The Rescue of Fannie Mae and Freddie Mac–Module F: Federal Reserve's Large-Scale Asset Purchase (LSAP) Program

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The Rescue of Fannie Mae and Freddie Mac–Module F: Federal Reserve’s Large-Scale Asset Purchase (LSAP) Program

Daniel Thompson, and Adam Kulam

Yale Program on Financial Stability Case Study
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Abstract

By late 2008, the secondary mortgage markets were suffering high default rates, causing mortgage lending to slow and the value of mortgage securities to plummet. The Federal Reserve lowered the federal funds rate, and the government placed Fannie Mae and Freddie Mac into conservatorship, yet credit in housing and other financial markets remained tight. On November 25, the Fed announced its intent to purchase up to $500 billion in agency mortgage-backed securities (MBS) and $100 billion in agency debt to reduce the cost and increase the availability of mortgage credit, which would support housing markets and improve conditions in financial markets more generally. The Large-Scale Asset Purchase (LSAP) program (also known as Quantitative Easing I) expanded to include purchases of $300 billion in longer-term Treasury securities. The Fed began to wind down the program in September 2009 after purchasing in total $172.1 billion in agency debt, $1.25 trillion in MBS, and $300 billion in Treasury securities. Over the next several years, the Fed allowed its holdings of agency debt securities to run off, but it continued to purchase agency MBS and Treasury securities through subsequent purchase programs. The academic community

1 This case study is one of seven 2021 Yale Program on Financial Stability (YPFS) case studies that examine in detail the various elements of the government’s rescue of the GSEs:

- “The Rescue of Fannie Mae and Freddie Mac – Module B: The Senior Preferred Stock Purchase Agreements (SPSPAs)” by Daniel Thompson.
- “The Rescue of Fannie Mae and Freddie Mac – Module C: GSE Credit Facility” by Emily Vergara.

Cases are available from the Journal of Financial Crises at https://elischolar.library.yale.edu/journal-of-financial-crises/.

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4 The authors thank Professor William English for providing input into this case.
generally concurs that the LSAP program succeeded in lowering interest rates, although it does not agree on its impact, particularly on lowering longer-term interest rates.

**Keywords:** government-sponsored enterprises, LSAP program, QE, quantitative easing
At a Glance
By late 2008, the secondary mortgage markets were suffering high rates of default, causing mortgage lending to slow and the value of mortgage-backed securities (MBS) to plummet. During the year, the Federal Open Market Committee (FOMC) lowered the federal funds rate substantially, but credit remained tight in housing and across other financial markets. Given the continued distress, in September, the government took into conservatorship the two large government-sponsored enterprises supporting the secondary mortgage market, the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac); however, rates remained high and credit tight.

Despite this significant action, the tightening of credit continued across markets, and on November 25, 2008, the FOMC announced that it would purchase up to $500 billion in MBS and $100 billion in debt from Fannie Mae, Freddie Mac, the Federal Home Loan Banks, and the Government National Mortgage Association (Ginnie Mae). This intervention is often called the first Large-Scale Asset Purchase (LSAP) program and was intended to reduce the cost and increase the availability of mortgages, support housing markets, and foster improved conditions in financial markets more generally. The purchases were implemented by the Federal Reserve Bank of New York (FRBNY).

In March 2009, the FOMC announced its intent to increase purchases to an additional $100 billion in agency debt and $750 billion in agency MBS (bringing the aggregate commitment to $200 billion in debt and $1.25 trillion in MBS). The FRBNY also began purchasing $300 billion in longer-term Treasury securities as part of the program. In September 2009, the FRBNY began to wind down purchases, as the most severe phase of the crisis had passed and housing markets had stabilized somewhat. By the programs’ expiration, the Fed had purchased $172.1 billion in agency debt, $1.25 trillion in agency MBS, and $300 billion in Treasury securities. Over the next several years, the Fed allowed its debt portfolio to run off.
but continued to purchase agency MBS and Treasury securities under subsequent purchase programs.

**Summary Evaluation**
The academic community generally concurs that the Fed's purchases of agency debt and MBS succeeded in lowering interest rates. Nonetheless, academics disagree about which interest rates were impacted by these programs and to what extent. While most scholars identify these programs as having a substantial positive impact, some have found the programs to be much less effective in lowering longer-term interest rates.
| **Federal Reserve’s Large-Scale Asset Purchase (LSAP) Program: United States Context** |
|---------------------------------|-------------------------------------------------|
| **GDP** (SAAR, Nominal GDP in LCU converted to USD) | **$14,681.5 billion in 2007**  
| | **$14,559.5 billion in 2008**  
| | **$14,628.02 billion in 2009**  |
| **GDP per capita** (SAAR, Nominal GDP in LCU converted to USD) | **$47,976 in 2007**  
| | **$48,383 in 2008**  
| | **$47,100.00 in 2009**  |
| **Sovereign credit rating (5-year senior debt)** | As of Q4 2007/2008/2009:  
| | Fitch: AAA  
| | Moody’s: Aaa  
| | S&P: AAA  |
| **Size of banking system** | **$9,231.7 billion in total assets in 2007**  
| | **$9,938.3 billion in total assets in 2008**  
| | **$9789.07 billion in total assets in 2009**  |
| **Size of banking system as a percentage of GDP** | 62.9% in 2007  
| | 68.3% in 2008  
| | 66.92% in 2009  |
| **Size of banking system assets as a percentage of financial system assets** | 29.0% in 2007  
| | 30.5% in 2008  
| | 30.25% in 2009  |
| **5-bank concentration of banking system** | 43.9% of total banking assets in 2007  
| | 44.9% of total banking assets in 2008  
| | 44.27% of total banking assets in 2009  |
| **Foreign involvement in banking system** | 22% of total banking assets in 2007  
| | 18% of total banking assets in 2008  
| | 19% of total banking assets in 2009  |
| **Government ownership of banking system** | 0% of banks owned by the state in 2008  
| | 0% of banks owned by the state in 2009  |
| **Existence of deposit insurance** | 100% insurance on deposits up to $100,000 in 2007  
| | 100% insurance on deposits up to $250,000 in 2008  
| | 100% insurance on deposits up to $250,000 in 2009  |

*Sources: Bloomberg, World Bank Global Financial Development Database, Federal Deposit Insurance Corporation.*
I. Overview

Background

Beginning in mid-2007, default rates on subprime and nonprime mortgages spiked, causing mortgage lending to slow and the value of mortgage securities to plummet (OFHEO 2008, iii). Home prices also fell across the United States (OFHEO 2008, 7). By mid-2007, private mortgage securitization began shrinking to minimal levels because of the housing correction (OFHEO 2008, 7, 8). The impact of the strains in mortgage markets spilled over to other markets as investors became increasingly concerned about the impact on financial firms, particularly after the prominent French bank BNP Paribas announced that it was suspending redemptions from two of its investment funds on August 9, 2007 (Wiggins and Metrick 2016, 35). The French bank declared that it could not value the funds because of the amount of subprime loans both funds held in their portfolios (OFHEO 2008, 35). BNP Paribas’s announcement led investors and institutions to pull funding from investments they saw as risky, causing markets to contract even further (OFHEO 2008, 35). Many banks, government-affiliated financial agencies, and other firms began to experience funding difficulties because of the contractions, which stemmed partially from their reliance on short-term sources of funding, like securitization, repurchase agreements, and asset-backed commercial paper (OFHEO 2008, 35).

