The views expressed in this presentation reflect the author’s and do not necessarily reflect that of the Federal Reserve Bank of New York or the Federal Reserve System.
Agenda

- LSAPs as monetary policy tool
- Implications of LSAPs for the balance sheet
- A closer look at the domestic securities portfolio
- Normalization policy and tools
- How could the SOMA portfolio evolve?
- Background information
LSAPs as a Monetary Policy Tool
Large Scale Asset Purchases as a Policy Tool

- Conventional operating objective for OMOs: target federal funds rate (FFR)
  - Desk adjusted supply of reserve balances to achieve target

- Current operating objective: adjustments in size/composition of FR balance sheet
  - Large-scale purchases of Treasuries, agency MBS and debt
  - Maturity Extension Program
  - Reinvestment policies

- Interest on reserves keeps FFR in target range w/o OMOs

- FOMC has also used communications to influence policy
Timeline of Asset Purchase Programs

SOMA Domestic Securities Holdings

USD, billions (par)

Source: Board of Governors of the Federal Reserve System
How do Large-scale Asset Purchases Work?

- Purchases put downward pressure on longer-term interest rates, ease financial conditions and stimulate economic activity.

- Purchases are understood to work through several channels:
  - Portfolio balance effect
    - Reduce stock of securities held by private sector
    - Remove duration risk and prepayment risk from market
    - Drive risk premiums lower than they would otherwise be
  - Market functioning/liquidity effect
    - Provide consistent and significant market presence
  - Signaling effect
    - May be perceived as signal of FOMC intentions for FFR path
Implications of LSAPs for the Balance Sheet
# Federal Reserve Balance Sheet: Pre-Crisis

## Selected Balance Sheet Items

**August 01, 2007**

**USD, billions**

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Securities held outright</td>
<td><strong>Federal Reserve Notes</strong> 777</td>
</tr>
<tr>
<td><strong>U.S. Treasury securities</strong></td>
<td>Reserve Balances ** 10</td>
</tr>
<tr>
<td>Federal agency debt</td>
<td>Deposits other than reserves 12</td>
</tr>
<tr>
<td>Agency MBS</td>
<td><strong>U.S. Treasury, General Account</strong> 5</td>
</tr>
<tr>
<td></td>
<td>Bank Clearing Deposits 6</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>Reverse repurchase agreements 32</td>
</tr>
<tr>
<td>Loans</td>
<td><strong>Foreign official/international accounts</strong> 32</td>
</tr>
<tr>
<td>Other assets</td>
<td>Other liabilities 9</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td><strong>Total liabilities</strong> 840</td>
</tr>
<tr>
<td><strong>874</strong></td>
<td><strong>874</strong></td>
</tr>
</tbody>
</table>

* Less than $1 billion

** (Reserve requirements less applied vault cash) = $7.7 billion.
Balance Sheet Effects of Unconventional Operations

- Crisis-era liquidity facilities were temporary and self-liquidating
  - Priced at penalty rates that were attractive in stressed market conditions but uneconomic as markets recovered
  - Facilities closed to new activity by H1-2010*
  - All loans were repaid in full
  - The Fed experienced no losses from these programs

- LSAPs led to more enduring changes in the SOMA portfolio and balance sheet
  - Shifts in portfolio’s composition and maturity structure
  - Higher levels of excess reserves

* Dollar liquidity swap lines with certain central banks were reestablished in May-10 and converted to standing arrangements in Oct-13.
<table>
<thead>
<tr>
<th>Assets</th>
<th>USD, billions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Securities held outright</td>
<td>4,215</td>
</tr>
<tr>
<td> U.S. Treasury securities</td>
<td>2,460</td>
</tr>
<tr>
<td> Federal agency debt</td>
<td>36</td>
</tr>
<tr>
<td> Agency MBS</td>
<td>1,719</td>
</tr>
<tr>
<td>Unamortized premiums and discounts</td>
<td>183</td>
</tr>
<tr>
<td>Repurchase agreements</td>
<td>0</td>
</tr>
<tr>
<td>Loans</td>
<td>*</td>
</tr>
<tr>
<td> Primary Credit</td>
<td>*</td>
</tr>
<tr>
<td>Maiden Lane LLC</td>
<td>2</td>
</tr>
<tr>
<td>Central bank liquidity swaps</td>
<td>0</td>
</tr>
<tr>
<td>Other assets</td>
<td>71</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td><strong>4,471</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liabilities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve balances</td>
<td>2,581</td>
</tr>
<tr>
<td>Federal Reserve notes</td>
<td>1,316</td>
</tr>
<tr>
<td>Deposits other than reserve balances</td>
<td>259</td>
</tr>
<tr>
<td> U.S. Treasury, General Account</td>
<td>245</td>
</tr>
<tr>
<td> Term deposits of depository institutions</td>
<td>0</td>
</tr>
<tr>
<td> Foreign official and other deposits</td>
<td>13</td>
</tr>
<tr>
<td>Reverse repurchase agreements</td>
<td>250</td>
</tr>
<tr>
<td> Foreign official/international accounts</td>
<td>158</td>
</tr>
<tr>
<td> Other</td>
<td>92</td>
</tr>
<tr>
<td>Interest on FR notes due to U.S. Treasury</td>
<td>2</td>
</tr>
<tr>
<td>Other liabilities</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total liabilities</strong></td>
<td><strong>4,414</strong></td>
</tr>
</tbody>
</table>

