
DOMESTIC OPEN MARKET OPERATIONS DURING 2012

April 2013

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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 2012. Deborah Leonard and Eben Lazarus were primarily responsible for preparation of the report.

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OVERVIEW

Domestic open market operations in 2012 were guided by the Federal Open Market Committee's (FOMC) continuing efforts to support a stronger economic recovery in a context of price stability by providing additional policy accommodation through adjustments to the composition and size of the Federal Reserve's balance sheet. These actions were designed to put downward pressure on longer-term interest rates, support mortgage markets, and help to make broader financial conditions more accommodative.

The total size of the System Open Market Account's (SOMA) domestic securities portfolio was relatively unchanged through most of the year, but there was an appreciable shift in its composition. The completion of the Maturity Extension Program (MEP)—which was initiated in October 2011 and extended in June 2012 to a total size of \$667 billion running through the end of the year—lengthened the average maturity of the SOMA's Treasury portfolio by more than three years and nearly eliminated its holdings of shorter-term Treasury securities. The continued reinvestment of proceeds from agency debt and agency mortgage-backed securities (MBS) in agency MBS, which had been in effect since September 2011, contributed to an ongoing shift of the agency MBS portfolio toward lower-coupon, longer-duration securities. This shift was reinforced in the latter part of the year with the initiation of additional purchases of agency MBS at a pace of \$40 billion per month, as announced by the FOMC in September 2012. Together, the MEP and

new agency MBS purchases represented purchases of \$85 billion in longer-term securities each month through the end of the year. SOMA domestic securities holdings grew to almost \$2.8 trillion by year-end.

The execution of these balance sheet programs required intensive permanent open market operations throughout the year by the Federal Reserve Bank of New York's Open Market Trading Desk (the Desk). In carrying out the operations, the Desk closely monitored market conditions. Market functioning indicators did not suggest that the Desk's activity had significant adverse effects. Transactions were conducted in a competitive and transparent manner, in accordance with published operating policies, operational announcements, and timely reporting of results.

Changes in the size and composition of the SOMA portfolio were intended to promote the FOMC's mandate to foster maximum employment and price stability, not to produce a financial return. Nevertheless, the large size of the portfolio, increased concentration of longer-term securities, and low interest rate paid on liabilities continued to generate historically high net income, which totaled \$89 billion for the SOMA portfolio in 2012. A projection exercise illustrates how the portfolio's net income is expected to decline from its recent record-high levels as interest rates rise and the stance of policy is normalized, but remain higher, on average, over the projection horizon than levels prevailing before the crisis. The sensitivity of such

projections to assumptions about the future path of interest rates and the Federal Reserve's balance sheet is also examined.

Over the course of the year, the FOMC maintained its target for the federal funds rate in a range of 0 to ¼ percent and made important modifications to its communications indicating how long this stance was likely to prevail in the future. Throughout 2012, the high level of reserve balances and the ¼ percent interest rate paid on excess reserves kept the effective federal funds rate within its target range without the need to conduct open market operations.

Reserve balance liabilities were relatively stable at historically elevated levels in 2012, with most of the policies that were in place for the majority of the year, such as the MEP and agency MBS re-investments, effectively reserve-neutral. Increases

in reserve balances associated with the new asset purchases late in the year were roughly offset by movements in other factors. Notably, nearly all of the lending activity initiated during the financial crisis has since unwound, including the full retirement in 2012 of the last remaining debts owed to the Federal Reserve Bank of New York (New York Fed) from the crisis-era interventions associated with Bear Stearns and AIG.

This report describes the domestic open market operations conducted by the Desk and operating policies governing them in 2012.¹ It also summarizes characteristics of the domestic securities portfolio over the year, including projections about the possible evolution of the portfolio according to a range of illustrative scenarios. Developments in overnight funding markets and factors that affect the level of reserve balances, including Federal Reserve lending arrangements, are also discussed.

DOMESTIC OPEN MARKET OPERATIONS

The New York Fed is authorized and directed by the FOMC to conduct permanent and temporary open market operations, as necessary, to carry out the most recent domestic policy directives adopted by the Committee (Appendixes 1-3). These operations are carried out by the Desk with counterparties in the open market (Appendix 4).

PERMANENT OPERATIONS AND DOMESTIC SECURITIES HOLDINGS

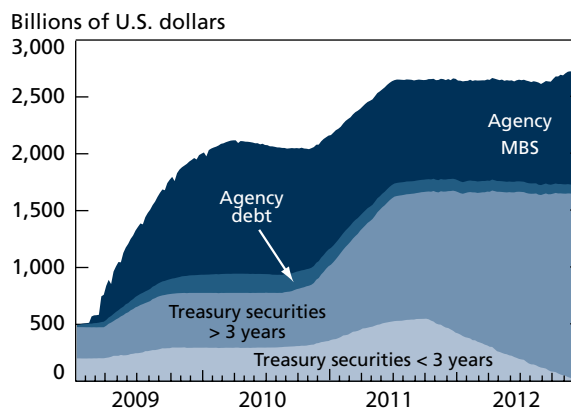
The par level of SOMA holdings of domestic securities was relatively steady, at over \$2.6 trillion, from the start of 2012 through mid-September, as the MEP for Treasury securities and reinvestments of agency debt and agency MBS in agency MBS shifted the composition of the portfolio but did not affect its overall size.² Holdings grew to almost \$2.8 trillion by year-end, driven by the introduction of additional purchases of agency MBS in mid-September (Chart 1).

Treasury Securities

HOLDINGS AND COMPOSITION

The level of the SOMA's Treasury holdings remained stable, at \$1.7 trillion, throughout the year. Under the MEP, which was initiated in October 2011 and extended in June through the end of 2012, purchases of longer-maturity Treasury securities were offset by equal par amounts of Treasury sales of shorter-dated securities. In the second half of the year, purchases were also offset by allowing maturing Treasury securities to be redeemed—that is, to mature without being reinvested.

Chart 1
SIZE AND COMPOSITION OF SOMA DOMESTIC SECURITIES HOLDINGS

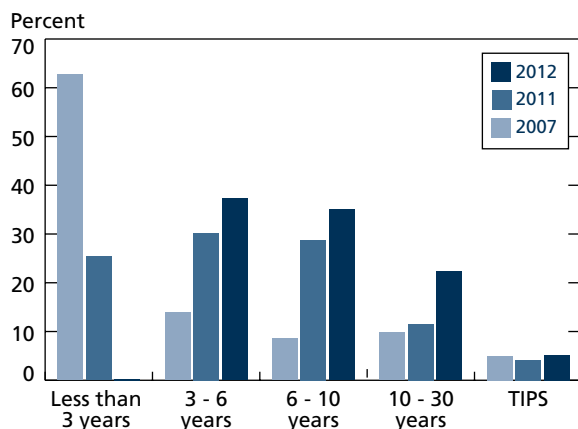


Source: Federal Reserve Bank of New York.

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

The continuation of the MEP in 2012 supported a further lengthening in the maturity profile of the Treasury portfolio (Chart 2). At the end of the year, 61 percent of the SOMA's Treasury holdings had maturities of six years or longer, while securities with less than three years to maturity had been nearly eliminated. In contrast, prior to the financial crisis, SOMA holdings of Treasury securities were skewed heavily toward the shorter end of the maturity spectrum, with 63 percent of holdings maturing in less than three years, including 31 percent held in Treasury bills. By the end of 2012, the SOMA Treasury portfolio had a weighted average maturity of approximately 10.4 years—more than three years longer than it had at the start of the year and more

Chart 2
DISTRIBUTION OF SOMA TREASURY HOLDINGS



Source: Federal Reserve Bank of New York.

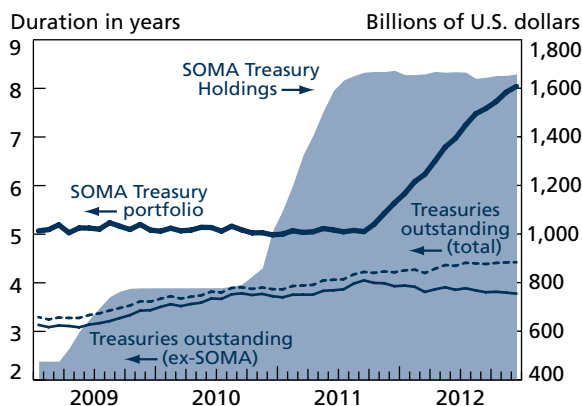
Notes: Figures are as of year-end. Maturity buckets apply to nominal Treasury securities.

than three times longer than the level prevailing before the financial crisis.

The shift to longer-term securities also meant an increase in the weighted average duration of the SOMA Treasury portfolio, which extended from approximately five years to a bit more than eight (Chart 3).³ This result is in line with the program's goal of removing duration risk from the market in order to put downward pressure on longer-term interest rates and to reduce private sector borrowing costs relative to levels that would otherwise prevail.⁴ Indeed, the average duration of Treasury securities held by the private sector steadily edged lower over the course of the MEP, even as the average duration of the supply of outstanding Treasury securities rose modestly. The average duration of the SOMA's Treasury portfolio is now more than twice that of the average duration of the rest of the Treasury market.

At the end of 2012, the SOMA portfolio held 15 percent of all marketable Treasury securities, down from the 17 percent it held at the start of the year, as the total amount of Treasury securities outstanding increased and the par value of SOMA holdings remained

Chart 3
SOMA TREASURY HOLDINGS AND TREASURY DURATION



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

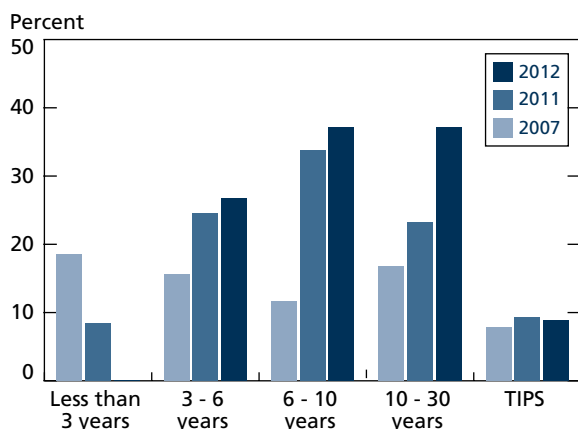
Note: Figures are monthly.

steady.⁵ However, the SOMA's share of nominal Treasury securities with six or more years left to maturity averaged 37 percent of outstanding supply as of year-end as a result of MEP-related purchases (Chart 4). In contrast, sales and redemptions associated with the MEP left the portfolio with only about \$6 billion of Treasury securities maturing between January 2013 and January 2016. The SOMA portfolio's market share of Treasury inflation-protected securities (TIPS) was little changed, at about 9 percent.

PURCHASES, SALES, AND REDEMPTIONS

The Desk purchased a total of \$534 billion in par value of Treasury securities in the secondary market during 2012—\$267 billion from January through June to complete the original \$400 billion MEP that commenced in late 2011, plus \$267 billion from July through December to continue operation of the MEP through the end of the year. Purchases under both installments of the MEP were conducted in securities with remaining maturities of six to thirty years, proceeded at a pace of roughly \$45 billion per month, and were distributed across five maturity sectors based on predetermined allocations (Table 1).

Chart 4
SOMA TREASURY HOLDINGS AS SHARE OF OUTSTANDING TREASURY SUPPLY



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

Note: Figures are as of year-end.

The par value of these purchases was almost exactly offset by sales of shorter-dated Treasury securities, and in the second half of the year also by redemptions of maturing securities.⁶ In 2012, the Desk sold a total of \$500 billion of nominal and inflation-protected Treasury securities with maturity dates of January 31, 2013, through January 31, 2016, and having between three months and three-and-a-quarter years or less until maturity as of the date of each sales operation. In addition, starting in July, in order to efficiently implement the second installment of the MEP, the Desk redeemed a total of \$33 billion of

nominal and inflation-protected Treasury securities maturing before December 31, 2012.⁷

In contrast, during the first installment of the MEP, the Desk continued to roll over maturing Treasury security holdings by replacing maturing holdings with newly issued debt at Treasury auctions. In the first six months of the year, the Desk reinvested \$49 billion of maturing Treasury coupon securities, including TIPS, and routinely rolled over \$18 billion of four-week Treasury bills. In accordance with long-standing practice, these reinvestments were accomplished by placing bids for the SOMA at Treasury auctions equal in par amount to the value of the maturing holdings on the issue date of a new security.⁸

OPERATIONAL APPROACH

The Desk conducted purchases and sales of Treasury securities according to operating policies that were released by the Desk soon after the FOMC announced new portfolio policies.⁹ These communications outlined various aspects of the program, including the timing of operations and the planned maturity distribution of the securities to be purchased or sold.

On the last day of each month, the Desk published a tentative schedule of operations for the month ahead, detailing the anticipated amount of total purchases, sales, and redemptions; planned operation dates; the maturity range of eligible issues; and an expected range of the size of each operation. Also at the end of each month, the Desk released pricing information for each issue purchased or sold in individual operations over that month, including the weighted average accepted price, the least favorable accepted price (that is, the highest price in the case of purchases or the lowest price in the case of sales), and the percentage accepted for propositions submitted at the least favorable accepted price.¹⁰

Table 1
TREASURY PURCHASE DISTRIBUTION UNDER THE MEP

Nominal Coupons by Remaining Years to Maturity				TIPS
6 – 8 Years	8 – 10 Years	10 – 20 Years	20 – 30 Years	6 – 30 Years
32	32	4	29	3

Source: Federal Reserve Bank of New York.