Given the tightening of credit across markets, in September 2007 the Federal Open Market Committee (FOMC) lowered the target federal funds rate from 5.25% to 4.75% and the discount rate from 5.75% to 5.25% (FOMC 2007). The FOMC’s decision to reduce the federal funds rate reflected a shift from its previously existing policy of steadily increasing interest rates from 2004 to 2006 (FRBG 2020). Markets continued to stagnate after September 2007: home prices declined, subprime mortgage delinquencies rose, and rating agencies downgraded mortgage-related securities (FCIC 2011, 213-223). In 2008, the FOMC lowered the federal funds rate aggressively (most cuts were 50 or 75 basis points) during a wave of bankruptcies and near-bankruptcies of major financial institutions (FRBG 2020; FCIC 2011, 280-291, 324-343) (see Figure 1). On December 16, 2008, the target range for the federal funds rate was set between 0.25% and 0% (FOMC 2008c).
The Rescue of Fannie Mae and Freddie Mac–Module F

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The GSEs and Their Financial Condition

The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac) are publicly traded government-sponsored enterprises (GSEs) authorized by congressional charter to operate in the secondary mortgage market to support the residential mortgage market (Kosar 2007, 1-3; FHFA n.d.). The GSEs purchase mortgages from originators, package those mortgages into mortgage-backed securities (MBS), and retain some of the purchased mortgages in their investment portfolios, where they could also hold their own MBS, non-agency MBS, and other types of fixed-income securities (FHFA n.d.; FCIC 2011, 123-125). The Federal Home Loan Bank (FHLB) System is a collection of then-12 banks owned by their borrowers that use mortgages as collateral to lend to institutions, mainly commercial banks and thrifts; the FHLBs are also GSEs (FHFA 2016, 6; Kosar 2007, 3, 4). The Government National Mortgage Association (Ginnie Mae) is a government-owned entity that also operates in the secondary mortgage market (Ginnie Mae 2020; Ginnie Mae 2016).

Fannie Mae, Freddie Mac, and the FHLBs experienced losses related to the financial crisis and contractions in mortgage markets (FCIC 2011, 309, 310). Federal officials and the market viewed losses and contractions to Fannie Mae and Freddie Mac as the most impactful, given the GSEs’ size, their critical condition, and the scope of the intervention required to rescue them from insolvency (Dickerson 2008a; Dickerson 2008b).

The GSEs posed a systemic risk because of their size (Kosar 2007, 5, 6). By September 2008, the GSEs collectively held or guaranteed $5.3 trillion in mortgages, or approximately half of all outstanding mortgages (FCIC 2011, 309; FHFA 2011). Despite the government’s efforts to mitigate concerns, the GSEs’ financial situation continued to deteriorate (FCIC 2011, 309-323). On September 6 and 7, 2008, the government instituted a four-part rescue plan to stabilize Fannie Mae and Freddie Mac (FCIC 2011, 320; Treasury 2008). The main element of the plan was to take the two GSEs into government conservatorship, with funding from

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Figure 1: Effective Federal Funds Rate

Note: Shaded areas indicate US recessions (according to the St. Louis Fed).
Source: St. Louis Federal Reserve.

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the Treasury guaranteeing their solvency (Treasury 2008). Another component of this plan involved purchases of GSE MBS by Treasury (Treasury 2008). Treasury purchased $225 billion in GSE MBS by the time the program expired in December 2009 (Treasury 2012).

The government's rescue of the GSEs in September 2008 guaranteed their solvency; however, agency debt and MBS spreads remained high, and the housing market continued to face severe stresses (FOMC 2008b). These factors, along with a dramatic reduction of the federal funds rate by November 2008, led the government to consider implementing nontraditional monetary policy measures that would stimulate the economy.

Program Description

On November 25, 2008, the FOMC announced that it would purchase MBS worth up to $500 billion from Fannie Mae, Freddie Mac, and Ginnie Mae (FRBG 2008). In addition, the Federal Reserve pledged to purchase up to $100 billion of debt from Fannie Mae, Freddie Mac, and the FHLBs. This intervention is often called the first Large-Scale Asset Purchase (LSAP) program. The LSAP program aimed to “reduce the cost and increase the availability of credit for the purchase of houses, which would support housing markets and foster improved conditions in financial markets more generally.”

After additional consideration, the program was further defined and ratified by the FOMC at its December 16, 2008, meeting. At this meeting, members decided not to purchase longer-term Treasury securities in addition to agency debt and MBS (however, it did begin to purchase these in March 2009) (FOMC 2008c; FOMC 2009h). The FOMC also reduced its target federal funds rate to a range of 0% to 0.25% (FOMC 2008c).

The Fed’s authority to conduct open market operations was granted under Section 14 of the Federal Reserve Act. The FOMC tasked the FRBNY, which oversees the Fed’s Open Market Operations, to purchase and hold agency debt and MBS in the System Open Market Account (SOMA) portfolio (FOMC 2009b, 6-13). Large-scale purchases of GSE debt and MBS were not a normal function of open market operations, although the FRBNY occasionally bought agency debt (FOMC 2009b, 8-10). By law, the Fed could purchase only agency debt securities, agency MBS, and Treasury securities (Bernanke 2017, 9). After consultation with FOMC members, the Fed chairman originally authorized the LSAP program pursuant to his standing authority to make adjustments to monetary policy between FOMC meetings (after consultation with the Committee) contained in the Authorization for Domestic Open Market Operations then in effect (FOMC 2009b, 9).

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6 Other evaluators and federal officials have called these purchases quantitative easing (QE), or quantitative easing 1, but, for the sake of clarity and consistency, the LSAP program is used herein.

Generally, the LSAP program can be understood in three stages—initial, expansion, and wind down—as shown in Figure 2. Debt purchases began within several weeks of the announcement, as the Fed was more accustomed to conducting these transactions (FRBG 2008a; Bernanke 2017, 9) (see Appendix A). MBS purchases, which required additional administrative preparation, began on January 5, 2009 (see Appendix B). The Fed added purchases of longer-term Treasury securities in March 2009 (FOMC 2009h).

**Figure 2: LSAP Program Timeline**

<table>
<thead>
<tr>
<th>Date</th>
<th>MBS</th>
<th>Debt</th>
<th>Treasury Securities</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/25/2008</td>
<td><strong>Commitment</strong>: $500 billion</td>
<td><strong>Expected end</strong>: Unspecified; Several quarters</td>
<td><strong>Commitment</strong>: $100 billion Purchases start the second week of December <strong>Expected end</strong>: Unspecified; Several quarters</td>
</tr>
<tr>
<td>12/16/2008</td>
<td>FOMC decided not to purchase Treasury securities in addition to MBS and debt. FRBNY began purchasing agency MBS on January 5, 2009.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03/18/2009</td>
<td><strong>Commitment</strong>: Additional $750 billion (aggregate $1.25 trillion)</td>
<td><strong>Commitment</strong>: Additional $100 billion (aggregate $200 billion)</td>
<td><strong>Commitment</strong>: $300 billion in longer-term securities <strong>Announced End</strong>: October 2009</td>
</tr>
<tr>
<td>03/24/2009</td>
<td><strong>Announced End</strong>: End of 2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08/12/2009</td>
<td><strong>Announced End</strong>: First quarter 2010</td>
<td><strong>Announced End</strong>: First quarter 2010; on-the-run debt accepted after 08/31/2009</td>
<td></td>
</tr>
<tr>
<td>09/23/2009</td>
<td><strong>Announcement</strong>: Gradually slow the pace of purchases</td>
<td><strong>Announcement</strong>: Gradually slow the pace of purchases</td>
<td></td>
</tr>
<tr>
<td>10/29/2009</td>
<td></td>
<td><strong>Purchases End</strong>:</td>
<td><strong>Commitment used</strong>: $300 billion of $300 billion</td>
</tr>
<tr>
<td>11/04/2009</td>
<td></td>
<td><strong>Announced End</strong>: Reduced from $200 billion to $175 billion</td>
<td></td>
</tr>
<tr>
<td>03/31/2010</td>
<td><strong>Purchases End</strong>: Commitment used: $1.25 trillion of $1.25 trillion</td>
<td><strong>Purchases End</strong>: Commitment used: $172.1 billion of $175 billion</td>
<td></td>
</tr>
<tr>
<td>08/10/2010</td>
<td>FOMC announces 1) that it will reinvest principle from agency debt and MBS purchases into longer-term Treasury securities and 2) a rollover program of longer-term Treasury Securities (mainly 2- to 10-year).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: FOMC Transcripts; FRBG Press Releases; FRBNY FAQs.
Initial Phase

Across all three types of securities purchased—agency debt, MBS, and Treasury—the FRBNY used modeled yield curves and fair values to determine which securities were underpriced compared with securities in the entire sector (Gagnon et al. 2011, 45). Based on this determination, the FRBNY purchased those assets that it perceived to be underpriced (Gagnon et al. 2011, 45). The FRBNY also varied its daily purchases of securities in order to meet the FOMC's targets and to account for fluctuations in the market (Gagnon et al. 2011, 45).

