 27 have been the sums of balances exceeding the upper bound of depository institutions' penalty-free bands. At the end of 2013, balances exceeding the upper bound of the penalty-free bands were \$7 billion lower than the simple difference between reserve balances and reserve balance requirements.

<sup>59</sup>In this discussion, the term "Federal Reserve notes outstanding" refers to Federal Reserve notes net of Federal Reserve Bank holdings.

<sup>60</sup>Beginning in 2011, Argentina enacted a series of laws that slowed the importation of U.S. currency during 2013. Egypt, Nigeria, and Uzbekistan also enacted measures that curbed imports of U.S. currency in 2013.

<sup>61</sup>Daily TGA balances data are available at <http://www.fms.treas.gov/dts/index.html>.

<sup>62</sup>The Treasury holds another account at the Federal Reserve associated with its Supplementary Financing Program, which was started during the financial crisis to absorb excess reserves. This account has had a zero balance since mid-2011.

<sup>63</sup>An increase in the level of balances in any of these accounts drains reserve balances from the banking system as account owners move money from a depository institution to their accounts with the New York Fed.

<sup>64</sup>The size of the foreign repo pool is itemized in the Board of Governors' weekly H.4.1 statistical

release of factors affecting reserve balances. See <http://www.federalreserve.gov/releases/h41/>.

<sup>65</sup>Separately, in 2013, the New York Fed initiated the conduct of intraday repurchase agreement transactions with foreign and international accounts to prevent daylight overdrafts in those accounts.

<sup>66</sup>Foreign official deposits comprise balances of foreign official and international accounts held at the New York Fed. "Other deposits" include balances held by other entities such as GSEs, which use their accounts to receive and make payments, including proceeds from debt issuance and payments made for redeeming maturing debt. An increase in foreign official or other deposits typically reflects a transfer of funds from depository institutions to one or more of these organizations; thus, an increase ordinarily coincides with a reduction in reserve deposits.

<sup>67</sup>A test loan is an actual PCF loan initiated by the requesting bank. A test loan is typically for a nominal amount of \$10,000 or less, but can be for a larger amount depending on the bank's preference. Banks regularly take out test loans to

ensure that they are operationally prepared to have ready access to the PCF.

<sup>68</sup>See <http://www.federalreserve.gov/newsevents/press/monetary/20131031a.htm>.

<sup>69</sup>Information on the New York Fed's administration of its relationships with primary dealers—including requirements for business standards, financial condition and supervision, and compliance and controls—is available at [http://www.newyorkfed.org/markets/pridealers\\_policies.html](http://www.newyorkfed.org/markets/pridealers_policies.html) and [http://www.newyorkfed.org/markets/pridealers\\_faq\\_100111.html](http://www.newyorkfed.org/markets/pridealers_faq_100111.html).

<sup>70</sup>See [http://www.newyorkfed.org/markets/pridealers\\_current.html](http://www.newyorkfed.org/markets/pridealers_current.html).

<sup>71</sup>See [http://www.newyorkfed.org/markets/expanded\\_counterparties.html](http://www.newyorkfed.org/markets/expanded_counterparties.html).

<sup>72</sup>See [http://www.newyorkfed.org/markets/toc\\_announcement.html](http://www.newyorkfed.org/markets/toc_announcement.html).

<sup>73</sup>See [http://www.newyorkfed.org/markets/toc\\_announcement\\_130606.html](http://www.newyorkfed.org/markets/toc_announcement_130606.html).



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