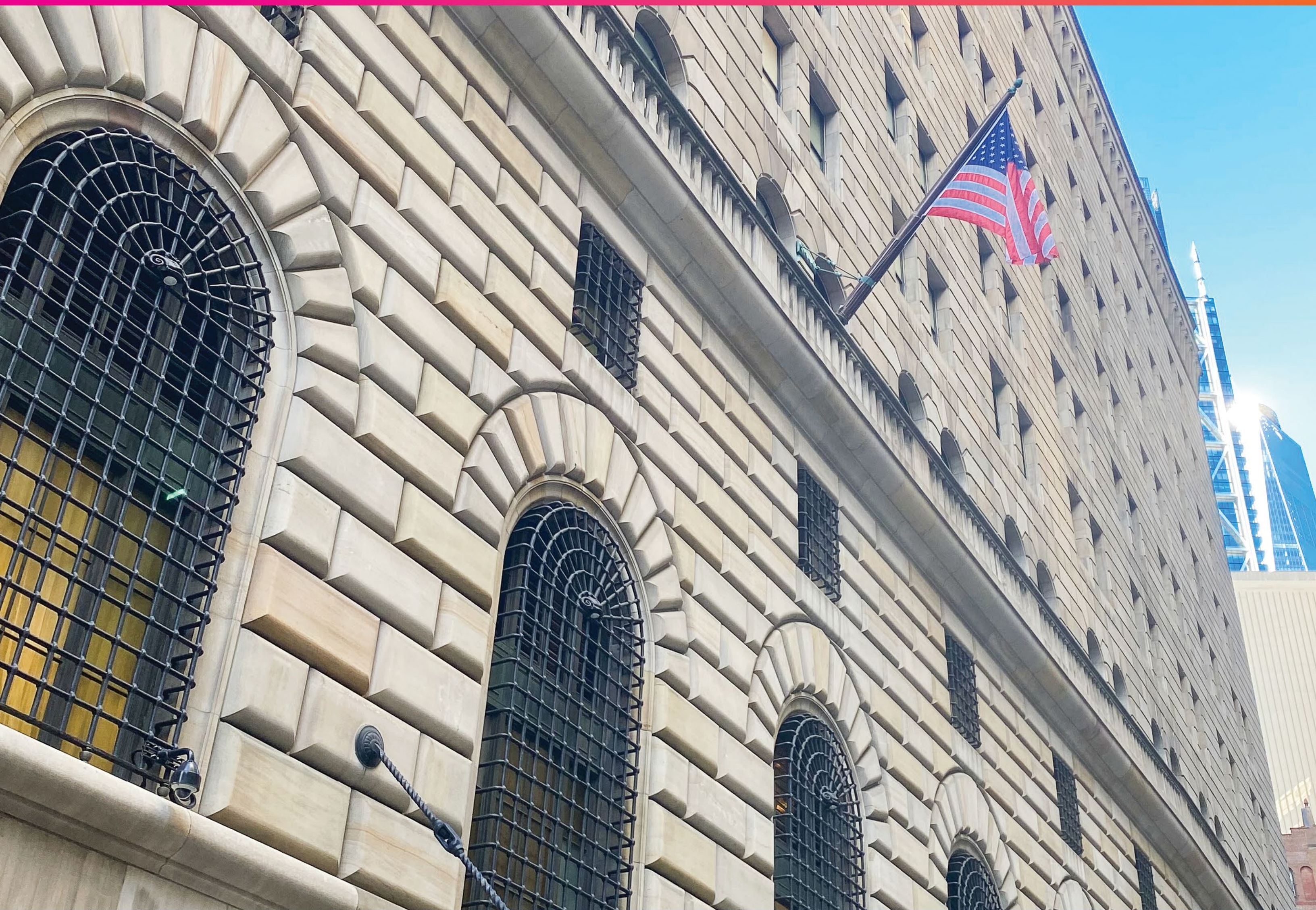
OPEN MARKET OPERATIONS

DURING 2023



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

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This report, presented to the Federal Open Market Committee by Roberto Perli, Manager of the System Open Market Account, describes open market operations of the Federal Reserve System for the calendar year 2023. This report also describes the Federal Reserve emergency credit and liquidity facilities. Christian Cabanilla, Jonathan Berk, Luke Corbett, Kathryn Chen, Dayna Goodwin, Gabriel Herman, Radhika Mithal, Linsey Molloy, and Julie Remache were primarily responsible for preparation of the report.

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OVERVIEW

KEY DEVELOPMENTS IN 2023

During 2023, inflation eased substantially but remained above the Federal Open Market Committee's longer-run target, while labor market conditions remained strong. The Federal Open Market Committee (FOMC or Committee) increased the target range for the federal funds rate during 2023 at a slower pace than it had the prior year—raising the target range at four meetings from 4 ¼ to 4 ½ percent at the beginning of the year to 5 ¼ to 5 ½ percent by the July meeting, where it remained through year-end. The Federal Reserve's monetary policy implementation framework continued to be effective, with the effective federal funds rate (EFFR) remaining well within the target range during the year.

The System Open Market Account (SOMA) portfolio continued to decrease during 2023 in accordance with the Committee's Plans for Reducing the Size of the Federal Reserve's Balance Sheet.[1] This SOMA portfolio runoff drove a decline in Federal Reserve assets during the year of $733.8 billion, with total assets reaching a level of $7.84 trillion at year-end. Total assets as a share of nominal GDP fell to 28 percent in 2023, compared to 32 percent in 2022.

The Federal Reserve provided a range of credit extensions in early 2023 that modestly offset the overall decline in total assets. In March, depositors withdrew funds at an unprecedented pace from several U.S. banks, resulting in acute liquidity strains at these institutions.[2] The spillovers caused by these funding strains threatened to trigger a broader disruption, and the Federal Reserve acted to contain strains in the wider provision of credit, including by introducing the Bank Term Funding Program (BTFP) with the approval of the Treasury Secretary.[3] At its height, the total credit provision related to the March banking stress, including BTFP and discount window advances, reached about $344 billion; by the end of 2023 these credit extensions stood at about $140 billion.

The composition of Federal Reserve liabilities continued to shift during 2023, with non-reserve liabilities decreasing by more than the overall balance sheet, resulting in a material increase in reserve balances. The Treasury General Account (TGA) saw large changes in its level during 2023 due to the impact of debt limit constraints—decreasing to a low of around $20 billion in early June before returning to more typical levels of $750 billion on average during the fourth quarter of 2023.[4] In addition, overnight reverse repurchase facility (ON RRP) balances decreased from an average level of $2.18 trillion in December 2022 to an average of $807.7 billion in December 2023, as money market funds (MMFs) reallocated investments toward more attractive alternatives such as U.S. Treasury bills and private repurchase (repo) agreements. (For details on ON RRP dynamics in 2023, see Box 2, "Decreases in the ON RRP and Investment Reallocation during 2023.") The significant decline in the ON RRP facility usage was a key factor that led reserves to increase, despite the ongoing reduction in the Federal Reserve's balance sheet. Reserve balances averaged $3.49 trillion in December 2023 and reached a year-end level of $3.13 trillion, an increase of $449.9 billion from year-end 2022.

The Committee's implementation framework remained effective, including through the March banking stresses and subsequent resolution of the debt limit impasse. The EFFR remained stable and well within the target range, at a spread of 7 basis points below the rate of interest on reserve balances (IORB).

The standing repurchase agreement facility (SRF), which is priced at the top of the federal funds target range, was not actively used as overnight interest rates remained below the top of the federal funds target range. The SRF is intended to act as a backstop to address temporary pressures in overnight funding markets that could spill over to the federal funds market and potentially impair the implementation of monetary policy. Following the expansion of SRF counterparty eligibility in 2022, the number of approved counterparties increased to forty-nine, which includes twenty-five depository institutions in addition to the twenty-four primary dealers.

Global U.S. dollar funding markets remained stable throughout 2023, and the average usage of U.S. dollar central bank liquidity swap lines moved to relatively low levels compared to the preceding two years. Usage of the standing overnight repurchase agreement facility for foreign and international monetary authorities (commonly referred to as the FIMA repo facility) increased significantly in March and April, before declining thereafter and remaining relatively unutilized for the remainder of 2023.

The Open Market Trading Desk at the Federal Reserve Bank of New York (the Desk) did not conduct any foreign exchange intervention activity during 2023. The Desk continued to manage the SOMA foreign currency reserve holdings in line with the portfolio's investment objectives of liquidity, safety, and return.

SOMA net income during 2023 was negative $117.2 billion, compared to positive $65.7 billion in 2022, driven by interest expenses exceeding interest income on the SOMA portfolio. The Federal Reserve System's deferred asset at year-end 2023 was $133.3 billion, reflecting the cumulative negative net income of the Federal Reserve. The deferred asset has no implications for how the Federal Reserve conducts monetary policy and does not constrain its ability to meet its financial obligations. The SOMA portfolio ended the year with a significant unrealized loss position, albeit at a lower level compared to 2022. Unrealized gains or losses have no effect on net income or remittances to the Treasury or on the ability of the Federal Reserve to carry out monetary policy.

In coming years, the size and composition of the balance sheet will continue to evolve. A staff projections exercise that takes into account the uncertainty regarding the amount of reserves that will be consistent with ample reserves shows the portfolio declining in size consistent with the FOMC's plans for balance sheet reduction, before remaining generally steady through reinvestments, and then finally expanding to match the growth in Federal Reserve liabilities. Under these projections, portfolio holdings shift toward Treasury securities over time, consistent with the FOMC's intention to return to a portfolio composed primarily of Treasury securities. Using survey-based assumptions about the path of interest rates, the projections indicate that SOMA net income could remain negative through 2024, driven by the increased cost of interest-bearing Federal Reserve liabilities, before returning to positive levels in subsequent years.

Operational resilience remains an important priority, and during 2023 the New York Fed continued to enhance its operational flexibility as well as its cyber and geographic resilience. The Desk continued its practice of undertaking small-value exercises with counterparties to maintain readiness for a range of potential FOMC directives.

A GUIDE TO THIS REPORT

This report is divided into five main sections:

1. The Federal Reserve's Framework for Monetary Policy Implementation: This section provides an overview of the Federal Reserve's framework for monetary policy implementation, including the purpose of the tools employed by the Desk. (**pp. 6–7**)

2. Open Market Operations: This section describes the steps taken by the Desk within the framework to implement the FOMC's operating directives in money markets and securities markets during 2023. The Desk's operations to manage the Federal Reserve's portfolio of foreign currency–denominated assets are also included in this section. (**pp. 9–18**)

3. Selected Balance Sheet Developments: This section examines the composition of the Federal Reserve's balance sheet, reviews developments related to the SOMA portfolio, and discusses the purposes of and recent trends in the Federal Reserve's liabilities. It also presents an illustrative projection of the balance sheet and SOMA net income under a set of simplifying assumptions. (**pp. 20–41**)

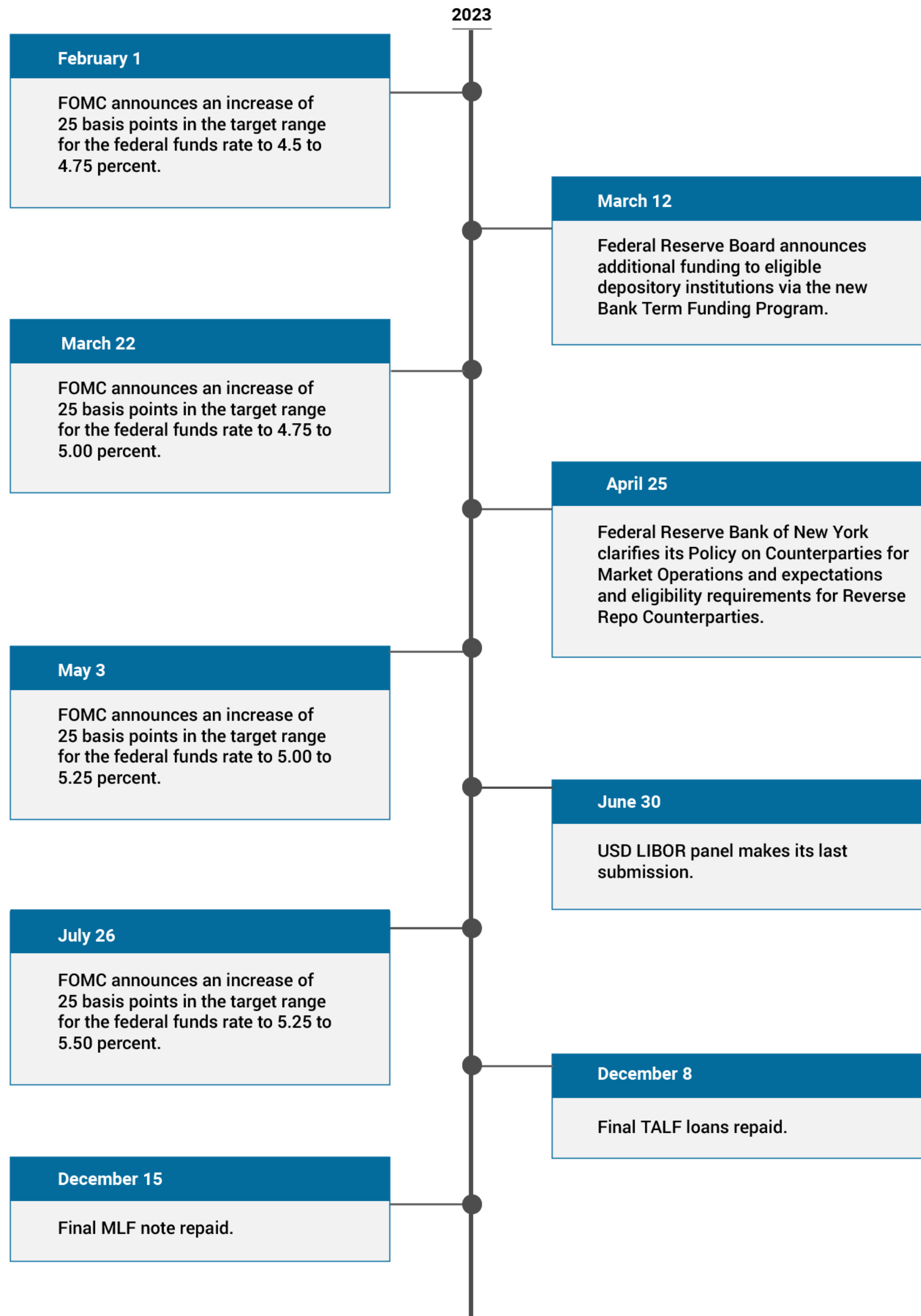
4. Counterparties: This section reviews the trading counterparties to the Desk's domestic and foreign open market operations. (**pp. 43–44**)

5. Operational Flexibility and Resiliency: This final section highlights actions implemented to enhance cyber resilience and details operational readiness exercises undertaken during the year. (**pp. 46–47**)

Appendix 1 provides summaries of the key terms for each of the Desk's operations. Appendix 2 highlights links to the FOMC documents governing Desk operations. Appendix 3 summarizes the Desk's public disclosures about its operations. Appendix 4 presents assumptions underlying the scenarios for the SOMA portfolio and the SOMA net income projections. Appendix 5 provides links to web pages where source material for Federal Reserve–related content can be found.

Underlying data for the charts shown in this report is provided on the New York Fed's website. Additional questions regarding this report and the underlying data can be addressed to ny.mkt.soma.annualreport@ny.frb.org.

TIMELINE OF SELECTED EVENTS DURING 2023



THE FEDERAL RESERVE'S FRAMEWORK FOR MONETARY POLICY IMPLEMENTATION

The Federal Reserve implements monetary policy in a framework that includes a target range for the federal funds rate to communicate the FOMC's policy stance, a set of administered rates set by the Federal Reserve, and market operations directed by the FOMC and conducted by the Desk to promote money market conditions consistent with the FOMC's target range for the policy rate. The FOMC can also employ forward guidance for the target range for the policy rate and alter the size and composition of the Federal Reserve's balance sheet as mechanisms for achieving its objectives. The framework supports the FOMC's pursuit of its maximum employment and price stability objectives, mandated by Congress and articulated in the Committee's Statement on Longer-Run Goals and Monetary Policy Strategy, which it reaffirmed in January 2024.[5]

The money market tools used by the Federal Reserve for policy implementation are designed to maintain control over short-term interest rates in an environment of ample reserves in the banking system. The FOMC's policy rate is the federal funds rate, which is maintained within a target range set by the Committee.[6] The Federal Reserve sets two main administered rates: the IORB rate is paid to depository institutions with accounts at the Federal Reserve, while the ON RRP rate is offered to a broader range of eligible counterparties. These administered rates are set at levels that support the federal funds rate trading within the target range.

Given the safety and convenience of maintaining reserves in Federal Reserve accounts, little incentive exists for banks to lend to private-sector counterparties at rates lower than the IORB rate. However, since not all money market participants are eligible to hold Federal Reserve accounts or to earn IORB, federal funds can trade below the IORB rate. As a result, the ON RRP facility supports control over the federal funds rate by offering a broader range of money market participants an overnight investment, which enhances their bargaining power in negotiating similar private-sector transactions. Amid significant shifts in reserve levels in recent years, the Federal Reserve has been able to maintain control of the federal funds rate through use of its administered rates.[7]

The Committee also maintains two standing repurchase agreement facilities, the SRF and the FIMA repo facility, to serve as backstops in money markets to support the effective implementation of monetary policy and smooth market functioning. The Federal Reserve offers daily SRF operations against Treasury, agency debt, and agency mortgage-backed securities (MBS), with pricing set above the general level of overnight interest rates, currently at the top of the target range for the federal funds rate. These features of the SRF allow the facility to limit upward pressures on money market rates that could contribute to the federal funds rate moving above its target range. The SRF is open to primary dealers and eligible depository institutions. The FIMA repo facility provides central banks and other foreign monetary authorities a means to access temporary U.S. dollar liquidity against their holdings of Treasury securities held in custody at the New York Fed, other than through outright sales of Treasury securities. As a result, the FIMA repo facility can help address pressures in offshore dollar funding markets that could otherwise affect U.S. financial conditions. In

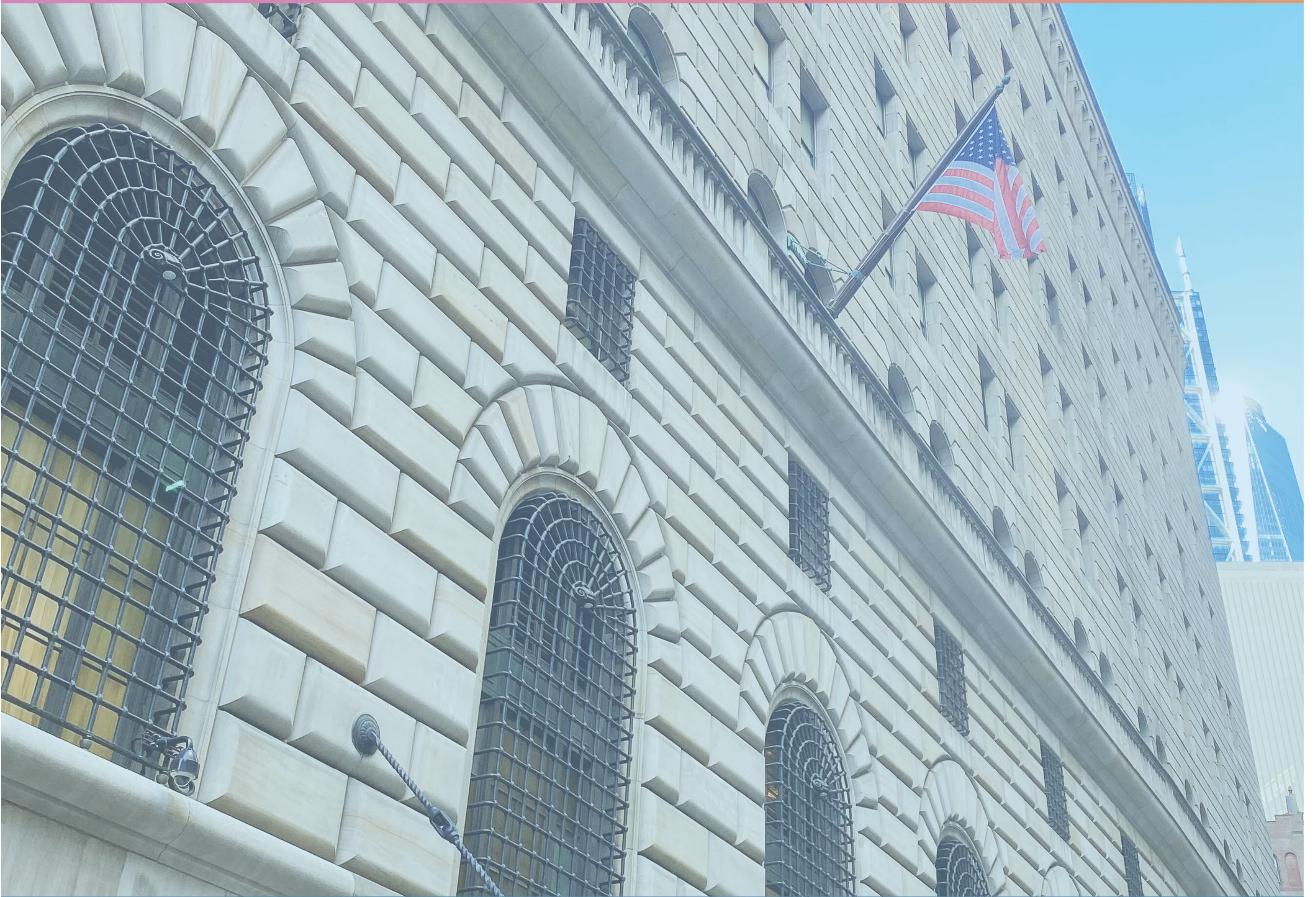
this respect, the FIMA repo facility complements the U.S. dollar liquidity swap lines as a backstop for global dollar markets.

Changes in the size or composition of the Federal Reserve's balance sheet are an important part of the monetary policy implementation framework and may fulfill three possible policy goals. First, asset purchases can be used to maintain an ample supply of reserves over time such that control over short-term interest rates is achieved primarily through administered rates.[8] Such reserve management purchases may accommodate trend growth in demand for Federal Reserve liabilities over time, as well as potential shifts in the demand for reserves.

Second, changes in the size or composition of the balance sheet may be used to influence financial conditions. On several occasions, the FOMC has directed an expansion of the balance sheet to ease financial conditions and provide economic stimulus, which can be beneficial when interest rates are constrained at the effective lower bound and further easing through cuts in the policy rate is not available.

The FOMC has also at times directed the Desk to allow SOMA securities to mature without reinvestment to reduce the size of the balance sheet over time. Such a reduction tightens financial conditions and can complement increases in the federal funds target range. While interest rate and balance sheet policies both support the FOMC's goals, the FOMC has communicated that the two remain distinct tools.

Lastly, asset purchases can on occasion be used to address periods of severe market dysfunction that could impede the transmission of monetary policy and affect broader financial stability. Purchases can alleviate frictions in dealer intermediation, establish clearing prices for the assets purchased, and ease balance sheet constraints of private market participants—which helps restore private market functioning and support the flow of credit to the U.S. economy.



OPEN MARKET OPERATIONS

To implement monetary policy, the Desk conducts open market operations as directed by the FOMC. Domestic open market operations in 2023 included reinvestments of maturing Treasury securities in accordance with FOMC directives, as well as repurchase agreements and reverse repurchase agreements. Operations also included the securities lending program to support smooth functioning of Treasury markets. There were no MBS reinvestments during 2023. In addition, the Desk maintained swap arrangements with certain foreign central banks to provide dollar liquidity to global funding markets, and managed the SOMA foreign reserves portfolio.

MONEY MARKET DEVELOPMENTS AND RELATED POLICY MEASURES

During 2023, the FOMC increased the target range for the federal funds rate from 4 ¼ to 4 ½ percent to 5 ¼ to 5 ½ percent (Table 1). The pace of increases in the federal funds target range slowed compared to 2022, with the FOMC keeping the target range unchanged during its final three meetings of 2023 (Chart 1). Throughout 2023, the effective federal funds rate remained well within the target range despite periods of broader market volatility during the year, such as the banking stresses in March. (For details on dynamics in the federal funds market, see Box 3, "The Federal Funds Market and Liquidity Redistribution during 2023.") The EFFR remained at a spread of 7 basis points below the IORB rate for nearly all of 2023 and the distribution of EFFR trades remained stable (Chart 2).