Note: Figures are in percentages.

DOMESTIC OPEN MARKET OPERATIONS DURING 2012

Table 2
TREASURY OPERATIONS UNDER THE MEP

	2012 Activity								Total MEP ¹
	Redemptions	Sales	Total Purchases	Purchases by Sector				TIPS	
				6 – 8 Years	8 – 10 Years	10 – 20 Years	20 – 30 Years		
Par amount (billions of U.S. dollars)	33	500	534	170	172	22	155	16	667
Number of operations	24 ²	67	178	36	36	12	82	12	326
Median coverage ratio	N/A	6.3	2.8	3.0	2.5	2.7	2.6	3.3	N/A

Source: Federal Reserve Bank of New York.

Note: Figures may not sum due to rounding.

¹October 3, 2011, through December 31, 2012.

²Indicates number of securities redeemed.

Within each monthly period, purchase operations were spread across a pre-established maturity distribution (Table 2). As in the past, 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 active Treasury futures contracts.¹¹ Specific issues that were excluded from consideration were announced at the start of each operation.

Consistent with prior practices, the Desk conducted its purchases and sales with primary dealers (see Appendix 4) over a proprietary trading platform through a series of competitive, multiple-price auctions. Primary dealers were expected to submit bids and offers for themselves and on behalf of their customers. Offers in purchase operations were evaluated based on their proximity to prevailing market prices at the close of the auction as well as on internal measures of relative value, which tilted purchases toward securities perceived to be undervalued by market participants. Bids in sales operations were evaluated solely on their proximity to prevailing market prices at the close of the auction.¹²

Participation in MEP operations, as measured by coverage ratios, was generally quite strong, and, where necessary, the Desk altered its operational approach in order to improve the efficiency of these operations. For example, starting in February, in response to a reduction in offers observed in purchase operations for twenty- to thirty-year Treasury securities, the Desk decreased the size and increased the frequency of individual operations in that sector, keeping the total monthly purchases allocated to this sector unchanged. This shift to more frequent and smaller operations resulted in improved coverage statistics. Sales operations were particularly well covered, likely due to the lower duration of (and hence, reduced interest rate risk faced by dealers) and reportedly high demand for shorter-dated Treasury securities from end investors with liquidity requirements or short-duration mandates.

To avoid acquiring an excessive concentration of specific securities, the Desk maintained its framework of purchase and holding limits. Since November 2010, the Desk has limited its holdings to 70 percent of the outstanding amount of any single Treasury security. Once holdings of an individual

DOMESTIC OPEN MARKET OPERATIONS DURING 2012

Table 3
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.

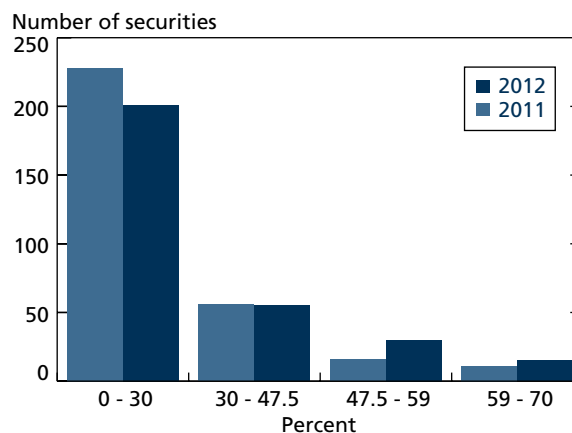
security reach 30 percent, further purchases are allowed only in modest increments. This practice moderates the pace at which holdings of individual securities are accumulated to avoid the risk of disruption to orderly market functioning (Table 3).

As expected, the SOMA's share of the outstanding supply of individual longer-term Treasury securities grew as the program proceeded. At the end of the year, the SOMA held more than 30 percent of the outstanding supply of more than half of the 176 individual Treasury securities eligible for purchase under the MEP. Holdings of forty-five securities were above the 47.5 percent ownership level, including eight securities for which holdings reached the maximum limit of 70 percent of outstanding supply (Chart 5). Most of the securities for which the purchase limit had been reached were thirty-year bonds with less than ten years remaining to maturity. Of the individual securities in which it held less than 30 percent of the outstanding stock, the SOMA's average market share was 11 percent.

The accumulation of positions in certain securities over others can in part be attributed to characteristics associated with each individual security, such as the tradable supply or liquidity. Under the MEP, "seasoned" Treasury securities—that is, securities that

were issued well into the past—initially accounted for the majority of the offers accepted by the Desk in its purchase operations. However, the share of purchases of more recently issued securities began to grow—particularly for securities in the six-to-eight-year and eight-to-ten-year maturity sectors—as the SOMA's holdings of the eligible supply of Treasury securities increased (Chart 6). Nevertheless, the most recently issued securities (known as "on-the-run"), which frequently carry a liquidity premium, continued to represent a relatively small share of purchases.

Chart 5
SOMA'S SHARE OF INDIVIDUAL TREASURY SECURITIES

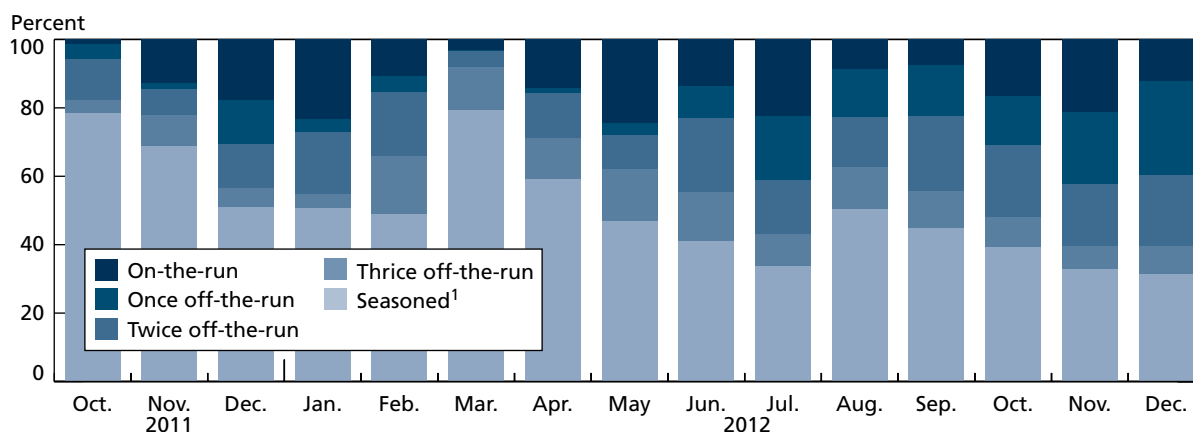


Source: Federal Reserve Bank of New York.

Note: Figures are as of year-end.

DOMESTIC OPEN MARKET OPERATIONS DURING 2012

Chart 6
AMOUNT ACCEPTED IN MEP PURCHASE OPERATIONS BY SEASONING



Source: Federal Reserve Bank of New York.

Note: Figures are monthly.

¹More than three times off-the-run.

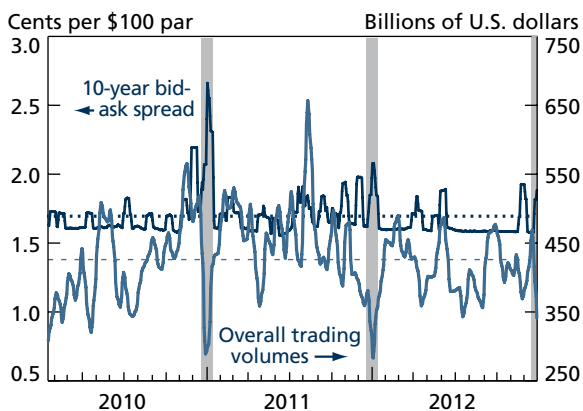
MARKET FUNCTIONING AND SECURITIES LENDING

Anecdotal reports and common metrics of market liquidity suggested that MEP operations did not have significant adverse effects on the market functioning or liquidity of Treasury securities. Bid-ask spreads and trading volumes remained within historical ranges throughout the year (Chart 7). Moreover, in special collateral repo markets, the overnight repo rate for most specific issues traded within several basis points of the Treasury general collateral (GC) repo rate throughout the year, suggesting that increased SOMA holdings of Treasury securities did not contribute to supply-and-demand imbalances in specific issues.¹³ Consistent with a small number of securities trading with heightened scarcity value, the level of Treasury market settlement fails remained near all-time lows. The four-week moving average of total gross weekly fails in the Treasury market was around \$60 billion in 2012.

Furthermore, there was relatively muted demand in the Desk's own specific collateral securities lending operations, which promote the smooth clearing of Treasury securities by providing a secondary

and temporary source of securities to the financing market.¹⁴ The program offers specific securities for loan from the SOMA portfolio in accordance with specified terms and conditions.¹⁵ Securities loans are awarded to primary dealers for a fee, based on

Chart 7
TREASURY MARKET LIQUIDITY MEASURES



Sources: BrokerTec; Federal Reserve Bank of New York.

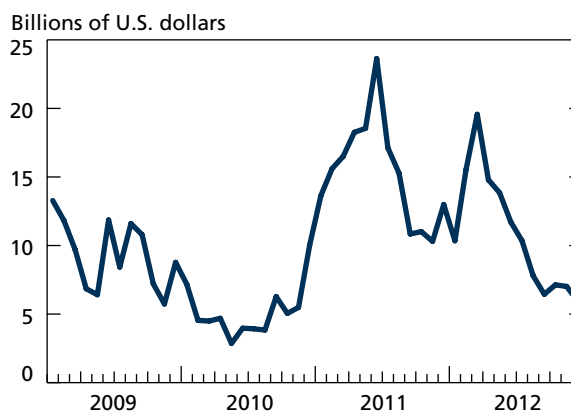
Notes: Ten-day moving average of on-the-run 10-year Treasury bid-ask spread. Two-week moving average of primary dealer Treasury transaction volume. Dotted lines represent average levels since 2010. Shaded areas represent periods around year-ends.

competitive bidding in an auction held each business day at noon. All securities loans are margined and collateralized with Treasury securities, so there is no effect on reserve balances.

Securities loans from the SOMA portfolio are made on an overnight basis. On January 24, the FOMC amended the Authorization for Domestic Open Market Operations to accommodate loans for longer than “overnight” lending periods, when there may be a mismatch between Federal Reserve and market holidays or working conventions (Appendix 1). This new authority was used twice during the year, first on April 5, in line with market convention around Good Friday, and then on October 29, when the Securities Industry and Financial Markets Association (SIFMA) recommended a full market closure in the wake of Superstorm Sandy.¹⁶ Other program terms and conditions were unchanged in 2012.

On average, primary dealers borrowed \$11 billion in Treasury securities from the SOMA portfolio per day in 2012, within the range of securities lending volume seen in recent years (Chart 8). Securities lending volume was elevated in the first quarter, as dealers increased their net short positions of intermediate-dated securities following a sharp rise in Treasury yields associated with better-than-expected economic data. As the year progressed, however, lending volumes declined steadily to reach their lowest levels in about two years. The decline primarily reflected the small number of securities trading with heightened scarcity value in specific-issue financing markets throughout the year. The low and stable level of yields reportedly diminished shorting activity by market participants, which in turn reduced the need for dealers to borrow specific issues in the market or from the SOMA. On the margin, a decline in the SOMA’s holdings of shorter-dated and on-the-run securities, resulting from MEP-related security sales and a halt in reinvestments of maturing Treasury holdings into

Chart 8
SOMA SECURITIES LENDING IN TREASURIES



Source: Federal Reserve Bank of New York.

Note: Figures are monthly averages.

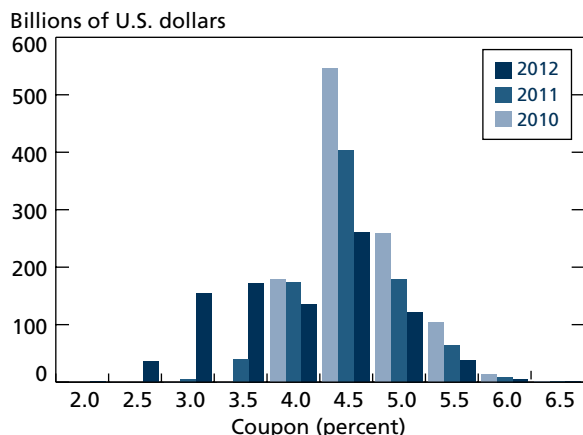
new offerings, also contributed to the reduction in SOMA securities lending volumes.