Agency Debt Purchases

Purchases of agency debt began in the second week of December 2008 and were set up as multi-price reverse auctions (FRBNY 2010b). Eligible debt securities needed to be fixed rate, noncallable, senior benchmark, and sold at competitive prices. The FRBNY accepted only off-the-run securities from the program’s outset until August 31, 2009 (off-the-run refers to a security that is not the most recently issued). After August 31, the FRBNY also accepted on-the-run debt, provided that it met the aforementioned criteria.

The FRBNY set the minimum debt offer at $1 million, with increasing $1 million increments (FRBNY 2010b). The auctions were conducted via FedTrade, which is the Fed’s trading system. Dealers were permitted to make up to three propositions each auction period, which typically lasted for 30 minutes. While the Fed aimed to purchase longer-term debt securities, most debt purchases were medium-term securities because fewer longer-term securities were available (see Figure 3) (Gagnon et al. 2011, 46). The FRBNY created additional bank reserves to finance these purchases (FRBNY 2010b). The FRBNY generally held auctions to purchase GSE debt once a week, which it announced one day prior to the auction.

Figure 3: Distribution of Agency Debt Purchases by Maturity

Sources: Gagnon et al. 2011, 46; original data from FRBNY.
Agency MBS Purchases

Purchases of agency MBS began on January 5, 2009 (FRBNY 2018). MBS purchases posed a serious operational challenge for the FRBNY, "owing to the complex nature and heterogeneity of these securities and to the scale of the MBS purchase program" (Gagnon et al. 2011, 44). Although the FRBNY accepted some agency MBS as collateral in repurchase agreement transactions before 2009, it previously had never purchased agency MBS directly (Gagnon et al. 2011, 44).

Given the complications with conducting MBS purchases, the FRBNY selected four investment managers and a custodian to help facilitate the program (FRBNY 2010a). The FRBNY selected BlackRock, Goldman Sachs Asset Management, PIMCO, and Wellington Management (Wellington) to serve as investment managers, based on their operational capacity, size, competitive fee structure, and knowledge of the MBS market. The FRBNY chose JPMorgan Chase to be the program custodian, which was also tasked to provide fund accounting and administrative services.

The four investment managers handled most of the trading operations during the first several months of the program. In August 2009, the FRBNY began to phase out the investment managers, as the FRBNY staff developed the expertise to carry out purchases on their own.

On August 17, 2009, the FRBNY announced its reduction of investment managers from four to two: Wellington was retained for trading, settlement, and secondary risk and analytics support (FRBNY 2009d; FRBNY 2010a; Gagnon et al. 2011, 45). BlackRock was retained for primary risk and analytics support services (FRBNY 2009d). Beginning on March 2, 2010, the FRBNY relied on internal staff to execute MBS purchases and alternated with Wellington every other trading day (FRBNY 2010a). By the end of the program, FRBNY had assumed full trading responsibilities (FRBNY 2010a).

Unlike agency debt purchases, which were conducted via auction, the FRBNY and its managers purchased MBS directly from primary dealers (Gagnon et al. 2011, 45). By March 2009, the FOMC decided to supplement its MBS transactions with dollar rolls (FOMC 2009c, 6; FRBNY 2010a). A dollar roll is similar to a reverse repurchase agreement, and the Fed used dollar rolls to defer the settlement of existing trades (FRBNY 2010a). The FRBNY purchased MBS at market prices from eligible primary dealers. When the counterparties had difficulties obtaining the securities to deliver to the FRBNY, the Fed dollar rolled the transaction—for a fee—into the next settlement cycle. The FRNBY bought MBS at a variety of settlement dates that ranged from one calendar week to three calendar months (FRBG 2016).

MBS needed to be fixed rate in order to be eligible (FRBNY 2009b). To best align with the program’s goals, the composition of MBS purchases tended toward longer maturity or longer duration securities to target longer-term interest rates, as 95% of MBS purchased had a 30-year maturity (Gagnon et al. 2011, 45; FRBG 2016). By concentrating purchases on newly issued 30-year securities (“production” MBS), the FRBNY created demand for new loans, which aimed to reduce primary mortgage rates (Gagnon et al. 2011, 46). However, the
FRBNY also purchased 15-year and 20-year securities to reduce potential distortions in yield curves (Gagnon et al. 2011, 45).

The FRBNY purchased enough MBS to meet the FOMC’s targets, while also compensating for day-to-day variation in market liquidity conditions (Gagnon et al. 2011, 45-46). Nonetheless, the FRBNY avoided buying at excessively high prices (Gagnon et al. 2011, 45).

**Expansion of Commitment**

By March 2009, the FRBNY had purchased about 35.7% of its debt commitment and 30% of its MBS commitment (FHFA Market Data; see Appendices A and B). Though FRBNY used a substantial amount of its commitment, housing markets and the broader economy continued to contract (FOMC 2009h). On March 18, 2009, the FOMC announced that it would purchase an additional $100 billion in debt and $750 billion in MBS, bringing its aggregate commitments to $200 billion in debt and $1.25 trillion in MBS (FOMC 2009h).

**Treasury Securities**

While it increased its commitment for agency debt and MBS, in March 2009, the FOMC also pledged to buy $300 billion in longer-term Treasury securities to improve conditions in private credit markets (FOMC 2009h). The program targeted older Treasury securities, as the market was reluctant to buy them (Gagnon et al. 2011, 43). Older Treasury securities are less liquid, which made them much more difficult to sell under the market conditions at the time (Gagnon et al. 2011, 43). As a result, older securities had become quite cheap in comparison to newer Treasury securities (Gagnon et al. 2011, 43). The Fed planned to purchase $300 billion worth of Treasury securities in six months (FOMC 2009c, 219-221).

**Wind-Down Phase**

By August 2009, the most severe phase of the crisis had passed, and housing markets had stabilized somewhat (FOMC 2009a). To phase out the LSAP program with minimal disruption to the market, in its meeting on August 12, 2009, the FOMC voted to gradually scale down Treasury purchases. The Fed announced its intention to gradually slow the pace of agency debt and MBS purchases on September 23, 2009, and FRBNY extended the tentative termination of agency debt and MBS purchases to the end of first quarter 2010 (FRBNY 2018).


On November 4, 2009, the Fed reduced the aggregate commitment for agency debt purchases from $200 billion to $175 billion, citing a lack of available agency debt (FOMC 2009i).

Beginning in the first quarter of 2010, the Fed slowed purchases to once every two weeks (FRBNY 2010b). At its March meeting, the FOMC voted to end the LSAP program, which
terminated purchases on March 31, 2010, although it continued to use dollar rolls to settle outstanding transactions after that date (FOMC 2010a; FRBNY 2010a).

The FOMC permitted agency debt and MBS to run off its balance sheet between March 31 and August 2010 (English 2020). At the August 10, 2010, meeting, the FOMC voted to reinvest the principal payments from agency debt and MBS into longer-term Treasury securities (FOMC 2010d, 8). Providing reasons for the reinvestment, the FOMC stated, “In light of current conditions in the MBS market and the Committee’s desire to normalize the composition of the Federal Reserve’s portfolio, it would be better to reinvest in longer-term Treasury securities than in MBS” but noted that “reinvesting in MBS might become desirable if conditions were to change” (FOMC 2010d, 8).