During the second half of 2023, secured rates began to move somewhat higher amid considerable increases in Treasury debt issuance. The spread between the Secured Overnight Financing Rate (SOFR) and the IORB rate narrowed, reflecting a modest shift higher in the distribution of SOFR trades in late 2023 (Chart 2). Yields on Treasury bills and repo rates both started to offer more attractive returns relative to the ON RRP rate toward the end of the year, reflecting higher Treasury bill supply and increased demand to finance securities in repo more broadly. In response to these conditions, users of the ON RRP increasingly reallocated toward other investments, resulting in the ON RRP decreasing from an average level of $2.18 trillion in December 2022 to an average of $807.7 billion in December 2023 amid continued runoff of the SOMA portfolio. (See Box 2, "Decreases in the ON RRP and Investment Reallocation during 2023," for additional detail.)

The year 2023 also marked the end of the transition away from LIBOR as a reference rate. After roughly a decade of preparation by the public and private sectors, the U.S. dollar LIBOR panel made its final submission in June 2023 and the market shifted to more robust rates, such as the SOFR. (For details on this transition, see Box 1, "The End of LIBOR and the Evolution of SOFR.")

REVERSE REPURCHASE AGREEMENTS

To provide a floor under overnight interest rates, the FOMC continued to direct the Desk to offer daily overnight reverse repo operations against SOMA Treasury securities holdings to a broad range of financial institutions, including some that are ineligible to earn IORB. As directed by the FOMC, the Desk continued to

Table 1

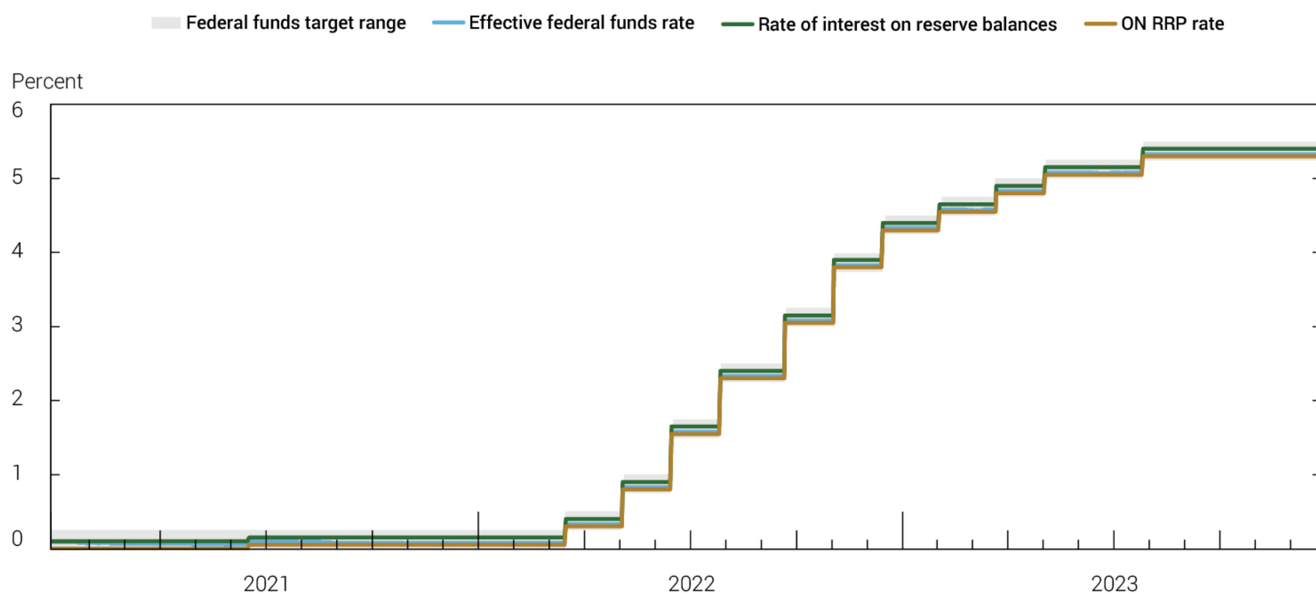
Key Policy Rates Effective in 2023

FOMC Meeting Announcing Policy Rate Changes	Effective Date Range for Policy Rates during 2023	Federal Funds Target Range		IORB Rate		ON RRP Rate		SRF Rate	
		Rate (Percent)	Change (Basis Points)	Rate (Percent)	Change (Basis Points)	Rate (Percent)	Change (Basis Points)	Rate (Percent)	Change (Basis Points)
February 2023	February 2 to March 22	$4^1/_2$ to $4^3/_4$	25	4.65	25	4.55	25	4.75	25
March 2023	March 23 to May 3	$4^3/_4$ to 5	25	4.90	25	4.80	25	5.00	25
May 2023	May 4 to July 26	5 to $5^1/_4$	25	5.15	25	5.05	25	5.25	25
July 2023	July 27 to December 31	$5^1/_4$ to $5^1/_2$	25	5.40	25	5.30	25	5.50	25

Sources: Federal Open Market Committee; Board of Governors of the Federal Reserve System.

Chart 1

Federal Funds Target Range, Effective Federal Funds Rate, Rate of Interest on Reserve Balances, and ON RRP Rate

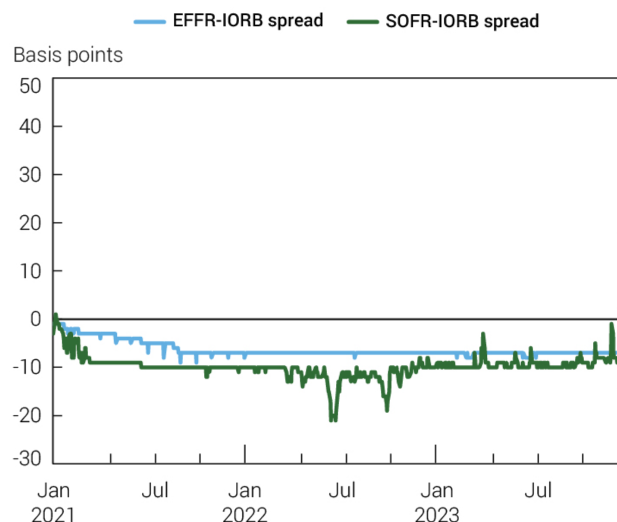


Source: Federal Reserve Bank of New York.

Notes: Figures are daily. For data prior to July 29, 2021, rate of interest on reserve balances refers to the rate of interest on excess reserves.

Chart 2

Effective Federal Funds Rate and Secured Overnight Financing Rate Spreads to IORB



Source: Federal Reserve Bank of New York.

Notes: Figures are daily. For data prior to July 29, 2021, rate of interest on reserve balances refers to the rate of interest on excess reserves.

conduct standing ON RRP operations at an offering rate 5 basis points above the bottom of the target range for the federal funds rate. During 2023, each counterparty in an ON RRP operation was limited to an offer of no more than $160 billion, which was unchanged from 2022. The New York Fed additionally clarified its policies and requirements for accessing ON RRP operations in April 2023, stating that participation in these operations should be a natural extension of an existing business model.[9]

Operational Results

Usage of the ON RRP facility remained elevated through mid-2023 before significantly declining during the second half of the year. Daily ON RRP usage ranged between $2.00 trillion and $2.38 trillion through May 2023, dipping briefly amid the banking sector stresses in March 2023. Following resolution of the debt limit impasse in early June, ON RRP facility usage significantly declined, reaching an average level of $807.7 billion during December 2023 and ending the year at $1.02 trillion. (See Box 2, "Decreases in the ON RRP and Investment Reallocation during 2023," for additional detail.) Over the year, money market funds and government-sponsored entities (GSEs) accounted for nearly 96 percent and 4 percent, respectively, of the daily average participation in the ON RRP (Chart 3).

REPURCHASE AGREEMENTS

STANDING REPURCHASE AGREEMENT FACILITY

Under the SRF, the Desk offers daily overnight repo operations against Treasury securities, agency debt securities, and agency MBS at a backstop rate intended to limit upward pressure on overnight rates. As directed by the FOMC, the Desk continued to offer daily overnight repo operations with a minimum bid rate in line with the top of the federal funds target range and an aggregate limit of $500 billion. In 2023, eight depository institutions were added to the list of SRF counterparties, bringing the total number of depository institution counterparties to twenty-five, along with the twenty-four primary dealers.[10]

Operational Results

With money market rates largely trading within the target range, including market repo rates generally trading below the SRF's minimum bid rate, the facility usage was mainly limited to periodic small-value transactions conducted by the New York Fed's counterparties for operational readiness purposes.[11]

FOREIGN AND INTERNATIONAL MONETARY AUTHORITY (FIMA) REPO FACILITY

In 2023, the FOMC continued to direct the Desk to offer overnight repo transactions to approved FIMA account holders at an offering rate equal to the minimum bid rate for the standing repurchase agreement facility. The standing FIMA repo facility enables approved FIMA account holders to enter into overnight repo transactions with the Federal Reserve against Treasury securities that are held in custody at the New York Fed.[12] The facility provides a backstop source of temporary U.S. dollar liquidity to a broad range of foreign official institutions,

Box 1

THE END OF LIBOR AND THE EVOLUTION OF SOFR

The London Interbank Offered Rate (LIBOR) was once described by the British Banker's Association as "the world's most important number" and served as the reference rate for hundreds of trillions of dollars' worth of financial contracts that were largely linked to U.S. dollar LIBOR (USD LIBOR). Following several instances of attempted manipulation of LIBOR that highlighted its vulnerabilities as a reference rate and the subsequent decision to adopt more robust benchmark rates, the USD LIBOR panel banks made their final submissions on June 30, 2023, after roughly a decade of preparation for the transition.

While the use of USD LIBOR as a reference rate was previously widespread, the volume of transactions that underpinned USD LIBOR had been declining since around 2008-09. The Alternative Reference Rates Committee (ARRC) estimated that at the end of 2020 more than $220 trillion of contracts were linked to USD LIBOR, yet the most frequently used USD LIBOR tenors had underlying transactions of only around $500 million or less per day.[a] As a result, USD LIBOR had evolved to be highly reliant on the judgment of panel banks, rather than observable transactions. Some banks left or sought to leave submission panels, given the perceived legal and reputational risk associated with continued submissions. However, authorities in the United Kingdom were able to foster an agreement with the remaining panel banks that allowed them to continue providing USD LIBOR submissions through June 2023 to allow for an orderly transition period.

The transition away from USD LIBOR to more robust reference rates such as SOFR was one of the most complicated changes in financial market infrastructure ever undertaken, and required global coordination across both public and private sectors.[b] These new reference rates were modeled after guidance in the International Organization of Securities Commissions (IOSCO) Principles for Financial Benchmarks, which was designed to address many of the shortcomings of LIBOR. For example, unlike USD LIBOR, SOFR is a fully transactions-based rate that is underpinned by a daily average of more than $1 trillion in transaction volume, which is based on a deep, active market with thousands of transactions each day. SOFR is also easily accessible, with the New York Fed publishing SOFR and SOFR averages on its website each morning based on the prior day's transactions.

The success of the transition to SOFR is evident today in its use across a wide range of markets. SOFR is now the predominant U.S. dollar benchmark reference rate across both derivative and cash markets, making up around 96 percent of average daily volumes of interest rate risk traded in swaps markets during 2023. SOFR futures also make up the majority of daily short-term interest rate trading volume in exchange-traded markets, followed by federal funds futures. Across loan markets, SOFR is used in nearly all floating rate and syndicated loans and, since 2021, all conforming adjustable-rate mortgages included in agency MBS.

LIBOR had been deeply entrenched in financial markets and the transition away from its use was essential for a more sound and resilient financial system. The significant, coordinated effort across a range of international entities, including the Financial Stability Board's Official Sector Steering Group, the Financial Stability Oversight Council, and numerous private entities, helped to ensure the smooth and successful transition to a system of more robust USD reference rates.

[a] The Alternative Reference Rates Committee was a group of private-sector participants convened by the Federal Reserve Board and the New York Fed to help ensure a successful transition from USD LIBOR to a more robust reference rate, namely the SOFR, its recommended alternative. See https://www.newyorkfed.org/arrc.

[b] See "ARRC Closing Report: Final Reflections on the Transition from LIBOR," November 2023, https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2023/ARRC-Closing-Report.pdf. See also "ARRC Releases Second Report on Transition from LIBOR," March 2018, https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2018/ARRC-second-report-press-release.

thereby helping to address pressures in global dollar funding markets that could otherwise affect financial market conditions in the United States. Its role as a liquidity backstop also helps to support the smooth functioning of financial markets more generally.

Operational Results

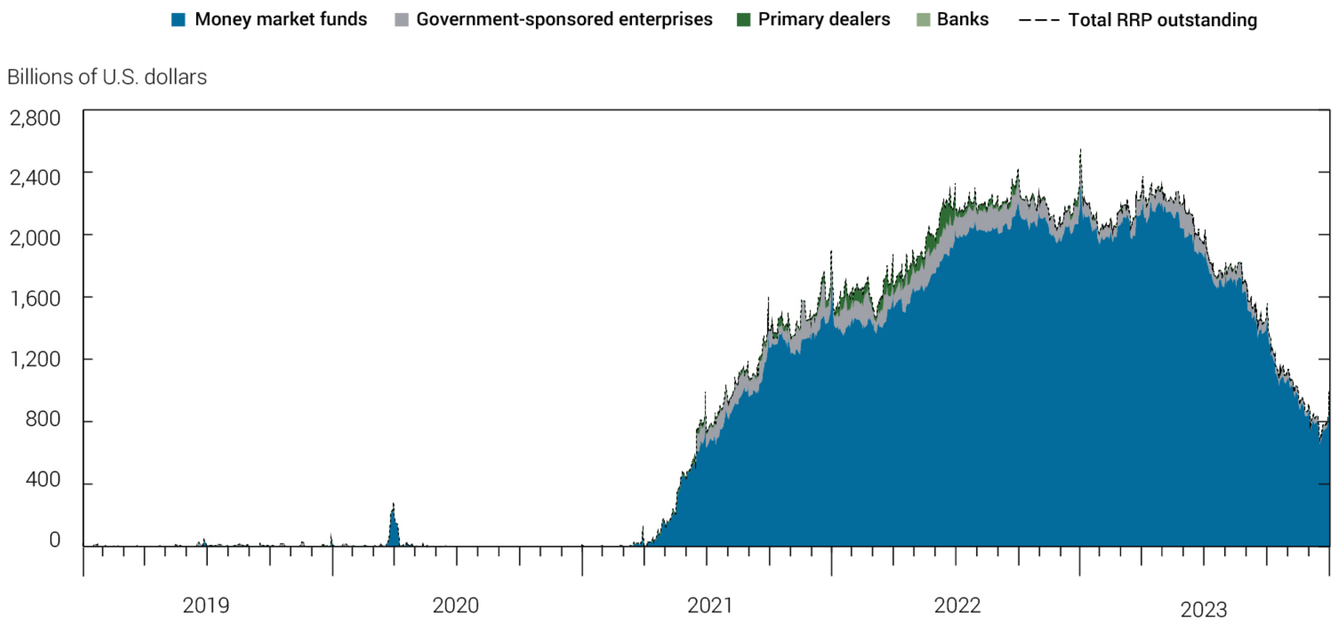
Usage of the FIMA repo facility was limited during the first two months of 2023 and then rose to a high in March during the period of banking stress. FIMA repo usage was elevated from late March to late April. As market conditions improved, FIMA repo usage subsequently declined and the facility remained relatively unutilized for the remainder of 2023.

CENTRAL BANK LIQUIDITY SWAPS

In 2023, the FOMC continued to direct the Desk to maintain standing U.S. dollar and foreign currency liquidity swap lines with a network of five other major central banks—the Bank of Canada (BoC), Bank of England (BoE), Bank of Japan (BoJ), European Central Bank (ECB), and Swiss National Bank (SNB). The U.S. dollar liquidity swap lines, which involve a temporary exchange of currencies between two central banks, provide a liquidity backstop to help ease strains in global funding markets or reduce the risk that they could emerge, thereby helping to mitigate the effects of such strains on the supply of credit to households and businesses in the United States, as well as abroad. The foreign central bank receiving dollars lends the dollars in secured transactions with local banks.

Chart 3

SOMA Reverse Repo Amounts Outstanding by Counterparty Type



Source: Federal Reserve Bank of New York.

Note: Figures are daily and include overnight and term operations.

Box 2

DECREASES IN THE ON RRP AND INVESTMENT REALLOCATION DURING 2023

The overnight reverse repo (ON RRP) facility serves as a key tool in the Federal Reserve's monetary policy implementation framework. The ON RRP establishes a floor for overnight interest rates by providing an alternative investment to a broad range of money market participants. Users include both banks and non-banks such as money market funds (MMFs), which are the largest users of the ON RRP. As MMFs are not eligible to earn IORB, when broader money market rates are below the facility offering rate they are incentivized to place funds in the ON RRP facility—thereby increasing its usage. Likewise, when broader money market rates are above the ON RRP rate, MMFs have incentives to reallocate out of the facility toward more attractive investments—resulting in a lower ON RRP balance.

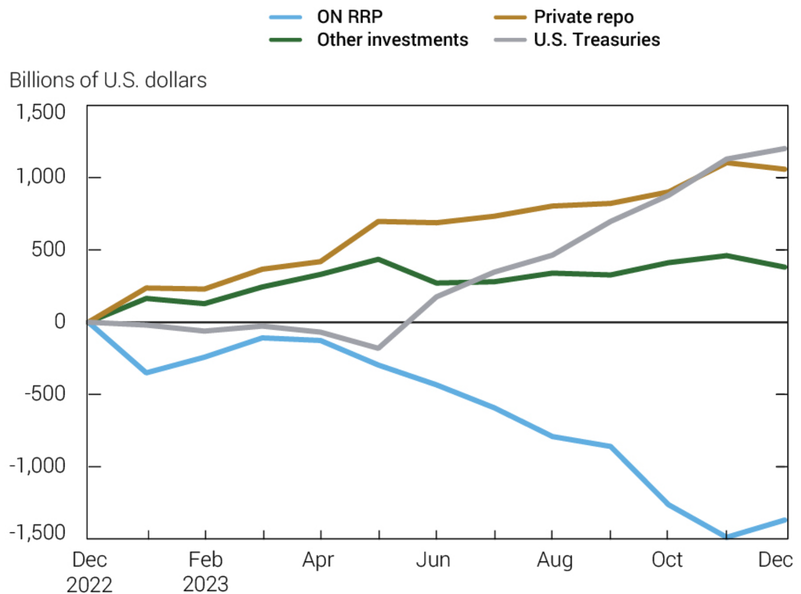
MMFs' demand may also change based on their expectations for the future path of interest rates. MMFs will generally adjust the weighted average maturities (WAMs) of their portfolios in line with their view on the path of policy rates—typically shortening WAMs when they anticipate significant hikes and extending WAMs when they anticipate a hold or an easing bias in the path of policy rates. Given these features of the ON RRP and MMF investment decisions, the remainder of this box discusses the drivers of the significant decrease in ON RRP usage during 2023 and details where investments were reallocated.

During the first half of 2023, MMFs maintained sizable balances in the ON RRP, as rates on comparable alternative investments, like Treasury bills and private repo, were generally below the ON RRP rate. WAMs for MMFs came into 2023 at multiyear lows given that funds anticipated further increases in the policy rate and were uncertain about when the rate would reach its terminal level. These dynamics shifted during the second half of 2023, as rates on alternative short-term money market investments began to trade above the ON RRP rate, due to increases in Treasury debt supply and higher demand for repo financing. The slower pace of increases in the FOMC's target range also reduced uncertainty among MMFs regarding the future path of policy, leading MMFs to steadily increase the WAMs of their portfolios from lows of about ten days at the beginning of the year to more than thirty days at year-end.

MMFs increased their Treasury bill holdings by $1.20 trillion and their private repo investments by $1.06 trillion in 2023, while corresponding allocations to the ON RRP facility fell by $1.37 trillion over the year to reach the lowest level in more than two years (Chart 4).

The ON RRP facility is designed to be responsive to broader rates across money markets. Counterparties of the ON RRP will continue to have incentives to adjust their usage of the facility based on where short-term money market rates trade in relation to the ON RRP rate, which is influenced both by the availability of such investments and the expected path of policy.

Chart 4
Cumulative Change in MMF Allocations during 2023



Sources: Crane Data; Federal Reserve Bank of New York.

During 2023, U.S. dollar swap operations were primarily offered weekly at a one-week tenor, which is typical practice when dollar funding conditions are smooth. During the broader banking stresses in March, the standing dollar swap operations were temporarily offered daily at a one-week tenor in order to increase the availability of U.S. dollar funding.[13] In early May, the frequency of the daily operations reverted to weekly, reflecting calm funding market conditions and low take-up in the operations.

Operational Results

Usage of the U.S. dollar liquidity swap lines was modest in 2023, as global dollar funding markets largely functioned smoothly against a backdrop of ample dollar liquidity. Four of the five central banks with standing swap line arrangements drew on their lines in 2023 (BoE, BoJ, ECB, and SNB) and aggregate usage reached a peak of $1.36 billion in late December.

TREASURY SECURITIES OPERATIONS

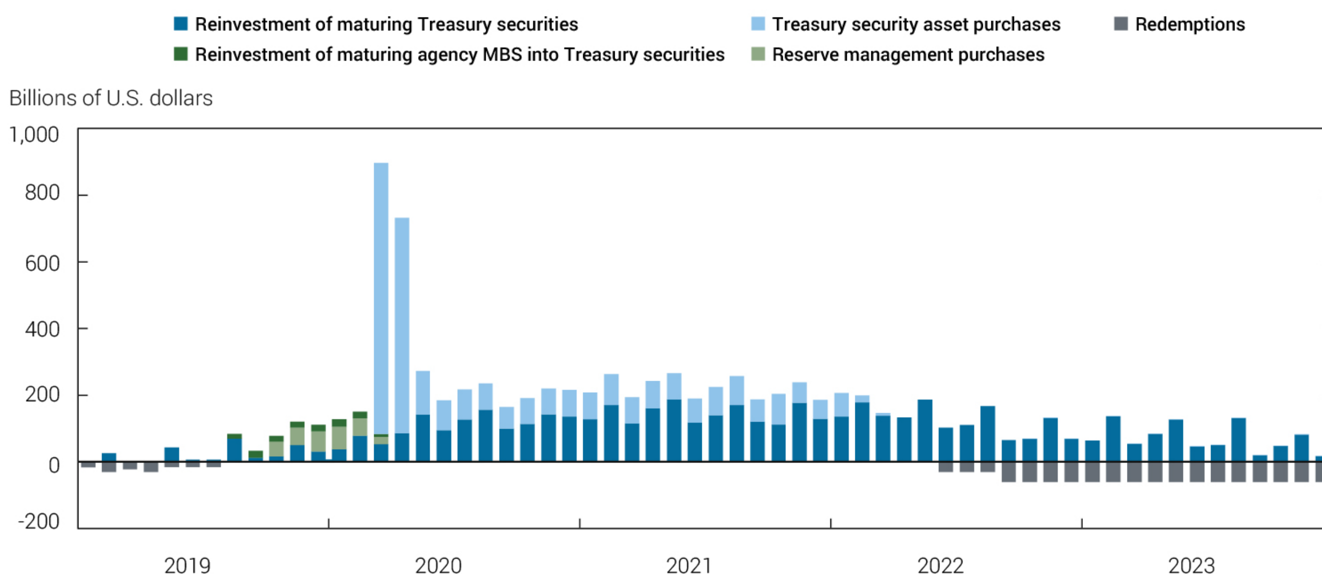
During 2023, the FOMC continued to direct the Desk to allow Treasury securities to be redeemed without reinvestment, in accordance with its Plans for Reducing the Size of the Federal Reserve's Balance Sheet. Consistent with these plans, maturing Treasury holdings were redeemed up to a cap of $60 billion per month (Chart 5). In months in which coupon maturities were less than the monthly cap, Treasury bills were redeemed in amounts needed to meet the monthly cap. The FOMC continued to direct the Desk to reinvest at auction all principal payments from maturing Treasury holdings above the monthly redemption cap.

