

# **The Rescue of Fannie Mae and Freddie Mac – Module F: Federal Reserve Large Scale Asset Purchase (LSAP) Program<sup>1</sup>**

Daniel Thompson<sup>2 3</sup>

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## **Abstract**

Beginning in mid-2007, default rates on subprime and nonprime mortgages spiked across secondary mortgage markets, causing mortgage lending to slow and the value of mortgage securities to plummet. Over the next year, credit tightened across markets, despite the Federal Reserve having dramatically lowered the federal funds rate. On November 25, 2008, the Fed announced its intent to purchase up to \$500 billion in MBS and \$100 billion in agency debt in order to reduce the cost and increase the availability of mortgage credit, which would support housing markets and foster improved conditions in financial markets more generally. This intervention is often called the Large Scale Asset Purchase (LSAP) program, and later became known as Quantitative Easing I. Almost immediately, the LSAP program began purchases of short-term agency debt and soon thereafter began purchasing MBS, and later expanded to include for additional purchases of debt and MBS as well as \$300 billion in long-term Treasury securities. The Fed began to wind down purchases in late September 2009, by which time the most severe phase of the crisis had passed. By the program's end, the Fed had purchased \$172.1 billion in debt, \$1.25 trillion in MBS, and \$300 billion in Treasury securities. Over the next several years, the Fed sold off its debt portfolio, but has continued to purchase agency MBS and Treasury securities.

**Keywords:** LSAP program, quantitative easing, QE, federal funds rate, interest rates, debt spreads, GSEs, FHLB, Ginnie Mae

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<sup>2</sup> Research Associate, New Bagehot Project. Yale Program on Financial Stability. [daniel.thompson@yale.edu](mailto:daniel.thompson@yale.edu)

<sup>3</sup> We thank William English for providing input into this case.

# Federal Reserve Large Scale Asset Purchase (LSAP) Program

## At a Glance

Beginning in mid-2007, default rates on subprime and nonprime mortgages spiked across the secondary mortgage market, causing mortgage lending to slow and the value of mortgage securities to plummet. Given the tightening of credit across markets, the Federal Open Market Committee (FOMC) lowered the federal funds rate. Markets continued to stagnate after September 2007, and the FOMC continued to cut rates almost every month for the next several months while conditions worsened.

On November 25, 2008, the FOMC announced that it would purchase up to \$500 billion in mortgage-backed securities (MBS) and \$100 billion in debt from the agencies—the Federal National Mortgage Association, the Federal Home Loan Corporation, the Federal Home Loan Banks, and the Government National Mortgage Association. This intervention is often called the Large Scale Asset Purchase (LSAP)

program and was intended 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. Despite the Fed's commitment to purchase large quantities of agency debt and MBS, the LSAP program at first only included purchases of short-term agency debt and no MBS, probably as the result of administrative and management hurdles.

In March 2009, the Fed increased purchases to an additional \$100 billion in debt and \$750 billion in MBS (bringing the aggregate commitment to \$200 billion in debt and \$1.25 trillion in MBS). The Fed also began purchasing \$300 billion in long-term Treasury securities as part of the program. By August 2009, the most severe phase of the crisis had passed and housing markets had stabilized somewhat. The Fed began to wind down purchases in late September 2009. By the programs' expiration, the Fed had purchased \$172.1 billion in debt, \$1.25 trillion in MBS, and \$300 billion in Treasury securities. Over the next several years, the Fed sold off its debt portfolio, but has continued to purchase agency MBS and Treasury securities.