Agency Mortgage-Backed Securities HOLDINGS AND COMPOSITION

The level of the SOMA’s agency MBS holdings increased by \$165 billion in 2012, to a total face value of \$1.0 trillion as of year-end, driven predominantly by the FOMC’s decision on September 13 to provide additional policy accommodation through purchases of more agency MBS at a pace of \$40 billion per month.¹⁷ Throughout the year, the Desk’s ongoing reinvestment of principal payments from agency debt and agency MBS in agency MBS—a policy the Committee began in September 2011—also contributed to the rise in agency MBS holdings.

Like purchases of Treasury securities, agency MBS purchases remove duration risk in the market. These purchases also remove prepayment risk—the risk associated with uncertainty around the timing of principal cash flows owing to the fact that homeowners can prepay their mortgages at any time. The removal of a considerable amount of these risks through the SOMA’s purchases of agency MBS should, all else equal, lower

Chart 9
COUPON DISTRIBUTION OF SOMA AGENCY
MBS HOLDINGS



Source: Federal Reserve Bank of New York.

Note: Figures are year-end for 2011 and 2012, and August 31, 2010.

MBS rates by lowering risk premiums, thereby helping to reduce primary mortgage rates, stimulate demand for housing, and promote increased refinancing activity.¹⁸ Indeed, policy actions supported historically low mortgage rates, which contributed to a pickup in refinancing activity and new issuance of agency MBS.

Additional purchases and reinvestments had the effect of shifting the distribution of agency MBS

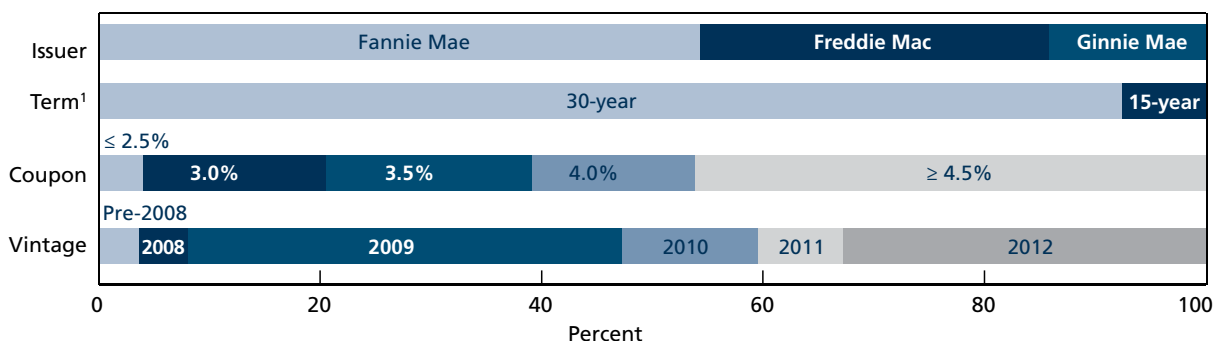
holdings into lower-coupon, longer-duration securities in 2012 (Chart 9). This occurred because the Desk's purchases were concentrated in newly issued securities, which had lower coupons and exhibited longer durations than those purchased during the first large-scale asset purchase program (LSAP). Meanwhile, principal payments on agency MBS holdings were most significant in higher coupons, which reduced the amount of these holdings.

As of year-end, agency MBS holdings were mostly in thirty-year securities, and holdings were across the three agency issuers: Fannie Mae, Freddie Mac, and Ginnie Mae (Chart 10). As the Desk purchased newly issued agency MBS, the concentration of its holdings in 3.5 percent coupons or lower rose to approximately 40 percent of the agency MBS portfolio. Similarly, securities issued in 2011 and 2012 rose to approximately 40 percent of holdings by the end of 2012. In total, at the end of 2012 the SOMA held 19 percent of outstanding fixed-rate agency MBS, up slightly from the 18 percent it held at the start of the year.

PURCHASES AND PRINCIPAL PAYMENTS

The Desk purchased fixed-rate agency MBS guaranteed by Fannie Mae, Freddie Mac, and Ginnie

Chart 10
DISTRIBUTION OF SOMA AGENCY MBS HOLDINGS



Source: Federal Reserve Bank of New York.

Notes: As of December 31, 2012. Total of \$927 billion, settled holdings only.

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

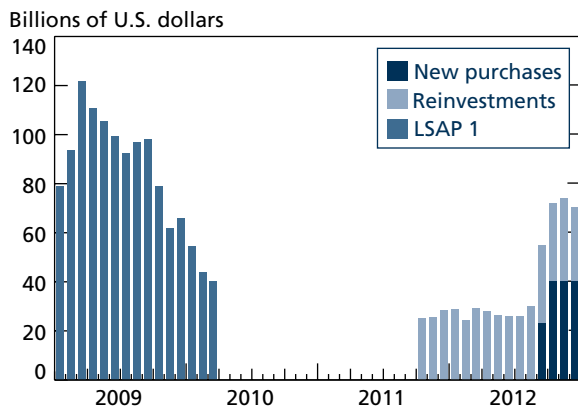
Mae.¹⁹ Purchases were concentrated in newly issued securities and conducted in the “to-be-announced” (TBA) market. In a TBA trade, the buyer and seller of MBS agree on a price and a set of basic characteristics (such as the coupon rate, issuer, and face value of the transaction) for the securities that will be delivered at a specified date in the future, but they do not specify which particular securities will be delivered until two days before delivery is made. This trading convention enables a heterogeneous market consisting of thousands of different MBS backed by millions of individual mortgages to be reduced, for trading purposes, to only a few highly liquid, standardized contracts—important characteristics for implementing large-scale purchases.²⁰ The Desk operates in the TBA market because of this liquidity and because yields on these securities are closely linked to the primary mortgage rate.

The Desk purchased a total of \$489 billion in agency MBS in 2012. Seventy-one percent, or \$346 billion, of these purchases were conducted in accordance with reinvestments, while the remaining 29 percent, or \$143 billion, were conducted as part of the new purchase program an-

nounced in mid-September (Chart 11).²¹ Purchases were concentrated in thirty-year securities with coupons of 3.0 percent and 3.5 percent, which constituted the bulk of new agency MBS issuance in 2012 (Table 4).

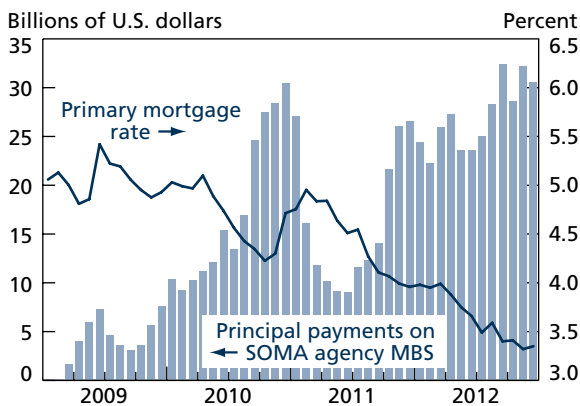
The average monthly pace of principal payments on agency MBS in the SOMA portfolio accelerated to \$27 billion in 2012, compared with \$16 billion in 2011, as mortgage rates edged to historic lows (Chart 12). These proceeds were reinvested in new agency MBS. The SOMA’s agency MBS portfolio has paid down at a faster rate than the broader agency MBS market has, in part reflecting the concentration of SOMA holdings in MBS that were issued in 2009 and 2010, which tended to exhibit faster prepayment rates than the broader market did. The U.S. government’s Home Affordable Refinance Program (HARP) contributed to some principal payments in 2012. However, on net, the SOMA’s portfolio is less sensitive than the broader market is to HARP-related prepayments because much of the SOMA’s holdings are backed by loans originated after the program’s eligibility cutoff date.

Chart 11
SOMA AGENCY MBS PURCHASES



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

Chart 12
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.

DOMESTIC OPEN MARKET OPERATIONS DURING 2012

Table 4
AGENCY MBS OPERATIONS IN 2012

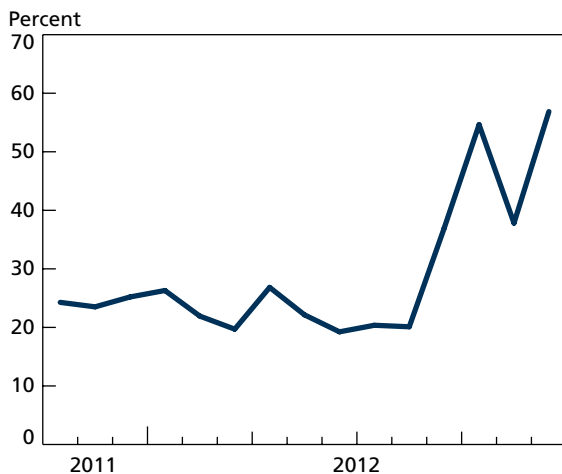
Term	SOMA Purchases (Billions of U.S. Dollars)	Issuance ¹ (Billions of U.S. Dollars)	SOMA Purchases as Share of Issuance (Percent)
30-year	416	1,202	35
15-year	74	287	26
Agency			
Fannie Mae	268	801	33
Freddie Mac	130	421	31
Ginnie Mae	92	379	24
Coupon			
≤ 2.5%	58	180	32
3.0%	219	483	45
3.5%	181	683	26
4.0%	32	218	14
≥ 4.5%	0	36	0

Sources: Federal Reserve Bank of New York; eMBS.

Note: Figures may be rounded.

¹Gross issuance of fixed-rate agency MBS in 2012. Issuance figures by term exclude 10-, 20-, and 40-year agency MBS; 10- and 20-year agency MBS may be delivered into 15- and 30-year TBA contracts, respectively.

Chart 13
SOMA AGENCY MBS PURCHASES AS SHARE
OF GROSS FIXED-RATE ISSUANCE



Source: Federal Reserve Bank of New York, based on eMBS data.

Note: Figures are monthly.

From January through September, the Desk's purchases accounted for 24 percent of the gross issuance of fixed-rate agency MBS (Chart 13). That share rose sharply following the start of new purchases of agency MBS in mid-September, with the Desk purchasing roughly half of the gross issuance in October through December.

OPERATIONAL APPROACH

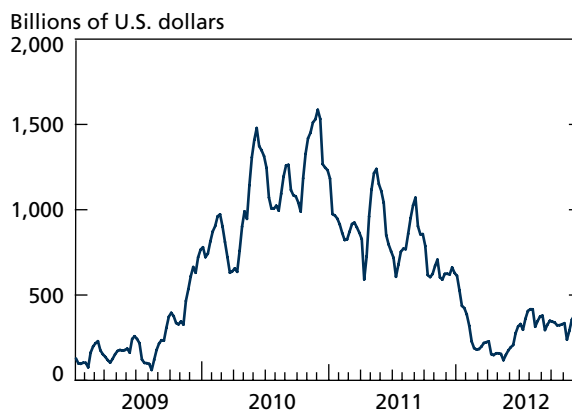
The Desk conducted purchases of agency MBS according to the operating policies it released soon after the FOMC announced programs affecting agency MBS operations.²² These communications provided an overview of the planned operational approach and information on purchases that market participants would receive about the operations.

On or around the eighth business day of each month, the Desk announced its planned amount of purchases associated with the reinvestment of principal payments from agency debt and agency MBS expected to be received between the middle 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 additional agency MBS purchase program. On a weekly basis, the Desk published a summary of its operational activity, broken down by agency, coupon rate, and term, and settled agency MBS holdings at an individual security level. More detailed transaction information, including price, trade amount, agency, coupon, term, and settlement date, was published on a monthly basis.²³

In conducting agency MBS operations, the Desk transacted with primary dealers in the secondary market. Purchases were executed through a competitive process via an electronic trading platform.²⁴ Because the platform limits the number of counterparties that can participate in each transaction, the Desk solicited offers from primary dealers on a rotating basis. Agency MBS purchase operations were smaller and more frequent than Treasury purchase and sale operations, which were conducted over a proprietary system that allows all primary dealers to participate in every operation. In total, the Desk conducted approximately 3,100 agency MBS transactions in 2012.²⁵

All agency MBS purchases were conducted in the TBA market for settlement up to three months after the trade date. 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 New York Fed requires primary dealers that are parties to unsettled agency MBS trades with it to post daily variation margin if the New York Fed's replacement cost exceeds the value of collateral

Chart 14
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.

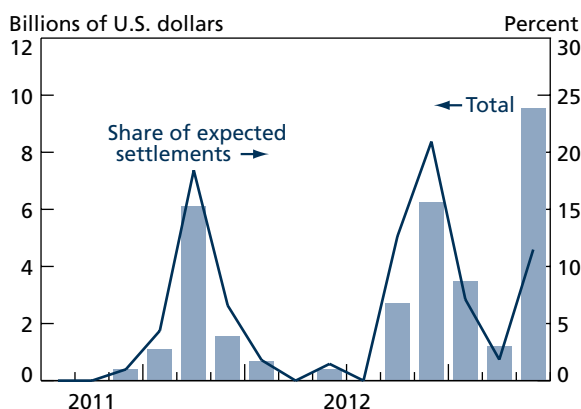
already posted.²⁶ Additionally, the primary dealers post initial margin based on the net traded amount of all unsettled agency MBS trades.