TREASURY SECURITY ASSET PURCHASES

The Desk did not conduct any Treasury security purchases in the secondary market during the year, but continued to conduct periodic small-value operations for readiness purposes. (See the "Operational Readiness" section of this report for a summary of small-value exercises.)

Chart 5

SOMA Treasury Transactions



Source: Federal Reserve Bank of New York.

Box 3

THE FEDERAL FUNDS MARKET AND LIQUIDITY REDISTRIBUTION DURING 2023

The federal funds market is an unsecured, predominantly overnight cash borrowing and lending market for central bank reserves.[a] Volumes and rates in the federal funds market are influenced by the overall level of central bank reserves in the system, as well as the behaviors of individual borrowers and lenders. Federal funds market participants are also active in a range of other money markets and funding channels, creating linkages across activity in federal funds and other key markets. This box describes the main institutions active in the federal funds market and highlights the connections to other markets.

A range of institutions participate in the federal funds market as either borrowers or lenders. Currently, borrowers in the federal funds market mainly comprise U.S. branches and agencies of foreign banking organizations (FBO branches). These institutions often have a lower effective cost to borrow federal funds than domestic banks, which allows them to monetize the spread between the EFFR and the IORB rate to the extent that the former is lower than the latter.[b] By contrast, domestic banks were less active in federal funds borrowing during 2023 as the abundance of reserves exceeded liquidity needs in the banking sector, creating little need for domestic banks to borrow in federal funds. As a result, domestic banks constituted only a small fraction of overall federal funds borrowing during the year. The predominant lenders of federal funds are currently Federal Home Loan Banks (FHLBs), which invest portions of their cash in federal funds to earn positive returns, as they are not eligible to earn IORB.[c] While FHLBs are important lenders in the federal funds market, they also provide linkages to broader money markets. For example, money market funds (MMFs) often invest in debt issued by FHLBs, and the funds raised through FHLB debt issuance may be used to finance advances to member banks.

The FHLB linkages to MMFs and the depository institutions that are members of the FHLB system help to recirculate liquidity across bank and non-bank channels and influence prices in secured and unsecured money markets. For example, in recent years depositors have shifted their funds from banks toward higher-yielding MMF investments, and banks have increased their use of FHLB advances, or collateralized loans to FHLB members, to proactively manage liquidity. As FHLBs issued more debt in response to higher advance demand, MMFs have been key investors in the newly issued FHLB debt. These dynamics were more pronounced during the banking stresses in March 2023 and ultimately impacted activity within the federal funds market. Specifically, as demand for advances from FHLB member banks surged, FHLBs increased debt issuance to finance the advances, and that debt was largely purchased by MMFs. FHLBs also reduced their usage of the ON RRP facility and their federal funds lending activity to conserve liquidity to meet member advance demand. The decrease in federal funds lending meant lower federal funds borrowing by (mainly) FBO branches for several weeks. Despite lower federal funds volumes, the EFFR spread to the IORB rate remained broadly unchanged during this period.

The events of March 2023 illustrate the linkages between the federal funds market and broader money markets and institutions. The Desk continues to monitor the activity of borrowers and lenders in the federal funds market, as well as these key channels of liquidity redistribution, amid the ongoing runoff of the Federal Reserve's balance sheet.[d]

[a] For more detail on the structure of the federal funds market, see "Who's Borrowing and Lending in the Fed Funds Market Today?", *Liberty Street Economics*, October 10, 2023, https://libertystreeteconomics.newyorkfed.org/2023/10/whos-borrowing-and-lending-in-the-fed-funds-market-today/.

[b] FBO branches may have a lower cost to borrow in federal funds, as most FBO branches are not insured by the Federal Deposit Insurance Corporation and do not pay assessment fees. In addition, differences in regulatory requirements across jurisdictions may result in lower capital needs for FBO branches. FBOs often borrow in the federal funds market and leave funds in their reserve accounts to monetize the spread between the EFFR and the IORB rate.

[c] "FHLB Combined Financial Report for the Quarterly Period Ended September 30, 2023," https://www.fhlb-of.com/ofweb_userWeb/resources/2023Q3CFR.pdf.

[d] For a further description of monitoring of broader reserve conditions, see "Implementing Monetary Policy: What's Working and Where We're Headed," speech by SOMA Manager Roberto Perli, October 10, 2023, https://www.newyorkfed.org/newsevents/speeches/2023/per231010.

REINVESTMENTS OF TREASURY SECURITY PRINCIPAL PAYMENTS

Operational Results

The Desk reinvested a total of $860.5 billion of maturing Treasury securities during 2023, compared to $1.49 trillion in 2022. Reinvestments consisted of $656.5 billion in Treasury bills and $203.9 billion in Treasury coupons (Chart 6). A total of $720.0 billion in Treasury securities were redeemed, comprising $647.3 billion in Treasury coupons and $72.7 billion in Treasury bills.

To reinvest maturing Treasury securities the Desk places noncompetitive bids at Treasury auctions. Maturing Treasury bills were reinvested into newly issued bills, while coupons were reinvested into newly issued coupons. Maturing amounts were apportioned on a pro rata basis according to the issuance amounts of securities that settled on the matching maturity date.[14] The noncompetitive bids by the Desk at auctions for Treasury securities are treated as add-ons to announced auctions sizes.

AGENCY MBS OPERATIONS

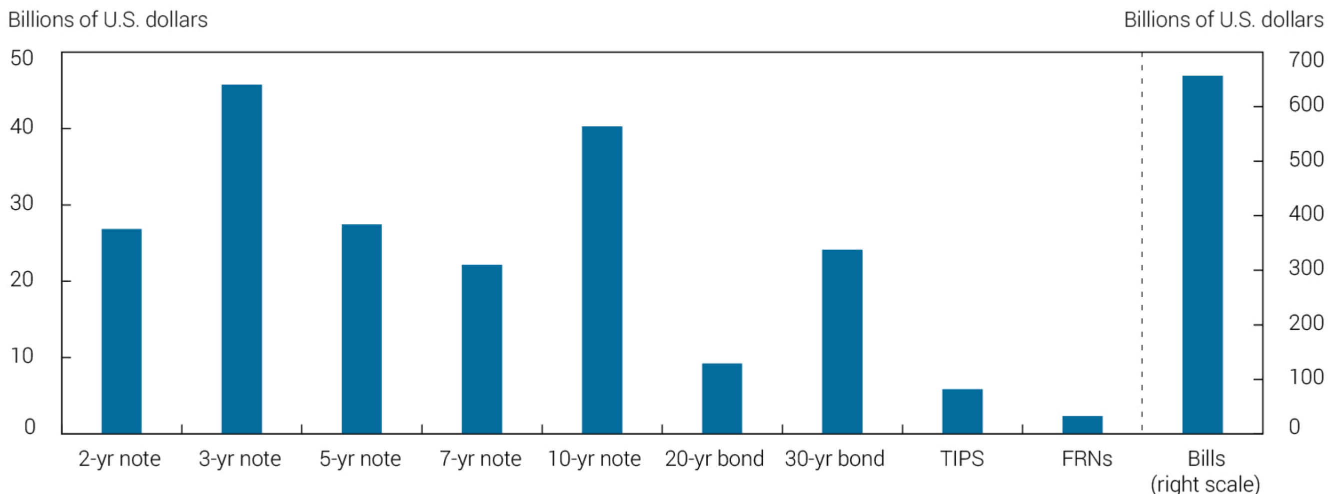
The FOMC continued to direct the Desk to reinvest principal payments of agency MBS only to the extent that they exceeded a monthly cap of $35 billion, in accordance with its Plans for Reducing the Size of the Federal Reserve's Balance Sheet. During 2023, principal paydowns on SOMA holdings of agency MBS did not exceed the cap in any month and no agency MBS operations were conducted by the Desk outside of small-value exercises for the purpose of operational readiness.

SECURITIES LENDING

During 2023, the FOMC directed the Desk to lend eligible Treasury and agency debt securities held in the SOMA to primary dealers on an overnight basis. These operations provide a secondary, temporary source of securities to the financing market. To the extent that the SOMA has holdings of specific securities, securities lending can help alleviate periods of scarcity for those securities, such as when individual issues experience high levels of short positioning or elevated settlement fails.

Chart 6

Distribution of SOMA Reinvestments at Treasury Auctions in 2023

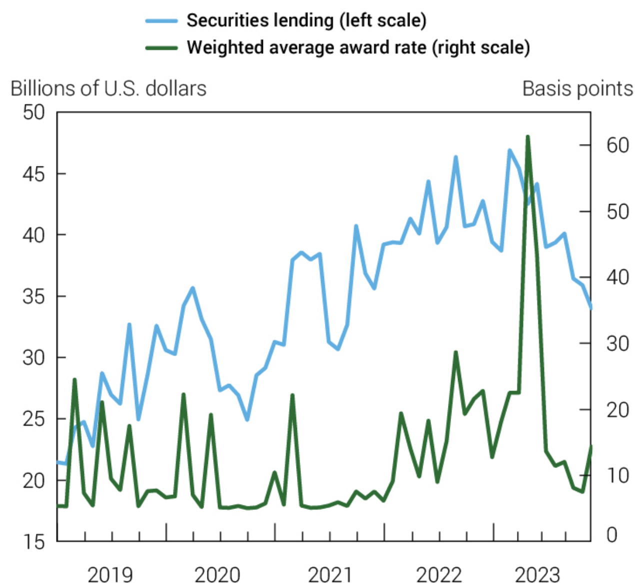


Source: Federal Reserve Bank of New York.

Note: Bars show the cumulative amount of Treasury securities acquired through reinvestments in 2023.

Chart 7

SOMA Securities Lending in Treasuries



Source: Federal Reserve Bank of New York.

Note: Figures are monthly averages of daily lending results.

Operational Results

During 2023, average lending volume in Treasury securities was similar to that in 2022 at $40.2 billion per day, but decreased into year-end to reach $34.0 billion in December (Chart 7). The reduction in securities lending volumes was driven by a combination of reduced SOMA holdings of benchmark Treasury securities and reduced short positions across the broader repo market. A brief increase in the average bid fee during May reflected an acute period of elevated demand for certain bills ahead of their reopening dates, which is often seen in normal auction cycle dynamics. This led to an increase in the volume-weighted average bid fee on Treasury securities, from 16 basis points in 2022 to about 21 basis points over 2023.

FOREIGN RESERVES MANAGEMENT

The Federal Reserve holds a portfolio of euro- and yen-denominated assets, which could be used to fund a potential foreign exchange intervention.[15] The size and currency composition of foreign reserve holdings are largely a result of past intervention activity in foreign exchange markets. In 2023, the Desk was not directed to undertake any foreign exchange intervention activity.

INVESTMENT APPROACH

The FOMC directs the Desk to manage the SOMA's foreign currency holdings in a manner that ensures sufficient liquidity, maintains a high degree of safety, and, once these objectives have been met, provides the highest rate of return possible in each currency. The Desk passively manages its foreign currency reserve holdings, with purchases and sales conducted to meet an internal asset allocation target that is based on the FOMC's stated objectives and updated on an annual basis. The SOMA's foreign currency reserves may be invested on an outright basis in Dutch, French, German, and Japanese government securities, as well as in deposits at the Bank for International Settlements and foreign central banks such as the Deutsche Bundesbank, Banque de France, De Nederlandsche Bank, and Bank of Japan. The Desk may also invest in Dutch, French, and German government securities under agreements for repurchase of such securities.

INVESTMENT ACTIVITY

In 2023, the Desk purchased or sold euro- and Japanese yen–denominated sovereign debt securities in the secondary market consistent with the internal asset allocation target. The Desk also continued to hold foreign currency reserves in deposits at various official institutions.[16] As of year-end 2023, the SOMA foreign currency portfolio totaled $18.6 billion, broadly unchanged from 2022.[17] (Foreign currency–denominated holdings are described further in the "Selected Balance Sheet Developments" section of this report.)

SELECTED BALANCE SHEET DEVELOPMENTS

In line with the FOMC's directives, the Federal Reserve's balance sheet continued to decline in 2023. While the overall decline in the balance sheet temporarily reversed during March as the Federal Reserve responded to broader banking stresses, total assets declined by $733.8 billion over the year to reach $7.84 trillion at the end of 2023 (Table 2). The decline in Federal Reserve assets in 2023 was driven by the runoff of SOMA securities, with a small offsetting effect due to increases in loans during the March 2023 banking stresses. By the end of 2023, total Federal Reserve assets as a share of nominal GDP declined on net to 28 percent from 32 percent in 2022.

While the size of the Federal Reserve's balance sheet declined, the composition of liabilities shifted over the course of the year in response to broader money market conditions and factors unrelated to Federal Reserve policy. The size of the ON RRP facility shifted materially during the year, reaching a peak in March before significantly declining in the second half of 2023. Following the June 3 resolution of the debt limit impasse, the U.S. Treasury resumed a robust pace of bill issuance, which, along with tax receipts, drove the TGA to its highest level of the year at roughly $870 billion in late October. As a result of these significant changes in the ON RRP facility and the TGA, reserve balances increased on net by $449.9 billion during 2023.

SOMA net interest income was negative $117.2 billion during 2023, compared to positive $65.7 billion in 2022, as interest expenses exceeded interest income on the SOMA portfolio. The deferred asset held by the Federal Reserve System reached a level of $133.3 billion, reflecting the cumulative negative net income of the Federal Reserve.

SELECTED ASSETS

The Federal Reserve's assets can be divided into SOMA and non-SOMA assets. The SOMA assets make up around 94 percent of the Federal Reserve's assets and are mainly composed of domestic securities holdings, along with smaller proportions of foreign reserve holdings, repurchase agreements, and U.S. dollar liquidity swaps. Non-SOMA assets include loans to depository institutions through the primary and secondary credit programs and credit extensions from the emergency credit and liquidity facilities, including the BTFP. (See the "Primary Credit and Bank Term Funding Programs" and "Emergency Credit and Liquidity Facilities" sections of this report for further details on non-SOMA assets.)

SOMA DOMESTIC SECURITIES HOLDINGS

PORTFOLIO SIZE AND COMPOSITION

Most of the SOMA domestic securities portfolio is composed of domestic holdings of Treasury securities and agency MBS (Chart 8). In accordance with the FOMC's Plans for Reducing the Size of the Federal Reserve's Balance Sheet, the size of the SOMA portfolio continued to decrease as securities were allowed to mature or pay down up to the amount of the monthly

redemption caps set by the FOMC. The SOMA domestic securities portfolio declined by more than $920 billion over 2023 to $7.22 trillion, driven mainly by decreases in Treasury securities holdings. At year-end 2023, Treasury securities made up roughly 66 percent of the total portfolio and agency MBS roughly 34 percent. Agency commercial mortgage-backed securities (CMBS) and agency debt each made up less than 1 percent of the portfolio.[18]

Table 2

Changes in Selected Federal Reserve Assets and Liabilities

Billions of U.S. Dollars

	Assets							
	U.S. Treasury Securities	Agency MBS, Agency Debt, and Agency CMBS	Repo	Central Bank Liquidity Swaps	Primary Credit Program	Emergency Credit and Liquidity Facilities	Other Assets	Total Assets
Outstanding as of:								
December 30, 2022	5,499.4	2,643.8	0.0	0.4	5.3	26.1	394.4	8,569.4
December 29, 2023	4,785.1	2,434.1	0.0	1.4	3.5	139.7	471.8	7,835.6
Changes in the period								
Dec 30, 2022 to Dec 29, 2023	(714.2)	(209.6)	0.0	0.9	(1.8)	113.6	77.3	(733.8)

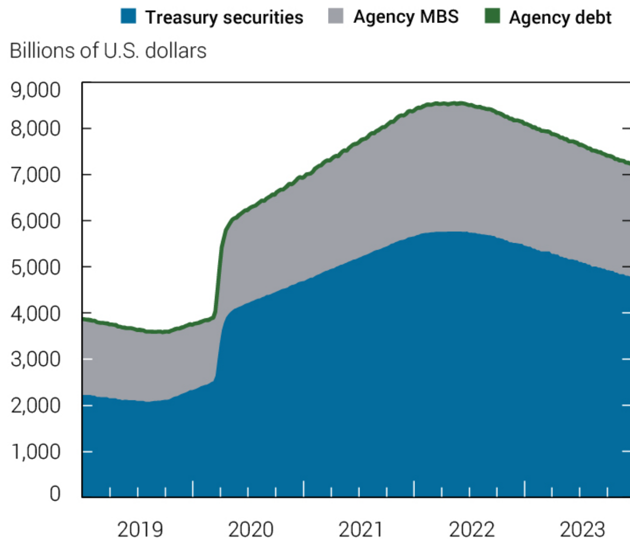
	Liabilities and Capital							
	Reserves	Federal Reserve Notes	Treasury General Account	ON RRP	FIMA Reverse Repo Pool	Other Liabilities and Capital	Subtotal of Non-Reserve Liabilities	Total Liabilities and Capital
Outstanding as of:								
December 30, 2022	2,684.8	2,259.0	446.7	2,553.7	335.8	289.3	5,884.5	8,569.4
December 29, 2023	3,134.8	2,297.1	768.6	1,018.5	372.2	244.5	4,700.8	7,835.6
Changes in the period								
Dec 30, 2022 to Dec 29, 2023	449.9	38.1	321.9	(1,535.2)	36.3	(44.9)	(1,183.7)	(733.8)

Sources: Federal Reserve Bank of New York; Board of Governors of the Federal Reserve System.

Notes: Securities balances are listed at par value and exclude unsettled MBS. Emergency credit and liquidity facilities category includes loan balances of the Bank Term Funding Program and of the COVID-19 related facilities. Other assets include primarily unamortized net premiums and accrued interest receivable on securities, foreign currency–denominated holdings, limited liability company investments of U.S. Treasury equity in nonmarketable Treasury securities, and the deferred asset. Other liabilities and capital primarily include deposits from international and multilateral organizations, government-sponsored enterprises, designated financial utilities, and capital. Changes in the period may not align with balances due to rounding.

Chart 8

Composition of SOMA Domestic Securities Holdings



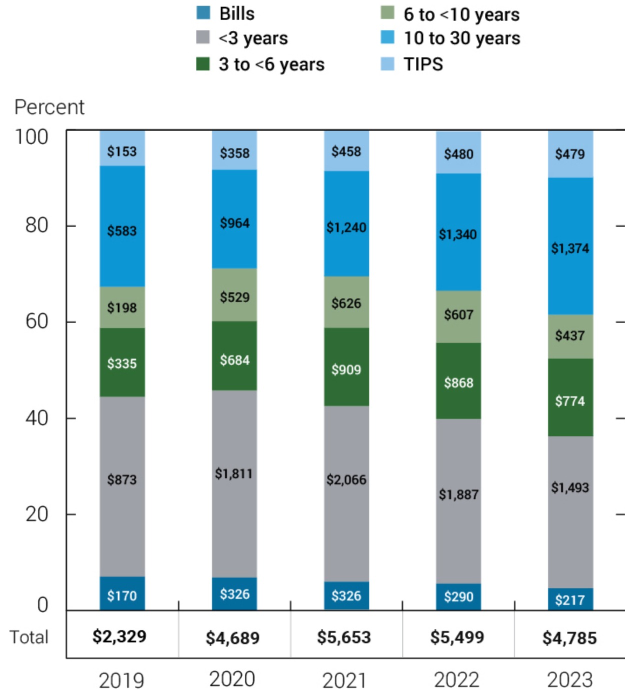
Source: Board of Governors of the Federal Reserve System.

Notes: Figures are weekly and include unsettled holdings. Agency CMBS are included in the agency MBS amount.

Chart 9

Distribution of SOMA Treasury Holdings

Percentage Share and Billions of U.S. Dollars



Source: Federal Reserve Bank of New York.

Notes: Figures are as of year-end and may be rounded. Floating Rate Notes (FRNs) made up less than 1 percent of total Treasury securities holdings in 2019 ($17 billion), 2020 ($17 billion), 2021 ($28 billion), 2022 ($27 billion), and 2023 ($12 billion).

Treasury Holdings

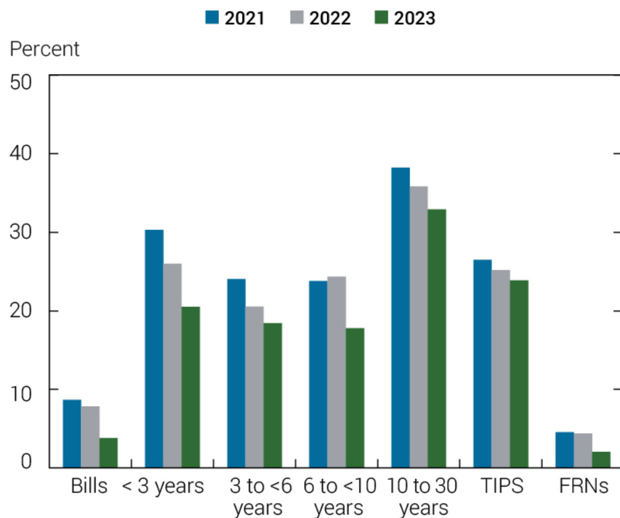
During 2023, SOMA Treasury securities holdings declined from $5.50 trillion to $4.79 trillion. This decline was driven by a $641.7 billion decrease in Treasury coupon holdings and a $72.6 billion decrease in Treasury bill holdings.

The composition of the SOMA Treasury portfolio shifted modestly toward longer maturities by year-end, with the weighted average maturity (WAM) of the portfolio increasing from 7.9 years in 2022 to 8.4 years in 2023. This increase was driven largely by the decline in the overall size of the SOMA Treasury portfolio, as holdings of Treasury securities with maturities under ten years decreased at a faster pace than reinvestments in those securities during the year. Most of the SOMA Treasury portfolio was made up of nominal securities with less than three years to maturity and nominal securities with ten to thirty years to maturity (Chart 9). Over the course of 2023, holdings of Treasury nominal coupon securities with less than ten years to maturity fell and those of coupon securities with ten to thirty years to maturity increased. Holdings of Treasury bills, Treasury Inflation-Protected Securities (TIPS), and Floating Rate Notes (FRNs) decreased modestly over the year.

The share of total outstanding marketable Treasury securities that is held in the SOMA portfolio continued to decrease during 2023, falling to 18 percent from 23 percent in 2022. This decline was driven by the runoff in the Federal Reserve's Treasury securities holdings as well as an increase of about $2.43 trillion in

Chart 10

SOMA Treasury Holdings as a Share of Outstanding Treasury Supply



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

Note: Figures are as of year-end.

Treasury marketable debt outstanding. SOMA Treasury holdings relative to the overall Treasury universe declined across all maturity groups, with larger declines recorded in coupons with maturities of less than three years (Chart 10). The SOMA's share of the Treasury universe remained largest in the ten- to thirty-year nominal coupon sector. The share of Treasury bills held in the SOMA relative to Treasury securities outstanding also fell over the year due to significant increases in Treasury bill issuance and the decline in SOMA bill holdings. Consistent with the SOMA's higher proportion of longer-term securities holdings, the WAM of the SOMA Treasury portfolio (8.4 years) was longer than the WAM of the outstanding Treasury universe (5.9 years).