**Outcomes**

Between the program’s announcement on November 25, 2008, and its conclusion on March 31, 2010, the FRBNY purchased $172.1 billion in agency debt, $1.25 trillion in agency MBS, and $300 billion in Treasury securities, or roughly 22% of available securities in these three categories (Gagnon et al. 2011, 44). The magnitude of this program led Gagnon et al. to conclude that “no investor—public or private—has ever accumulated such a large amount of securities in such a short period of time” (Gagnon et al. 2011, 44). Nine percent of the agency MBS purchases were from Ginnie Mae, while the rest were from the GSEs (FHFA 2019) (see Appendix B).

**Agency Debt Purchases**

As evidenced in Figure 4, agency debt purchases did not have a single peak. There seemed to be three instances of increased debt purchases: directly following the announcement to purchase debt in November 2008, during the expansion of the commitment in March 2009, and in October 2009, the final month of the Fed’s program to purchase $300 billion in Treasury securities and the month before it reduced its debt commitment from $200 billion to $175 billion. As seen in Figure 4, the FRBNY began to wind down operations in the fall of 2009 and into the spring of 2010. The FRBNY’s largest series of agency debt purchases in a single month was $16.9 billion in March 2009 (FHFA 2019) (see Appendix A). Approximately 22% of the FRBNY’s agency debt purchases were directed at the FHLBs, while the rest of the debt was purchased from Fannie Mae and Freddie Mac.
Figure 4: Federal Reserve’s Monthly Purchases of Agency Debt (in billions of USD)

Source: FHFA, “Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities.”

MBS Purchases

It is difficult to overstate the size and scope of the FRBNY’s MBS purchase program. As shown in Figure 5, the FRBNY’s $1.25 trillion MBS program dwarfed Treasury’s $220.8 billion MBS program. The Fed’s purchase of MBS peaked in the spring of 2009, increasing after the expansion of its commitment in March 2009. The largest series of agency MBS purchases in a single week was $33.3 billion during March 19-25, 2009, contributing to the largest series of agency MBS purchases in a single month at $136.8 billion (week of February 26-March 25, 2009) (FHFA 2019) (see Appendix B).
Figure 5: FRBNY and Treasury Purchases of Agency MBS (in billions of USD)

Source: FHFA, “Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities.”

Treasury Purchases

The Fed conducted 60 purchases of Treasury securities for an aggregate $300 billion, tapering purchases before it closed the program at the end of October 2009 (see Figures 6 and 7) (FOMC 2009e). The largest weekly purchases appear to have taken place in April 2009.

Figure 6: Federal Reserve’s Weekly Treasury Purchases

Sources: FOMC presentation materials from the meeting on November 3-4, 2009; original data from FRBNY.
The Fed's Balance Sheet

The LSAP program substantially expanded the Fed's balance sheet, which contained about $1 trillion of assets in September 2008 and $2.3 trillion in January 2010 (FOMC 2010c, 2). In August 2010, the FOMC voted to limit holdings of domestic assets in the SOMA portfolio to $2 trillion (FOMC 2010d, 9, 10). In the case of agency debt, the expansion of the Fed's balance sheet by approximately $180 billion was more temporary, as it reduced its debt holdings beginning in 2010 (see Figure 8).

Note: US recessions are shaded; the end date of the most recent recession is undetermined. Source: Federal Reserve Bank of St. Louis; FRBG.
As Figure 9 shows, the impact of agency MBS on the Fed’s balance sheet was more lasting than that of agency debt because the Fed continued to purchase and roll over MBS in subsequent purchase programs.

**Figure 9: Mortgage-Backed Securities Held by the Federal Reserve**

![Graph showing mortgage-backed securities held by the Federal Reserve from 2008 to 2020.](image)

*Note: US recessions are shaded; the end date of the most recent recession is undetermined. Source: Federal Reserve Bank of St. Louis; FRBG.*

In the case of Treasury securities, the Fed’s holdings continued to increase rather than decrease after 2009, as it implemented several new purchasing programs over the next few years (Mendez-Carbajo 2020) (see Figure 10).

**Figure 10: US Treasury Securities Held by the Federal Reserve**

![Graph showing US Treasury securities held by the Federal Reserve from 2008 to 2020.](image)

*Note: US recessions are shaded; the end date of the most recent recession is undetermined. Source: Federal Reserve Bank of St. Louis; FRBG.*
II. Key Design Decisions

1. The LSAP program was a nontraditional macroeconomic policy measure enacted in conjunction with reductions in policy interest rates.

The Fed had reduced the federal funds and discount rates since September 2007 (FRBG 2020). By November 2008, the crisis was far from over, and the federal funds rate was approaching the zero lower bound (FOMC 2008a, 22-23). The FOMC thus sought to develop and implement other nontraditional monetary policy measures to increase the availability of credit and reduce borrowing rates, thereby stimulating and bolstering the financial system (FOMC 2008a, 22-30; FRBG 2008).

On November 25, 2008, after discussions by FOMC participants, the Board of Governors announced the decision to purchase agency debt and MBS (FRBG 2008; English 2020). At the following FOMC meeting in mid-December 2008, officials discussed three nontraditional strategies—“simple” quantitative easing, purchasing longer-term securities, and creating or expanding special liquidity and lending facilities (FOMC 2008a, 17-18). The LSAP program fell into the second category, purchasing longer-term securities.

Nonetheless, the three strategies discussed in December 2008 may provide insight into the Fed’s implementation of the LSAPs as a nontraditional policy measure. Officials did not consider seriously purchasing private securities, as they believed this move would take them even further in the direction of credit allocation, which would result in more longer-term costs than benefits (FOMC 2008a, 34, 57, 71). The full list of benefits and drawbacks of all three approaches outlined in the December meeting can be found in Appendix C. While there was some uncertainty regarding the program's size, FOMC members understood that the Fed would need to buy a substantial quantity of securities to give the intervention a chance of success (FOMC 2008a, 63-66). The FOMC’s directive gave FRBNY the authority to purchase up to $100 billion in housing-related GSE debt and up to $500 billion in agency MBS by the second quarter of 2009 (FOMC 2008b, 10). The directive also allowed the FRBNY’s Open Market Desk to determine the precise timing of the purchases (FOMC 2008b, 10).

2. The FOMC decided that the LSAP program would at first include only purchases of agency debt and MBS, not Treasury securities.

Having already enacted the LSAP program, FOMC officials deliberated between purchasing agency debt and MBS alone or in conjunction with purchasing longer-term Treasury securities and decided to delay purchases of Treasuries (FOMC 2008a).

The FOMC saw advantages to purchasing agency debt and MBS over purchasing any Treasury securities for the following reasons:
• It would remove assets from the market (debt, MBS) that were lower in demand compared to Treasury securities (Gagnon and Holscher 2008, 140).

• Fed analysts concluded that debt and MBS purchases would result in a more rapid recovery of GDP growth than dollar-for-dollar purchases of Treasury securities (Gagnon and Holscher 2008, 140-141).

• It would complement housing refinance activities better than purchases of Treasury securities (Gagnon and Holscher 2008, 141).

• It was easier to explain the rationale for purchasing debt and MBS to the public (Gagnon and Holscher 2008, 140).

• Treasury spreads had already fallen, while private yields had not fallen (breaking a trend) (FOMC 2008a, 57). Several FOMC officials concluded that lowering Treasury yields, which were already low, likely would not have an effect on other yields (FOMC 2008a, 21, 57). By contrast, yields on agency MBS remained high.

The main drawback voiced about the purchase of agency debt and MBS was:

• The FOMC believed that purchasing of agency debt and MBS could be seen as credit allocation, or, in their words, “steering funds to the GSEs and to particular economic sectors” (FOMC 2008a, 21).