## 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 impactful on lowering interest rates.

### Summary of Key Terms

**Purpose:** To reduce mortgage rates and lower long-term private borrowing rates, thus stimulating the financial system

**Announcement Date** Nov 25, 2008

**Operational Date** December 2008 (Debt)  
Jan 5, 2009 (MBS)  
March 18, 2009 (Treasury Sec.)

**Expiration Date (Purchases)** October 20, 2009 (Treasury Sec.)  
March 31, 2010 (Debt & MBS)

**Legal Authority** Section 14 of the Federal Reserve Act

**Utilization** \$172.1 billion (Debt)  
\$1.25 trillion (MBS)  
\$300 billion (Treasury Sec.)

**Peak Utilization** \$15.9 billion; June 2009 (Debt)  
\$130.5 billion; April 2009 (MBS)

**Participants** FRBNY  
Managers (See KDD 6)  
Custodian (see KDD 7)  
Eligible Broker Dealers

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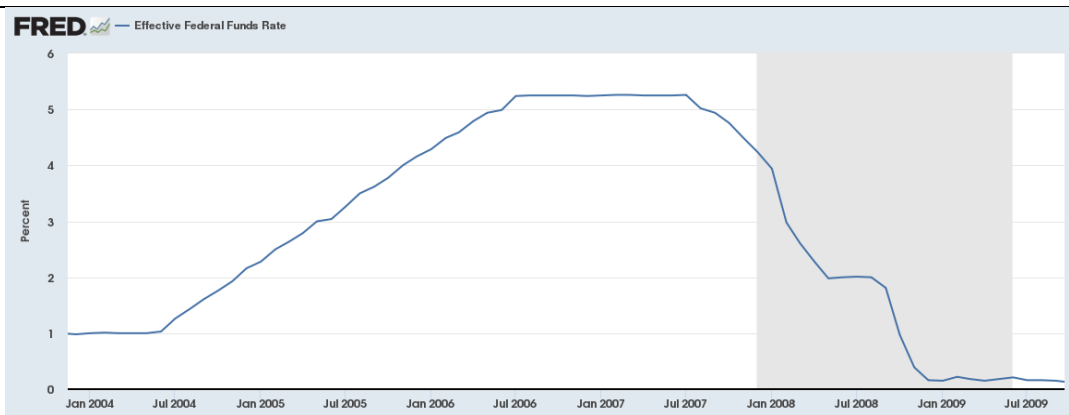
# I. Overview

## Background

**Financial Markets.** Beginning in mid-2007, default rates on subprime and nonprime mortgages spiked across the secondary mortgage market, causing mortgage lending to slow and the value of mortgage securities to plummet. Home prices also fell across the United States. By mid-2007, private mortgage securitization began shrinking to minimal levels because of the housing correction (Thompson and Wiggins 2017). Severe contractions were not isolated to the U.S. secondary mortgage market, which investors increasingly recognized after the prominent French bank BNP Paribas announced that it was suspending redemptions from two of its investment funds on August 9, 2007. The French bank declared that it could not value the funds because of the amount of subprime loans both funds held in their portfolios. BNP Paribas's announcement led investors and institutions to pull funding from investments they saw as risky, causing markets to contract even further. Many banks, government-affiliated financial agencies, and other firms began to experience funding difficulties as a result of the contractions, which stemmed partially from their reliance on short-term sources of funding like securitization, repurchase agreements, and asset-backed commercial paper (Wiggins and Metrick 2016).

Given the tightening of credit across markets, in September 2007 the Federal Open Market Committee (FOMC) lowered the target federal funds rate from 4.75% to 4.25% and the discount rate from 5.75% to 5.25% (FOMC Statement 09/17/2007). The FOMC's decision to reduce the federal funds rate ran counter to its previously existing policy of steadily increasing interest rates. Markets continued to stagnate after September 2007, and the FOMC continued to cut rates by 25 basis points (bps) almost every month over the next year while conditions worsened. The FOMC began cutting the federal funds rate more aggressively following a wave of bankruptcies and near-bankruptcies of major financial institutions in September 2008 (St. Louis Fed; see Figure 1). By November 2008, the rate was approaching the lower zero bound with widespread expectations that it would soon reach zero (FOMC Transcript 12/16/2008).

**Figure 1: Effective Federal Funds Rate**



Source: St. Louis Federal Reserve

*Note: Shaded areas indicate U.S. recessions (according to the St. Louis Fed).*

**The agencies and their financial condition.** The Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan 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. 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 (see: Thompson and Wiggins 2019). The Federal Home Loan Banks (FHLBs) are a collection of 11 banks that use mortgages as collateral to lend to institutions, mainly commercial banks and thrifts. The Government National Mortgage Association (Ginnie Mae) is a government-owned entity that also operates in the secondary mortgage market. These four institutions together are known as the agencies.

All four agencies experienced losses related to the financial crisis and contractions in mortgage markets. 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 scope of the intervention required to rescue them from insolvency.

The GSEs posed a systematic risk because of their size. By September 2008, the GSEs collectively held or guaranteed \$5.3 trillion in mortgages, or approximately half of all outstanding mortgages. Despite the government's efforts to mitigate concerns, the GSEs' financial situation continued to deteriorate. On September 6 and 7, 2008, the government instituted a four-part rescue plan to stabilize Fannie Mae and Freddie. One component of this plan involved purchases of GSE MBS by Treasury. Treasury purchased \$225 billion in GSE MBS by the time the program expired in December 2009 (Treasury Press Release 3/19/2012).