Agency MBS Holdings

In 2023, SOMA agency MBS holdings decreased by about $209.4 billion to $2.42 trillion. Principal payments on SOMA agency MBS averaged $17.5 billion per month during the year, below the $35 billion monthly redemption cap. Principal payments on SOMA agency MBS reflected the impact of elevated mortgage rates, which continued to result in low prepayments by homeowners.[19] Consequently, there were no reinvestments by the Desk during the year. The weighted average life of the agency MBS portfolio fell from 8.9 years to 8.6 years. The composition of the SOMA agency MBS portfolio was little changed from 2022, reflecting the low level of principal paydowns across the portfolio during 2023 (Charts 11 and 12). More than 90 percent of agency MBS holdings had coupons of 3.5 percent or less (Chart 13). Holdings of agency MBS across issuers in 2023 were also similar to 2022 levels, with 41 percent of agency MBS holdings guaranteed by Fannie Mae, 38 percent by Freddie Mac, and 21 percent by Ginnie Mae.[20]

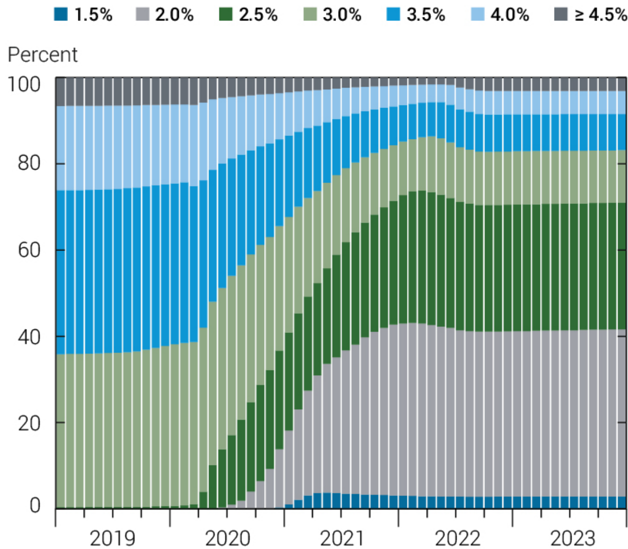
SOMA holdings of agency MBS as a share of the outstanding stock of fixed-rate agency MBS decreased from 33 percent to 30 percent during 2023. The weighted average coupon rate on SOMA holdings of agency MBS at year-end 2023 was 2.5 percent, below the broader market's weighted average coupon rate of 3.1 percent, which was due in part to substantial purchases from 2020 through 2022 at historically low mortgage rates.

CUSIP Aggregation

In April 2023, the Desk announced plans to resume consolidation of many small, individual agency MBS into fewer and larger-value securities. This process, known as CUSIP aggregation, groups agency MBS holdings with similar characteristics—including issuing agency, coupon, and original term to maturity—into fewer, larger securities. By reducing the number of individual securities held in the SOMA portfolio, CUSIP aggregation can lower operational risk, simplify back-office portfolio administration, and reduce custodial costs that are assessed on an individual CUSIP basis. During 2023, the total number of SOMA agency MBS CUSIPs was reduced from 29,632 to 20,217. In addition, the Desk exchanged the SOMA's holdings of 983 legacy Freddie Mac MBS with a forty-five-day payment delay for fifty-five-day payment delay securities that are consistent with uniform MBS (UMBS).[21]

Chart 11

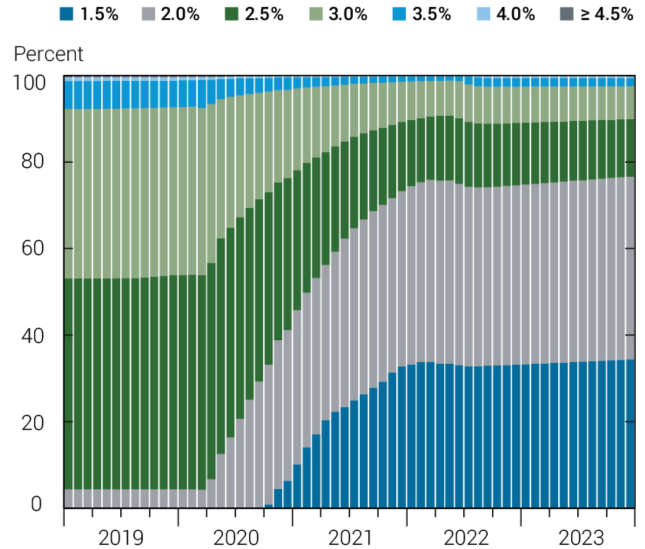
Distribution of SOMA Holdings of Thirty-Year Agency MBS by Coupon



Source: Federal Reserve Bank of New York.

Chart 12

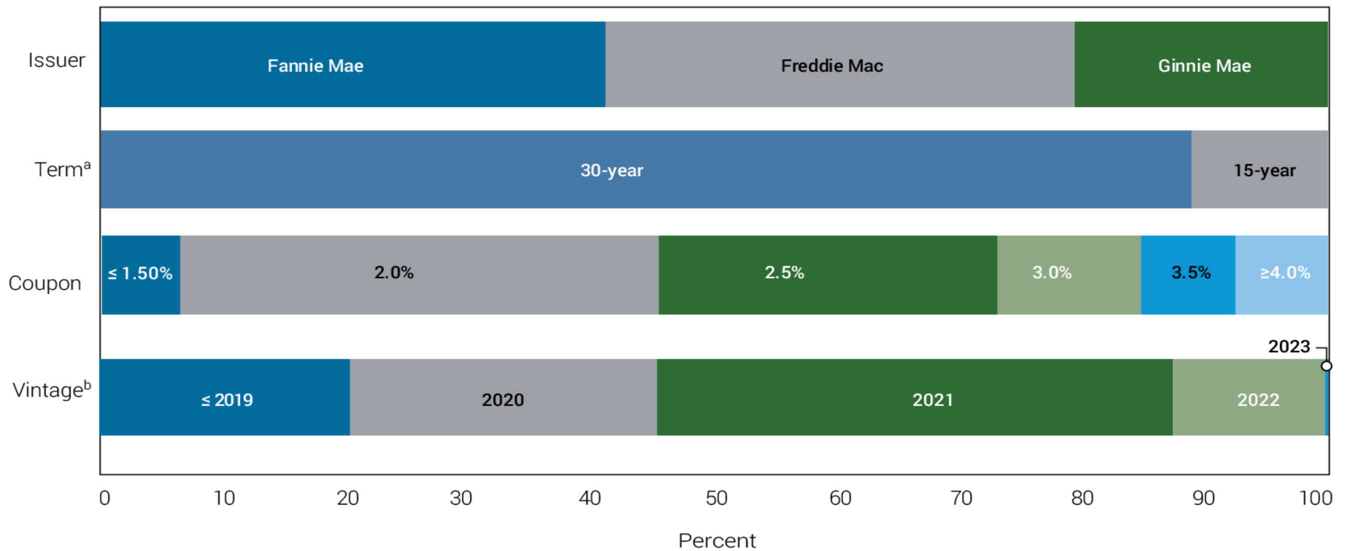
Distribution of SOMA Holdings of Fifteen-Year Agency MBS by Coupon



Source: Federal Reserve Bank of New York.

Chart 13

Distribution of SOMA Agency MBS Holdings



Source: Federal Reserve Bank of New York.

Notes: Figures are as of December 29, 2023. Holdings total $2.42 trillion and consist of settled holdings only.
[a] Less than 1 percent of holdings are ten- and twenty-year agency MBS, which may be delivered into fifteen- and thirty-year TBA contracts, respectively.
[b] Agency MBS originated in 2023 reflect holdings from small-value exercises.

Agency Debt Holdings

SOMA agency debt holdings were unchanged at $2.3 billion during 2023. These holdings were issued by Fannie Mae and Freddie Mac and consist of the remainder of the $172 billion of agency debt acquired by the Federal Reserve between 2008 and 2010 as part of its first large-scale asset purchase program. These holdings mature between 2029 and 2032.

Agency CMBS Holdings

SOMA agency CMBS holdings decreased by $266 million to $8.2 billion due to principal payments. The Desk did not purchase any new agency CMBS during 2023 and agency CMBS portfolio principal payments were not reinvested. The composition of agency CMBS holdings was approximately 79 percent Fannie Mae securities, 9 percent Ginnie Mae securities, and 12 percent Freddie Mac securities at the end of 2023.[22]

PORTFOLIO RISK METRICS

Duration measures the sensitivity of a security's price to changes in interest rates and may be thought of as the present value–weighted average time to maturity of cash flows from the security. The longer the duration of a security, the more sensitive it is to changes in interest rates. Duration is generally greater for longer-maturity and lower-coupon securities.

During 2023, the par-weighted average duration of the total SOMA domestic securities holdings increased by 0.3 years to about 6.6 years. The increase in the total portfolio's duration was driven by a 0.4 year increase in the duration of the Treasury portfolio from 6.1 years to 6.5 years, while the duration of the agency MBS portfolio remained unchanged at year-end at 6.6 years (Chart 14).[23] The duration of agency debt fell by 0.7 years; however, as the share of agency debt holdings is small, this had a minimal impact on the average duration of the total portfolio.

Measures of the dollar value of duration risk held in the SOMA portfolio moved modestly lower during 2023. One method of measuring dollar duration is in terms of ten-year equivalents—that is, the amount of ten-year Treasury securities that would be needed to match the duration risk in the portfolio. The SOMA portfolio's ten-year equivalent measure decreased from $6.36 trillion at the end of 2022 to $5.96 trillion at the end of 2023, driven largely by the decline in portfolio size, which more than offset the effect of the slight increase in the portfolio's weighted-average duration on this metric (Chart 15).[24]

SOMA REPURCHASE AGREEMENTS

The aggregate amount of repurchase agreements (repo) outstanding increased from zero at the start of 2023 and peaked in March, amid the banking stresses at that time. Outstanding repurchase agreement transactions, almost entirely reflecting usage of the FIMA repo facility, remained elevated through late April. Thereafter, outstanding FIMA repo declined to zero and the facility remained relatively unutilized through the rest of the year. (For more information on repo operations, see the "Open Market Operations" section of this report.) There was no material usage of the standing repurchase agreement facility beyond periodic small-value transactions to satisfy counterparty participation requirements to ensure operational readiness.

CENTRAL BANK LIQUIDITY SWAPS

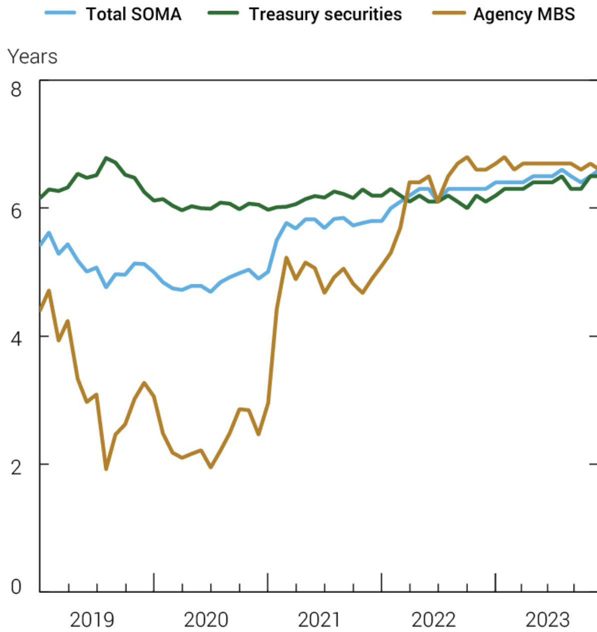
The average aggregate outstanding balance of the U.S. dollar swap lines was $354 million in 2023, a decline of $312 million from the 2022 average, as smooth market functioning and ample liquidity conditions in global dollar funding markets led to low usage of the swap lines during the year. Aggregate outstanding balances at year-end increased by $945 million compared to year-end 2022 to reach $1.4 billion, with the modest increase due to a temporary rise in balances in late December 2023 that fully reversed by early January 2024. (For more information on central bank swaps, see the "Open Market Operations" section of this report.)

SOMA FOREIGN CURRENCY–DENOMINATED HOLDINGS

The Federal Reserve holds foreign currency–denominated assets, which are invested to ensure adequate liquidity to meet potential foreign exchange intervention needs. As of year-end 2023, the SOMA foreign currency portfolio totaled $18.6 billion, composed of $12.0 billion of euro-denominated assets and $6.6 billion of yen-denominated assets.

Chart 14

Average Duration of SOMA Domestic Securities Holdings

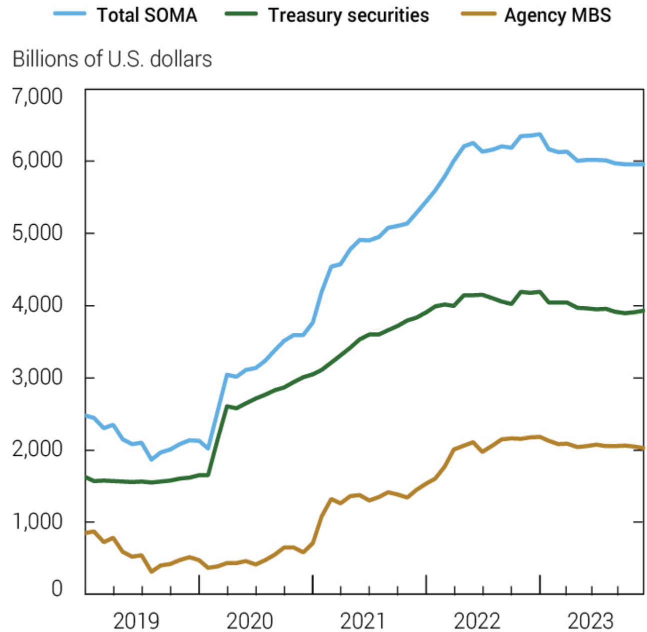


Source: Federal Reserve Bank of New York.

Notes: Figures are as of month-end. Calculations are par-weighted. Total SOMA and agency MBS do not include agency CMBS. Agency debt is not shown given the small balance of holdings.

Chart 15

SOMA Domestic Securities Holdings in Ten-Year Equivalents



Source: Federal Reserve Bank of New York.

Notes: Figures are as of month-end. Calculations are par-weighted. Total SOMA and agency MBS do not include agency CMBS. Agency debt is not shown given the small balance of holdings.

Increases in portfolio income due to rising euro area interest rates and an increase in the foreign exchange value of the euro against the dollar were largely offset by realized losses from the sale of euro-denominated sovereign debt and a decrease in the foreign exchange value of the Japanese yen.[25] As a result, the total value of the portfolio in U.S. dollar terms was little changed on net over the year.

The share of government debt obligations decreased in the euro-denominated portfolio and the share of cash held on deposit at official institutions increased, while the reverse occurred in the yen-denominated portfolio (Chart 16). (For more information on the foreign currency–denominated portfolio, see the "Open Market Operations" section of this report.) For euro-denominated assets, the Macaulay duration of the portfolio fell from about 17 months at year-end 2022 to roughly 10 months at year-end 2023 as the share of deposits in the portfolio increased.[26] For yen-denominated assets, the Macaulay duration of the portfolio increased over the year from less than one day to 0.4 months as the holdings of Japanese sovereign debt increased.

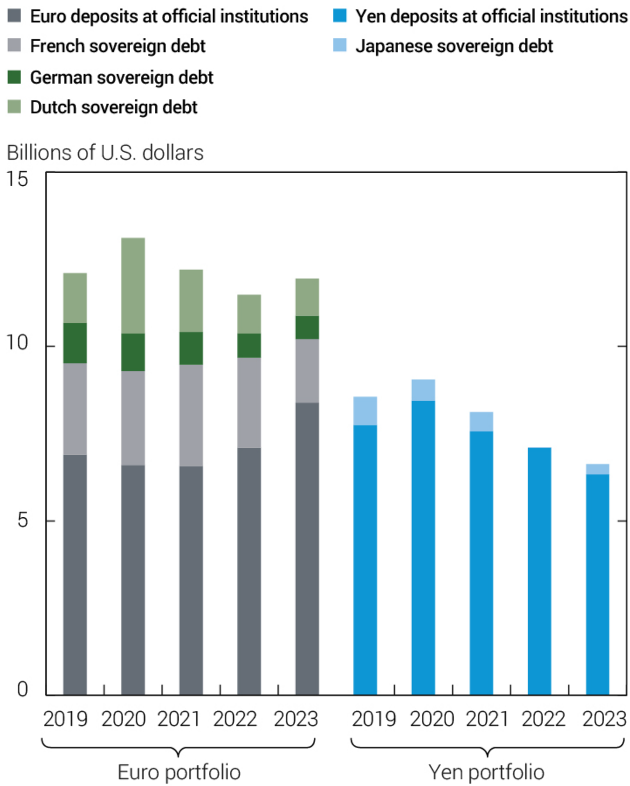
PRIMARY CREDIT AND BANK TERM FUNDING PROGRAMS

Primary Credit Program

The Federal Reserve's primary credit program serves as a backup source of liquidity for depository institutions in generally sound financial condition and with eligible collateral pledged to a Reserve Bank. Loans are initiated by depository institutions and approved by Reserve Banks and are granted for terms of up to

Chart 16

Distribution of SOMA Foreign Currency Portfolio Holdings



Source: Federal Reserve Bank of New York.

Note: Figures reflect amortized cost.

ninety days. The primary credit rate was raised from 4.50 percent to 5.50 percent during 2023, equal to the top of the federal funds target range and increasing in line with the range throughout the course of the year.

The use of primary credit increased sharply in March to a high of about $153 billion, as numerous depository institutions' borrowing needs rose amid the wider pullback of uninsured depositors from several U.S. banks. In addition, margin on open market operations–eligible collateral pledged to the discount window was temporarily waived to allow institutions to borrow against the full market value of the collateral under primary credit.[27] At that time, the Federal Reserve, with the approval of the Secretary of the Treasury, introduced the Bank Term Funding Program, which provided an additional source of liquidity for depository institutions.[28]

The daily loan balance under primary credit returned to levels below $5 billion by the end of May, as institutions that entered Federal Deposit Insurance Corporation (FDIC) receivership had their discount window loans shifted from primary credit loans to other credit extensions, and broader funding conditions improved.[29] Larger regional banks with total assets between $50 billion and $250 billion accounted for the majority of the total loan originations under primary credit in 2023, including loans to institutions that were subsequently placed into FDIC receivership. Primary credit was little changed after May and ended the year at $3.5 billion. The loans to institutions placed in receivership were fully repaid by the FDIC by the end of 2023.

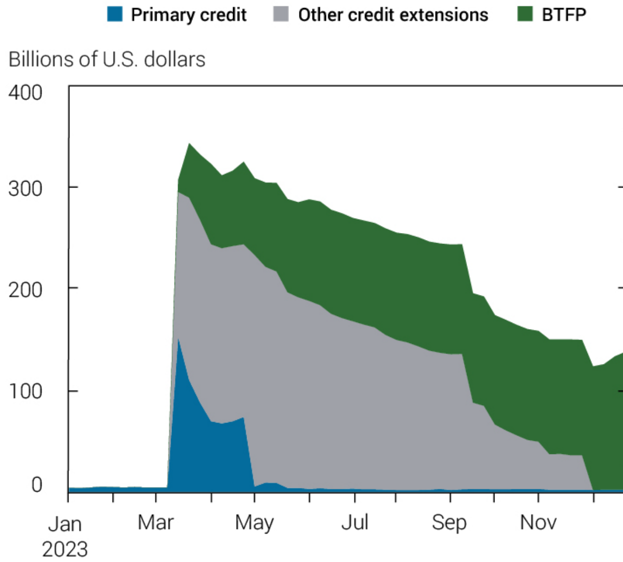
Bank Term Funding Program

The Bank Term Funding Program was established as an emergency credit program under Section 13(3) of the Federal Reserve Act on March 12, 2023, with the approval of the Treasury Secretary, in response to emerging funding stresses in the banking system. The program offered loans to primary credit–eligible institutions up to the full par value of pledged eligible collateral, which included any collateral eligible for purchase by the Federal Reserve Banks in open market operations, provided that such collateral was owned by the borrower as of March 12, 2023. The terms of the BTFP during 2023 included a maximum tenor of one year, a fixed interest rate based on the one-year overnight index swap (OIS) rate on the loan origination date plus 10 basis points, and the option to prepay loans.[30]

The BTFP saw significant take-up, with loan balances topping $100 billion by early June (Chart 17). In addition to the program's other attractive terms, from March until June the daily BTFP rate was consistently below the primary credit rate and other rates such as the one-year Federal Home Loan Banks (FHLB) advance rate, which likely supported usage. From June through October, the gap between the BTFP rate and other rates narrowed and new loan activity tapered off; usage then rose in

Chart 17

Primary Credit, Other Credit Extensions, and Bank Term Funding Program (BTFP)



Source: Board of Governors of the Federal Reserve System.

Notes: "Other credit extensions" includes loans to depository institutions that were subsequently placed into Federal Deposit Insurance Corporation (FDIC) receivership. The Federal Reserve Banks' loans to these depository institutions are secured by pledged collateral and the FDIC provides repayment guarantees.

December as one-year OIS rates moved slightly lower. The loan balance under BTFP at year-end 2023 was $129.2 billion. Small domestic banks with total assets of less than $50 billion accounted for the majority of total BTFP loan originations.

Emergency Credit and Liquidity Facilities

The total balances of the emergency credit and liquidity facilities established in response to the financial disruptions associated with the COVID-19 pandemic declined to $10.6 billion in 2023, a decrease of $15.6 billion over the year. The decreases in the Term Asset-Backed Securities Loan Facility (TALF), Municipal Liquidity Facility (MLF), Main Street Lending Program (MSLP), and Paycheck Protection Program Liquidity Facility (PPPLF) were primarily the result of maturities or prepayments by borrowers during 2023.[31] All assets originated by the TALF and MLF matured by the end of 2023, while the MSLP and PPPLF loans have final maturity dates in 2025 and 2026. The Federal Reserve Board previously published term sheets providing details of each program and it provides periodic reports to Congress on the facilities.

Term Asset-Backed Securities Loan Facility

The TALF was announced on March 23, 2020, to support the flow of credit to consumers and businesses. Under the TALF, the New York Fed provided financing to a special purpose vehicle (SPV) to make three-year nonrecourse loans to holders of certain AAA-rated non-agency CMBS, collateralized loan obligations (CLOs), and asset-backed securities backed by student loans, auto loans, credit card loans, loans guaranteed by the Small Business Administration (SBA), and certain other consumer and commercial receivables.

The TALF ceased extending credit on December 31, 2020, and all TALF loans were repaid in full by December 8, 2023. The TALF SPV returned the remainder of the U.S. Treasury's initial $10 billion equity investment on December 22, 2023, and intermediate returns of equity in excess of SPV exposure to TALF loans were made in prior years.

Municipal Liquidity Facility

The MLF was announced on April 9, 2020, to help state and local governments manage cash flow stresses caused by the pandemic. The MLF purchased eligible short-term municipal securities directly from eligible issuers through an SPV using financing provided by the New York Fed. The MLF ceased purchasing notes as of December 31, 2020, and the $2.9 billion balance of the last remaining note outstanding at year-end 2022 was repaid in full at maturity on December 15, 2023. The U.S. Treasury had made an initial equity investment of $17.5 billion in the MLF SPV; the last $2.9 billion of equity was returned on December 22, 2023, following prior intermediate returns of equity in excess of the MLF SPV's exposure to MLF notes.

Paycheck Protection Program Liquidity Facility

The PPPLF was announced by the Federal Reserve Board on April 9, 2020, to provide a source of liquidity to financial institutions that lend to small businesses through the SBA's Paycheck Protection Program. The PPPLF ceased extending credit on July 30, 2021, and had $3.5 billion in outstanding advances as of year-end 2023, compared to $11.4 billion as of year-end 2022. The last maturing loan within the PPPLF is due on July 31, 2026, although most, if not all, remaining loans are expected to be prepaid in accordance with provisions for PPP loan forgiveness.