A secondary goal of the LSAP program may have been to augment the Treasury’s MBS purchase program for Fannie Mae and Freddie Mac, which some market analysts believed had been too limited and insufficiently transparent (Collins 2008, 19). The secondary goal of this program needs to be considered carefully, in light of the concern expressed by some Fed officials that purchases of longer-term securities through the LSAP program might be seen as credit allocation toward the GSEs and the secondary mortgage market (FOMC 2008a, 34, 57, 71).

3. **Section 14 of the Federal Reserve Act provided the legal authority for the LSAP program.**

*Treasuries.* The Fed’s purchases of Treasury securities were authorized under Section 14(2)(b)(1) of the Federal Reserve Act (FRA), which allows the Fed to buy and sell direct from Treasury (1) “bonds and notes of the Unites States with maturities not exceeding six months,” and (2) “bonds and notes, or other obligations which are direct obligations of the United States or which are fully guaranteed by the United States as to the principal and interest” of any maturity “but only in the open market.”

*Agency MBS and debt.* Section 14(2)(b)(2) of the FRA permits the Fed “[t]o buy and sell in the open market [. . . ] any obligation which is a direct obligation of, or fully guaranteed as to principal and interest by, any agency of the United States.” Although the GSEs (Fannie Mae, Freddie Mac, and the Federal Home Loan Banks) are not government agencies but government instrumentalities, their Congressional charters and other
federal regulations afford them certain special privileges (Reiss 2008, 1053-61). One of these privileges is that the Federal Reserve is required by statute to act as their fiscal agent, a role that the Fed primarily plays for the federal government (Reiss 2008, 1060-61). Another privilege is that many federal regulations permit banks and other entities to treat their obligations as similar to Treasuries and other direct government obligations (Reiss 2008, 1061). In similar fashion, the Federal Reserve has long treated agency debt and securities as “principal agency obligations eligible as collateral for advances” from its discount window and as “direct obligations of, and obligations fully guaranteed as to principal and interest by, any agency of the United States . . . eligible for purchase by Reserve Banks” pursuant to Section 14(b). This was the authority relied on for the agency debt and MBS purchases under the LSAP.8

Reflecting on the LSAP program, Chairman Ben Bernanke noted:

Probably the most controversial form of unconventional policy adopted in recent years was what the Federal Reserve called large-scale asset purchases (LSAPs) but most of the rest of the world persisted in calling “quantitative easing,” or QE [. . .] By law, the Fed was able to purchase only Treasury securities and mortgage-related securities issued by government-sponsored enterprises. Other central banks, in contrast, have been able to buy a range of private securities, including corporate bonds and equities. The limits on the Fed did not seem to prevent its version of QE from being effective, although it was perhaps fortunate that, following a crisis centered on housing finance, the law did permit Fed purchases of mortgage-related securities (Bernanke 2017, 9).

4. The Fed opted to commit a substantial amount of reserves to purchase agency debt and MBS with a flexible timeline.

Given the perceived advantages of purchasing agency debt and MBS, analysts at the Fed identified two approaches that the FRBNY could have taken related to the timing and size of its LSAP program (Gagnon and Holscher 2008, 142).

**Approach A—Announcing a volume of purchases over a certain time period**

Advantages included:

- The Fed could have better control over the size of its balance sheet.
- It resulted in less active trading of the Fed’s portfolio.

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8 See regulation 12 CFR § 201.108, which interprets FRA Section 14(b) to encompass debt and securities of Fannie Mae, Freddie Mac, and the Federal Home Loan Banks, cited in Reiss 2008 at page 1062, footnote 197. See also Arthur L. Broida’s 1971 letter to the Federal Open Market Committee, which further explores agency issues in the context of open market operations.
• It would be easier to achieve a balance of purchases across different market segments (possibly through an index replication strategy).

• The Fed did not have to assume full responsibility for the price of the securities.

Approach B—Establishing a ceiling for conventional fixed mortgage rates. For example, the Fed could announce that it would purchase all newly issued agency MBS with a certain coupon at par.

Advantages included:

• It would more clearly outline the Fed’s policy.

• The general public would understand it better.

The Fed’s decision to commit a substantial amount of reserves with a flexible timeline was a blend of these two strategies (Gagnon and Holscher 2008, 143). With respect to the first strategy, the FOMC announced an explicit commitment amount (Gagnon and Holscher 2008, 143). With respect to the second approach, the FOMC described this commitment as a ceiling, implying that it would not necessarily purchase the full amount of its commitment (Gagnon and Holscher 2008, 143). FOMC members seem to have recognized that establishing an upper limit could pose such a risk, given its debates over the limit and its decision to include the phrase “up to” in its agency debt and MBS announcements (FOMC 2008a, 79).

The Fed published a press release on November 25, 2008, that communicated its decision to purchase up to $100 billion in GSE direct obligations and $500 billion in MBS in competitive auctions. In the same announcement, the Fed clarified its expectation for the purchases to occur “over several quarters” and did not describe the per-month path of asset purchases.

In March 2009, several members of the FOMC proposed an alternative to establishing an upper limit (FOMC 2009c, 78-80, 181). They argued that the Fed should announce its intention to increase the size of its balance sheet on a month-to-month basis, without specifying the total (FOMC 2009c, 78-80, 181). According to these members, a balance-sheet approach would allow the FRBNY to adjust its ongoing purchases of MBS, debt, and Treasury securities to reflect current economic conditions, since none of these assets would have a fixed limit (FOMC 2009c, 78-80). The balance sheet approach was not implemented.

5. Only primary dealers could participate in the program.

The Fed’s designated primary dealers were the only institutions allowed to transact in any of the three securities of the LSAP program as broker dealers from whom the investment managers could purchase securities (FRBNY 2008d, 4, 28; FRBNY 2010b).
6. The FRBNY initially used investment managers but later phased them out as it began to control trading operations more directly.

Given the size of the commitment and the FRBNY’s lack of experience in MBS purchases, FRBNY selected four investment managers and a custodian after the program’s announcement (FRBG 2008; FRBNY 2008a). The FRBNY chose BlackRock, Goldman Sachs Asset Management, PIMCO, and Wellington Management to serve as investment managers, based on their operational capacity, size, competitive fee structure, and knowledge of the MBS market (FRBNY 2008a). The FRBNY selected JPMorgan Chase (JPMC) to be the program’s custodian and also tasked it with providing fund accounting and administrative services (FRBNY 2008b, 1, 26; FRBNY 2010a).

The investment managers entered into nearly identical agreements with the FRBNY, and became responsible for purchasing agency MBS and exercising tangential rights (such as proxy rights or warrants) under the securities, in accordance with FRBNY investment guidance and objectives and on its behalf (FRBNY 2008d, 1-2; FRBNY 2008c, 1-2; FRBNY 2008f, 1-2; FRBNY 2008e, 1-2). FRBNY authorized investment managers to buy and sell agency MBS on the Fed’s behalf via the Fed’s System Open Market Account (SOMA) (FRBNY 2008d, 1-3). Transactions were to be communicated to and settled by the custodian (FRBNY 2008d, 3-4).

The investment managers had the sole right to determine the broker dealer for trades from a list approved by the FRBNY and to establish the rate for execution services (FRBNY 2008d, 4). Upon request, managers were required to both offer advice related to residential loan modification and to provide assistance to influence residential loan modification and policies of residential mortgage-backed loans tied to agency MBS (FRBNY 2008d, 2). In addition, managers were obligated to provide the FRBNY with monthly reports, submit weekly market updates to the FRBNY and the custodian, and meet with FRBNY representatives each month (FRBNY 2008d, 4-6).

Each manager was paid a fee calculated monthly and paid quarterly “based on the average quarterly notional value of the Agency MBS” in the LSAP portfolio from all investment managers (based on the records of the Custodian) 9 (FRBNY 2008d, Exhibit D). The quarterly fee rate was “1/16th of the annual rate of 1.25 basis points” (FRBNY 2008d, Exhibit D).