While the government's rescue of the GSEs in September 2008 had effectively guaranteed their solvency, agency debt and MBS spreads remained high and the housing market continued to face severe stresses (FOMC Minutes 12/16/2008). These factors, along with a dramatic reduction of the federal funds rate by November 2008, led the government to consider implementing non-traditional 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 the Government National Mortgage Association (Ginnie Mae). The Federal Reserve Bank of New York (FRBNY) pledged to purchase up to \$100 billion of debt from Fannie Mae, Freddie Mac, and the FHLBs. This intervention is often called the Large Scale Asset Purchase (LSAP) program.<sup>4</sup> The LSAP

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<sup>4</sup> 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.

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” (Fed PR 11/25/2008).

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 on its System Open Market Account (SOMA) portfolio. Large scale purchases of GSE debt and MBS were not a normal function of open market operations, although the FRBNY occasionally bought agency debt. By law, the Fed could purchase only agency securities, agency MBS, and Treasury securities (Bernanke 2017). 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. (See FOMC Jan 29-30, 2008).

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 long-term Treasury securities in addition to agency debt and MBS. The FOMC also reduced its target federal funds rate to a range between 0% and 0.25% (FOMC Transcript 12/16/2008; See KDDs 1 and 2).

**Timeline.** Generally, the LSAP program can be understood in three stages—initial, expansion, and wind down—as shown in Figure 2 below:

As discussed below, debt purchases began within several weeks of the announcement, as the Fed was more accustomed to conducting these transactions (see Appendix). MBS purchases, which required additional administrative preparation, began on January 5, 2009. The Fed added purchases of long-term Treasury securities in March 2009.

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

**Figure 2: LSAP Program Timeline**

Date	MBS	Debt	Treasury Securities
11/25/2008 <i>Initial</i>	<b>Commitment:</b> \$500 billion <b>Expected end:</b> Unspecified; Several months	<b>Commitment:</b> \$100 billion Purchases start the second week of December <b>Expected end:</b> Unspecified; Several months	
12/16/2008	FOMC decided not to purchase Treasury securities in addition to MBS and debt. FRBNY began purchasing agency MBS on January 5, 2009		
03/18/2009 <i>Expansion</i>	<b>Commitment:</b> Additional \$750 billion (aggregate \$1.25 trillion)	<b>Commitment:</b> Additional \$100 billion (aggregate \$200 billion)	<b>Commitment:</b> \$300 billion in long-term securities <b>Announced End:</b> October 2009
03/24/2009		<b>Announced End:</b> End of 2009	
08/12/2009 <i>Wind down</i>	<b>Announced End:</b> 1 <sup>st</sup> quarter 2010	<b>Announced End:</b> 1 <sup>st</sup> quarter 2010 (08/31: on-the-run debt accepted)	
09/23/2009		<b>Commitment:</b> Reduced from \$200 billion to \$175 billion	
10/30/2009			<b>Purchases End;</b> Commitment used: \$300 billion of \$300 billion
03/31/2010	<b>Purchases End;</b> Commitment used: \$1.25 trillion of \$1.25 trillion	<b>Purchases End;</b> Commitment used: \$172.1 billion of \$175 billion	
08/12/2010	FOMC announces 1) that it will reinvest principle from agency debt and MBS purchases into long term Treasury securities and 2) a rollover program of long-term Treasury Securities (mainly 2 and 10-year)		

Compiled by Daniel Thompson

**1) Initial.** The FRBNY began purchasing **a) agency debt** beginning in the second week of December 2008. In a mid-December meeting, the FOMC decided to lower the federal funds rate to the zero lower bound. The FRBNY did not exercise the option to purchase **b) agency MBS** until the first week of January 2009. Over the next several months, the FRBNY bought a substantial amount of debt and MBS.