Main Street Lending Program

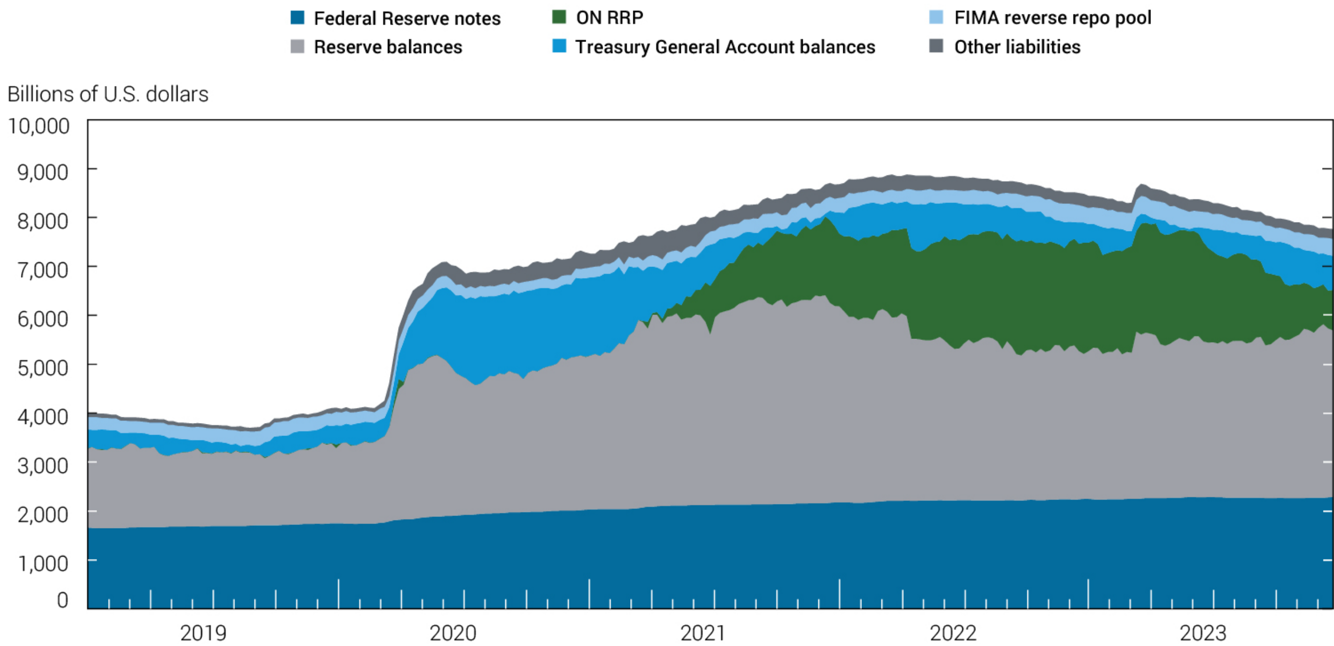
The MSLP was announced by the Federal Reserve Board on April 9, 2020, to support lending to small and medium-sized businesses and nonprofit organizations that were in sound financial condition before the onset of the COVID-19 pandemic. The Federal Reserve Bank of Boston established one SPV to manage and operate all five facilities under the MSLP. The MSLP ceased purchasing participations in eligible loans on January 8, 2021, and had $7.1 billion in outstanding loan amounts net of credit loss allowance at year-end 2023, compared to $10.8 billion as of year-end 2022.[32] The SPV returned to the U.S. Treasury $4.0 billion of the equity investment during 2023, reducing the U.S. Treasury's remaining equity contribution to $7.4 billion, which fully protects the Federal Reserve Bank of Boston against losses from the MSLP loan portfolio.

SELECTED LIABILITIES

As balance sheet reduction continued throughout 2023, total liabilities and capital at the Federal Reserve declined to $7.84 trillion by year-end from $8.57 trillion at year-end 2022 (Chart 18). Shifts in the composition of the Federal Reserve's liabilities were mainly driven by changes in the ON RRP and the TGA, which together resulted in a gradual increase in reserves over the course of the year. The ON RRP reached a peak in

Chart 18

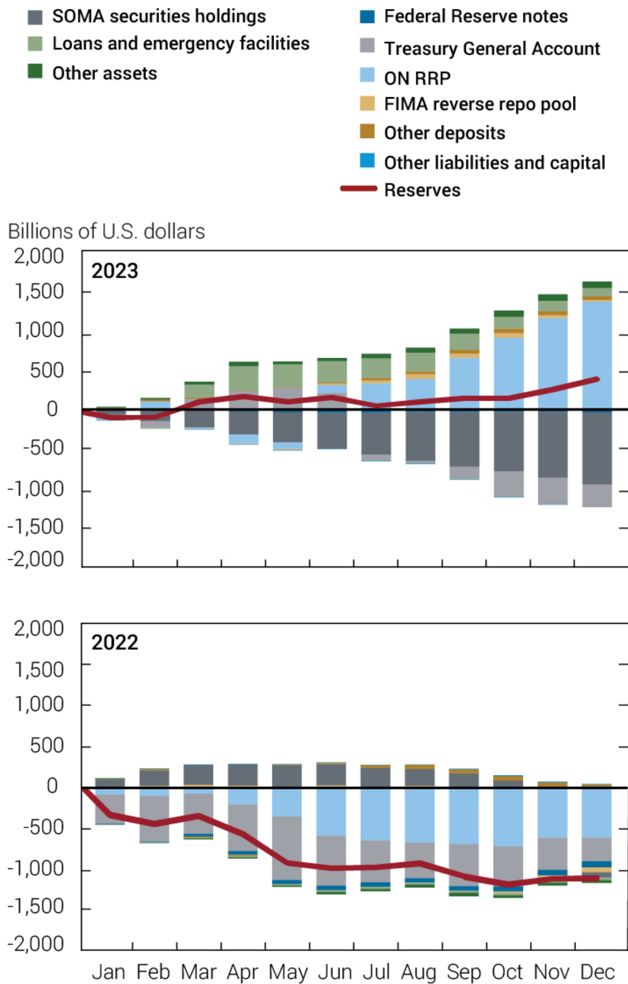
Federal Reserve Liabilities



Source: Board of Governors of the Federal Reserve System.

Notes: Figures are weekly. Other liabilities include deposits from international and multilateral organizations, government-sponsored enterprises, designated financial market utilities, and other non-reserve liabilities.

Chart 19
Sources of Cumulative Change in Reserve Balances



Source: Federal Reserve Bank of New York.

Notes: Unless otherwise indicated, amounts for each asset and liability reflect the cumulative change in the monthly average of each item's weekly average. Bars above the axis reflect changes supplying reserves, while bars below the axis represent changes reducing reserves. All else equal, increases (decreases) in SOMA securities holdings, loans and emergency facilities, and other assets increase (decrease) reserves, while increases (decreases) in ON RRP, Federal Reserve notes, Treasury General Account, FIMA reverse repo pool, other deposits, and other liabilities and capital decrease (increase) reserves. Other assets primarily include unamortized net premiums and accrued interest receivable on securities, foreign currency-denominated holdings, repo, liquidity swaps, and the deferred asset. Loans and emergency facilities reflect the monthly average of the sum of the weekly averages of loans (including primary credit, BTFP, other credit extensions, and PPPLF) and of the net portfolio holdings of the TALF, CCF, MLF, and MSLP LLCs.

March 2023 before declining in the second half of the year as money fund counterparties reallocated out of the facility toward more attractive investments. (See Box 2, "Decreases in the ON RRP and Investment Reallocation during 2023.") The TGA also saw significant variation, reaching a multiyear low prior to the resolution of the debt limit impasse, before rapidly increasing into the third quarter of 2023 and returning to more typical levels by year-end. Reserve balances rose on net by the end of 2023, as declines in the ON RRP more than offset the effects on reserves due to SOMA securities runoff and increases in the TGA. As a result of these changes, reserves at year-end constituted a larger portion of Federal Reserve liabilities compared to the previous year.

RESERVE BALANCES

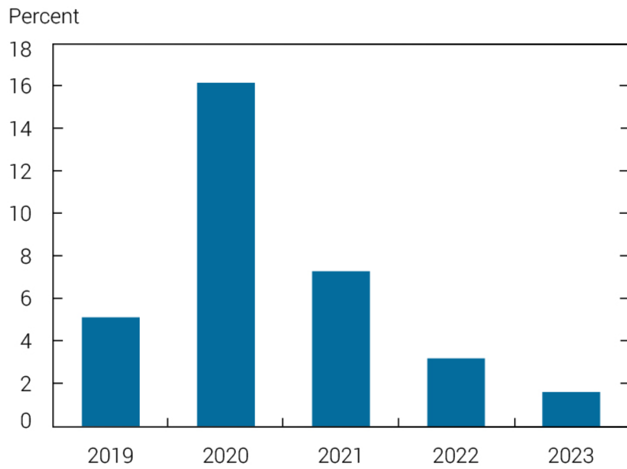
Reserve balances averaged $3.49 trillion in December 2023 and reached a year-end level of $3.13 trillion, an increase of $449.9 billion from year-end 2022. Reserves were generally stable around $3 trillion early in the year, before usage of primary credit and the BTFP amid the wider banking stresses in March modestly increased system reserves. During the latter part of 2023, reserves increased further as declines in the ON RRP more than offset the effects on reserves of reductions in the SOMA portfolio and increases in the TGA (Chart 19). Domestic institutions increased reserve balances significantly following the banking stresses in March, with their levels remaining higher through the remainder of the year.

FEDERAL RESERVE NOTES

Federal Reserve Notes, commonly referred to as currency in circulation (currency), increased by $38.1 billion in 2023 to $2.30 trillion. For U.S. households and firms, currency is an asset that can be readily exchanged for goods and services and serves as a store of value. In addition, demand for U.S. currency can also originate from abroad. In the past, the rate of growth of currency outstanding has generally reflected the pace of expansion of domestic economic activity in nominal terms, although acute financial or political uncertainty can also drive growth in currency.

Chart 20

Annual Changes in Federal Reserve Notes

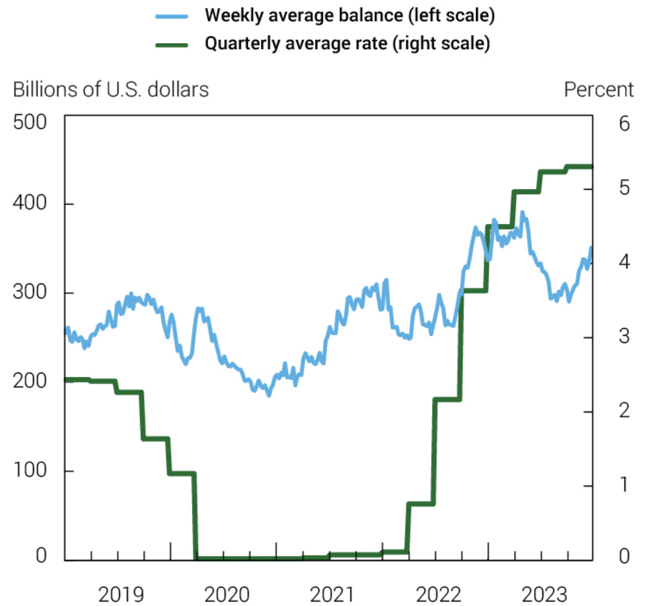


Source: Board of Governors of the Federal Reserve System.

Note: Figures reflect annual growth rates based on year-end Wednesday levels.

Chart 21

FIMA Reverse Repo Pool



Sources: Board of Governors of the Federal Reserve System; Federal Reserve Bank of New York.

Federal Reserve notes outstanding increased by about 2 percent in 2023, continuing the slowdown in currency growth that has occurred since 2020 (Chart 20). Reduced uncertainty about economic conditions, reduction in excess savings, and increased use of alternative forms of payment diminished domestic growth of currency in circulation. Foreign demand for U.S. currency experienced modest growth in 2023 as international tourism continued to recover, nearing previous levels, and amid some heightened political and economic uncertainty abroad. In addition, further increases in global interest rates have generally resulted in lower incentives to hold currency, compared to interest-bearing investments.

REVERSE REPURCHASE AGREEMENTS

OVERNIGHT REVERSE REPOS

ON RRP balances decreased from an average level of $2.18 trillion in December 2022 to an average of $807.7 billion in December 2023. The ON RRP facility continued to provide an effective floor on overnight rates, serving as an alternative investment option for a broad base of money market investors, and its decreased usage during 2023 reflected increasingly attractive short-term investment alternatives outside of the ON RRP. (For further details, see Box 2, "Decreases in the ON RRP and Investment Reallocation during 2023.")

FIMA REVERSE REPO POOL

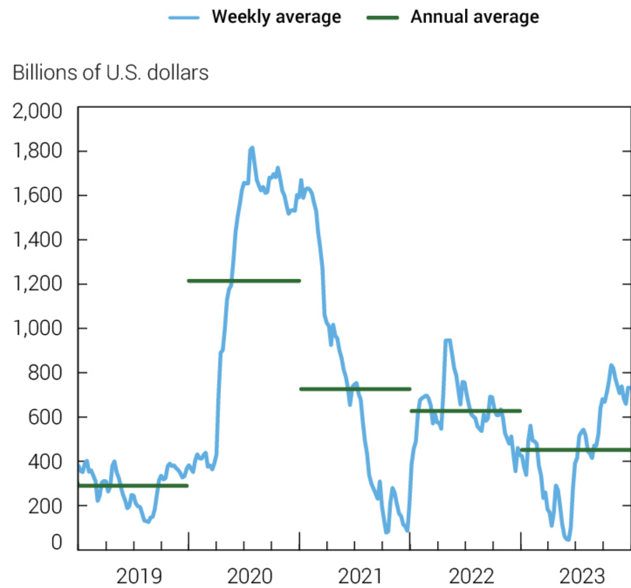
In 2023, the FOMC directed the Desk to conduct reverse repo transactions for customer accounts against securities held in the SOMA. The New York Fed has long offered its foreign official and international account holders an overnight repo investment service through the FIMA reverse repo pool, also known as the foreign repo pool. At the end of each business day, account holders' cash balances are swept into an overnight reverse repo secured by the SOMA domestic securities holdings. Upon maturity on the following business day, the securities are repurchased by the SOMA at a repurchase price that includes a return calculated at a rate generally equivalent to the ON RRP

rate, although the New York Fed may vary the rate of return at any time without prior notice.

This service addresses a strong preference by many central banks to hold significant dollar liquidity buffers at the Federal Reserve for policy purposes, and supports operational liquidity needs to clear and settle securities in these accounts. Like other reserve currency central banks, the Federal Reserve offers this service as part of a suite of banking and custody services to central banks, governments, and international official institutions.

The FIMA reverse repo pool's interest rate increased from 4.3 percent to 5.3 percent during 2023, in line with increases in the target range for the federal funds rate. FIMA reverse repo pool balances ranged widely and increased during early 2023, especially following the banking sector stress in March, reaching a weekly average high of $390.4 billion in early May (Chart 21). From late May through August these inflows reversed, and pool balances decreased to a weekly average of $289.7 billion largely due to decreasing liquidity needs among some foreign central bank account holders and shifts into other asset holdings. Balances increased again ahead of the year-end, finishing $36.3 billion above end-2022 levels.

Chart 22
Treasury General Account Balances



Source: Board of Governors of the Federal Reserve System.

Note: Weekly figures are the average of daily figures; annual figures are the average of the weekly figures for the year.

DEPOSITS

TREASURY GENERAL ACCOUNT

By statute, the Federal Reserve acts as the fiscal agent for the federal government, and the U.S. Treasury maintains a cash balance at the Federal Reserve known as the Treasury General Account. The U.S. Treasury uses the TGA to deposit individual and corporate taxes paid to the U.S. government, disburse payments, pay interest on federal debt, and settle Treasury security issuance, maturities, and buybacks. TGA balances typically exhibit significant variation around Treasury auction settlement dates, as well as when there are significant expenditures, such as those related to Social Security or military spending, and on dates when tax payments are due. To ensure it can meet its obligations even if the ability to borrow new funds is temporarily disrupted, the U.S. Treasury generally strives to maintain a TGA balance that is large enough to ensure that it can cover one week of net outgoing payments, including the gross volume of maturing marketable debt, subject to a minimum of roughly $150 billion. The U.S. Treasury often holds a TGA balance above the level necessary to meet its projected cash needs as part of its regular and predictable approach to issuing debt.[33]

The TGA increased from about $446.7 billion at year-end 2022 to $768.6 billion at year-end 2023, but on average was roughly $175 billion lower than the 2022 average level (Chart 22). Amid debt limit constraints, the TGA declined in the first half of the year to a low of about $20 billion in early June. Following the June 3 resolution of the debt limit impasse, the U.S. Treasury resumed a robust pace of bill issuance, which, along with tax receipts, drove the TGA to its highest level of the year at roughly $870 billion in late October.[34]

FOREIGN OFFICIAL AND OTHER DEPOSITS

The Federal Reserve has long offered deposit services to international and multilateral organizations, government-

sponsored enterprises, and, more recently, to designated financial market utilities (DFMUs). GSEs are financial intermediaries chartered by the federal government that primarily facilitate the flow of credit to the housing and agriculture sectors. Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 authorized the Board of Governors to authorize Federal Reserve Banks to establish and maintain accounts for designated financial market utilities. DFMUs provide the infrastructure for transferring, clearing, and settling payments, securities, and other financial transactions. Unlike deposits held by FIMA customers and GSEs at the New York Fed, deposits held by DFMUs may be remunerated at the rate paid on reserve balances maintained by depository institutions or another rate determined by the Board from time to time, not to exceed the general level of short-term interest rates. As of 2017, the Federal Reserve Banks had opened accounts for all eight DFMUs.

In 2023, average aggregate balances of foreign official and other deposits declined by about $47 billion to roughly $196 billion but remained at the higher levels seen since 2020. The aggregate decline was driven primarily by declines in DFMU balances.

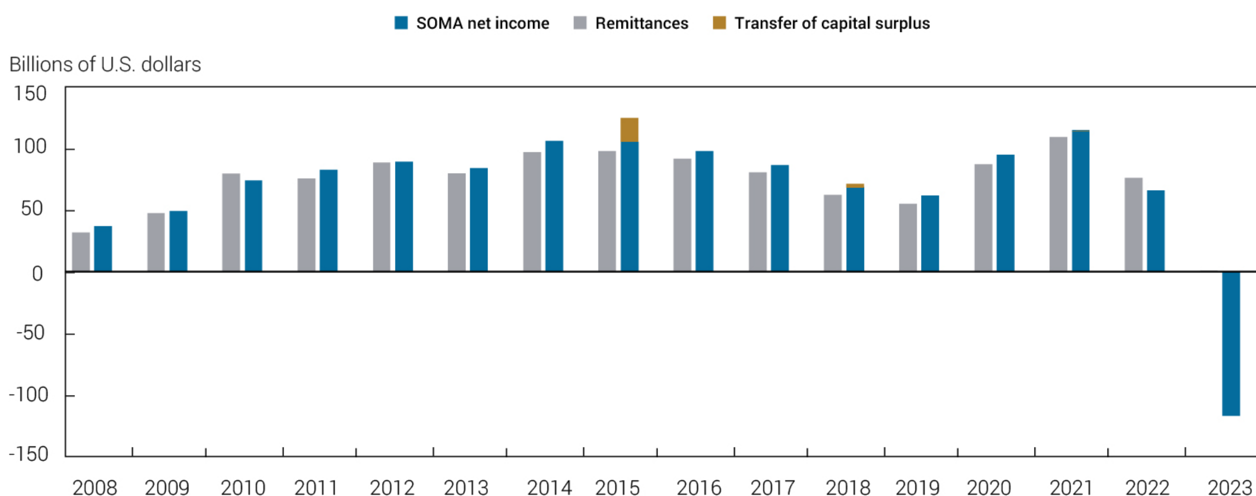
GSE account balances continued to vary within each month, with increases in balances when GSEs positioned funds in their Federal Reserve accounts ahead of monthly principal and interest payment dates. As mortgage rates remained high throughout the year and agency MBS prepayments remained at low levels, these peaks in GSE deposits also remained at low levels. Foreign official deposits were stable over the year at a level of between $5 billion and $10 billion.

FINANCIAL RESULTS

SOMA net income was negative $117.2 billion in 2023 compared to positive $65.7 billion in 2022, as SOMA portfolio interest expenses plus the assumed funding cost exceeded total SOMA income for the year. The negative net income was primarily due to higher administered rates, which continued to increase in line with the federal funds target range during the year, while interest income on the SOMA portfolio was only modestly lower. The Federal Reserve's deferred asset reached $133.3 billion as of year-end 2023, which reflects the amount of cumulative net income that the Federal Reserve must earn before resuming remittances to the U.S. Treasury.[35]

Chart 23

SOMA Net Income and Federal Reserve Remittances to the U.S. Treasury



Sources: Federal Reserve Bank of New York; Board of Governors of the Federal Reserve System.

Notes: Remittances for 2021 include the transfer of capital from Federal Reserve Banks to comply with the statutory limit on the aggregate Federal Reserve surplus. In 2021, the limit was reduced to $6.785 billion by the National Defense Authorization Act for 2021, resulting in a $40 million transfer by Reserve Banks from their capital surplus. Given the scale of the chart, the 2021 transfer is not visible.

SOMA NET INCOME

Total interest income on the SOMA portfolio decreased modestly in 2023 compared to 2022. Interest expenses on reverse repurchase agreements more than doubled during 2023, as the impact of higher rates outweighed the impact of the reduction in reverse repo outstanding. In addition, the assumed funding costs—reflecting interest expense primarily on reserves and other non-SOMA liabilities—increased sharply amid higher levels of administered rates over the year.[36] As a result, total SOMA net income remained at significantly negative levels during the year (Table 3 and Chart 23).

FEDERAL RESERVE REMITTANCES

The Federal Reserve remits its earnings to the U.S. Treasury Department on a weekly basis, after providing for the cost of operations, payment of dividends, and any amount necessary to maintain aggregate Reserve Bank capital surplus up to a specified limit. The Federal Reserve suspended nearly all remittances to the Treasury in 2023. The negative net income in 2023 resulted in the deferred asset increasing by $116.7 billion to a level of $133.3 billion, which represents the amount of future net earnings that will need to be realized before remittances to the Treasury resume. Once Federal Reserve net income turns positive again, this deferred asset will be reduced and eventually extinguished. The deferred asset does not impact the ability of the Federal Reserve to implement monetary policy or meet any of its financial obligations.

SOMA UNREALIZED GAINS AND LOSSES

The market value of the SOMA's securities portfolio fluctuates with changes in the prevailing level of interest rates. Unrealized gains and losses are calculated as the difference between the market value of the portfolio and its book value, which reflects amortized cost. For securities that are held to maturity, unrealized gains or losses fall to zero over time as their price reverts to par at maturity. The SOMA's unrealized gain or loss position has no effect on net income or Federal Reserve remittances to the Treasury unless assets are sold and those gains or losses are realized. Unrealized gains and losses have no effect on the conduct of monetary policy.

Table 3

SOMA Net Income

Billions of U.S. Dollars

	2023	2022
Interest income		
Treasury securities	106.5	115.9
Agency MBS	57.0	54.0
Agency debt	0.1	0.1
Repurchase agreements		
FIMA repurchase agreements	0.2	0.0
Standing repurchase agreements	0.0	0.0
Other	0.3	0.0
	164.1	170.0
Interest expense		
Reverse repurchase agreements		
Overnight reverse repurchase agreements	(87.3)	(36.7)
FIMA reverse repurchase agreements	(17.0)	(5.3)
Other	0.0	0.0
	(104.3)	(42.0)
Non-interest income (loss)		
Foreign currency translation gains (losses)	(0.1)	(1.8)
Other	(0.1)	(0.1)
	(0.2)	(1.9)
SOMA income	59.6	126.1
Assumed funding cost	(176.8)	(60.4)
SOMA net income	(117.2)	65.7

Sources: Federal Reserve Bank of New York; Board of Governors of the Federal Reserve System.

Notes: Assumed funding cost represents the interest expense on interest-bearing liabilities assumed to be associated with SOMA net assets. These liabilities fund non-SOMA assets of the Federal Reserve in addition to SOMA net assets.

Table 4

SOMA Domestic Portfolio Unrealized Gains and Losses
Billions of U.S. Dollars

Year	Treasury Securities	Agency MBS	Agency Debt	Total
2019	139.1	20.8	0.7	160.6
2020	298.7	54.4	0.9	354.0
2021	134.6	(7.4)	0.7	127.9
2022	(672.8)	(407.7)	0.2	(1,080.4)
2023	(585.2)	(363.3)	0.1	(948.4)

Source: Board of Governors of the Federal Reserve System.

Note: Figures are as of year-end.

Market interest rates across the yield curve ended 2023 at levels similar to those at year-end 2022, while the overall size of SOMA securities holdings decreased. These factors drove the unrealized loss position to decrease to $948.4 billion, compared to $1.08 trillion in 2022 (Table 4). Unrealized loss positions in the Treasury and agency MBS portfolios decreased by around $88 billion and $44 billion, respectively, during 2023. The foreign portfolio held an unrealized loss position of $198.2 million compared to an unrealized loss of $452.4 million at year-end 2022.