On August 17, 2009, the FRBNY announced that it would end its contracts with PIMCO and Goldman Sachs Asset Management (FRBNY 2009d; Gagnon et al. 2011, 45). Wellington Management Company would be retained as the sole investment manager and BlackRock would be retained to provide analytical support services (Gagnon et al. 2011, 45). The external investment managers were phased out because FRBNY

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9 The agreement provided that “notional amount shall mean the Current Face amount of the Agency MBS, including unsettled Trades and TBA’s and not to be reduced by the unsettled Current Face sold as part of dollar roll transactions” (FRBNY-GS Agreement, Exhibit D).
developed its own “internal analytical and operational expertise” during the program and wished to reduce costs (FRBNY 2009f).

Under the new contract, Wellington retained the same rights and obligations to the FRBNY. From September 15, 2009, until the program’s termination in March 2010, Wellington was paid a flat fee of $1.3 million per month (FRBNY 2009c, Exhibit D; FRBNY 2018). As a provider of analytical services, BlackRock would provide to the custodian and the FRBNY: reports on the portfolio and compliance, client data, and access to analytical tools. BlackRock’s fee was $330,000 a month, paid quarterly (FRBNY 2009a, 13).

Beginning on March 2, 2010, the FRBNY began to use internal staff to partially execute MBS purchases and had assumed full trading responsibilities by the end of the program (FRBNY 2010a).

7. The FRBNY hired JPMorgan Chase to serve as the custodian.

On December 31, 2008, the FRBNY entered into a contract with JPMorgan Chase (JPMC) whereby JPMC would serve as the LSAP program’s sole custodian (FRBNY 2008b, 1). Under the contract, JPMC was obligated to create accounts in the FRBNY’s name, one to hold assets and one to hold cash (FRBNY 2008b, 2-3). More accounts could be created at FRBNY’s request (FRBNY 2008b, 3). In accordance with instructions from the FRBNY, JPMC would credit or debit the accounts as needed to facilitate and settle trades conducted by FRBNY under the LSAP program (FRBNY 2008b, 3-4). Settlement was to be in accordance with market standards (FRBNY 2008b, 5).

JPMC was also obligated to present assets to the FRBNY either at maturity or, at FRBNY’s request, before maturity, along with regular information and statements on the account (FRBNY 2008b, 4-5). JPMC was compensated per negotiated fees and reimbursement of any out-of-pocket expenses (legal fees, tax fees, etc.) related to the LSAP program (FRBNY 2008b, 7-8).

8. Eligible agency debt securities needed to be fixed-rate, noncallable, senior benchmark, at competitive prices, and off-the-run.

Agency debt securities needed to be fixed-rate, noncallable, senior benchmark, at competitive prices, and off-the-run (FRBNY 2010b). In August 2010, the FRBNY also allowed on-the-run debt (on-the-run refers to a security that has been most recently issued) (FRBNY 2010b). The FRBNY allowed on-the-run securities in August 2010 because liquidity had improved and spreads relative to on-the-run securities had fallen (Gagnon et al. 2011, 46). The FRBNY also permitted on-the-run securities in order to reduce market dislocations that had resulted from the MBS purchase program (Gagnon et al. 2011, 46).
9. The FRBNY conducted debt purchases using multi-price reverse auctions and announced auctions the day before.

The FRBNY set the minimum debt offer at $1 million, with increasing $1 million increments (FRBNY 2010b). The auctions were conducted via FedTrade, which is the Fed’s trading system (FRBNY 2010b). Dealers were permitted to make up to three propositions each auction period, which typically lasted for 30 minutes (FRBNY 2010b). While the Fed aimed to purchase longer-term debt securities, most debt purchases were medium-term securities (with maturities of 2 to 5 years) because few longer-term securities were available (see Figure 3) (Gagnon et al. 2011, 46). The FRBNY created additional bank reserves to finance these purchases (FRBNY 2010b). The FRBNY generally held auctions to purchase GSE debt once a week, which it announced one day prior to the auction (FRBNY 2010b).

The FRBNY purchased agency debt and Treasuries through multi-price reverse auctions and bought MBS directly with the assistance of asset managers (Gagnon et al. 2011, 45). Multi-price reverse auctions of agency debt allowed primary dealer counterparties to indicate the quantities and prices at which they were willing to sell, so the FRBNY purchased the securities at the prices submitted by sellers (Gagnon et al. 2011, 45). This meant that potential investors competed for bids (Gagnon et al. 2011, 45). FRBNY also announced its Treasury and agency debt operations ahead of time by two weeks and one day, respectively (Gagnon et al. 2011, 45). Gagnon et al. also note that the announcements increased participation in the auctions, as they gave dealers time to appraise their inventories (Gagnon et al. 2011, 45).

10. The composition of MBS purchases was tilted toward “production” MBS (newly issued 30-year securities) in the TBA market.

FRBNY concentrated MBS purchases on newly issued, 30-year securities (so-called “production” MBS) (Gagnon et al. 2011, 46). The Fed aimed to decrease primary mortgage rates by supporting the market for new loans (Gagnon et al. 2011, 46). Production MBS generally paid lower coupons than seasoned MBS because of then-low interest rates, so all of FRBNY’s MBS purchases paid coupon rates between 3.5% and 6.5% (Gagnon et al. 2011, 46; FRBG 2016). The FOMC also focused purchases on the to-be-announced (TBA) market, where MBS trade weeks or months before delivery, because it offered greater flexibility (FOMC 2009c, 26). Purchasing MBS in the TBA market allowed the FRBNY to respond to daily changes in the market as it could buy more, buy less, or use dollar rolls (Gagnon et al. 2011, 26).


By March 2009, settlement pressures emerged in the MBS market, so the FOMC used dollar rolls to mitigate temporary imbalances related to the supply and demand of specific coupon categories of MBS (FOMC 2009c; Gagnon et al. 2011, 46). A dollar roll is a repurchase agreement with a settlement date ranging from one calendar week to three
calendar months for agency MBS purchases (FRBG 2016). FRBNY conducted dollar rolls with primary dealers by simultaneously purchasing/selling MBS for delivery in one month and selling/purchasing a similar security for delivery in the next month (FRBNY 2010a). After the Fed began using dollar rolls in the first week of March 2009, the forward financing rate for MBS dropped 100 bps compared with the MBS cash repo rate (FOMC 2009c, 6). The Fed began using dollar rolls to purchase high-coupon, seasoned MBS because their liquidity was the most affected (FOMC 2009d, 125). According to the FOMC, dollar roll transactions reduced the costs of managing mortgage inventory and helped lower forward financing spreads (FOMC 2009c, 6).

In June 2010, the FRBNY began using coupon swaps in addition to dollar rolls to settle transactions (FRBNY 2010a). FRBNY conducted coupon swaps with primary dealers by simultaneously purchasing/selling one MBS security and selling/purchasing another MBS security with a different coupon rate (FRBNY 2010a). Coupon swaps permitted FRBNY to exchange assets that were not ready for settlement for assets that were ready. Dollar rolls and coupon swaps did not change the aggregate purchase amounts but allowed the Fed to fine-tune the timing and composition of security settlement (FRBNY 2010a).

12. In March 2009, the FOMC expanded the LSAP program, raising agency debt purchases to $200 billion and MBS purchases to $1.25 trillion. The FOMC also committed to buying up to $300 billion in longer-term Treasury securities.

Agency Securities. In March 2009, the FOMC decided to expand its purchases of debt and MBS because FOMC officials estimated that the hole in the demand for agency securities was still quite large (FOMC 2009f, 8). Some members argued that the market expected the Fed to extend purchases of the agency MBS at the same purchase pace of at least $500 billion every six months (FOMC 2009c, 73). The FOMC decided to increase MBS purchases by $750 billion (to an aggregate $1.25 trillion) to further support mortgage lending and housing markets. At least one FOMC member felt that the purchases of agency debt had not been effective but suggested that failing to increase the FOMC's commitment to purchase debt could cause more problems than what it would solve (FOMC 2009c, 73).