MARKET FUNCTIONING AND DOLLAR ROLLS

Common metrics of market functioning suggested that the Desk's MBS purchase operations did not have any significant adverse effects on the MBS market in 2012. Trading volumes remained near longer-term averages, while settlement fails in the agency MBS market declined to, and then remained near, multiyear lows, indicating there were few large-scale scarcity issues in settling trades (Chart 14). The decline in settlement fails is likely attributable in large part to the introduction of a charge on fails that went into effect on February 1, which provided an economic incentive to deliver securities in a timely fashion.²⁷

The Desk engaged in dollar roll transactions, as necessary, to facilitate the settlement of its unsettled MBS purchases.²⁸ Dollar rolls were typically conducted only if implied financing rates on agency MBS were notably below or above the general level

Chart 15
SOMA DOLLAR ROLL SALES



Source: Federal Reserve Bank of New York.

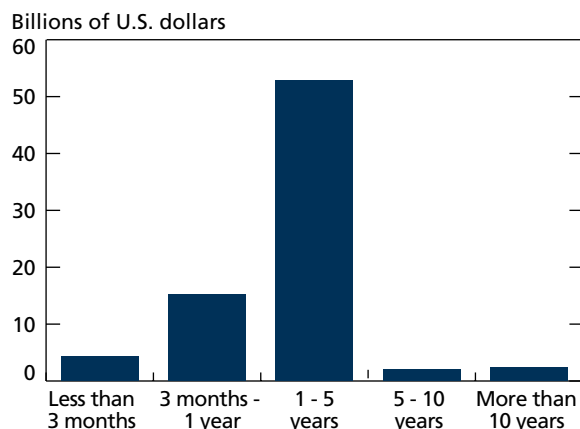
Note: Figures are monthly by settlement month.

of short-term interest rates, as such conditions likely signaled a shortage or abundance of supply, respectively, available for settlement. Dollar roll sales represented an average of roughly 7 percent of the Desk’s expected agency MBS settlements over 2012 (Chart 15). The share of expected settlements that were effectively postponed to a later date through dollar rolls increased somewhat at the end of the year, given the large increase in expected settlements associated with the additional purchases of agency MBS. The Desk’s dollar roll activity also increased from time to time prior to the additional purchase program, largely as a result of supply-and-demand dynamics that affected the scarcity of certain agency MBS, most notably in the Fannie Mae 3.5 percent coupon.

Agency Debt

In 2012, the Desk did not purchase or sell any agency debt—direct obligations of the housing-related government-sponsored enterprises (GSEs) Fannie Mae, Freddie Mac, and the Federal Home Loan Banks. Roughly \$27 billion of agency debt holdings in the SOMA matured in 2012, reducing total holdings to \$77 billion at the end of the year. Proceeds from

Chart 16
MATURITY DISTRIBUTION OF SOMA AGENCY DEBT HOLDINGS



Source: Federal Reserve Bank of New York.

Note: As of December 31, 2012.

the maturing principal payments were reinvested in agency MBS throughout the year. Of the remaining agency debt holdings as of the end of 2012, all but approximately \$4 billion were in securities with less than five years left to maturity (Chart 16).

Agency debt securities in the SOMA were added to the Desk’s securities lending program in 2009. Daily average lending volumes of agency debt securities were \$0.7 billion in 2012, relatively unchanged from levels seen in 2011.

Portfolio Characteristics

COMPOSITION

The par size of the SOMA portfolio remained unchanged at \$2.6 trillion for most of the year, as the Desk implemented the MEP and continued to reinvest maturing agency proceeds into agency MBS. Following the September FOMC meeting, the portfolio began to increase in size as a result of additional purchases of agency MBS, resulting in a slightly heavier concentration of agency MBS. By the end of the year, the share of the domestic securities portfolio held in agency MBS and agency debt had risen

from 37 percent to 40 percent, with a commensurate decline in the share of Treasury securities.

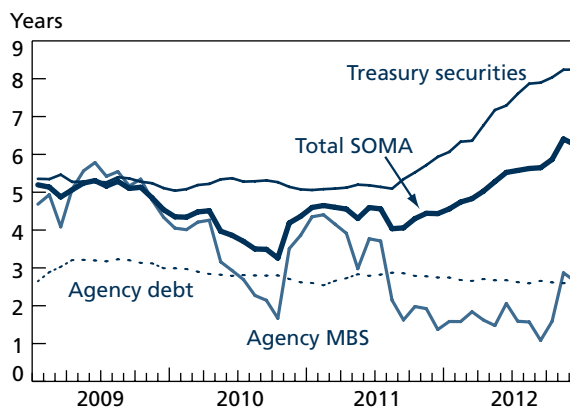
MATURITY STRUCTURE

Policy actions affecting Treasury and agency MBS holdings in 2012 contributed to a lengthening of the maturity structure of the SOMA. Implementation of the MEP continued an ongoing shift in the composition of the portfolio toward longer-term securities. The weighted average maturity of the SOMA Treasury portfolio increased from 7.0 years at the end of 2011 to 10.4 years at the end of 2012.

Meanwhile, the weighted average life of SOMA agency MBS holdings—that is, the weighted average time to receive principal payments on the underlying mortgages—increased from approximately 2.4 years to about 3.3 years in 2012.²⁹ Underlying this increase were two countervailing effects. On the one hand, interest rates moved lower during 2012, which increased borrowers' incentives to refinance their mortgages and, as a result, shortened the expected timing of the receipt of principal cash flows on agency MBS. On the other hand, the composition of the agency MBS portfolio changed over the year, as principal prepayments on higher-coupon securities were reinvested and new out-right purchases of agency MBS were made in lower coupons. These lower-coupon agency MBS are less likely to prepay in the future, which tended to increase the weighted average life of those securities. This change in the composition of the portfolio outweighed the effect of lower interest rates and drove the weighted average life of the SOMA's MBS portfolio higher, on net, over the year.

The weighted average maturity of Treasury securities and weighted average life of agency MBS are related to the securities' duration, which measures the sensitivity of the price of a security to changes in interest rates.³⁰ Duration is generally greater for

Chart 17
AVERAGE DURATION OF SOMA HOLDINGS



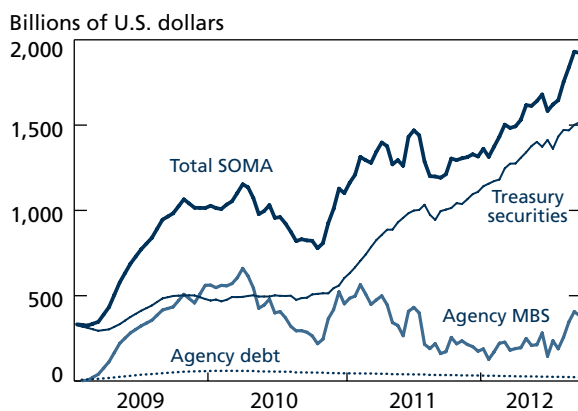
Source: Federal Reserve Bank of New York.

Note: Figures are monthly.

longer-maturity and lower-coupon securities. During 2012, the duration of the total SOMA portfolio rose from about 4.5 years to slightly more than 6 years, primarily as a result of an increase in the duration of the portfolio's Treasury holdings (Chart 17). During the asset purchase programs conducted in 2009 and 2010, the duration of the Treasury portfolio remained roughly stable, at around five years, before increasing sharply to around eight years over the course of implementation of the MEP. Meanwhile, the duration of the SOMA MBS portfolio has fluctuated since 2009, primarily as a result of interest rate movements and, more recently, changes in the composition of the portfolio.³¹ After lingering near recent lows for much of 2012, the duration of the SOMA MBS portfolio rose in the fourth quarter of 2012 from less than 2 years to around 2.5 years by the end of the year.

As noted earlier, removal of interest rate risk from the market is one channel through which the Federal Reserve's asset purchases are intended to help ease financial conditions. To assess the total amount of duration risk associated with the SOMA's portfolio shift, it is useful to consider a dollar-weighted duration measure, such as "ten-year

Chart 18
SOMA PORTFOLIO IN TEN-YEAR EQUIVALENTS



Source: Federal Reserve Bank of New York.

Note: Figures are semi-monthly.

equivalents,” which suggests the amount of ten-year Treasury notes that an investor would have to buy to be exposed to the same amount of duration risk contained in the portfolio (Chart 18). Although the size of the SOMA’s Treasury portfolio was unchanged by the MEP, the steady increase in the average duration of those holdings resulted in a continued rise in the portfolio’s ten-year-equivalent measure, from about \$1.0 trillion at the start of the MEP in October 2011 to \$1.5 trillion by the end of 2012. This metric suggests that the MEP would have a similar market effect if the Federal Reserve had purchased \$500 billion of ten-year Treasury notes.

The agency MBS portfolio was relatively steady in ten-year-equivalent terms over the course of 2012, when only reinvestments were taking place, with the level of agency MBS holdings experiencing only slow growth due to reinvestments from agency debt securities and the portfolio’s duration fluctuating in a relatively narrow range. However, the commencement of new purchases of agency MBS in September 2012 prompted a sharp rise in the agency MBS portfolio’s ten-year-equivalent measure, attributable to growth in the portfolio’s size as well as to the aforementioned increase in its duration.

SOMA INCOME AND FEDERAL RESERVE REMITTANCES

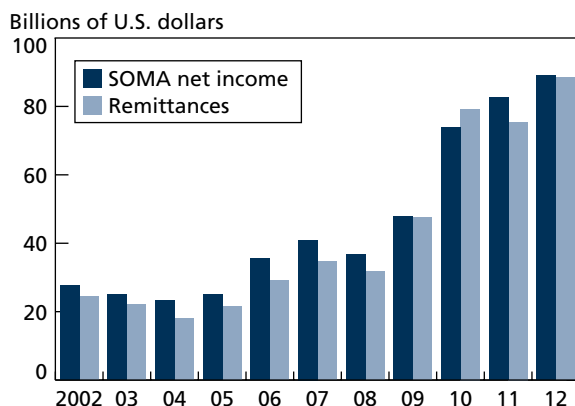
Changes in the size and composition of the SOMA portfolio were intended to promote the Committee’s mandate from Congress to foster maximum employment and price stability, not to produce a financial return. Nevertheless, as has been the case in recent years, the large size of the portfolio, increased concentration of holdings in longer-term securities, and low interest rate paid on reserve liabilities continued to generate significant income and large remittances to the Treasury. In 2012, total SOMA income was \$93.1 billion, derived primarily from \$80.5 billion of interest income from its domestic securities holdings and \$13.3 billion in net capital gains from MEP sales of Treasury securities originally acquired in a higher interest rate environment. Taking into account the \$4.0 billion of interest paid on reserve balance liabilities that have grown with the expansion of the SOMA portfolio since the financial crisis, SOMA net income increased to \$89.1 billion, a record high.³²

Primarily as a result of net income from the SOMA domestic portfolio, Federal Reserve remittances to the Treasury were \$88.4 billion in 2012, up from \$75.4 billion in 2011 and significantly higher than the average annual level of about \$25 billion observed over the ten years prior to the financial crisis (Chart 19).³³ On a cumulative basis, remittances from 2008 to 2012 totaled \$322.2 billion, about \$200 billion higher than the cumulative amount suggested by the average pre-crisis pace, arising from portfolio income associated with policy measures taken in response to the crisis and to strengthen the recovery following it.