PROJECTIONS

The projections presented here show how the SOMA portfolio and reserves may evolve under the FOMC's Plans for Reducing the Size of the Federal Reserve's Balance Sheet (Plans). For illustrative purposes, we show two scenarios representing different potential steady-state levels of reserves that may be consistent with the ample reserve framework. The actual paths will depend on the FOMC's decisions about the balance sheet amid prevailing conditions in financial markets and the broader economy. Future financial and economic conditions and their impact on the demand for reserves and the balance sheet are highly uncertain; for example, the amount of Federal Reserve liabilities demanded by Federal Reserve counterparties and account holders may depend on those entities' objectives and constraints as well as the attractiveness and supply of alternative investments. In addition to FOMC communications, these projections also reflect market expectations drawn from the Desk's Surveys of Primary Dealers and Market Participants (Desk surveys) and simple illustrative rules used to proxy the evolution of Federal Reserve liabilities.

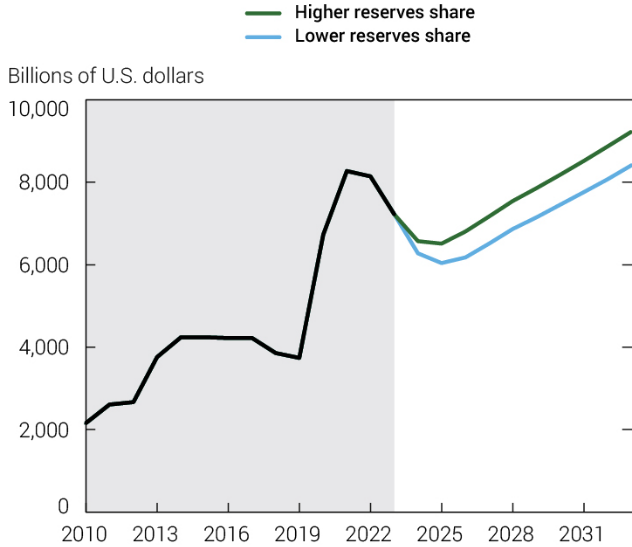
This exercise considers two discrete scenarios—one that assumes a higher level of reserves and one that assumes a lower level—as an illustration of the uncertainty in the demand for reserves and the associated level of reserves consistent with an ample reserves regime. Under the two purely illustrative scenarios, the size of the SOMA portfolio continues to decline to $6.5 trillion and $6.0 trillion, respectively. The portfolio size then remains steady for roughly one year before increasing to keep pace with growth of demand for Federal Reserve liabilities, reaching $9.2 trillion and $8.4 trillion, respectively, by the end of the forecast horizon in 2033. In the scenario assuming a higher level of reserves in the long run, the portfolio is larger over the projection horizon, although the contours of the SOMA portfolio and reserve paths are similar in the two scenarios. In both scenarios, the share of the portfolio composed of Treasury securities increases over the projection horizon.

The projections also include illustrative paths for SOMA net income, which is calculated as the difference between the amount the portfolio earned and the assumed cost of funding the portfolio in each year. The portfolio's net income is projected to be negative in 2024 before turning positive in 2025 and increasing over the rest of the forecast horizon. Alternate rate scenarios show that over the next few years net income is higher (lower) under a parallel shift lower (higher) in interest rates.

In projections for the portfolio's unrealized gain or loss position—that is, the difference between the portfolio's market and book valuations—the SOMA portfolio is projected to be held at an unrealized loss position over the forecast horizon, although this loss position decreases as market rates for Treasury securities and agency MBS decline over time and as gains and losses converge to zero toward maturity. Alternate rate scenarios show

Chart 24

Projected SOMA Domestic Securities Holdings



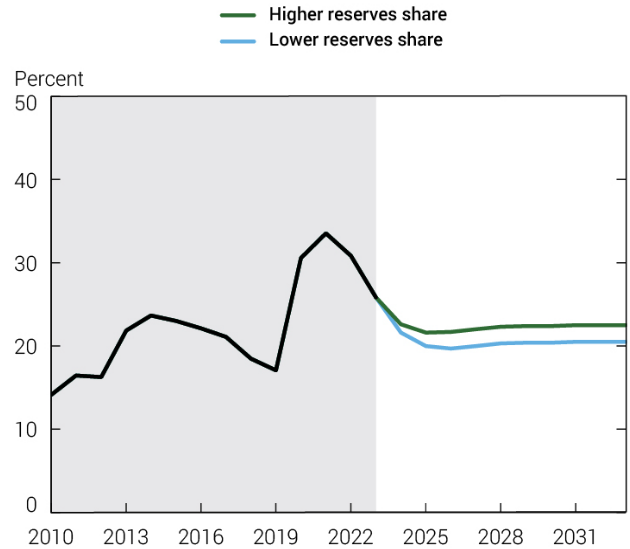
Source: Federal Reserve Bank of New York.

Notes: Higher/lower reserves share scenario refers to the ratio of reserves to nominal GDP consistent with balance sheet reduction slowing at about 12 percent/10 percent and stopping at about 11 percent/9 percent, then growing to maintain ample reserves at about 10 percent/8 percent. Figures are as of year-end and are rounded. Figures for 2010-23 are shaded and represent historical balances.

Projections assumptions are primarily based on publicly available information further detailed in Appendix 4 of this report.

Chart 25

Projected SOMA Domestic Securities Holdings as a Share of NGDP



Source: Federal Reserve Bank of New York.

Notes Higher/lower reserves share scenario refers to the ratio of reserves to nominal GDP consistent with balance sheet reduction slowing at about 12 percent/10 percent and stopping at about 11 percent/9 percent, then growing to maintain ample reserves at about 10 percent/8 percent. Figures are as of year-end and are rounded. Figures for 2010-23 are shaded and represent historical balances.

Projections assumptions are primarily based on publicly available information further detailed in Appendix 4 of this report.

that over the next few years the unrealized loss is lower (higher) under a parallel shift lower (higher) in interest rates. Negative net income and unrealized gains or losses do not impact the Federal Reserve's conduct of monetary policy.

ASSUMPTIONS

This section reviews the assumptions about SOMA portfolio runoff, Federal Reserve liabilities, and interest rates that are used for the projections; a complete list of key assumptions can be found in Appendix 4.

BALANCE SHEET

Assets

The projections assume that the size of the SOMA portfolio will evolve in three phases: portfolio reduction, portfolio maintenance, and portfolio growth. Consistent with the Plans, during portfolio reduction monthly principal payments from Treasury coupon securities and agency securities are reinvested only to the extent that they exceed monthly redemption caps.[37] The redemption caps are initially maintained at $60 billion and $35 billion for Treasury securities and agency securities, respectively. Treasury coupon principal payments are redeemed up to the monthly Treasury cap, and Treasury bills are redeemed

when coupon principal payments are less than the monthly cap, with bill redemptions equal to the remainder under the cap. To slow balance sheet reduction, the redemption caps on Treasury and agency securities are assumed to be lowered by half, as a placeholder for the FOMC's eventual decision.

Consistent with the Plans, the decline in the portfolio slows and then stops, and the portfolio's size is then maintained at a roughly constant level when reserves are somewhat above the level assumed to be consistent with an ample reserves regime. During this portfolio maintenance phase, all principal payments—including those from agency security holdings—are reinvested into Treasury securities, in line with the Committee's stated objective of holding a portfolio composed primarily of Treasury securities in the longer run. Once reserves reach an ample level, the portfolio enters the growth phase, at which point reserve management purchases of Treasury securities resume at a pace that maintains reserves at an ample level.

In the examples presented here, the timing of the transition between these three phases is determined by the level of reserves as a share of nominal GDP (NGDP), where the assumed rate of growth for NGDP is based on median responses to the January 2024 Survey of Primary Dealers. The median expected longer-run growth rates of real GDP and personal consumption expenditures (PCE) price inflation were 1.9 percent and 2.0 percent, respectively, consistent with a long-run level of NGDP growth of 3.9 percent.

As an illustration of the uncertainty in the amount of reserves consistent with an ample reserves framework, two scenarios are shown that differ by the level of reserves as a share of NGDP assumed to mark the transition between each phase. The level of reserves needed to operate in an ample reserves framework will be influenced by a range of factors, including the demand for reserves. Demand for reserves itself reflects a range of factors, including actual or expected payment activity, regulations and related factors, and internal liquidity risk management practices, and may change over time and in different market environments.

For the higher reserves scenario, portfolio reduction slows when the reserves share of NGDP reaches approximately 12 percent; portfolio maintenance begins when the reserves share of NGDP reaches approximately 11 percent; finally, portfolio growth begins when the reserves share of NGDP reaches approximately 10 percent. In the scenario with a lower reserves share, these same changes in the portfolio occur when the reserves share reaches 10 percent, 9 percent, and 8 percent of NGDP, respectively.[38] These are simple, illustrative assumptions for the long-run level of reserves; in practice, the Committee will continue to monitor money market conditions to inform its assessment of the level of reserves consistent with an ample reserves regime and adjust its policy implementation tools accordingly.

Liabilities and Capital

Demand for most Federal Reserve liabilities is assumed to grow over time. A key exception is ON RRP facility take-up, which is assumed to decline to a minimal level by the end of 2024 at a pace roughly similar to that of portfolio reduction. Additionally, the TGA is assumed to grow from its December 2023 average to around $750 billion at the end of the first quarter of 2024 and to remain at that level through the second quarter of 2024, in line with the Treasury's February 2024 Quarterly Refunding Statement. Thereafter, the TGA is assumed to grow with nominal GDP.

All other non-reserve liabilities and capital are assumed to begin at their average December 2023 levels and grow over the projection horizon in line with nominal GDP, which is used as a plausible proxy for longer-term growth.

INTEREST RATES

The baseline paths for the federal funds rate and longer-term interest rates are drawn from responses to the January 2024 Desk Surveys. In the survey responses, the median expected midpoint of the federal funds target range falls to 2.75 percent in the longer run. The ten-year Treasury yield and thirty-year fixed primary mortgage rate are expected to fall to 3.6 percent and 5.8 percent, respectively, in the longer run. The IORB rate is assumed to be set 10 basis points below the top of the target range and the ON RRP offering rate is assumed to be set 5 basis points above the bottom of the target range, in line with recent settings. The

interest rate path contributes to projecting portfolio net income and market value.

The projection exercise also considers a range of outcomes for net income and portfolio market values assuming lower and higher interest rates; these additional scenarios focus on the higher reserve level assumption for simplicity of presentation and then assume interest rates are 100 basis points higher or lower than the values obtained from the January 2024 Desk Surveys. The data files for this report also include scenarios in which interest rates are 200 basis points higher or lower than the values obtained from the January 2024 Desk Surveys.

PROJECTION RESULTS

PATH OF PORTFOLIO HOLDINGS AND RESERVE BALANCES

Starting with the SOMA domestic securities portfolio as of December 2023 and incorporating the different sets of assumptions described above results in the two scenarios for the size of the SOMA (Chart 24). Early in the projection period, portfolio reduction continues at the same pace as December 2023: principal payments up to a redemption cap of $60 billion for Treasury securities and $35 billion for agency MBS are allowed to run off without reinvestment, and additional principal payments are reinvested into the same asset class. During this period, the portfolio declines by about $75 billion per month on average.

For the higher reserves share scenario, portfolio reduction slows in the first half of 2024 when reserves as a share of NGDP reach 12 percent. At this point the redemption caps are reduced by half for each asset class and the pace of decline falls to about $45 billion per month.[39] In early 2025, portfolio reduction ceases and the portfolio maintenance phase begins as reserves as a share of NGDP reach 11 percent. During this period, the SOMA portfolio is maintained at around $6.5 trillion, or 22 percent of NGDP, as maturing Treasury securities are reinvested into newly issued Treasury securities at auction and MBS paydowns are reinvested into Treasury securities in the secondary market (Chart 25). Portfolio growth begins in early 2026 as reserves reach 10 percent of nominal GDP.

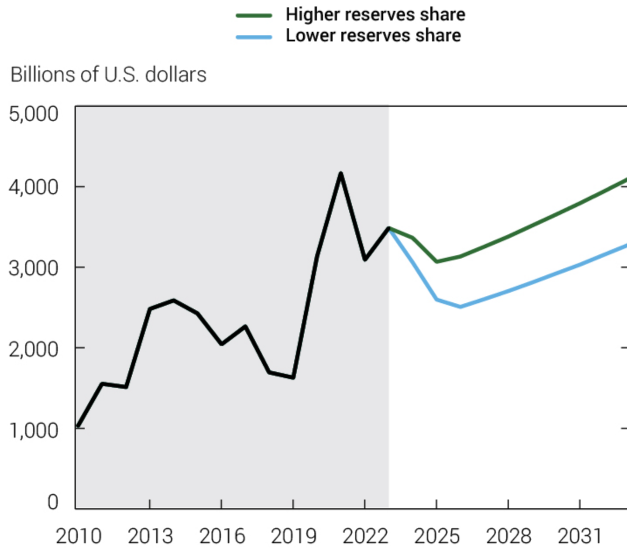
For the lower reserves share scenario, portfolio reduction slows in the first half of 2025 when reserves as a share of NGDP reach 10 percent. In mid-2025, portfolio reduction ceases and the portfolio maintenance phase begins as reserves as a share of NGDP reach 9 percent. During this period, the SOMA portfolio is maintained at around $6.0 trillion or 20 percent of NGDP. Portfolio growth begins in mid-2026 as reserves reach 8 percent of nominal GDP.

In both scenarios, reserves decline through the portfolio reduction phase, driven by the effects of SOMA runoff and non-reserve liability growth, partially offset by the decline in ON RRP take-up and growth in the deferred asset; during the portfolio maintenance phase, non-reserve liability growth and a decline in the deferred asset reduce reserves (Chart 26).[40] In the scenario with higher reserves as a share of NGDP, reserves hit a trough just above $3.0 trillion in early 2026; in the lower reserve share scenario, reserves reach a trough just below $2.5 trillion in mid-2026. Thereafter, reserves grow in line with nominal GDP in order to maintain the reserves share at a constant level consistent with ample reserves (Chart 27).

Although the level of the SOMA portfolio and reserves in the longer run is unknown due to uncertainty in demand for Federal Reserve liabilities, these projections illustrate possible paths for the portfolio and reserves associated with the dynamics that will likely prevail in the coming years. The path of reserves on the way to its longer-run level and the amount of reserves necessary in the long run may differ from the projections shown here.

Chart 26

Projected Reserve Balances



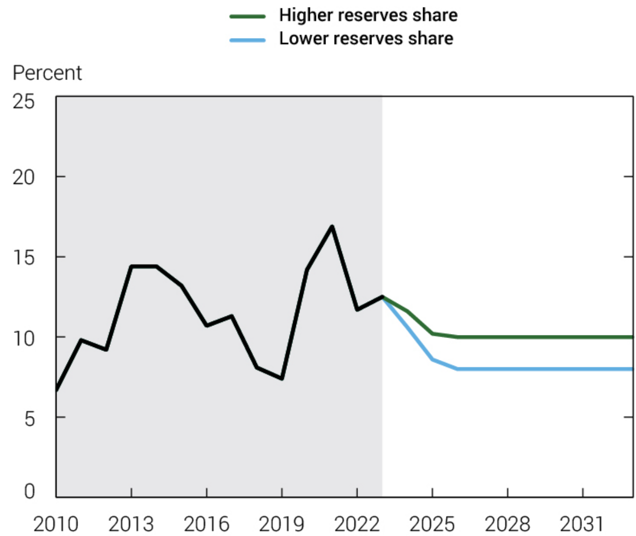
Source: Federal Reserve Bank of New York.

Notes: Higher/lower reserves share scenario refers to the ratio of reserves to nominal GDP consistent with balance sheet reduction slowing at about 12 percent/10 percent and stopping at about 11 percent/9 percent, then growing to maintain ample reserves at about 10 percent/8 percent. Figures are as of year-end and are rounded. Figures for 2010-23 are shaded and represent historical year-end balances calculated as averages of December daily reserve balances.

Projections assumptions are primarily based on publicly available information further detailed in Appendix 4 of this report.

Chart 27

Projected Reserve Balances as a Share of NGDP



Source: Federal Reserve Bank of New York.

Notes: Higher/lower reserves share scenario refers to the ratio of reserves to nominal GDP consistent with balance sheet reduction slowing at about 12 percent/10 percent and stopping at about 11 percent/9 percent, then growing to maintain ample reserves at about 10 percent/8 percent. Figures for 2010-23 are shaded and represent historical year-end balances calculated as averages of December daily reserve balances as a share of year-end NGDP.

Projections assumptions are primarily based on publicly available information further detailed in Appendix 4 of this report.

PORTFOLIO COMPOSITION

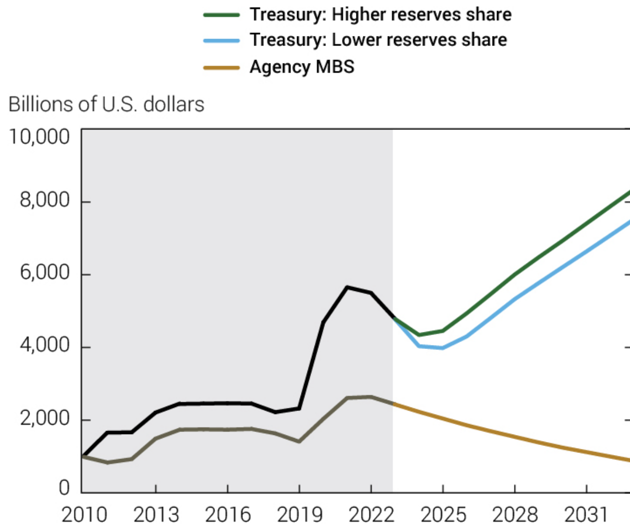
Over the projection horizon, the share of the portfolio held as agency MBS declines from around 34 percent of the SOMA portfolio to around 10 percent in the scenario with a higher reserves share; the share of the portfolio held as agency MBS in the lower reserves share scenario also declines to around 11 percent (Chart 28).[41] During the portfolio maintenance and growth phases, all principal payments from agency securities are reinvested into Treasury securities and principal payments from Treasury securities are reinvested into new Treasury securities at auction. When the portfolio resumes growth, reserves management purchases are conducted only in Treasury securities—consistent with the Committee's intention to return to a portfolio composed primarily of Treasury securities.

SOMA NET INCOME AND REMITTANCES

As discussed earlier in this report, the Federal Reserve remits excess earnings to the U.S. Treasury after providing for the cost of operations, the payment of dividends, and any amount necessary to maintain an aggregate Reserve Bank capital surplus up to the statutory limit. SOMA net income—a measure that reflects interest income and interest expense associated with the SOMA portfolio as well as the portfolio's assumed funding cost—is the primary driver of Federal Reserve remittances.[42]

Chart 28

Projected SOMA Domestic Securities Holdings by Asset Class



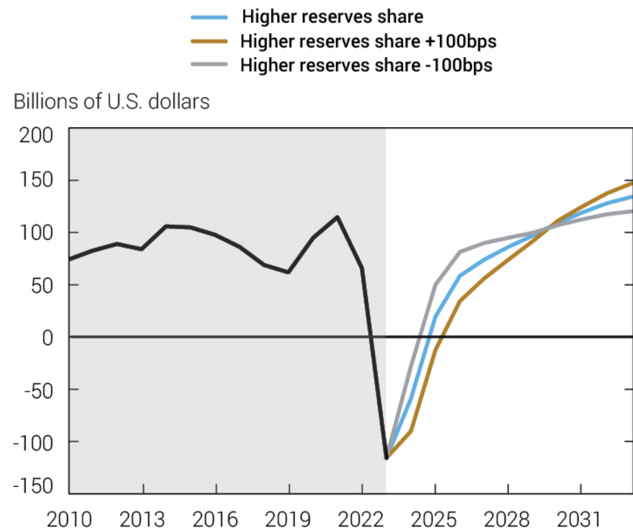
Source: Federal Reserve Bank of New York.

Notes: Higher/lower reserves share scenario refers to the ratio of reserves to nominal GDP consistent with balance sheet reduction slowing at about 12 percent/10 percent and stopping at about 11 percent/9 percent, then growing to maintain ample reserves at about 10 percent/8 percent. Figures are as of year-end and are rounded. Figures for 2010-23 are shaded and represent historical balances.

Projections assumptions are primarily based on publicly available information further detailed in Appendix 4 of this report.

Chart 29

Projected SOMA Net Income



Source: Federal Reserve Bank of New York.

Notes: Higher reserves share scenario refers to the ratio of reserves to nominal GDP consistent with balance sheet reduction slowing at about 12 percent and stopping at about 11 percent, then growing to maintain ample reserves at about 10 percent. Figures are annual totals and are rounded. Figures for 2010-23 are shaded and represent historical values.

Projections assumptions are primarily based on publicly available information further detailed in Appendix 4 of this report.

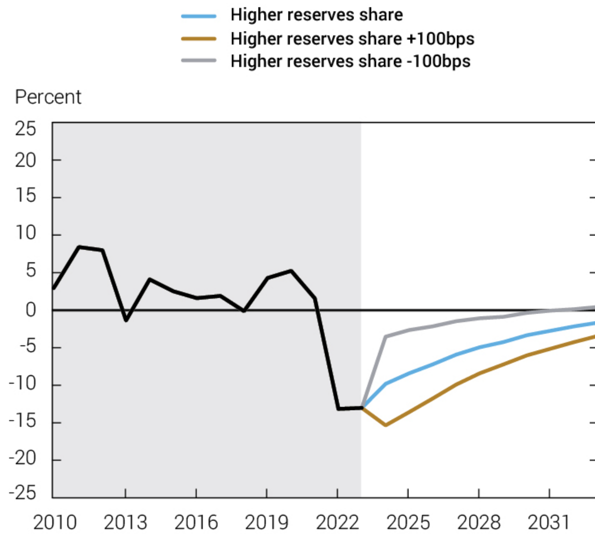
In this exercise, SOMA net income remains negative through 2024 because the expenses associated with reserve balances and the ON RRP facility are higher than income earned on the SOMA portfolio (Chart 29). Net income becomes positive starting in 2025 primarily due to declines in short-term interest rates and, eventually, increases in income from higher-yielding securities added to the portfolio through reinvestments and reserve management purchases. The projections for negative net income suggest that remittances to the U.S. Treasury will be suspended for some time and that the deferred asset recorded on the Federal Reserve's balance sheet will continue to grow. As net income increases above zero, the deferred asset will gradually be reduced, and remittances resume once the deferred asset is extinguished.

The results for the two reserve share scenarios are very similar—projected SOMA net income from the scenario with a lower reserves share is within $5 billion of that of the higher reserves share scenario for each year over the projection horizon—and so for simplicity of presentation only the results for the higher reserves share scenario are shown in this report. Although the portfolio is larger in the higher reserve share scenario, additional securities are added to the portfolio at yields only slightly higher than overnight rates and so the increased income is roughly offset by the increased expense of the corresponding liabilities.

To illustrate the sensitivity of SOMA net income to alternative interest rate paths, Chart 29 also shows the outcomes for net income for the scenario with a higher reserve share assuming short- and long-term interest rates that are 100 basis points

Chart 30

Projected SOMA Unrealized Gains and Losses as a Share of the SOMA Portfolio



Source: Federal Reserve Bank of New York.

Notes: Higher reserves share scenario refers to the ratio of reserves to nominal GDP consistent with balance sheet reduction slowing at about 12 percent and stopping at about 11 percent, then growing to maintain ample reserves at about 10 percent. Figures are as of year-end and are rounded. Figures for 2010-23 are shaded and represent historical balances.

Projections assumptions are primarily based on publicly available information further detailed in Appendix 4 of this report.

higher and lower than in the baseline rates scenario. When interest rates are 100 basis points higher than indicated in the January 2024 Desk Surveys, net income is negative for roughly two quarters longer than in the baseline rates scenario due to higher expenses from interest paid on reserves. Further out in the projection horizon, net income is higher than in the baseline rates scenario as the effects of higher funding costs are more than offset by the impact of higher coupon income as securities are purchased at higher yields. In the scenario in which interest rates are lower, net income becomes positive roughly one quarter earlier than in the baseline due to lower interest expenses. Later in the projection horizon, net income is lower than in the baseline rate scenario due to the effect of lower coupon income.[43]

SOMA UNREALIZED GAINS AND LOSSES

The market value of securities holdings—and, accordingly, the portfolio's unrealized gains or losses—fluctuates with changes in the prevailing level of market rates for Treasury and agency securities. As of December 2023, the unrealized loss (that is, the difference between the market value of the portfolio and its book value, which reflects amortized cost) on the portfolio was $948 billion. Assuming the baseline path of market interest rates, the unrealized loss on the portfolio in the higher reserve share scenario is projected to shrink over the forecast horizon to about $150 billion, or 2 percent of the par value of the SOMA portfolio (Chart 30). At first, the decline in the path of long-term interest rates causes the market value of securities to increase. Then, over time, the market value of the portfolio trends toward par as security holdings approach maturity.