Treasury Securities. Concurrent with the expansion in agency debt and MBS limits, the FOMC also decided to purchase $300 billion in longer-term Treasury securities (FOMC 2009h). FOMC officials noted the macroeconomics effects that resulted from the Bank of England’s (BoE) decision on March 5, 2009, to purchase longer-term Treasury securities (FOMC 2009c, 5-6). FOMC officials and staff observed the effects of BoE’s gilt purchases on public-sector and private-sector long-term yields (FOMC 2009c, 5-6; Gagnon et al. 2009, 5). Many officials also expressed less concern with the adverse effects of purchasing Treasury securities than in December 2008, such as creating the perception that the Federal Reserve was monetizing federal debt, which in turn could have adverse effects on term premiums and inflation (FOMC 2009c, 90, 92-94, 96, 176, 208). Some FOMC staff expressed concern that the continued purchases of agency debt and MBS could decrease the benefit of purchasing these securities to the point that Treasury...
securities would become more beneficial (Gagnon et al. 2009, 2). FOMC officials also suggested that the Treasury securities portfolio would be easier to wind down and sell off than the agency securities (FOMC 2009c, 90, 92, 170-171). It was also noted that given the “high degree of uncertainty” that had resulted from the Fed’s different policies since the beginning of the crisis “it [would] be prudent to consider including a significant share of Treasury securities in any further expansion of purchases” (Gagnon et al. 2009, 2).

The FOMC wound down the Treasury purchases months before it terminated its purchases of agency debt and MBS (FRBNY 2018; see Figure 2). The FOMC announced and gradually reduced its purchases of agency debt and MBS to avoid raising market interest rates (FOMC 2009j, 153-154). Gagnon et al. note that the FOMC was successful with its wind-down strategy, as the termination of the LSAP program did not raise interest rates by any noticeable amount (2011, 57).

13. **The FOMC attempted to make the LSAP program very transparent.**

One FOMC official suggested that the Fed needed to be transparent about the LSAP program (and quantitative easing more generally) to reassure markets that the Fed had intentionally entered into a new monetary policy regime and that it still was in control of monetary policy (FOMC 2008a, 135-136, 191). The FOMC’s aim for more public transparency emerged in direct response to reports from several prominent media outlets in January 2009, which described the purchase programs as both unprecedented and unclear (FOMC 2009b, 37-38). Given these concerns, the FOMC established a Transparency Committee to consider ways to enhance the transparency of its policies. This workgroup was tasked with assessing the public information on all the FRBNY’s major rescue programs (FOMC 2009b, 37-38; FOMC 2009g, 9-10).

The FRBNY also attempted to make the LSAP programs transparent by announcing auction dates and changes to the programs beforehand. Gagnon et al. asserted that “the timely release of information was provided in order to reduce uncertainty and speculation about operational details. This information may also have helped to prevent erratic trading based on differential access to information or on rumors and misconceptions” (2011, 47). In particular, Gagnon et al. find that the FRBNY’s announcement of the program and subsequent announcements of changes to the program directly lowered longer-term interest rates (2011, 48-52).

In addition to the transparency measures directly related to the programs, the FRBNY continued to assure investors that it could raise short-term interest rates at any time (Gagnon et al. 2011, 42).

**III. Evaluation**

Several weeks after the LSAP program’s inception, FOMC committee members noted that announcing the program substantially narrowed the spreads between conforming mortgages and Treasuries, causing conforming mortgage rates to fall substantially (FOMC
Central bankers and economists have argued that the size of the program’s commitments played an integral role in lowering Fannie Mae’s and Freddie Mac’s debt spreads and in lowering interest rates—particularly longer-term interest rates—more broadly.

The academic community generally agrees that the Fed’s purchases of agency debt, MBS, and Treasury securities succeeded in the Fed’s goal of lowering longer-term interest rates. They also note that the program lowered debt spreads. Nonetheless, researchers disagree about which interest rates were affected by these programs and to what extent. While some analysts identify these programs as having a substantial impact on mortgage rates, others have found the programs to be much less effective in lowering mortgage rates.

Gagnon et al. argue that the LSAP program succeeded in lowering longer-term interest rates, including: two-year and 10-year Treasury yields, 10-year agency debt yields, current-coupon 30-year agency MBS yields, the 10-year Treasury term premium,10 the 10-year swap rate, and the Baa corporate bond index yield (2011, 48-52). Gagnon et al. also argue that the programs had a more direct impact on lowering agency debt and MBS interest rates, which also improved market liquidity (2011, 57). Neely’s results align with the findings of Gagnon et al.: the Fed’s announcements to purchase agency debt and MBS lowered yields and interest rates for US and foreign bonds (Neely 2011, 27-29).

Using event study methodology of the program’s announcements, Krishnamurthy and Vissing-Jorgensen also find that the LSAP program lowered MBS yields (2011, 35-37). They also assert that the LSAP program succeeded in lowering corporate yields (possibly by lowering corporate credit risk) (Krishnamurthy and Vissing-Jorgensen 2011, 3, 20). As noted by Gagnon et al. (2011, 16), D’Amico and King (2010) conclude that the yields on Treasury securities purchased under the LSAP program fell more than the yields on securities that were not purchased by the program. The authors also argue that the LSAP program significantly reduced medium- and longer-term Treasury yields (D’Amico and King 2010).

After conducting an empirical analysis of the Treasury and Fed MBS purchase programs, however, Stroebel and Taylor conclude that government interventions did not have a major impact on lowering mortgage rates (2012, 38-40). Instead, they posit that changes in prepayment risk and default risk mainly drove the decline in rates (38-40).

In contrast to Stroebel and Taylor, a 2014 report issued by the Office of the Inspector General of the Federal Housing Finance Agency (FHFA OIG) found that the LSAP program had a direct impact on lowering mortgage rates, which contributed to increased rates of housing refinance (14-17). Lowered mortgage rates also directly improved the GSEs’ financial condition, as these lowered rates led to an increase in housing refinance activity (FHFA OIG 2014, 16). In 2012 and 2013, the GSEs particularly began to benefit from an increase in

10 The term premium is the additional return investors demand to hold a Treasury security with a longer duration (Gagnon et al. 2011, 42). They attribute this fall in the premium to the “portfolio-balance effect,” under which purchases of Treasury securities raise the price of a security and lower its term premium (42).
housing refinances after their regulator raised the GSEs’ guarantee fees on MBS (FHFA OIG 2014, 18-19).

From an operational standpoint, Gagnon et al. highlight the potential pitfalls of announcing a commitment amount (particularly if that commitment is large) (2011, 57). They argue that stating a commitment could cause market participants to expect the FRBNY to purchase the entire amount, irrespective of market conditions (Gagnon et al. 2011, 57). While Gagnon et al. recognize the potential benefits of clearly articulating commitment size to the market (for more see KDD 4), they note that “policymakers often prefer not to make strong commitments on future policies because there is always a chance that future economic conditions will call for a different policy stance than expected” (Gagnon et al. 2011, 57).

Finally, Kohn and Sack (2018), who took part in designing the LSAP program, claim that it resulted in fewer market dislocations and other negative externalities than initially were feared—even with the Federal Reserve ultimately purchasing trillions in agency and Treasury securities (17-20). The authors attribute this outcome in part to the sound program management strategies employed by the FRBNY—especially the transparency with which it purchased assets and its carefulness not to deplete the market of certain securities (Kohn and Sack 2018, 19).