**Capital**

| **Total liabilities and capital**          | **4,471**      |

*Less than $1 billion*
A Closer Look at the Domestic Portfolio
Evolution of the Federal Reserve’s Balance Sheet

**Assets**
- Treasuries
- Agency Debt
- Agency MBS
- Other Assets*

**Liabilities and Capital**
- FR Notes
- Reserve Balances
- Other Liabilities** + Capital

* Includes DW, crisis facilities, central bank liquidity swaps, foreign portfolio, and unamortized premiums and discounts.

** Includes Treasury General Account and reverse repos.

Source: Board of Governors of the Federal Reserve System
Distribution of SOMA Treasury Holdings

SOMA Treasury Holdings by Maturity/Sector

- < 3 years
- 3 - 6 years
- 6 - 10 years
- 10 - 30 years
- TIPS
- FRNs

Source: FRBNY
Distribution of SOMA Agency MBS Holdings

August 26, 2015
Total = $1,737 billion (settled)

Issuer
- Freddie Mac
- Fannie Mae
- Ginnie Mae

Term*
- 30-year
- 15-year

Coupon
- \(\leq 2.5\%\)
- 3\%
- 3.5\%
- 4\%
- \(\geq 4\%\)

Vintage
- Pre-2010
- 2011
- 2012
- 2013
- 2014
- 2015

*Includes \(<1\%\) in 10-year and 20-year agency MBS, which may be delivered into 15- and 30-year TBA contracts, respectively.

Source: FRBNY
SOMA Portfolio Risk Measures

**Duration and 10-Year Equivalents of SOMA Portfolio**

- **10-Year Equivalents - Total SOMA Portfolio (LHS)**
- **Duration - SOMA Treasury Portfolio (RHS)**
- **Duration - Total SOMA Portfolio (RHS)**

USD, billions

Source: FRBNY
SOMA Net Income and FR Remittances to Treasury

USD, billions

SOMA Net Income
Remittances

Source: FRBNY
Normalization Principles and Plans - September 2014

- Raise federal funds rate and other short term interest rates.
  - Operating objective is target range for federal funds rate. **Target FFR range of 25 basis points.**
  - IOER will be the primary method for moving rates. **Set IOER at top and ON RRP rate at bottom of FFR range.**
  - ON RRP and other supplementary tools will be used as necessary. **Aggregate capacity of ON RRP facility will be raised temporarily.**

- Timing and pace of policy normalization will be consistent with dual mandate.

(Additional details announced in March 2015 shown in blue.)
Normalization Principles and Plans (II)

- Reduce securities in a gradual and predictable manner
  - Reinvestments cease or are phased out after FFR target range is increased
  - No sales of MBS holdings to achieve normalization (but may sell in longer run to reduce residual holdings)

- In the longer run, hold no more securities than necessary to implement monetary policy, and holdings to primarily consist of Treasury securities
Normalization Tools

- The Fed has developed and tested various tools to support use of IOER
  - Overnight reverse repos (ON RRPs)
  - Term Deposit Facility (TDF)
  - Term reverse repos (Term RRPs)

- Tools may work through different channels and have different objectives
  - Control short-term rates with an elevated level of reserves
  - Drain reserve balances
## Overview of select policy tools