INCOME PROJECTIONS

By design, the policy actions taken by the FOMC move some of the risks previously borne by private investors onto the Federal Reserve’s balance sheet, through the SOMA portfolio. As such, as the stance of monetary policy is eventually normalized

Chart 19
SOMA NET INCOME AND FEDERAL RESERVE
REMITTANCES TO TREASURY



Source: Federal Reserve Bank of New York.

and interest rates rise in keeping with the evolving economic outlook, SOMA net income is likely to decline from its unusually high levels and may dip below pre-crisis averages for a period. Even so, average levels of income over the policy cycle are expected to be higher than historical 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, including the evolution of short- and long-term interest rates and changes in the size and composition of the portfolio. A projection exercise, using publicly available economic and policy forecasts and announced FOMC policy principles, can be used to illustrate the sensitivity of the portfolio's income profile to changes in some of these factors.³⁴

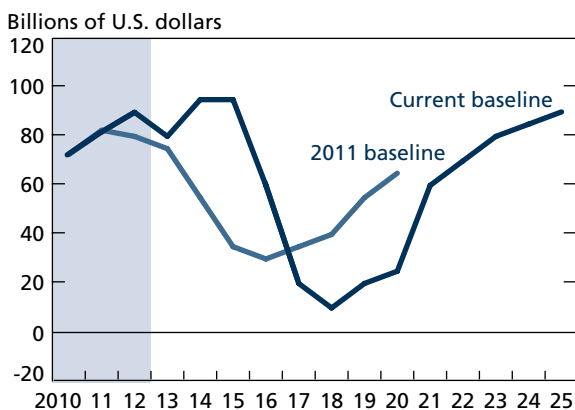
In the baseline analysis that follows, the assumed path of the target federal funds rate was drawn from the Desk's "Survey of Primary Dealers." The survey, conducted just after the December 2012 FOMC meeting, indicates median dealer expectations for the federal funds target rate to begin to rise from its current range in the third quarter of 2015 and eventually to reach a level of 4 percent over the long run.³⁵ Longer-term interest rates were

assumed to follow consensus expectations reported in the December 2012 "Blue Chip Financial Forecast Survey," which has the ten-year Treasury yield rising gradually to almost 5 percent by the end of 2018.³⁶

The evolution of the portfolio started with actual holdings as of December 31, 2012, plus assumptions about new asset purchases drawn from the Desk's "Survey of Primary Dealers." Survey results suggested a median implied path for the SOMA portfolio, with roughly \$1.1 trillion in additional asset purchases starting in 2013 comprising \$480 billion of agency MBS purchased at a pace of \$40 billion per month through December 2013 and \$630 billion of Treasury securities purchased at a pace of \$45 billion per month through February 2014. The portfolio was then assumed to evolve according to the exit principles articulated in the minutes of the FOMC's June 2011 meeting. For the purpose of these projections, portfolio normalization steps were assumed to begin with the redemption of all maturing SOMA holdings two quarters prior to the first increase in the federal funds target rate. Agency MBS sales were assumed to begin two quarters after the first increase in the federal funds target rate and to proceed at a steady pace over five years.³⁷

Based on these assumptions, the size of the SOMA portfolio is projected to grow from its year-end 2012 level, reaching a peak of about \$3.9 trillion in early 2014. Portfolio balances would remain unchanged through early 2015, before declining steadily for more than four years through a combination of redemptions and asset sales during the normalization period. The portfolio reaches a normalized size in mid-2019, based on an assumption that reserve balances return to near pre-crisis levels. At that point, purchases of Treasury securities resume, offsetting continued agency MBS sales and supporting normal balance sheet growth. By 2021, agency MBS sales would be complete and the portfolio would return to a nearly all-Treasury composition.³⁸

Chart 20
PROJECTED SOMA NET INCOME: BASELINE

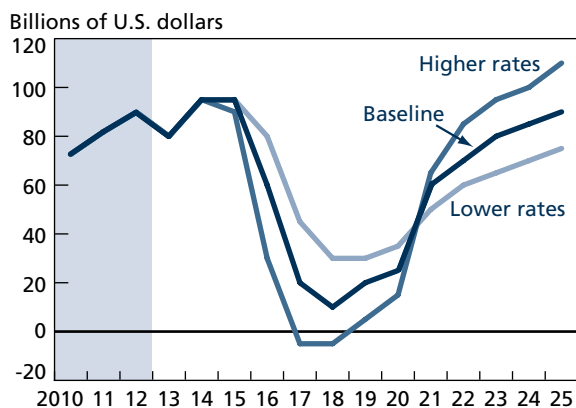


Source: Federal Reserve Bank of New York.

Notes: The shaded area indicates realized returns for the current baseline. Projected figures are rounded.

Under these assumptions, 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 20). 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 \$10 billion in 2018. The declines are driven by several factors. First, rising interest rates would require higher interest payments on excess reserve balances. Although the weight of this interest expense would diminish over time as reserves shrink with declines in the size of the portfolio, interest income would also decline as the size of the portfolio returned to lower levels. In addition, sales of agency MBS securities, which would occur in a higher interest rate environment, would be expected to generate realized losses that further reduce income. As the size of the portfolio normalizes and purchases of Treasury securities resume with higher coupon rates, SOMA net income is projected to recover within several years of this trough.

Chart 21
PROJECTED SOMA NET INCOME:
ALTERNATIVE INTEREST RATE PATHS



Source: Federal Reserve Bank of New York.

Notes: The shaded area indicates realized returns. Projected figures are rounded. Higher- and lower-rate scenarios use interest rates plus/minus 100 basis points versus the baseline.

Compared with baseline projections from the “Report on Domestic Open Market Operations during 2011,” greater swings in SOMA net income are projected to accompany the larger and longer-duration portfolio resulting from the policy actions undertaken in 2012.³⁹ Changes in the projected path of interest rates between the two scenarios, including the timing of exit from policy accommodation, also affect the shift. Specifically, the larger and growing portfolio of domestic securities, as well as a longer agency MBS reinvestment period, is anticipated to generate more income in the near term. However, income is expected to fall more sharply and to trough at a lower level than previously forecast because of larger funding costs associated with the expanded portfolio and greater realized capital losses from asset sales.

To demonstrate the sensitivity of the projections to alternative interest rate paths, profiles for SOMA net income were also projected under higher- and lower-interest-rate scenarios (Chart 21).⁴⁰ With either interest rate path, SOMA net income is projected to follow the same general contour as in

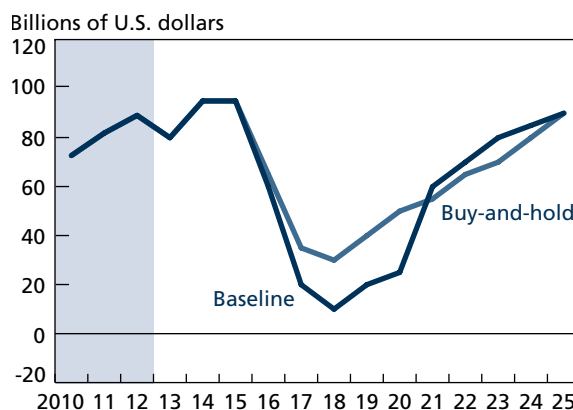
the baseline analysis, albeit with significant differences in the magnitude of the moves. The higher-rate scenario sees a sharp reduction in the SOMA's projected net income through the normalization period, falling to a slightly negative level, because of both higher interest expense and larger realized capital losses on asset sales. After normalization, however, SOMA net income is projected to be higher than it is in the baseline because higher-yielding Treasury securities are purchased in a future steady state. In contrast, a lower-rate scenario sees a more muted decline during the normalization period, to a trough of about \$30 billion, but a subsequent recovery to a lower level of SOMA net income relative to the baseline scenario.

Another way of examining the interest rate sensitivity of the portfolio is to look at the path of SOMA net income under a hypothetical "buy-and-hold" strategy. Making projections using the June 2011 exit principles as a baseline requires a number of assumptions about the pricing, relative to book value, of agency MBS that would be sold in the five-year sales window. Not selling agency MBS would avoid realizing capital losses but would result in higher interest expense from the additional reserve balances relative to the baseline. In this hypothetical scenario, holding all else constant, SOMA net income would trough at about \$30 billion, higher than in the baseline, and over the projection horizon average SOMA net income would also be higher relative to the baseline (Chart 22).

Ultimately, remittances to the U.S. Treasury will depend on other Federal Reserve income, expenses, and transfers. In general, though, lower levels of SOMA net income suggest a greater likelihood of zero or near-zero remittances to the Treasury for a time.

These are, of course, merely illustrative projections. Actual future income will be influenced by

Chart 22
PROJECTED SOMA NET INCOME:
"BUY-AND-HOLD" PORTFOLIO STRATEGY



Source: Federal Reserve Bank of New York.

Notes: The shaded area indicates realized returns. Projected figures are rounded.

the ultimate size of the asset purchase program, which in turn will depend on the evolution of the economy and the FOMC's evaluation of the efficacy and costs of such actions, as well as other balance sheet, interest rate, and economic developments. Overall, though, it is important to reiterate that the high income that has been generated by the SOMA portfolio in recent years has arisen from the unprecedented actions taken by the FOMC to promote its statutory dual mandate in the face of an exceptional financial crisis and subsequent slow economic recovery. Annual SOMA net income is likely to decline noticeably as the outlook for the economy and monetary policy normalizes. On a cumulative basis, net income earned from the Federal Reserve's balance sheet policies is likely to remain quite high over the projection period, with SOMA net income likely to exceed pre-crisis levels, even in a higher-interest-rate scenario. Moreover, a temporary reduction in income, which could 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.

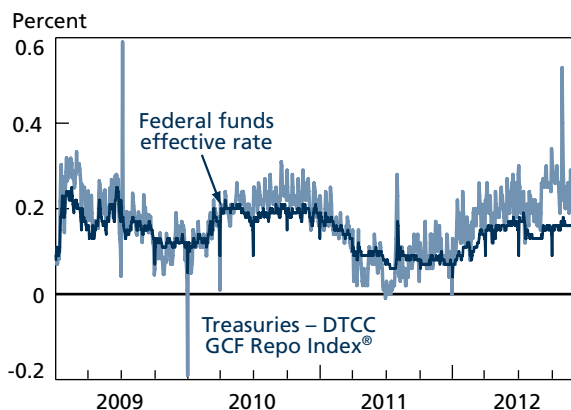
TEMPORARY OPERATIONS AND OVERNIGHT FUNDING MARKETS

During 2012, the FOMC maintained its target for the federal funds rate in a range of 0 to ¼ percent and made important modifications to its communications by indicating how long this stance was likely to prevail in the future. In September, the Committee pushed back the time at least to mid-2015, from late 2014, until which it anticipated economic conditions were likely to warrant exceptionally low levels for the federal funds rate. It also stated that it expected that a highly accommodative stance of monetary policy would remain appropriate for a considerable time after the economic recovery strengthens. Then in December, the FOMC replaced its date-based guidance for removing policy accommodation with guidance based on economic thresholds that policymakers viewed at that time as consistent with the prior, mid-2015 timeframe.⁴¹

Throughout 2012, the high level of reserve balances and the ¼ percent interest rate paid on excess reserves (IOER) kept the federal funds effective rate (FFER) within its target range without a need to conduct any open market operations. In general, elevated reserve balances and interest payments on reserves since 2008 have contributed to changes in the operating environment that have left the federal funds rate less sensitive to movements in the level of reserve balances than it had been in the pre-crisis years.

For example, banks, which are eligible to receive interest on reserves, have generally been able to earn a higher return by holding excess balances at Federal Reserve Banks, compared with lending in overnight markets. Meanwhile, institutions that have accounts at the Federal Reserve but are ineligible to earn interest on reserves, such as GSEs, have had an incentive to sell excess balances in the federal funds market, typically at rates below the IOER rate but still representing a better alternative to leaving funds unremunerated at the Federal Reserve. Buy-

Chart 23
OVERNIGHT MONEY MARKET RATES



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

Note: Figures are daily.

ers of federal funds were typically depository institutions that can make a risk-free arbitrage spread between the rate they paid for federal funds and the IOER rate they earned from holding balances at the Federal Reserve. Since April 2011, the inclusion of reserve balances within the insurance fee assessment calculation for Federal Deposit Insurance Corporation (FDIC) deposit insurance has reduced the attractiveness to domestic banks of purchasing federal funds with the intent of earning IOER. Foreign banks, however, were not affected, as they are not covered by FDIC insurance. In light of these dynamics, trading volume in the federal funds market continued to decline from already historically low levels.

Daily trading volatility in the federal funds market was in line with recent norms, while the FFER gradually increased from a low of 0.07 percent early in the year to a high of 0.19 percent in the middle of the year, pulled higher by upward pressure in other overnight funding markets (Chart 23). Overnight rates in the repo markets used by securities dealers to finance GC Treasury holdings moved higher in 2012, from an average of 0.10 percent over 2011 to an average of 0.21 percent over

2012.⁴² The upward pressure arose at least in part from a growing accumulation of Treasury positions on dealer balance sheets requiring financing due to increases in Treasury issuance and the SOMA's sales of shorter-term Treasury securities through the MEP.

OPERATIONAL FLEXIBILITY AND READINESS

Reserve Management Exercises

Although the Desk did not actively manage reserves in 2012, it maintained its readiness to conduct a range of operations in short-term funding markets in order to meet potential future policy needs. A June 19 amendment to the FOMC's Authorization for Domestic Open Market Operations granted the Desk the operational flexibility to undertake certain open market operations—including the outright purchase and sale of securities as well as repurchase agreements operations (repos) and reverse repurchase agreement operations (reverse repos)—in small value for the purpose of testing operational readiness (Appendix 1).⁴³ In addition, preparations continued for the development of tools that could be used in an eventual reduction in reserves, including the possible use of reverse repos and the Term Deposit Facility (TDF).

Reverse repos allow the Desk to withdraw reserves by temporarily selling securities from the SOMA portfolio under an agreement to repurchase the securities in the future. Since late 2009, the New York Fed has been taking steps to expand the group of reverse repo counterparties beyond the primary dealers in order to prepare for the potential need to conduct large-scale reserve draining operations (Appendix 4). In April, the New York Fed added eight more bank counterparties, bringing the total number of reverse repo counterparties—spanning money funds, banks, GSEs, and primary dealers—to 128.⁴⁴ In order to ensure operational readiness,

the Desk conducted a series of small-value reverse repo operations in March, September, and November. These operations involved the expanded set of counterparties and all three types of SOMA collateral, and had maturities ranging from overnight to eight days. The largest outstanding amount of reverse repos was \$3.3 billion.