Projected unrealized gains and losses are similar in both reserves share scenarios because the portfolio's unrealized losses are driven by the portfolio position at the beginning of the projection horizon, which is identical between the two reserves share scenarios; the difference in unrealized losses between scenarios is less than $5 billion at each year-end. For simplicity of presentation, only the results for the higher reserve share scenario are shown in this report.

When interest rates are assumed to be 100 basis points higher than indicated in the January 2024 Desk Surveys, the unrealized loss on the portfolio becomes more negative, reaching roughly 17 percent of the portfolio. If interest rates are lower, the unrealized loss on the portfolio shrinks more quickly.[44]

As noted earlier, the Federal Reserve's earnings and unrealized gains or losses have no impact on its ability to fulfill its financial obligations or to implement monetary policy in pursuit of its statutory goals.

COUNTERPARTIES

The New York Fed relies on a robust network of trading counterparties to supply the necessary operational capacity to execute domestic and foreign open market operations. This network of counterparties is diverse and geographically dispersed to ensure that the New York Fed could continue to conduct open market operations in a range of scenarios.[45]

The New York Fed transacts primarily with regulated banks and broker-dealers, considering other types of counterparties only when appropriate to execute its responsibilities, and seeks to transact with counterparties that do not pose an undue level of credit risk exposure to the New York Fed or to the parties on whose behalf the New York Fed executes market operations (Chart 31). Among other requirements, counterparties are expected to operate in accordance with the best practices for fixed income and foreign exchange markets published by New York Fed–sponsored and related groups.[46]

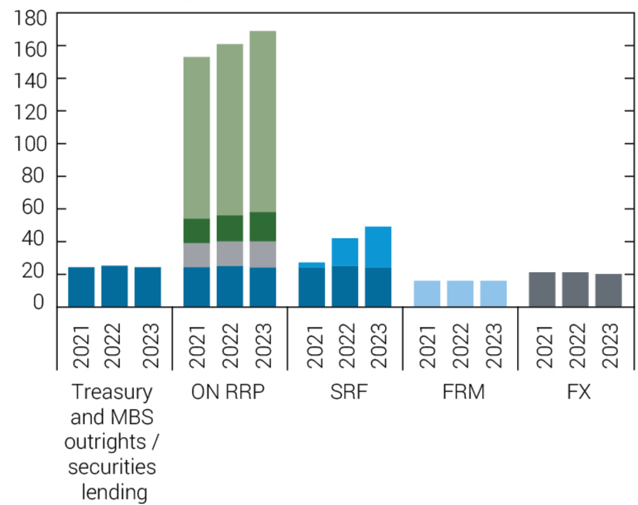
PRIMARY DEALERS

Primary dealers are trading counterparties of the New York Fed in its implementation of monetary policy and are expected to participate consistently and competitively in open market operations. They are also expected to make markets for the New York Fed on behalf of its official account holders as needed, and to bid on a pro rata basis in all Treasury auctions at reasonably competitive prices.[47] The New York Fed also expects primary dealers to provide ongoing insight into market developments in the daily market monitoring activities that the Desk conducts to support the formulation and implementation of monetary

Chart 31

Counterparty Types by Operation

- Primary dealers[a]
- GSEs
- SRF-eligible depository institutions
- FX-eligible counterparties[b]
- RRP-eligible banks
- Money market funds
- FRM-eligible counterparties[b]



Source: Federal Reserve Bank of New York.

[a] A primary dealer is generally either (1) a broker-dealer or (2) a state or federally chartered bank or savings association or a state or federally licensed branch or agency of a foreign bank. Except as otherwise noted, entities that qualify under both the "primary dealers" category and other categories are listed as primary dealers.

[b] May include primary dealers or affiliates thereof, but only if they individually qualify under applicable requirements. The counterparty names for foreign reserves management (FRM) and foreign exchange (FX) are consolidated at the parent entity level. The Desk may trade with domestic or foreign branches, subsidiaries, or other affiliates of these entities.

policy. As of December 31, 2023, there were twenty-four primary dealers.[48]

REVERSE REPURCHASE AGREEMENT COUNTERPARTIES

To enhance its ability to support the monetary policy objectives of the FOMC, the New York Fed has arrangements with an expanded set of counterparties with whom the Desk can conduct reverse repo transactions. These RRP counterparties—which include money market funds, government-sponsored enterprises, and banks—augment the existing set of primary dealer counterparties with which the New York Fed can conduct reverse repos. In April 2023, the New York Fed clarified that accessing RRP operations should be a natural extension of an existing business model, and the counterparty should not be organized for the purpose of accessing RRP operations. As of December 31, 2023, there were 145 expanded RRP counterparties, comprising 111 money market funds from thirty-two investment management firms, eighteen government-sponsored enterprises, and sixteen banks.

STANDING REPURCHASE AGREEMENT FACILITY COUNTERPARTIES

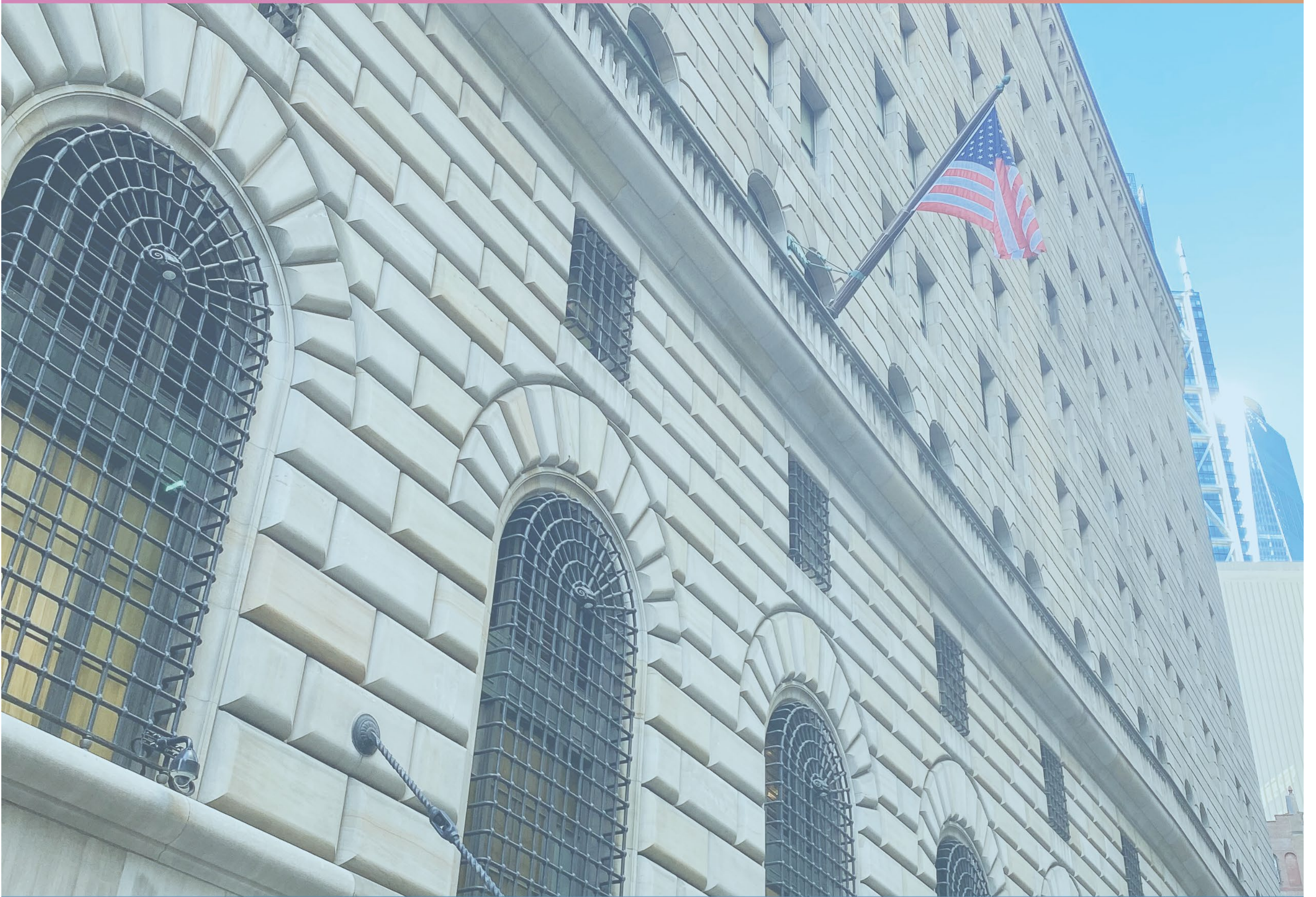
The New York Fed's Trading Desk conducts daily overnight repurchase agreement transactions under a standing repurchase agreement facility to support the effective implementation of monetary policy and smooth market functioning. In addition to primary dealers, eligible depository institutions may participate in these operations as SRF counterparties. Eight depository institutions were added to the list of SRF counterparties in 2023, resulting in a total of forty-nine approved counterparties at year-end, made up of twenty-five depository institutions and twenty-four primary dealers.

FOREIGN EXCHANGE COUNTERPARTIES

Foreign exchange counterparties are trading counterparties of the New York Fed in its foreign exchange operations conducted on behalf of the Federal Reserve and the U.S. Treasury. These counterparties are also expected to make reasonable markets for Desk transactions that relate to the currency needs of the New York Fed's official account holders and agencies of the U.S. government. In addition, the New York Fed relies on its foreign exchange counterparties for ongoing insight into global financial market developments in its daily market monitoring activities to support the formulation and implementation of policy by U.S. monetary authorities. Foreign exchange counterparties are expected to provide competitive two-way pricing, as needed, to support the Desk's periodic foreign exchange operations. As of December 31, 2023, there were twenty foreign exchange counterparties.[49]

FOREIGN RESERVES MANAGEMENT COUNTERPARTIES

The New York Fed transacts with foreign reserves management counterparties to invest the foreign currency reserves of the Federal Reserve and the U.S. Treasury. These counterparties are expected to participate consistently and competitively in the Desk's periodic investment operations. As of December 31, 2023, there were sixteen financial entities serving as foreign reserves management counterparties. Trades may occur with domestic or foreign branches, subsidiaries, or other affiliates of these entities.



OPERATIONAL FLEXIBILITY AND RESILIENCY

Over the course of 2023, the New York Fed continued efforts to enhance operational flexibility and resiliency by maintaining a robust and geographically dispersed network of counterparties and operational capabilities. New York Fed staff operated in a hybrid posture, which further supported readiness to conduct operations in a range of scenarios to implement monetary policy in accordance with FOMC directives. In addition, the Desk continued to undertake operational readiness exercises and initiatives to enhance cyber resiliency.

OPERATIONAL READINESS

The Desk continued its practice of conducting small-value transaction exercises for certain domestic and foreign SOMA operations to maintain operational readiness.[50] During these exercises, transactions were conducted end-to-end, from trade execution through settlement, and were modest in size. These exercises test the Desk's operational capability to execute a range of operation types that may be required to expeditiously implement future policy directives. Any conduct of small-value exercises should not be interpreted as a signal about the possible future timing or direction of changes in policy.

The Desk also conducts small-value exercises leveraging back-up tools as part of its contingency preparedness efforts. These exercises test the Desk's ability to execute certain critical operations under a scenario in which primary tools such as the proprietary FedTrade electronic trading platform become unavailable. In 2023, exercises with back-up tools were conducted for overnight reverse repo, overnight repo, and securities lending operations.

The aggregate par value of all transactions conducted for the purpose of testing operational readiness did not exceed their authorized limits during 2023. These tests covered domestic and foreign outright operations, as well as repo and reverse repo transactions. Small-value exercises for domestic operations were announced in advance and the results were posted on the New York Fed's website (Table 5). Results of small-value central bank liquidity swap transactions were also posted on the New York Fed's website (Table 6).

OPERATIONAL AND CYBER RESILIENCY

Cyber-attacks continue to grow in scale and sophistication across the globe, resulting in financial, operational, and reputational impacts worldwide. The Federal Reserve continues to invest in technologies and strategic private and public partnerships to defend and become more resilient against evolving cyber threat actors.

During 2023, several high-profile attacks against financial institutions demonstrated how the stability of the financial sector can be affected due to the interconnectedness of the industry. The New York Fed is working across the broader Federal Reserve System, as well as in partnership with the private sector, to monitor threats and prepare the Federal Reserve in the event a threat is realized. These efforts include assessing and testing responses and recovery preparedness to limit business impact, minimize the duration of an attack, and resume business operations with confidence.

Table 5

Small-Value Exercises in 2023: Domestic Operations

Operation Type	Operation Amount (Millions of U.S. Dollars)
Treasury outright purchases and sales	900
Agency MBS outright purchases and sales	878
Agency MBS coupon swaps	30
Agency MBS dollar rolls	24
SRF transactions with back-up tool	152
Overnight reverse repurchase agreement transactions with back-up tool	103
Term repurchase agreement transactions	56
Treasury securities lending with back-up tool	120

Source: Federal Reserve Bank of New York.

Notes: Figures may be rounded. Further details for each small-value exercise are available on the Federal Reserve Bank of New York's website.

Table 6

Small-Value Exercises in 2023: Foreign Operations

Operation Type	Operation Amount
Foreign reserves management transactions	
Euro portfolio	€51,200,000
Yen portfolio	¥1,800,000,000
Foreign currency liquidity swaps with standing swap line central banks	
Bank of Canada	CAD 50,000
Swiss National Bank	CHF 50,000
European Central Bank	€ 10,000

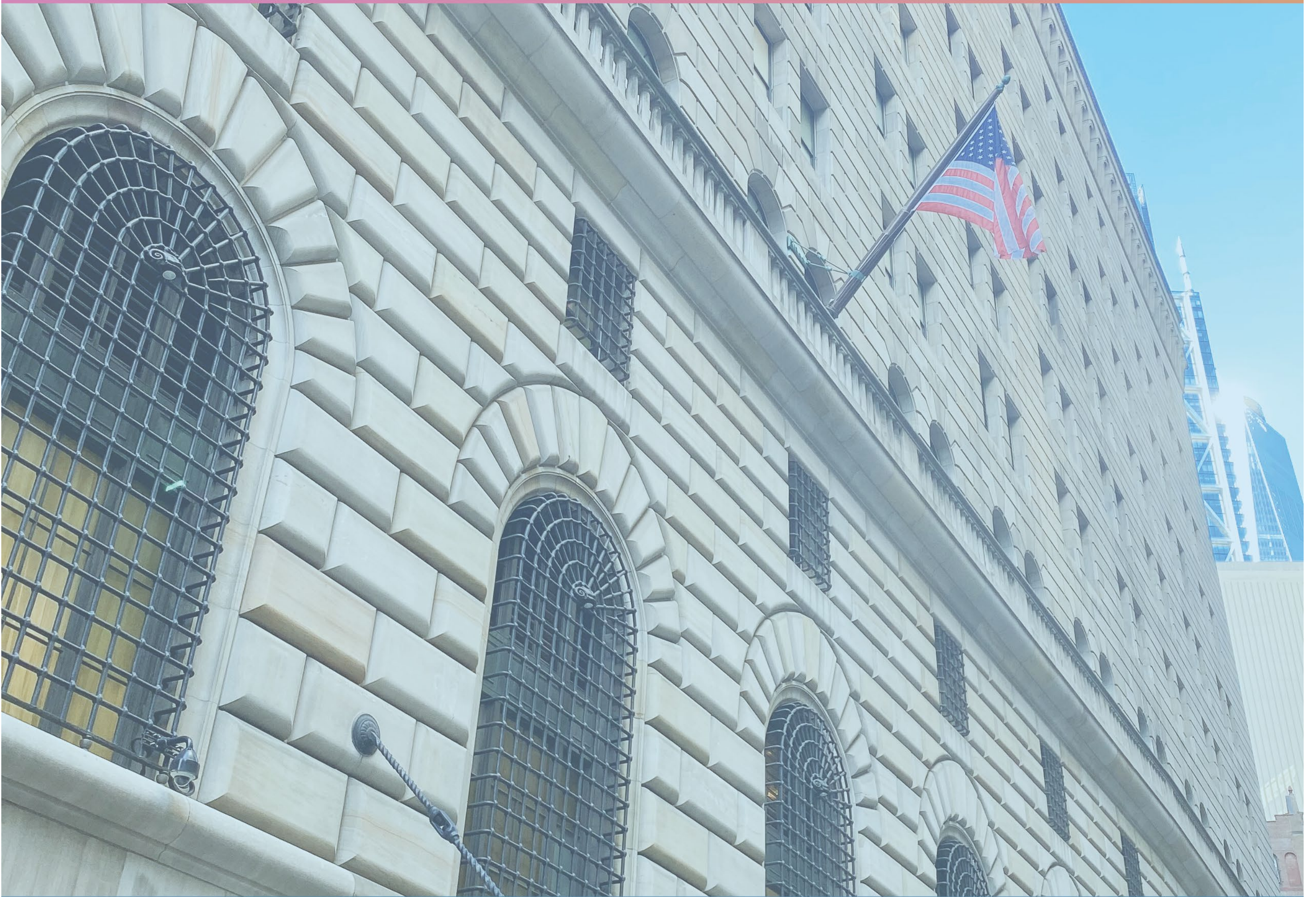
Source: Federal Reserve Bank of New York.

Note: Figures may be rounded.

GEOGRAPHIC RESILIENCY

In the event of wide-scale disruptions in large metropolitan areas (in particular, the New York region, where many market participants are located), the Federal Reserve must continue to conduct open market operations and settlement activities. In 2023, the Desk continued to enhance its operational flexibility and resiliency by maintaining a robust, geographically dispersed set of counterparties and arrangements for Desk operations.

To sustain the resiliency of the Desk's operations, the New York Fed operates alternative sites for trading and settlement of open market operations in other Reserve Bank locations across the Federal Reserve System. These arrangements ensure that the Desk has the resources needed to carry out critical operational and analytical activities should a contingency scenario affect the greater New York area. Similarly, all primary dealers have established secondary sites at geographically dispersed locations and regularly tested those facilities to ensure that open market operations could still be conducted amid any wide-scale disruption.



APPENDIX 1:

Terms for Desk Operations

The following tables summarize the key terms for Desk operations as they were implemented in 2023. For more information on each open market operation, including frequently asked questions (FAQs), visit the Markets & Policy Implementation page of the New York Fed's website, at https://www.newyorkfed.org/markets.

Overnight Reverse Repurchase Facility

For more information, visit the FAQs at https://www.newyorkfed.org/markets/rrp_faq.

Term	Overnight
Eligible securities	U.S. Treasury securities
Counterparties	Primary dealers, eligible 2a-7 money market funds, government-sponsored enterprises, and banks
Aggregate operation limit	These operations were limited by the value of Treasury securities held outright in the SOMA that was available for such operations.
Frequency	Daily
Per counterparty limit	One proposition per counterparty in an amount not to exceed $160 billion
Maximum offer rate	January 1 to February 1: 4.30 percent February 2 to March 22: 4.55 percent March 23 to May 3: 4.80 percent May 4 to July 26: 5.05 percent July 27 to December 31: 5.30 percent
Awards	The ON RRP facility was conducted as a fixed-price, single-price auction. If the total amount of propositions received was less than or equal to the amount of available securities, all awards were made at the specified offer rate to all counterparties that submitted propositions. In the highly unlikely event that the value of propositions received exceeded the amount of available securities, awards would be made at the rate at which this size limit was achieved (the stop-out

continued from previous page	rate), with all propositions below this rate awarded in full and all propositions equal to this rate awarded on a pro rata basis.
Execution platform	FedTrade, the Desk's proprietary trading platform

Standing Repurchase Agreement Facility

For more information, visit the FAQs at https://www.newyorkfed.org/markets/repo-agreement-ops-faq.

Term	Overnight
Eligible securities	U.S. Treasury securities, agency debt securities, and agency MBS
Counterparties	Primary dealers and eligible depository institutions
Aggregate operation limit	$500 billion
Frequency	Daily
Per counterparty limit	Two propositions of up to $20 billion per eligible security type
Minimum bid rate	January 1 to February 1: 4.50 percent February 2 to March 22: 4.75 percent March 23 to May 3: 5.00 percent May 4 to July 26: 5.25 percent July 27 to December 31: 5.50 percent
Awards	SRF operations are auctions conducted in a multiple-price format, in which allocations are made to participants at the rate they bid in the operation. Bid rates can be at or above the minimum bid rate. If the total amount bid in an individual operation was less than or equal to the aggregate operation limit, all propositions were accepted at their submitted rates. If the aggregate amount bid exceeded the aggregate operation limit, propositions were accepted at their submitted rates, starting with the highest rate bid relative to the benchmark rate set internally for each security type and working down until the aggregate operation limit was reached. After that, individual propositions were either partially awarded or not awarded based on their proximity to those benchmark rates for each security type.
Execution platform	FedTrade, the Desk's proprietary trading platform

Central Bank Liquidity Swaps

For more information, visit the FAQs at https://www.federalreserve.gov/newsevents/pressreleases/swap-lines-faqs.htm.

Maturity	Up to 88 days
Counterparties	Foreign central banks with standing swap line arrangements
Frequency	The central bank liquidity swap counterparties hold U.S. dollar liquidity-providing operations according to a schedule pre-approved by the Chair of the FOMC. One-week maturity operations were offered weekly throughout 2023 by four of the five standing swap central banks.
Per counterparty limit	None specified
Price	For price details, see operation results at https://www.newyorkfed.org/markets/desk-operations/central-bank-liquidity-swap-operations.

Reinvestments of Treasury Securities

For more information, visit the FAQs at https://www.newyorkfed.org/markets/treasury-rollover-faq.html.

Eligible securities	All securities issued at auction by the U.S. Treasury
Counterparties	U.S. Treasury
Operation size and frequency	The value of all maturing Treasury securities in excess of any applicable redemption cap amount as directed by the Committee were rolled over at each auction into newly issued securities. Reinvestments were allocated proportionally across new issues by the announced offering amounts.
Holdings limits	SOMA holdings were limited to a maximum of 70 percent of the total outstanding amount of any individual Treasury security.
Bid submission	The Desk places noncompetitive bids for the SOMA portfolio at Treasury auctions. These bids were treated as add-ons to announced auction sizes.
Awards	Noncompetitive bidders receive the stop-out rate, yield, or discount margin determined by the competitive auction process.
Execution platform	TAAPS, the auction platform for issuance of Treasury securities

Securities Lending of Treasury Securities

For more information, visit the FAQs at https://www.newyorkfed.org/markets/sec_faq.htm.

Term	Overnight
Eligible securities	U.S. Treasury securities (for collateral received), U.S Treasury and agency securities (for securities loaned)
Counterparties	Primary dealers
Aggregate operation limit	The value of Treasury and agency debt securities held outright in the SOMA that was available for such operations
Frequency	Daily
Aggregate lending limit	Ninety percent of each Treasury and agency debt security owned by the SOMA with a maturity of fourteen or more days was available for lending each day (the “theoretical amount” available to borrow).
Per counterparty limit	Maximum of 25 percent of the theoretical amount available to borrow per issue and $5 billion total par in outstanding securities loans at any one time
Per issue bid limit	Up to two bids per issue

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Fee	Primary dealers bid a fee to borrow the security; the fee is economically equivalent to a spread between the overnight general collateral repo rate and the overnight specials rate for the borrowed security. The minimum fee is 5 basis points.
Awards	Held as a competitive multiple-price auction for each security at noon each business day
Execution platform	FedTrade, the Desk's proprietary trading platform

Foreign Reserves Management

For more information, see https://www.newyorkfed.org/markets/international-market-operations/foreign-reserves-management.