<table>
<thead>
<tr>
<th>Tool</th>
<th>Primary type</th>
<th>Primary channels through which they might work</th>
<th>Counterparty</th>
<th>Effect on FRS balance sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>IOER</td>
<td>Administered rate</td>
<td>• Create arbitrage opportunities</td>
<td>Banks</td>
<td>No impact on size or composition</td>
</tr>
<tr>
<td>O/N Reverse Repos with RCPs</td>
<td>Administered rate</td>
<td>• Increase competition/ reduce bank balance sheets</td>
<td>MMMFs, GSEs, PDs, Banks</td>
<td>Changes composition of liabilities, no change to size</td>
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<tr>
<td>Term Deposit Facility</td>
<td>Liability tool</td>
<td>• Create arbitrage opportunities</td>
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Supplementary tools shift composition and cost of the Fed’s liabilities… but don’t alter overall contour of FR balance sheet or materially impact FR income

Impact on FR balance sheet
- Reduce reserve balances; increase RRP s or term deposits
- No effect on size or composition of securities holdings
- No effect on time to normalize balance sheet size

Impact on FR income
- Some tools are more costly than others
- Net differences are minor, but results will depend on actual quantities and prices associated with each tool
- Non-financial costs may influence appetite to use various tools
## Example 1

<table>
<thead>
<tr>
<th>Securities</th>
<th>Currency</th>
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<tbody>
<tr>
<td>Repos</td>
<td>Reserve balances</td>
</tr>
<tr>
<td>Other assets</td>
<td>Treasury General Account</td>
</tr>
<tr>
<td></td>
<td>Foreign official deposits</td>
</tr>
<tr>
<td></td>
<td>Term deposits</td>
</tr>
<tr>
<td></td>
<td>ON RRPs</td>
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<td></td>
<td>ON RRPs</td>
</tr>
<tr>
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<td>Term RRPs</td>
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</tbody>
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How could the SOMA portfolio evolve?
Drawn from December 2014 *Survey of Primary Dealers*

- **Interest rates**
  - FFR target lifts off in Q2-2015, rises to 3.5% over long run
  - 10-year Treasury yield rises gradually to 4% by late 2018

- **Normalization framework**
  - IOER and ON RRPs
    - $275 billion in ON RRPs immediately after liftoff
    - Spread of 25 bps between IOER and ON RRP rates
  - Reinvestments end in Q4-2015
  - No MBS sales

- **Currency and capital assumptions from Fed staff research**

Projected Reserve Balances

USD, billions

Historical Values

Projections (rounded)

Source: FRBNY staff projection (December 2014)
Projected Path of SOMA Domestic Securities Portfolio

USD, billions

- **Total SOMA Portfolio**
- **Treasury securities**
- **Agency MBS**
- **Agency debt**

Historical Values

Projections (rounded)

Source: FRBNY staff projection (December 2014)
Projected SOMA Net Income

USD, billions

Historical Values

Projections (rounded)

Source: FRBNY staff projection (December 2014)
Projected SOMA Net Income: Alternate Rate Scenarios

USD, billions

Source: FRBNY staff projection (December 2014)
Note: Higher- and lower-rate scenarios use baseline interest rates plus or minus 100 basis points.
Projected MBS Holdings: Alternate CPR Assumptions

USD, billions

- 6% Constant CPR
- 9% Constant CPR
- 12% Constant CPR
- Baseline

Source: FRBNY staff projection (August 2015)

Note: CPR is the conditional prepayment rate. Figures are monthly and are rounded.
The SOMA Portfolio in the Longer Run

- **Size?**
  - What’s necessary to implement policy “efficiently and effectively” will depend, in part, on:
    - Long-run operating framework and tools
    - Regulatory and other financial system changes
    - U.S. Treasury cash management decisions

- **Asset composition?**
  - Should portfolio of “primarily Treasury securities” retain at least some agency MBS to retain institutional knowledge?

- **Maturity profile?**
  - What structure best supports policy objectives?
    - Traditionally, short-term portfolio allowed flexible wind-down if needed
    - Has crisis playbook changed?
Useful References

- Domestic Open Market Operations During 2014
  http://www.newyorkfed.org/markets/annual_reports.html

- FOMC Statement on Policy Normalization Principles and Plans

- The Federal Reserve’s Balance Sheet and Earnings: A Primer and Projections

- Liberty Street Economics: The SOMA in Perspective
  http://www.newyorkfed.org/research/publication_annuals/research_topics20130906.html
Additional References: Data and Policies

- FRBNY Open Market Operations landing page
  See for operating policies, FAQs, operations announcements, results
  http://www.newyorkfed.org/markets/openmarket.html

- Factors Affecting Reserve Balances (H.4.1 release)
  http://www.federalreserve.gov/releases/h41/

- SOMA holdings
  http://www.newyorkfed.org/markets/soma/sysopen_accholdings.html