The TDF, created in April 2010, offers fixed quantities of term deposits to depository institutions on specified dates through competitive auctions (with a noncompetitive tender option for smaller bidders). Any institution eligible to receive interest on reserve balances maintained at a Federal Reserve Bank can participate in TDF auctions with the approval of its Reserve Bank. As of the end of 2012, almost 600 depository institutions, collectively holding roughly 60 percent of total excess reserve balances at Federal Reserve Banks, had signed up for the TDF. To ensure operational readiness and to provide eligible institutions with an opportunity to gain familiarity with TDF procedures, the Federal Reserve arranged six small-value auctions of term deposits in 2012, all for \$3 billion and with a term of twenty-eight days.⁴⁵

Additionally, in August the Desk conducted two small-value repo operations. Repos allow the Desk to add reserves by temporarily buying securities eligible in open market operations under an agreement to resell those securities in the future. Repos are conducted only with primary dealer counterparties. The exercises were the first repos to be conducted since December 2008. Since that time, there have been several updates to the proprietary trading system over which these transactions are arranged, changes to support tri-party reform, and the designation of six new primary dealers. The larger of the two operations awarded a maximum of \$600 million across all three types of collateral eligible for open market operations with a three-day maturity.

The conduct of small-value operations across repo, reverse repo, and TDFs provides opportunities for the counterparties, clearing banks, and the New York Fed to jointly exercise their capabilities and identify and resolve potential execution and settlement issues before such tools are employed on a larger scale.

Superstorm Sandy

The Desk's operational flexibility and emergency response were demonstrated when Superstorm Sandy hit the greater New York area in late October. Many market participants, including some primary dealers and federal funds brokers, experienced power outages and flooding of facilities, forcing some to relocate to contingency sites.

Drawing on a range of business resiliency plans and staffing arrangements and responding to shifting conditions in the market, the New York Fed remained open and the Desk was able to successfully

carry out its operations throughout the storm and its aftermath. Treasury and agency MBS purchase operations were postponed on Tuesday, October 30, after SIFMA recommended a full market closure; the settlement of Treasury securities and securities lending transactions originally scheduled for that day were therefore postponed by one day. Open market and securities lending operations and settlements resumed as scheduled on Wednesday, October 31.⁴⁶

On Monday, October 29, the federal funds brokers informed their customers that they would be closed on October 30. As a result, the FFER for October 29 included a volume-weighted average of overnight and two-day trades, rather than only overnight trades as per the normal definition. The FFER for October 29 was subsequently revised, from 18 basis points to 17 basis points, as additional broker data were provided. On October 30, as planned, the Desk published the same two-day FFER as the October 29 value.

THE SUPPLY OF RESERVES

Reserve balance liabilities were relatively stable at historically elevated levels in 2012. Although actions that use the Federal Reserve's balance sheet to provide monetary policy accommodation continued, the policies in place for the majority of the year, including the MEP and agency MBS reinvestments, were effectively reserve-neutral. Increases to reserve balances stemming from asset purchases later in 2012 were offset by movements in other assets and liabilities, resulting in a relatively constant level of reserve balances for the year. Notably, nearly all of the lending activity associated with the high levels of reserves initially seen during the global financial crisis has since unwound, including the full retirement in 2012 of the last remaining debts owed to the New York Fed from the crisis-era interventions associated with Bear Stearns and AIG.

RESERVE BALANCES

Biweekly average reserve balances came down slightly from their peak in 2011, but remained at historically elevated levels of around \$1.6 trillion in 2012, ranging from \$1.5 trillion to \$1.7 trillion (Chart 24). After trending lower through the first half of the year due to the growth of reserve-draining autonomous factors, primarily Federal Reserve notes, reserve balances resumed growth in October as settlements associated with additional purchases of agency MBS commenced. Most reserve balances in 2012 were in the form of excess reserves, which ranged from \$1.4 trillion to \$1.6 trillion in 2012.⁴⁷

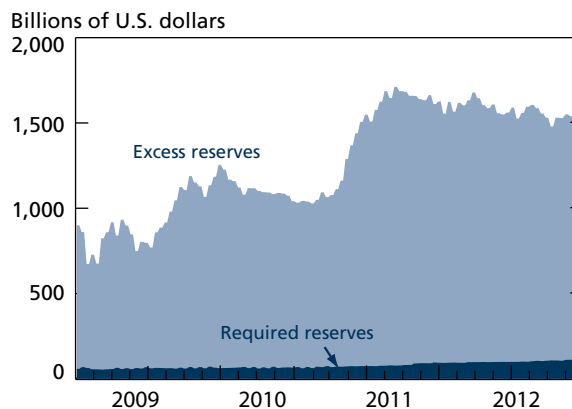
Required reserves increased from \$94 billion to \$108 billion over the course of the year, due to

strong transaction deposit growth. Throughout the year, non-interest-bearing transaction deposits were covered by the FDIC's Transaction Account Guarantee (TAG) program, which expired at the end of 2012. During the fifty-one months that TAG was in effect, transaction deposits more than doubled, to nearly \$1.0 trillion. Despite strong trend growth, however, required reserves remained small when compared with excess reserves.

AUTONOMOUS FACTORS

Reserve balances are affected by a number of factors outside the direct influence of Federal Reserve policymakers or the Desk's operations; these elements are referred to as "autonomous factors." Historically, the ability to forecast accurately the net value of all autonomous factors over short time ho-

Chart 24
RESERVE BALANCES



Source: Board of Governors of the Federal Reserve System.

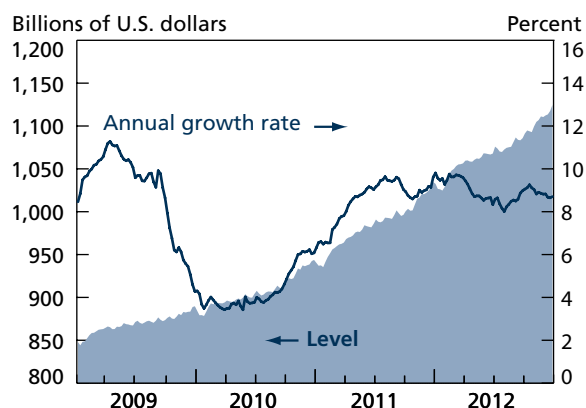
Note: Figures are biweekly.

rizons was crucial for operating procedures that required maintenance of the supply of reserves within a relatively narrow band to control the federal funds rate. In 2012 as in recent years, such control was less critical, owing to the introduction of interest on excess reserves, a practice that has changed the operating environment for monetary policy.

Federal Reserve Notes

Federal Reserve notes, whose growth reduces the level of reserve balances, remain by far the largest single autonomous factor. Federal Reserve notes outstanding increased by \$90 billion in 2012, to a year-end level of \$1.1 trillion, representing an annual growth rate of slightly less than 9 percent (Chart 25). Although this pace of currency growth is slightly slower than the 10 percent pace seen in 2011, it nonetheless exceeded the 6 percent annual average growth rate for the most recent ten-year period, reflecting strong demand for U.S. currency abroad amid heightened global economic and financial uncertainty.

Chart 25
FEDERAL RESERVE NOTES OUTSTANDING



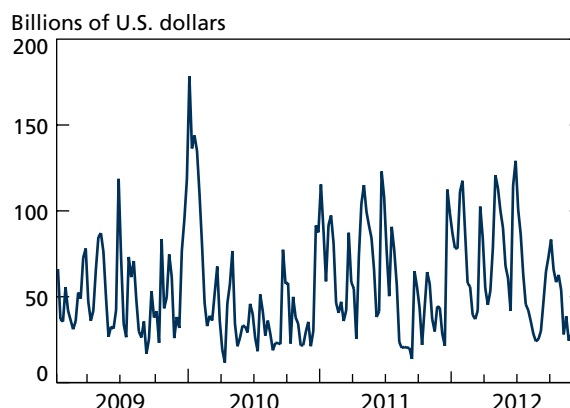
Source: Board of Governors of the Federal Reserve System.
Note: Figures are weekly, net of holdings of Federal Reserve Banks.

Treasury Balances

Although they are smaller in size than Federal Reserve notes, 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 switched from targeting a fixed level of cash balances at the Federal Reserve and investing the excess in various short-term programs and instead began keeping almost all of its funds at the Federal Reserve because of the very low rates of return available on alternative investments.

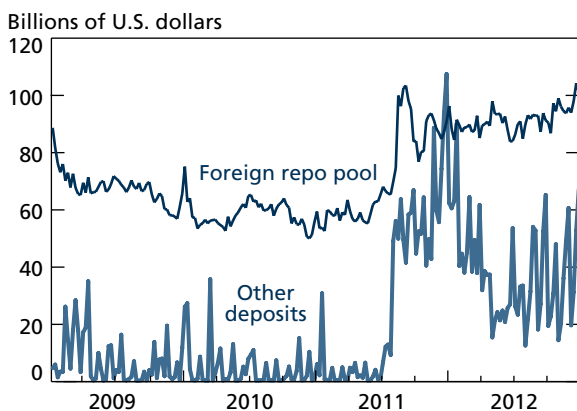
Throughout 2012, as in the previous three years, the Treasury made no use of its short-term investment tools, including the term investment option, reverse repurchase investments, or administrative direct placements. As a result, the Treasury General Account (TGA) at the Federal Reserve absorbed all 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 26). Weekly average Treasury balances ranged from \$24 billion to \$129 billion throughout 2012 and ended the year

Chart 26
TREASURY GENERAL ACCOUNT



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

Chart 27
SELECT AUTONOMOUS FACTORS



Source: Board of Governors of the Federal Reserve System.

Note: Figures are weekly averages.

at around \$56 billion, which was somewhat lower than the \$98 billion average level held at the Federal Reserve during the last full week of 2011.⁴⁸

Other Autonomous Factors

Fluctuations in several other autonomous factor liabilities influenced the level of reserve balances during 2012, marginally reducing reserve balances on average (Chart 27). The foreign repo pool, which comprises overnight reverse repos between the New York Fed and foreign official and international accounts, grew by \$10 billion on an average weekly basis over the year to \$92 billion in late December, and deposits held by foreign official entities increased by \$2 billion to an average daily size of \$3 billion. Additionally, the "Other Deposits" category of liabilities rose on a weekly average basis from \$28 billion to \$38 billion, reflecting increases in balances held at the Federal Reserve by GSEs.⁴⁹

ADDITIONAL FEDERAL RESERVE ACTIVITY AFFECTING RESERVES

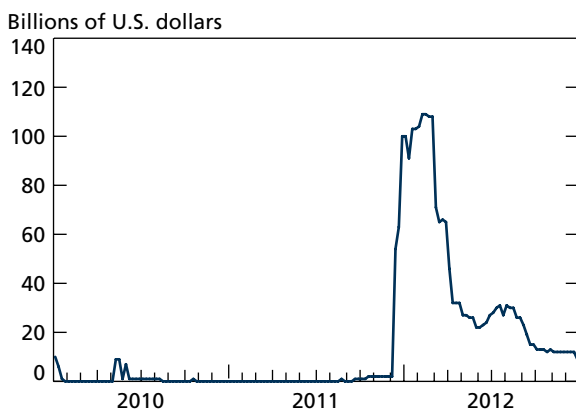
While open market operations remain a significant tool for implementing monetary policy, other liquidity and credit programs operated by the Federal Reserve have served to relieve pressures in reserve markets and, during the global financial crisis, financial markets more broadly. Activity in such facilities represents an additional type of autonomous factor that affects reserve balances.

Primary Credit Facility

The Primary Credit Facility (PCF) 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.⁵⁰

The borrowing rate for primary credit loans remained at 75 basis points throughout 2012, 50 basis points above the top end of the target range for the federal funds rate. Borrowing activity remained relatively low throughout the year, with the loan balance in the facility averaging \$22 million per day System-wide in 2012, consistent with levels observed prior to the financial crisis. The daily loan balance peaked at \$314 million in 2012, down from a high of \$900 million in 2011. An elevated level of excess reserves held by depository institutions, together with improved conditions in funding markets since the financial crisis, has reduced the demand by banks to borrow from the discount window.

Chart 28
CENTRAL BANK LIQUIDITY SWAPS OUTSTANDING



Source: Federal Reserve Bank of New York.

Note: Figures are weekly.

Central Bank Liquidity Swaps

Central bank liquidity swaps are designed to improve liquidity 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, Bank of Japan, European Central Bank, and Swiss National Bank. In addition, since November 2011, the Federal Reserve has maintained (but not used) foreign currency swap lines with the same institutions. On December 13, 2012, the FOMC announced the extension of both the dollar and foreign currency swap lines by one year, to February 1, 2014.⁵¹

Use of dollar liquidity swap lines was elevated in early 2012, but declined throughout the year (Chart

28). Total swaps outstanding peaked at \$109 billion in February amid strains in U.S. dollar short-term funding markets related to the euro-area sovereign debt and banking crisis, but dropped sharply as further actions by European policymakers boosted broader market sentiment and eased near-term liquidity stresses. Outstanding swaps totaled \$8.9 billion at year-end, almost entirely with the European Central Bank.⁵² Throughout 2012, the rate on the swap arrangements remained at the U.S. dollar overnight index swap rate for the relevant tenor plus 50 basis points.