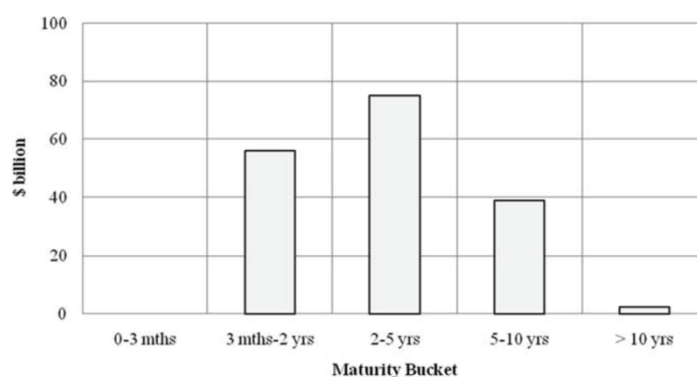
**a) Debt Purchases.** Purchases of agency debt began in the second week of December 2008 and were set up as multi-price reverse auctions. Eligible debt securities needed to be fixed-rate, non-callable, senior benchmark, and sold at competitive prices. The FRBNY accepted only off-the-run securities from 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, however, the



FRBNY began to accept on-the-run debt, provided that it met the other aforementioned criteria (FRBNY FAQ: Debt 08/20/2010).

The FRBNY set the minimum debt offer at \$1 million with increasing \$1 million increments. 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 (FRBNY FAQ: Debt 08/20/2010). While the Fed aimed to purchase long-term debt securities, most debt purchases were medium-term securities because fewer long-term securities were available (see Figure 3; Gagnon et al. 2011). The FRBNY created additional bank reserves to finance these purchases. The FRBNY generally held auctions to purchase GSE debt once a week, which it announced one day prior to the auction (FRBNY FAQ: Debt 08/20/2010).

**Figure 3: Distribution of Agency Debt Purchases by Maturity**



*Data Source: Gagnon et al. 2011*

**b) MBS Purchases.** Purchases of agency MBS began on January 5, 2009. 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. Although the FRBNY accepted some agency MBS as collateral in repurchase agreement transactions before 2009, it had limited experience with these types of securities (Gagnon et al. 2011).

Given the complications with conducting MBS purchases, the FRBNY selected four investment managers and a custodian after the program's announcement. The FRBNY selected BlackRock, Goldman Sachs Asset Management, PIMCO, and Wellington Management to serve as asset managers, based on their operational capacity, size, competitive fee structure, and knowledge of the MBS market. The FRBNY chose J.P. Morgan to be the program custodian, which was tasked to provide fund accounting and administrative services (FRBNY FAQ: MBS 08/20/2010).

The four external investment managers handled most of the trading operations during the first several months of the program. The FRBNY began to phase out the external managers in August 2009, as the FRBNY staff developed the expertise to carry out purchases on their own. On August 17, 2009, the FRBNY announced that Wellington Management Company

would be retained as the sole investment manager. It also kept BlackRock for analytical support services. Beginning on March 2, 2010, the FRBNY began to use internal staff to execute MBS purchases and had assumed full trading responsibilities by the program's termination (FRBNY FAQ: MBS 08/20/2010).

Unlike agency debt purchases, which were conducted via auction, the FRBNY and its managers purchased MBS directly from primary dealers for the first two months (Gagnon et al 2011). By March 2009, however, the FOMC decided to use dollar rolls for some of its MBS transactions (FOMC Transcript 03/18/2009). A dollar roll is basically a reverse repurchase agreement. The FRBNY purchased MBS using dollar rolls at market prices, with the counterparties being eligible primary dealers determined by the FRBNY. The FRBNY bought MBS at a variety of settlement dates that ranged from one calendar week to three calendar months (FRBNY Data).

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

During the first several months of the program, the FRBNY adjusted its MBS purchases, contingent on market liquidity. The FRBNY had to balance purchasing enough MBS to meet the FOMC's targets, but allow for day-to-day variation predicated on market liquidity conditions. Nonetheless, the FRBNY avoided buying at excessively high prices (Ibid).

**2) Expansion.** By March 2009, the FRBNY had purchased about 35.7% of its debt commitment and 30% of its MBS commitment (FHFA data). Having used a substantial amount of its commitment and given the increasing contractions in housing markets, on March 18, 2009, the FOMC announced that it would purchase an additional \$100 billion in debt and \$750 billion in MBS (bringing the aggregate commitment to \$200 billion in debt and \$1.25 trillion in MBS) (FOMC Statement 03/18/2009). Concurrent with the increase in the existing commitment, the FRBNY also pledged to buy \$300 billion in c) long-term Treasury securities to improve private credit markets (FOMC Statement 03/18/2009).