Counterparties	Foreign Reserves Management counterparties
Eligible assets	The SOMA's foreign currency reserves may be invested on an outright basis in German, French, Dutch, and Japanese government securities, as well as in deposits at the Bank for International Settlements and at foreign central banks such as the Deutsche Bundesbank, Banque de France, De Nederlandsche Bank, and Bank of Japan. The Desk may also invest in Dutch, French, and German government securities under agreements for repurchase of such securities.
Execution platform	Tradeweb and Bloomberg (commercial trading platforms), voice trading

APPENDIX 2:

Governing Documents

FEDERAL OPEN MARKET COMMITTEE AUTHORIZATIONS AND CONTINUING DIRECTIVES FOR OPEN MARKET OPERATIONS EFFECTIVE IN 2023

On January 31, 2023, the FOMC voted to reaffirm the following governing documents:

https://www.federalreserve.gov/monetarypolicy/files/FOMC_RulesAuthPamphlet_202301.pdf

Authorization for Domestic Open Market Operations (page 56)
Continuing Directive for Domestic Open Market Operations (page 58)
Authorization for Foreign Currency Operations (page 59)
Continuing Directive for Foreign Currency Operations (page 63)

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, remained suspended throughout 2023.

https://www.federalreserve.gov/monetarypolicy/files/FOMC_FederalAgencyIssues.pdf

DOMESTIC POLICY DIRECTIVES ISSUED TO THE FEDERAL RESERVE BANK OF NEW YORK

In 2023, the FOMC authorized and directed the Open Market Desk at the Federal Reserve Bank of New York to execute transactions in the SOMA in accordance with domestic policy directives. The domestic policy directives issued by the FOMC from January 1 to December 31 are available at:

https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm

APPENDIX 3:

Operations Disclosures

The following table summarizes the types of information disclosed by the Desk about various SOMA operations. To access the data listed in the table, visit the Markets Data Dashboard on the New York Fed's website, at https://www.newyorkfed.org/markets/data-hub. For Treasury data, see https://www.treasurydirect.gov/auctions/announcements-data-results/.

Operations Disclosures

Operation Type	Operation Schedule	Operation Results	Additional Operations Data[a]	Transaction Data[b]
Domestic open market operations				
Standing repurchase agreement transactions	c	✓	✓	✓
Overnight reverse repurchase agreement transactions	c	✓	✓	✓
Treasury rollovers		✓[d]		
Treasury securities lending	c	✓	✓	✓
Foreign currency operations				
Foreign reserves management transactions				✓
Central bank liquidity swaps			✓[e]	
Small-value exercises				
Repurchase agreement transactions	✓	✓	✓	✓
Reverse repurchase agreement transactions	✓	✓	✓	✓
Treasury outright purchases	✓	✓	✓	✓
Treasury outright sales	✓	✓	✓	✓
Treasury securities lending	✓	✓		✓
Agency MBS outright purchases	✓	✓	✓	✓
Agency MBS outright sales	✓	✓	✓	✓
Agency MBS coupon swaps	✓	✓	✓	✓
Agency MBS dollar rolls	✓	✓	✓	✓
Foreign reserves management transactions				✓

Source: Federal Reserve Bank of New York.

[a] Additional data could include details about types of counterparties, pricing, and higher-frequency transaction data.

[b] The New York Fed discloses transaction data with market counterparties on a quarterly basis with a two-year lag, in accordance with the Dodd-Frank Act. Details include: the date and amount of the transaction; the counterparty to the transaction; the price, interest rate, or exchange rate at which the transaction was conducted; other relevant terms; and for certain types of transactions, information about the collateral.

[c] Since overnight reverse repurchase agreement transactions, standing repurchase agreement transactions, and Treasury securities lending are daily facilities, a regular calendar is not released; schedule changes are typically announced at least one business day prior to the operation.

[d] SOMA awards are released by the U.S. Treasury after each auction.

[e] Transactions between the New York Fed and foreign central bank counterparties are reported weekly by the New York Fed; foreign central banks' operation results are reported immediately after the completion of their respective auctions.

APPENDIX 4:

Summary of Projection Assumptions

The assumptions underlying the scenarios for the SOMA portfolio and the SOMA net income projection exercise are presented below. Sources for these assumptions include market expectations drawn from the January 2024 Surveys of Primary Dealers and Market Participants, the Plans for Reducing the Size of the Federal Reserve's Balance Sheet (Plans) released at the May 2022 FOMC meeting, and simple rules used to proxy the evolution of Federal Reserve liabilities.

INTEREST RATE ASSUMPTIONS:

- The following interest rates are set based on combined responses to the January 2024 Surveys of Primary Dealers and Market Participants:
    - the effective federal funds rate,
    - the ten-year Treasury yield, and
    - the thirty-year fixed primary mortgage rate.
- The IORB rate is set 10 basis points below the top of the target range.
- The ON RRP offering rate is set 5 basis points above the bottom of the target range.

BALANCE SHEET ASSUMPTIONS:

- Projections start with the SOMA portfolio as of December 29, 2023, and other Federal Reserve balance sheet components as averages of December 2023 levels.
- Asset-related assumptions:
    - The initial size of the redemption caps is drawn from the Plans released at the May 2022 FOMC meeting. The caps for Treasury and agency securities are set at $60 billion and $35 billion per month, respectively. Treasury bills are redeemed when Treasury coupon maturities fall below the monthly cap.
    - When the pace of portfolio decline slows, the monthly Treasury and agency security redemption caps are decreased to $30 billion and $17.5 billion, respectively. All reinvestments are allocated to Treasury securities.
    - Once reserve balances reach their assumed long-run level (see below), reserve management purchases are conducted in Treasury securities, and principal payments on agency securities are reinvested into Treasury securities.
- Liability-related assumptions:
    - Longer-run levels of capital and non-reserve liabilities other than the TGA and ON RRP facility grow from their average December 2023 levels over the projection horizon in line with nominal GDP. The nominal GDP growth rate is based on responses to the January 2024 Survey of Primary Dealers. The median

projected longer-run growth rates of real GDP and headline personal consumption expenditures (PCE) price inflation are 1.9 percent and 2.0 percent, respectively, consistent with a long-run level of nominal GDP growth of 3.9 percent, assuming that GDP and PCE inflation evolve similarly and that both PCE inflation and the growth rate of the GDP deflator imply an equivalent rate of growth of nominal GDP.

- Two scenarios are presented to illustrate the uncertainty in the long-run level of reserves, one in which the long-run level of reserves is set such that the ratio of reserves to nominal GDP is equal to 10 percent, and another in which the long-run level of reserves is set such that the ratio of reserves to nominal GDP is equal to 8 percent.
- The TGA rises to $750 billion by the end of Q1 2024, where it remains through Q2 2024, and then grows in line with nominal GDP starting in Q3 2024 to $1.08 trillion by the end of 2033.
- ON RRP facility balances decline to a minimal level by the end of 2024 at a pace similar to that of recent balance sheet reduction.

APPENDIX 5:

Reference Web Pages

Policies, communications, and data discussed in this document can be found online at the websites for the Board of Governors of the Federal Reserve System and the Federal Reserve Bank of New York. Below, we provide the primary web pages where this source material can be found.

FEDERAL RESERVE BOARD

FOMC rules and authorizations

https://www.federalreserve.gov/monetarypolicy/rules_authorizations.htm

FOMC statements, implementation notes, minutes, and information about policy normalization

https://www.federalreserve.gov/monetarypolicy/policy-normalization.htm

Background on reserve requirements and interest on reserve balances

https://www.federalreserve.gov/monetarypolicy/reservereq.htm
http://www.federalreserve.gov/monetarypolicy/reqresbalances.htm

Detailed transaction information about discount window lending to depository institutions

https://www.federalreserve.gov/regreform/discount-window.htm

Federal Reserve System financial reports

https://www.federalreserve.gov/monetarypolicy/bst_fedfinancials.htm

FEDERAL RESERVE BANK OF NEW YORK

Markets & Policy Implementation

https://www.newyorkfed.org/markets/index.html

Markets Data Dashboard and historical open market operations data

https://www.newyorkfed.org/markets/data-hub
https://www.newyorkfed.org/markets/omo_transaction_data

Electronic version of this report and the underlying data for the charts and tables

https://www.newyorkfed.org/markets/annual_reports.html

OPERATIONAL POLICIES, FAQS, OPERATION RESULTS, AND OTHER DETAIL REGARDING:

Domestic market operations: Repurchase and reverse repurchase agreements, Treasury open market and securities lending operations, agency MBS open market operations

https://www.newyorkfed.org/markets/domestic-market-operations

International market operations: Foreign currency operations, foreign reserves management, central bank liquidity swaps

https://www.newyorkfed.org/markets/international-market-operations

New York Fed counterparties for market operations

https://www.newyorkfed.org/markets/counterparties

System Open Market Account holdings

https://www.newyorkfed.org/markets/soma-holdings
https://www.newyorkfed.org/data-and-statistics/data-visualization/system-open-market-account-portfolio

Consolidated list of statements and operating policies across all Desk open market operations

https://www.newyorkfed.org/markets/op_policies.html

Desk statement regarding small-value exercises

https://www.newyorkfed.org/markets/operational-readiness

Desk surveys of primary dealers and market participants

https://www.newyorkfed.org/markets/primarydealer_survey_questions

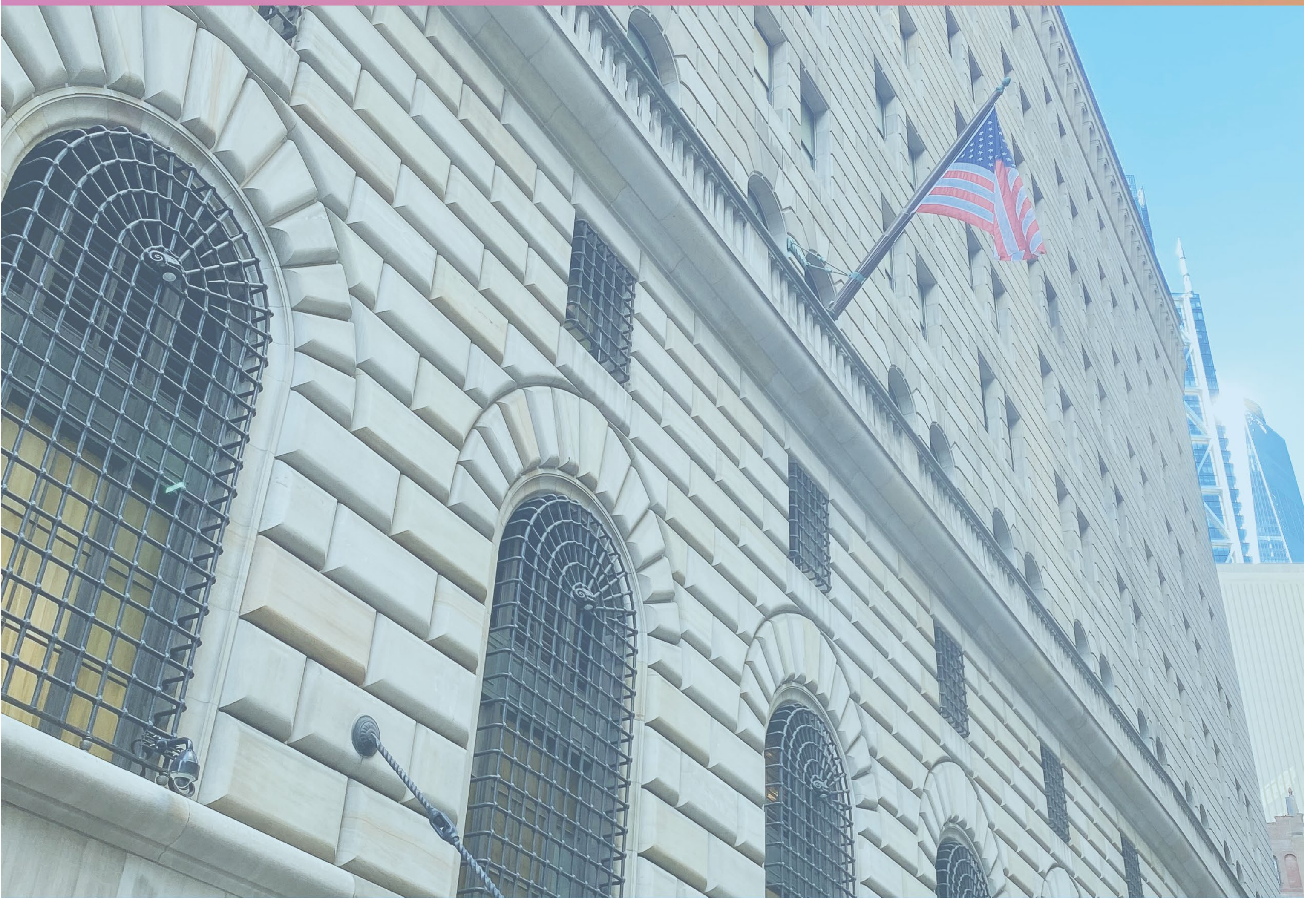
https://www.newyorkfed.org/markets/survey_market_participants

FR 2420 Report of Selected Money Rates

https://www.newyorkfed.org/markets/reference-rates

Services for central banks and international institutions

https://www.newyorkfed.org/markets/central-bank-and-international-account-services



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ENDNOTES

[1] See https://www.federalreserve.gov/newsevents/pressreleases/monetary20220504b.htm.

[2] "The Importance of Effective Liquidity Risk Management," speech by Federal Reserve Board Vice Chair for Supervision Michael S. Barr at the ECB Forum on Banking Supervision, Frankfurt, Germany, December 1, 2023, https://www.federalreserve.gov/newsevents/speech/barr20231201a.htm.

[3] See https://www.federalreserve.gov/newsevents/pressreleases/monetary20230312a.htm.

[4] On Saturday, June 3, 2023, Public Law 118-5 suspended the statutory debt limit through January 1, 2025.

[5] See https://www.federalreserve.gov/newsevents/pressreleases/monetary20220126b.htm.

[6] The effective federal funds rate is calculated from the rates at which depository institutions and other eligible entities conduct overnight unsecured transactions in the federal funds market.

[7] See "Implementing Monetary Policy: What's Working and Where We're Headed," remarks by the New York Fed's Roberto Perli, Manager of the System Open Market Account, at the National Association for Business Economics (NABE) Annual Meeting, October 10, 2023, https://www.newyorkfed.org/newsevents/speeches/2023/per231010.

[8] See "Balance Sheet Basics, Progress, and Future State," speech by Julie Remache, Deputy SOMA Manager and Head of Market and Portfolio Analysis on the New York Fed's Open Market Trading Desk, at the Fixed Income Analysts Society's Women in Fixed Income Conference, New York, February 7, 2024, https://www.newyorkfed.org/newsevents/speeches/2024/rem240207, and "Scarce, Abundant, or Ample? A Time-Varying Model of the Reserve Demand Curve," Gara Afonso, Domenico Giannone, Gabriele La Spada, and John C. Williams, New York Fed *Staff Reports* 1019, May 2022, revised June 2023, https://www.newyorkfed.org/research/staff_reports/sr1019.

[9] See Statement Regarding the Policy on Counterparties for Market Operations and Reverse Repurchase Counterparties, https://www.newyorkfed.org/markets/opolicy/operating_policy_230425.

[10] This increase followed changes in 2022 to allow a broader set of depository institutions to access the facility.

[11] SRF participants are expected to bid in an operation at least twice every six months to ensure robust end-to-end testing of trading and settlement systems.

[12] FIMA account holders consist of foreign central banks, international monetary authorities, and other foreign official institutions with accounts at the New York Fed.

[13] See https://www.federalreserve.gov/newsevents/pressreleases/monetary20230319a.htm.

[14] Specifically, on mid-month maturity dates, the Desk reinvested maturing Treasury coupon securities into newly issued three-, ten-, and thirty-year Treasury securities. End-of-month maturing Treasury securities were reinvested into newly issued two-, five-, seven-, and twenty-year, floating rate, and inflation-linked Treasury securities.

[15] The U.S. Treasury sets the official foreign exchange policy of the United States. In close and continuous cooperation with the

U.S. Treasury, the FOMC authorizes and directs foreign currency operations, including foreign exchange interventions, for the SOMA. The New York Fed, in its capacity as fiscal agent of the United States, may also execute such transactions on behalf of the Treasury's Exchange Stabilization Fund.

[16] Further details can be found in the New York Fed's *Treasury and Federal Reserve Foreign Exchange Operations* quarterly reports. See https://www.newyorkfed.org/markets/quar_reports.

[17] Reported on an amortized cost basis.

[18] Percentages may not sum to 100 because of rounding.

[19] During 2023, thirty-year Fannie Mae and Freddie Mac conditional prepayment rates (CPRs) were unchanged at 4 percent, while Ginnie Mae CPRs decreased from roughly 6 percent to 5 percent.

[20] As a result of the Uniform MBS program, some securities held in the SOMA consisted of mortgages guaranteed by both Fannie Mae and Freddie Mac; however, for purposes here, such mortgages are counted as being guaranteed by their most recent guarantor.

[21] In 2019, Freddie Mac changed the payment date on its MBS from a forty-five-day delay to a fifty-five-day delay, in line with Fannie Mae. A Freddie Mac Exchange is a process that allows legacy forty-five-day payment delay MBS to be exchanged for fifty-five-day payment delay MBS that are consistent with UMBS. The cash flows are backed by the same loans, with the only difference in the new security's cash flow being an additional ten-day delay to receive each cash flow payment.

[22] Percentages may not sum to 100 because of rounding.

[23] Duration measures of the portfolio throughout this report are calculated on a par-weighted average basis. Due to the relatively small size of agency CMBS holdings, these holdings are excluded from summary risk statistics. "Modified duration" is used to calculate the duration of Treasury securities, while "effective duration" is employed to measure the duration of MBS. Modified duration approximates the percentage change in the price of a fixed-income security given a 100 basis point parallel shift in the yield curve and is most applicable to securities with fixed cash flows, such as Treasury securities. Effective duration, which accounts for the potential alterations in cash flows as interest rates change, is suitable for capturing the duration of MBS because it is affected by mortgage borrowers' decisions to exercise or forgo their prepayment option. Homeowners' option to prepay their mortgage at any time without penalty adds uncertainty to the agency MBS holder's expected cash flows. In general, lower mortgage rates encourage homeowners to refinance their loans, thereby shortening the duration of the MBS securitizing these loans, while higher mortgage rates discourage homeowners from refinancing, thereby lengthening the duration of MBS.

[24] The ten-year equivalent is calculated using end-of-day prices for ten-year Treasury securities and current time to maturity.

[25] See https://www.federalreserve.gov/aboutthefed/audited-annual-financial-statements.htm.

[26] Macaulay duration is the weighted average time of future cash flows.

[27] Margins are applied to the Federal Reserve's fair market value estimates and are designed to account for the historical price volatility of each category of securities collateral measured over the liquidation periods determined by the Federal Reserve. The margins on discount window open market operations collateral were reinstated on November 1, 2023.

[28] See https://www.federalreserve.gov/newsevents/pressreleases/monetary20230312a.htm.

[29] See https://www.federalreserve.gov/monetarypolicy/additional-information-on-other-credit-extensions.htm

[30] These terms were subsequently adjusted in January 2024. See https://www.federalreserve.gov/newsevents/pressreleases/monetary20240124a.htm.

[31] In addition, balances for the MSLP were reduced due to loan losses. See details in the Main Street Lending Program section of this report.

[32] Credit loss allowances were $1.1 billion and $800 million as of December 31, 2022, and December 31, 2023, respectively. The

MSLP has recognized approximately $564 million in actual loan losses, net of subsequent recoveries, as of December 31, 2023. The MSLP includes features that are intended to mitigate risk to the Federal Reserve, and the Federal Reserve Board continues to expect the MSLP will not result in losses to the Federal Reserve. See https://www.federalreserve.gov/publications/files/13-3-report-20240111.pdf.

[33] For more information on the Treasury's cash balance and financing policies, see "Quarterly Refunding Statement of Assistant Secretary for Financial Markets Josh Frost," https://home.treasury.gov/news/press-releases/jy1864.

[34] For more information on the legislation that resolved the debt limit impasse, see https://www.congress.gov/118/plaws/publ5/PLAW-118publ5.pdf.

[35] See the section "Understanding Net Income and Deferred Assets at the Federal Reserve During 2022" in *Open Market Operations During 2022* for further details on the drivers of net income at the Federal Reserve, https://www.newyorkfed.org/medialibrary/media/markets/omo/omo2022-pdf.pdf.

[36] Assumed funding cost represents the interest expense on interest-bearing liabilities assumed to be associated with SOMA net assets.

[37] As in past *Open Market Operations* reports, these projections assume that reductions in the portfolio are achieved only through redemptions of maturing securities, without asset sales. If the FOMC were to introduce sales of agency MBS, the path of the portfolio would diverge from what is presented here.

[38] This illustrative projection exercise uses the ratio of reserves as a share of NGDP as a modeling assumption to determine transitions between balance sheet phases; however, in practice, changes in balance sheet policy as reserves transition from abundant to ample will be based on quantitative and qualitative indicators of reserves conditions. The scenario with lower reserves assumes that the level of reserves consistent with an ample reserves regime is equivalent to the average level of reserves as a share of NGDP in December 2019, or approximately 8 percent, similar to the assumption in recent *Open Market Operations* reports. The scenario with higher reserves is constructed to illustrate that the demand for reserves may have increased, consistent with recent Senior Financial Officer Survey results, which show that more than half of survey respondents reported an increase of 20 percent or more in their lowest comfortable level of reserves since their previously reported values; most of the remaining respondents also reported an estimate that reflects an increase, albeit a smaller increase. (View the survey results at https://www.federalreserve.gov/data/sfos/may-2023-senior-financial-officer-survey.htm.)

[39] The pace of portfolio decline does not fall by half because agency MBS maturities are not projected to reach the monthly redemption cap.

[40] An increase (decrease) in the deferred asset reflects an increase (decrease) in reserve balances when interest income is less than (more than) interest expenses paid to depository institutions' reserve accounts and other accounts that remunerate interest.

[41] The path of agency MBS holdings is identical in the two scenarios and thus these differences are due to the size of the Treasury portfolio.

[42] The SOMA portfolio's assumed funding cost reflects the non-SOMA interest-bearing liabilities assumed to be associated with SOMA net assets. A substantial portion of Federal Reserve liabilities are not remunerated, including Federal Reserve notes and the Treasury General Account.

[43] A rates scenario in which the curve steepened, with long-term rates rising by more than short-term rates, would generally mean a higher path for SOMA net income over the forecast horizon, as the portfolio would earn incremental income over time relative to its expenses. A scenario in which the yield curve flattened, with short-term rates rising by more than long-term rates, would generally result in a lower path for SOMA net income over time. A steepening or flattening curve scenario would have similar results in the scenario with lower reserves, although the smaller portfolio would moderate these effects.

[44] Since unrealized gains and losses on the portfolio are mostly driven by the gains or losses on longer-term holdings, a rate

shock where the curve steepens or flattens would increase (decrease) losses to the extent that longer-term rates increase (decrease). A steepening or flattening would impact the scenario with lower reserves in similar ways, with higher (lower) interest rates leading to greater (smaller) unrealized losses.

[45] For details about the New York Fed policy on counterparties for market operations, see https://www.newyorkfed.org/markets/counterparties/policy-on-counterparties-for-market-operations.

[46] These include the Treasury, agency debt, and agency MBS best practices published by the New York Fed–sponsored Treasury Market Practices Group as well as the FX Global Code promulgated by the Global Foreign Exchange Committee and the New York Fed–sponsored Foreign Exchange Committee. See https://www.newyorkfed.org/tmpg/ and https://www.newyorkfed.org/fxc/.

[47] The U.S. Treasury promulgates rules and provides guidelines for Treasury auctions that are applicable to primary dealers and other bidders. Primary dealers are expected to bid their pro rata share of each auction, an amount that is determined as the total amount auctioned divided by the number of primary dealers at the time of the auction.

[48] This number reflects the removal of Credit Suisse AG New York Branch as a primary dealer effective June 30, 2023, because of its acquisition by UBS Group AG.

[49] This number reflects the removal of Credit Suisse Group AG as a foreign exchange counterparty effective September 22, 2023.

[50] The Desk is directed to conduct transactions for the purpose of testing operational readiness for domestic open market operations and foreign currency operations as discussed in paragraphs II.7, III.9, and IV.6 of the FOMC Authorization and Continuing Directives for Open Market Operations, https://www.federalreserve.gov/monetarypolicy/files/FOMC_AuthorizationsContinuingDirectivesOMOs.pdf.