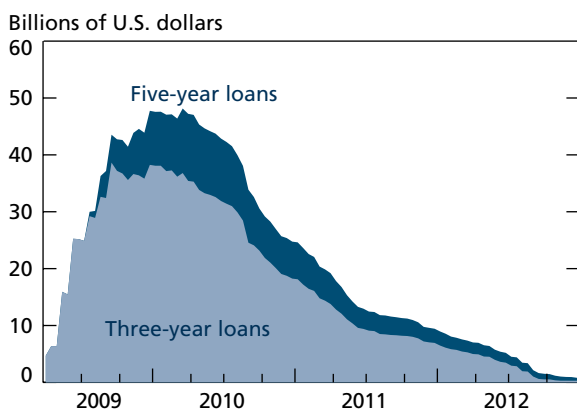
Term Asset-Backed Securities Loan Facility

The Term Asset-Backed Securities Loan Facility (TALF) was created by the Federal Reserve during the financial crisis to help markets accommodate the credit needs of consumers and businesses by encouraging the issuance of securities backed by privately originated loans and improving market conditions for asset-backed securities (ABS) more generally. The TALF, which closed to new loan extensions in June 2010, provided borrowers with three- and five-year non-recourse loans, collateralized by consumer, business, and commercial real estate ABS.⁵³

The outstanding amount of TALF loans fell from \$9.0 billion at the start of 2012 to \$0.6 billion at the end of the year (Chart 29). Nearly half of the decline was associated with proceeds from maturing collateral pledged against three-year loans, which started to come due in 2012. Voluntary prepayments of loans also continued to contribute to the decline. As of the end of 2012, all remaining TALF loans were current in payments of interest and principal and were well collateralized.

On June 28, the funding commitment provided by the Treasury under the Troubled Asset Relief Program to TALF LLC, a special purpose vehicle estab-

Chart 29
TALF LOANS OUTSTANDING



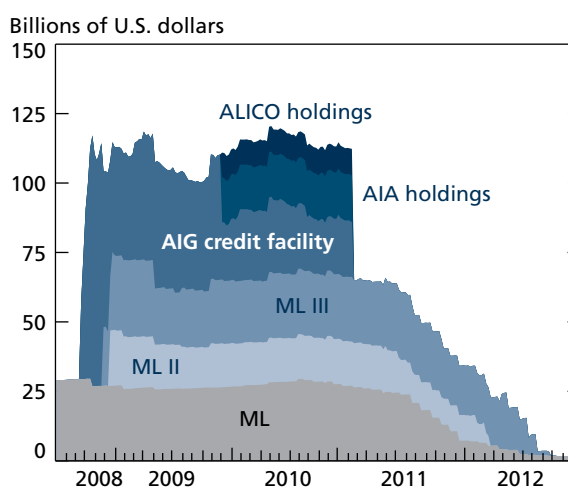
Source: Federal Reserve Bank of New York.
Note: Figures are biweekly.

lished for the purpose of purchasing TALF collateral that might be surrendered to the New York Fed, was reduced to \$1.4 billion, from \$4.3 billion.⁵⁴ By year-end, with accumulated fees collected through the TALF exceeding the amount of TALF loans outstanding, the need for the Treasury's credit protection was eliminated. The Board of Governors announced the termination of this credit protection on January 15, 2013.⁵⁵

Special Purpose Vehicles

In 2008, the New York Fed helped form and establish an interest in three limited liability companies (LLCs) through loans to facilitate the acquisition of Bear Stearns Companies Inc. by JPMorgan Chase and the government's restructuring of American International Group, Inc.⁵⁶ In 2012, the three LLCs fully repaid the loans made by the New York Fed, including accrued interest, as well as the liabilities to JPMorgan Chase from Maiden Lane LLC and to AIG from Maiden Lane II LLC and Maiden Lane III LLC. The successful repayment of the loans marks the retirement of the last remaining debts owed

Chart 30
MAIDEN LANE LLCS AND AIG ASSISTANCE



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

to the New York Fed from the crisis-era interventions associated with Bear Stearns and AIG (Chart 30). At the end of 2012, the fair market value of assets remaining in the portfolios held by the LLCs was \$1.5 billion, compared with \$34.2 billion at the end of 2011.

MAIDEN LANE LLC

The Maiden Lane LLC continued to sell assets from its portfolio in 2012, leaving a small remaining portfolio consisting primarily of commercial real estate whole loans and credit default swaps. In accordance with the LLC's stated investment objective, proceeds from sales in conjunction with cash flow that the securities generated while held by Maiden Lane LLC enabled the final \$4.9 billion repayment of the \$29.6 billion loan extended by the New York Fed, including accrued interest. In addition, the \$1.4 billion subordinate loan to Maiden Lane LLC extended by JPMorgan Chase, including accrued interest, was repaid in full. The New York Fed will

receive 100 percent of future cash flows generated from the remaining Maiden Lane LLC assets, in accordance with the Maiden Lane LLC waterfall. The estimated fair market value of the remaining portfolio of assets as of December 30 was \$1.4 billion.⁵⁷

MAIDEN LANE II LLC AND MAIDEN LANE III LLC

All remaining securities in the Maiden Lane II LLC were sold in the first quarter of 2012. Net proceeds from the asset sales as well as from cash flow that the securities generated while held by Maiden Lane II LLC enabled the final \$6.8 billion repayment of Maiden Lane II LLC's liabilities to the New York Fed while also providing a net gain of approximately \$2.8 billion. As of December 31, a cash balance of \$61 million remained in Maiden Lane II LLC, reflecting residual receipts and reserves held to meet trailing expenses and other obligations. At the time the reserve is distributed, the New York Fed and the AIG insurance

subsidiaries will receive additional payments in accordance with the Maiden Lane II LLC waterfall.

Maiden Lane III LLC's investment objective was revised in April to allow for the sale of the assets held in the portfolio. Asset sales were completed in August with minimal market disruption. Net proceeds from the asset sales as well as from cash flow that the securities generated while held by Maiden Lane III LLC enabled the final \$9.9 billion repayment of Maiden Lane III LLC's liabilities to the New York Fed while also providing a net gain of approximately \$6.6 billion. As of December 31, a cash balance of \$22 million remained in Maiden Lane III LLC, reflecting reserves held to meet trailing expenses and other obligations. At the time the reserve is distributed, the New York Fed and AIG will receive additional payments in accordance with the Maiden Lane III LLC waterfall.

CONCLUDING OBSERVATIONS

The composition and size of the System Open Market Account portfolio continued to evolve as the portfolio was used as a tool for the implementation of accommodative monetary policy in 2012. Throughout the year, the completion of the Maturity Extension Program and ongoing reinvestments of agency debt and agency MBS in agency MBS as well as the start of additional agency MBS purchases contributed to a significant lengthening of the maturity structure of the portfolio and a shift toward lower-coupon agency MBS without significant increases in reserve balances.

These balance sheet policy actions—taken to support a stronger economic recovery and to help ensure that inflation over time is at a rate most consistent with the Federal Open Market Committee’s dual mandate—were designed to put downward pressure on longer-term interest rates by having the Federal Reserve take onto its balance sheet some of the duration and prepayment risks that would otherwise have been borne by private investors. In-

dicators of portfolio risk indeed show an increase in the interest rate sensitivity of the portfolio over 2012, even with the size of the portfolio holding relatively steady for much of the year.

The execution of these portfolio actions required the Open Market Trading Desk to conduct an intensive schedule of permanent open market operations throughout the year. In carrying out the operations, the Desk closely monitored market conditions; its activity did not have significant adverse effects on market functioning.

No temporary operations were required to maintain the federal funds rate within its target range of 0 to $\frac{1}{4}$ percent because of the elevated level of reserves that has resulted from policy actions taken in recent years and interest paid on excess reserves. Although the Desk did not actively manage reserves in 2012, it maintained its readiness to conduct a range of operations in overnight funding markets to meet future policy needs.

APPENDIX 1:

AUTHORIZATION FOR DOMESTIC OPEN MARKET OPERATIONS

On January 24, 2012, by unanimous vote, the FOMC approved the Authorization for Domestic Open Market Operations with an amendment to allow the lending of securities for more than an overnight basis to accommodate holidays and other trading conventions present in the market.

On June 19, 2012, by unanimous vote, the Authorization was further amended to include the authority to conduct small-value operations for the purposes of routine testing of operational readiness and to include the authority to conduct intraday repurchase agreement transactions with foreign and international monetary accounts to prevent daylight overdrafts in those accounts.

The following Authorization reflects all of these amendments.

AUTHORIZATION FOR DOMESTIC OPEN MARKET OPERATIONS

As amended, effective June 19, 2012

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 Mar-

ket 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 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. Any such adjustment shall be made in the context of the Committee's discussion and decision at its most recent meeting and the Committee's long-run objectives for price stability and sustainable economic growth, and shall be based on economic, financial, and monetary developments during the intermeeting period. Consistent with Committee practice, the Chairman, if feasible, will consult with the Committee before making any adjustment.

APPENDIX 2: 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 3: DOMESTIC POLICY DIRECTIVES ISSUED TO THE FEDERAL RESERVE BANK OF NEW YORK

In 2012, 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 25

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, 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 continue the maturity extension program it began in September to purchase, by the end of June 2012, Treasury securities with remaining maturities of approximately 6 years to 30 years with a total face value of \$400 billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face value of \$400 billion. The Committee also directs the Desk to maintain its existing policies of rolling over maturing Treasury securities into new issues and of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities in order to maintain the total face value of domestic securities at approximately \$2.6 trillion. The Committee directs the Desk to engage in dollar roll transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions. 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 13

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, 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 continue the maturity extension program it began in September to purchase, by the end of June 2012, Treasury securities with remaining maturities of approximately 6 years to 30 years with a total face value of \$400 billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face value of \$400 billion. The Committee also directs the Desk to maintain its existing policies of rolling over maturing Treasury securities into new issues and of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities in order to maintain the total face value of domestic securities at approximately \$2.6 trillion. The Committee directs the Desk to engage in dollar roll transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions. 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 APRIL 25

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output.

To further its long-run objectives, 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 continue the maturity extension program it began in September to purchase, by the end of June 2012, Treasury securities with remaining maturities of approximately 6 years to 30 years with a total face value of \$400 billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face value of \$400 billion. The Committee also directs the Desk to maintain its existing policies of rolling over maturing Treasury securities into new issues and of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities in order to maintain the total face value of domestic securities at approximately \$2.6 trillion. The Committee directs the Desk to engage in dollar roll transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions. 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 20

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, 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 continue the maturity extension program it began in September to purchase, by the end of June 2012, Treasury securities with remaining maturities of 6 years to 30 years with a total face value of \$400 billion, and to sell Treasury securities with remaining maturities of 3 years or less with a total face

value of \$400 billion. Following the conclusion of these purchases, the Committee directs the Desk to purchase Treasury securities with remaining maturities of 6 years to 30 years with a total face value of about \$267 billion by the end of December 2012, and to sell or redeem Treasury securities with remaining maturities of approximately 3 years or less with a total face value of about \$267 billion. For the duration of this program, the Committee directs the Desk to suspend its current policy of rolling over maturing Treasury securities into new issues. The Committee directs the Desk to maintain its existing policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities. These actions should maintain the total face value of domestic securities at approximately \$2.6 trillion. The Committee directs the Desk to engage in dollar roll transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions. 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 AUGUST 1

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, 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 continue the maturity extension program it announced in June to purchase Treasury securities with remaining maturities of 6 years to 30 years with a total face value of about \$267 billion by the end of December 2012, and to sell or redeem Treasury securities with remaining maturities of approximately 3 years

or less with a total face value of about \$267 billion. For the duration of this program, the Committee directs the Desk to suspend its current policy of rolling over maturing Treasury securities into new issues. The Committee directs the Desk to maintain its existing policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities. These actions should maintain the total face value of domestic securities at approximately \$2.6 trillion. The Committee directs the Desk to engage in dollar roll transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions. 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 13

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, 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 continue the maturity extension program it announced in June to purchase Treasury securities with remaining maturities of 6 years to 30 years with a total face value of about \$267 billion by the end of December 2012, and to sell or redeem Treasury securities with remaining maturities of approximately 3 years or less with a total face value of about \$267 billion. For the duration of this program, the Committee directs the Desk to suspend its policy of rolling over maturing Treasury securities into new issues. The Committee directs the Desk to maintain its existing policy of reinvesting principal payments on all agency debt and agency mortgage-backed securi-

ties in the System Open Market Account in agency mortgage-backed securities. The Desk is also directed to begin purchasing agency mortgage-backed securities at a pace of about \$40 billion per month. The Committee 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 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 24

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, 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 continue the maturity extension program it announced in June to purchase Treasury securities with remaining maturities of 6 years to 30 years with a total face value of about \$267 billion by the end of December 2012, and to sell or redeem Treasury securities with remaining maturities of approximately 3 years or less with a total face value of about \$267 billion. For the duration of this program, the Committee directs the Desk to suspend its policy of rolling over maturing Treasury securities into new issues. The Committee directs the Desk to maintain its existing policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities. The Desk is also directed to continue purchasing agency mortgage-backed securities at a pace of about \$40 billion per month. The Committee 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 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 12

The Federal Open Market Committee seeks monetary and financial conditions that will foster price stability and promote sustainable growth in output. To further its long-run objectives, 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 complete the maturity extension program it announced in June to purchase Treasury securities with remaining maturities of 6 years to 30 years with a total face value of about \$267 billion by the end of December 2012, and to sell or redeem Treasury securities with remaining maturities of approximately 3 years or less with a total face value of about \$267 bil-

lion. Following the completion of this program, the Committee directs the Desk to resume its policy of rolling over maturing Treasury securities into new issues. From the beginning of January, the Desk is directed to purchase longer-term Treasury securities at a pace of about \$45 billion per month. The Committee directs the Desk to maintain its existing policy of reinvesting principal payments on all agency debt and agency mortgage-backed securities in the System Open Market Account in agency mortgage-backed securities. The Desk is also directed to continue purchasing agency mortgage-backed securities at a pace of about \$40 billion per month. The Committee 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 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 4: 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 2012, there were two counterparty roles for the conduct of domestic open market operations.