**Subsequent Quantitative Easing Measures**

Since the first LSAP, the Fed has completed two more rounds of quantitative easing. The second round of quantitative easing was announced on November 3, 2010, and continued through June 2011 (FOMC 2010b; FOMC 2011). The third round was announced in September 2012 and terminated on October 29, 2014 (FOMC 2012; FOMC 2014). When the Fed began to let assets roll off its balance sheet in 2018, scholars had expressed confidence that the Federal Reserve’s later unwinding of crisis-era positions would not pose systemic risk, primarily because of its continued “control of the federal funds rate even in an environment of abundant reserves” (Kohn and Sack 2018, 19). More than a decade after the onset of the Global Financial Crisis, the Federal Reserve conducted a fourth LSAP program to combat the negative economic effects of the COVID-19 pandemic (Mendez-Carbajo 2020). The move rapidly increased the size of the Fed’s balance sheet to more than $7 trillion in assets—nearly eight times its size before the implementation of the first LSAP program in 2008 (Mendez-Carbajo 2020). As of this case’s writing, the Fed continues to purchase Treasury securities and agency MBS at paces of roughly $80 billion and $40 billion per month, respectively (FOMC 2021).

**IV. References**


https://ypfs.som.yale.edu/node/3366.

https://ypfs.som.yale.edu/node/3456.


https://ypfs.som.yale.edu/node/3480.


https://ypfs.som.yale.edu/library/ginnie-mae-who-we-are-our-history.


V. Key Program Documents

Summary of Program


Large-Scale Asset Purchases by the Federal Reserve: Did They Work? (Gagnon et al. 2011) – Provides a compressive overview of the LSAP program and the key decisions involved with constructing the program. https://ypfs.som.yale.edu/node/3480.

Implementation Documents


Legal/Regulatory Guidance


Press Releases/Announcements


Press Release (FRBNY – 03/18/2009) – Announces the expansion of the FRBNY’s commitment to $200 billion of agency debt, $1.25 trillion of agency MBS, and $300 billion of Treasury securities. https://ypfs.som.yale.edu/node/3460.


Media Stories

The Buyer of Last Resort (Forbes – 03/18/2009) – Reaction to the Fed’s expansion of agency debt and MBS purchases to $200 billion and $1.25 trillion respectively. https://ypfs.som.yale.edu/node/4453.
Fed to Begin Buying Mortgage-Backed Securities (New York Times – 01/05/2009) – Announces the Fed’s first purchases of agency MBS.  
https://ypfs.som.yale.edu/node/4456


Key Academic Papers

The Effect of Quantitative Easing on Interest Rates: Channels and Implications for Policy (Arvind and Vissing-Jorgensen 2011) – Finds that the LSAP program lowered MBS yields. They also assert that the LSAP program succeeded in lowering corporate yields (by lowering corporate credit risk).  

Estimated Impact of the Federal Reserve's Mortgage-Backed Securities Purchase Program (Stroebel and Taylor 2012) – Concludes that changes in prepayment risk and default risk, not government interventions, mainly drove the decline in mortgage rates.  

Flow and Stock Effects of Large-Scale Treasury Purchases (D’Amico and King 09/2010) – Concludes that the yields on Treasuries purchased under this program fell more than the yields on those that were not purchased by the program, and asserts that the programs reduced medium and longer-term Treasury yields.  

Large-Scale Asset Purchases by the Federal Reserve: Did They Work? (Gagnon et al. 2011) – LSAP program succeeded in lowering the term premium, MBS yields, and debt spreads. Also provides the most comprehensive scholarly overview of the program.  

The Large-Scale Asset Purchases Had Large International Effects (Neely 01/31/2011) – Finds that the Fed’s announcements to purchase agency debt and MBS lowered yields and interest rates for U.S. and foreign bonds.  
https://ypfs.som.yale.edu/library/large-scale-asset-purchases-had-large-international-effects.

Reports/Assessments

Impact of the Federal Reserve’s Quantitative Easing Programs on Fannie Mae and Freddie Mac (FHFA OIG – 2014) – Argues that the LSAP program directly lowered mortgages, which stimulated housing refinance activity.


VI. Appendixes

Appendix A: FRBNY Purchases of Agency Debt (in billions of USD)

<table>
<thead>
<tr>
<th>Period</th>
<th>Freddie Mac Debt</th>
<th>Fannie Mae Debt</th>
<th>FHLB Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2008</td>
<td>$6.1</td>
<td>$5.8</td>
<td>$3.1</td>
</tr>
<tr>
<td>January 2009</td>
<td>4.8</td>
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*Note: Cumulative draws may not add up because of rounding. Source: FHFA and Treasury.*
### Appendix B: MBS Purchases January 2009-March 2010 (in billions of USD)

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<th>Period</th>
<th>Net Transactions</th>
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**Note:** Cumulative dividends paid may not add up because of rounding.

**Source:** FHFA and Treasury.
### Appendix C: Nonstandard Monetary Policy Tools: Options

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<th>Open Market Operations</th>
<th>Special liquidity and lending facilities</th>
<th>Communication and commitment strategies</th>
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<td><strong>Mechanics</strong></td>
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<tr>
<td><em>“Simple” quantitative easing</em></td>
<td><em>Buying longer-term securities (LSAP program)</em></td>
<td><em>Make explicit statements about longer-term goals (especially for inflation)</em></td>
</tr>
<tr>
<td>• Purchase short-term government securities (conventional open market operations)</td>
<td>• Purchase longer-term securities: government securities, non-government securities, or a combination of the two</td>
<td>• Announce a short-term inflation target that is higher than the longer-term inflation target</td>
</tr>
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<td></td>
<td></td>
<td>• Offer more explicit information about the future path of the federal funds rate</td>
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<tr>
<td><strong>Objective</strong></td>
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<tr>
<td>• Incentivize banks to lend by ensuring that they can access substantial funding at low costs</td>
<td>• Reduce term spreads or credit spreads, which would lower longer-term interest rates</td>
<td>• Lower market expectations about the future path of short-term interest rates, which could reduce longer-term interest rates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• -Prevent market from expecting deflation</td>
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<tr>
<td><strong>Benefits</strong></td>
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<tr>
<td>• Approach seemed to spur minimal to</td>
<td>• Estimates suggested that purchasing $50B</td>
<td>• Evidence outside the US suggested that an “explicit and credible” inflation target helps</td>
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</table>
modest growth in Japan, during a period when banks and borrowers had weak balance sheets.

- of longer-term Treasury securities would lower yields by approximately 2 to 10 bps, impact of purchases would compound as Treasury securities became scarce.
  - After the FOMC announced the LSAP program, agency debt and MBS rates fell 60 bps, Treasury and swap yields fell 20 bps, and corporate bonds fell 10 bps.

seemed to meet their objectives

- the public to anchor inflation expectations and prevents the “upward drift” of interest rates during times of high unemployment and slowing inflation
- Stimulate economic activity by lifting inflation expectations and lowering medium- and longer-term real interest rates

<table>
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<th>Drawbacks</th>
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<tbody>
<tr>
<td>• The amount of expected growth (minimal to modest) seems to determine whether the above fact is more of a benefit or a drawback.</td>
<td>• The FRBNY needed to purchase a substantial amount of assets to achieve any effect.</td>
<td>• Facilities needed to comply with Section 13(3).</td>
<td>• Communicating policy conditionalities to the public could be challenging</td>
</tr>
<tr>
<td>• Greatly expand the Fed’s balance sheet (risk of capital losses as</td>
<td>• Greatly expand the Fed’s balance sheet (risk of capital losses as</td>
<td>• The Fed would take on more credit risk unless other parties assumed substantial first-loss positions.</td>
<td>• Traditional monetary policy tools may become constrained at the zero lower bound, so keeping rates lower for longer may prolong the constraints.</td>
</tr>
<tr>
<td>• Moral hazard would increase.</td>
<td>• Moral hazard would increase.</td>
<td>• Moral hazard would increase.</td>
<td>• Moral hazard would increase.</td>
</tr>
</tbody>
</table>
For example, Term Auction Facility (TAF), Asset-Backed Commercial Paper Money Market Mutual Fund Lending Facility (AMLF), Commercial Paper Funding Facility (CPFF).

Sources: FOMC 2008a, 17-18; Gagnon and Holscher (2008), 140.

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