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.⁵⁸ These include business standards, which define the expectations of primary dealers in carrying out their responsibility as counterparties, includ-

ing 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, 2012, there were twenty-one primary dealers. There were no changes to the list of primary dealers in 2012.⁵⁹

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.

As of December 31, 2012, there were 107 reverse repo expanded counterparties—16 banks, 2 government-sponsored enterprises, and 89 money funds (representing 26 fund families)—and the 21 primary dealers, bringing the total number of reverse repo counterparties to 128.⁶⁰

ENDNOTES

¹Activities affecting foreign reserves held in the SOMA are reported separately. See www.newyorkfed.org/markets/quar_reports.html.

²Unless 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 mortgages). In its weekly statistical release on the balance sheet, the Federal Reserve reports SOMA securities holdings at face value and reports any unamortized premiums or discounts separately. For financial statement reporting purposes, SOMA securities holdings are reported at amortized cost. Gains and losses resulting from sales of securities are determined by specific issue based on average cost.

³Duration is discussed further in the “Portfolio Characteristics” section of this report.

⁴For more information on the channels through which the Federal Reserve’s asset purchase programs are believed to work, see Canlin Li and Min Wei, “Term Structure Modeling 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-Jørgensen, “The Effects of Quantitative Easing on Interest Rates: Channels and Implications for Policy,” *Brookings Papers on Economic Activity*, no. 2, fall 2011; 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.

⁵As of December 31, 2012, there was \$11.0 trillion (excluding intragovernmental holdings) of outstanding marketable bills, notes, bonds, and

Treasury inflation-protected securities (TIPS) issued by the U.S. Treasury, up from \$9.9 trillion at the end of 2011.

⁶Purchase and sale operations were conducted in minimum transaction sizes of \$1 million, while redemptions of maturing Treasury securities included all maturing holdings, often in amounts that were not an even multiple of \$1 million. This resulted in a net \$18,000 difference between the total amount of securities purchased and the total amount of securities sold and redeemed.

⁷Redeeming securities has a nearly identical effect as selling securities that are approaching maturity. For operational simplicity, securities that were scheduled to mature before the end of the year, when the MEP was scheduled to end, were instead redeemed without reinvestment during the second installment of the program.

⁸Bids at Treasury auctions were placed as noncompetitive tenders and were treated as add-ons to announced auction sizes.

⁹See www.newyorkfed.org/markets/opolicy/operating_policy_110921.html and www.newyorkfed.org/markets/opolicy/operating_policy_120620.html.

¹⁰In 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—and discount window advances are published quarterly, approximately two years after the transaction was 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 www.federalreserve.gov/newsevents/reform_quarterly_transaction.htm.

¹¹The Desk also did not purchase STRIPS or securities trading in the when-issued market.

¹²Bids in sales operations were not evaluated based on measures of relative value since nearly all eligible holdings would be sold or allowed to mature without reinvestment by the end of the program.

¹³A special collateral repo transaction is a repo in which the provider of funds designates a specific security as the only eligible form of collateral. If the specific security is in high demand and there is limited supply in the market, owners of that security may be incentivized to lend it at a rate below the Treasury general collateral rate.

¹⁴The New York Fed also lends agency debt securities held in the SOMA. This activity is discussed in the “Agency Debt” section of this report.

¹⁵See www.newyorkfed.org/markets/securitieslending.html.

¹⁶See www.newyorkfed.org/markets/st032912.html and www.newyorkfed.org/markets/opolicy/operating_policy_121029.html.

¹⁷These totals include unsettled commitments of \$112 billion as of year-end associated with forward-settling purchase transactions. The SOMA’s settled agency MBS holdings increased by \$89 billion over 2012, resulting in a year-end level of \$927 billion.

¹⁸See endnote 4, in addition to 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 www.newyorkfed.org/newsevents/speeches/2013/pot130301.html and www.newyorkfed.org/newsevents/speeches/2009/sac091202.html.

¹⁹Only fixed-rate agency MBS securities guaranteed by these entities are eligible for purchase. Eligible assets include, but are not limited to, thirty- and fifteen-year securities of the issuers. CMOs, REMICs, Trust IOs/Trust POs, and other mortgage derivatives or cash equivalents were excluded under the reinvestment and additional purchase programs.

²⁰See 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.

²¹New purchases of \$40 billion per month of agency MBS began on September 14—the day following the announcement—and were prorated to \$23 billion for the remainder of September. Purchases from October through December were conducted at the full pace of \$40 billion per month. The difference between the \$165 billion increase in the size of the agency MBS portfolio in 2012 and the \$143 billion in new purchases primarily reflects the reinvestment of proceeds from maturing agency debt securities in agency MBS. However, since reinvestment purchases are conducted on a mid-month to mid-month basis, holdings of agency MBS may vary modestly because of timing differences between maturity and principal payment dates and reinvestment purchase dates.

²²See www.newyorkfed.org/markets/opolicy/operating_policy_110921.html and www.newyorkfed.org/markets/opolicy/operating_policy_120913.html.

²³See www.newyorkfed.org/markets/ambms/.

²⁴The Desk used TradeWeb, a commercial trading platform, for all operations. Settlement services were provided by Wellington Management. JPMorgan Chase provided custodial and administrative support.

²⁵This includes both outright purchases and dollar roll transactions.

²⁶The 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, as these forward transactions expose it to counterparty risk if the market value (replacement cost) is below the purchase price.

²⁷The charge for MBS settlement fails directs MBS market participants to charge the greater of 0 percent or 2 percent less the federal funds target rate for any securities not delivered within two days of the contractual settlement date. This charge was announced by the Treasury Market Practices Group on June 28, 2011. See www.newyorkfed.org/tmpg/pr070611.pdf.

²⁸Dollar rolls are transactions in which MBS for delivery on one date are sold (or purchased) with a simultaneous agreement to purchase (or sell) substantially similar securities on a specified future date. Dollar roll sales effectively postpone settlement, while dollar roll purchases effectively bring settlement forward.

²⁹Weighted average life incorporates an assumption about the prepayment behavior of the underlying mortgages in the agency MBS portfolio. This prepayment assumption is subject to considerable uncertainty.

³⁰Measures of duration vary among different types of 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 in the yield curve, but it takes into account the fact that cash flows vary as interest rates change due to the embedded option in MBS. Effective duration, by itself, is still 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. Duration estimates have been rounded to avoid conveying a false sense of precision.

³¹The effective duration numbers cited in this report are computed by BlackRock Solutions, which provides to the New York Fed daily analysis of the SOMA agency MBS portfolio. Note that effective duration estimates are subject to frequent model changes, and those changes can cause significant variations in duration estimates.

³²SOMA 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, and noninterest sources of income), any realized capital gains or losses, and foreign currency translation gains or losses; it is reduced by 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 www.federalreserve.gov/newsevents/press/other/20130315a.htm.

³³Remittances to the Treasury are generated by net SOMA income as well as by proceeds from other Federal Reserve accounts (such as the limited liability companies created in response to the financial crisis), and reflect all Federal Reserve earnings in excess of those needed for operating costs, dividends, and capital maintenance.

³⁴See also 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, in which the authors describe the Federal Reserve's balance sheet and income statement and present a thorough framework for projecting Federal Reserve assets and liabilities and income over time. The authors seek to estimate the effects on total Federal Reserve income of scenarios with zero, \$500 billion, and \$1.0 trillion of additional asset purchases in 2013, as well as with higher and lower paths for interest rates. A similar methodology is used for the projections in this report. The results for their \$1.0 trillion scenario are roughly in line with the results presented here, although different underlying assumptions about the interest rate path, the parameters of the purchase program, and other model characteristics lead to some deviations. These differences highlight the high degree of sensitivity of projection results to underlying assumptions and model uncertainty in this exercise.

³⁵See www.newyorkfed.org/markets/survey/2012/December_result.pdf.

³⁶*Blue Chip Financial Forecasts* 31, no. 12, December 1, 2012.

³⁷The exit strategy principles from the June 2011 FOMC minutes indicated the order of policy actions, but not the time between each step. In this exercise, policies are implemented stepwise at two-quarter intervals. In addition, those principles did not specify what the steady-state level of reserve balances will be under a future monetary policy framework. For simplicity, this exercise assumes that reserve balances return to their pre-crisis levels.

³⁸A small amount of agency debt holdings would remain in the portfolio beyond 2020.

³⁹See www.newyorkfed.org/markets/omo/omo2011.pdf.

⁴⁰The higher-rate scenario assumed that all interest rates were 1 percentage point (100 basis points) higher than the rates used in the baseline scenario. The shock was phased in over two quarters, beginning in the third quarter of 2015 when the federal funds target rate is assumed to rise above its current level. The lower-rate scenario assumed that all interest rates rose to levels 1 percentage point (100 basis points) lower than those used in the baseline scenario, with the shock phased in over four quarters starting in the third quarter of 2015, and a smoothing of the path in a strictly increasing or steady fashion. In both cases, all other assumptions, including changes in the size and composition of the SOMA portfolio, were held constant.

⁴¹Specifically, the FOMC advised that it anticipated that the 0 to ¼ percent range for the federal funds rate would be appropriate for 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 half a percentage point above the FOMC's 2 percent longer-run goal, and longer-term inflation expectations continued to be well anchored. See www.federalreserve.gov/newsevents/press/monetary/20121212a.htm.

⁴²As measured by the General Collateral Finance (GCF) Treasury Repo Index, a weighted average of the interest rates paid each day on GCF repurchase agreements for Treasury securities, calculated by the Depository Trust and Clearing Corporation.

⁴³Small-value reverse repo exercises had previously been approved through a 2009 resolution.

⁴⁴For announcements regarding expanded counterparties for reverse repos, see www.newyorkfed.org/markets/expanded_counterparties.html.

⁴⁵Operations under the TDF are authorized by the Board of Governors, and staff at the Board of Governors and at the Federal Reserve Bank of St. Louis have operational responsibility. For information about TDF arrangements, including the operation announcement and results, see www.federalreserve.gov/monetarypolicy/tdf.htm.

⁴⁶See www.newyorkfed.org/markets/opolicy/operating_policy_121029.html.

⁴⁷Excess reserves are balances in the banking system in excess of balances needed to meet reserve requirements. Prior to July 12, 2012, required balances included contractual clearing balances, which were eliminated as part of the reserves-simplification initiative announced by the Board of Governors on October 11, 2011.

⁴⁸The 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.

⁴⁹"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 the GSEs, which use their accounts to receive and make payments, including receipts from issuing debt and payments 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 is

matched by a reduction in reserve deposits held at the Federal Reserve by depository institutions.

⁵⁰Two other standing, short-term discount window lending programs not discussed in this section are the secondary credit and seasonal credit programs. The spread between the secondary credit and primary credit rates was maintained at 50 basis points throughout the year, and secondary credit borrowing activity was low. For more information about discount window programs, see www.frbdiscountwindow.org.

⁵¹See www.federalreserve.gov/newsevents/press/monetary/20121213a.htm.

⁵²The Bank of Japan had \$1 million in swaps outstanding at the end of the year. The Swiss National Bank used its swap line during 2012, but no swaps were outstanding at year-end. The Bank of England and Bank of Canada did not draw on their swap lines in 2012. For more information about swap operations, see www.newyorkfed.org/markets/fxswap/fxswap.cfm.

⁵³For more background on the structure of the TALF and its operations, see www.newyorkfed.org/markets/talf.html.

⁵⁴See www.federalreserve.gov/newsevents/press/monetary/20120628a.htm.

⁵⁵See www.federalreserve.gov/newsevents/press/monetary/20130115b.htm.

⁵⁶More detail on the three Maiden Lane facilities described in this section, including facility structure, transaction history, and financial information, is available at www.newyorkfed.org/markets/maidenlane.html. More detail on other activities associated with financial assistance to AIG is available at www.newyorkfed.org/aboutthefed/aig/index.html.

⁵⁷In this section, fair market values for the end of 2012 reflect prices as of September 30 applied to portfolio holdings as of December 30.

⁵⁸Information 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 www.newyorkfed.org/markets/pridealers_policies.html and www.newyorkfed.org/markets/pridealers_faq_100111.html.

⁵⁹See www.newyorkfed.org/markets/pridealers_current.html.

⁶⁰See www.newyorkfed.org/markets/expanded_counterparties.html.

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