**c) Treasury Securities.** Beginning in March 2010, the LSAP program expanded to include \$300 billion in Treasury securities. The program targeted older Treasury securities, as the market was reluctant to buy them. Older Treasury securities were less liquid, which made them much more difficult to sell under the market conditions. As a result, these older securities had become quite cheap in comparison to newer Treasury securities (Gagnon et al. 2011). The Fed aimed to purchase \$300 billion worth of Treasury securities in 6 months, at a pace of approximately \$50 billion per-month (FOMC Transcript 03/17/2009).

**3) Wind down.** By August 2009, the most severe phase of the crisis had passed and housing markets had stabilized somewhat. To phase out the LSAP program with minimal disruption to the market, in its meeting on August 12, 2009, the FOMC voted to scale down MBS purchases. That month, the FRBNY extended the tentative deadline of both the debt and

MBS purchase components of the LSAP program to the end of 1<sup>st</sup> quarter 2010 (FRBNY FAQ: Debt 09/23/2009). The scale down of MBS purchase began on September 24, 2009 (FRBNY FAQ: MBS 11/18/2009).

The Fed completed purchases of \$300 billion in Treasury securities at the end of October 2009 (FOMC Transcript 11/03/2009). The following month, the Fed reduced the aggregate debt commitment from \$200 billion to \$175 billion, citing a lack of available agency debt (FOMC Statement 11/04/2009).

Beginning in 1<sup>st</sup> quarter 2010, the Fed slowed purchases to once every two weeks, likely as part of the wind down (FRBNY FAQ: Debt 08/20/2010). In March 2010, the FOMC voted to end the LSAP program, which terminated on March 31, 2010 (FOMC Statement 03/16/2010). Although the FRBNY concluded purchases of debt and MBS after March 31, it continued to use dollar rolls to settle outstanding transactions (FRBNY FAQ: MBS 08/20/2010).

In August 2010, the FRBNY began to reinvest the principal payments from agency debt and MBS into long-term Treasury securities. 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 long-term Treasury securities than in MBS” but noted that “reinvesting in MBS might become desirable if conditions were to change (FOMC Minutes 08/10/2010).”

## **Outcomes**

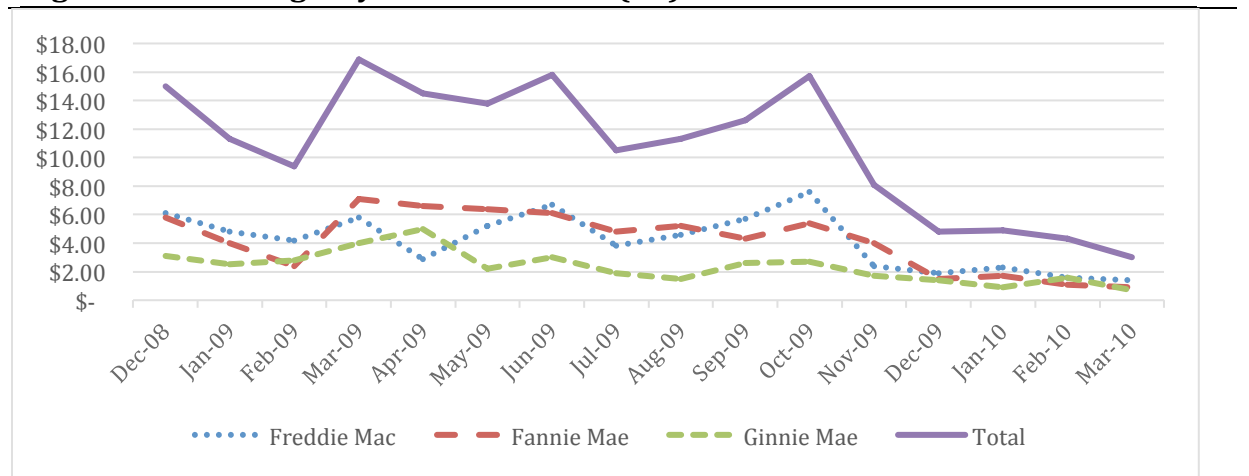
Several weeks after the LSAP program’s inception, FOMC committee members noted that announcing the program substantially narrowed the spreads between conforming mortgages and Treasuries, causing conforming mortgage rates to fall substantially (FOMC Transcript 12/16/2008). Central bankers and economists have argued that the size of the program’s commitments played an integral role in lowering Fannie Mae and Freddie Mac’s debt spreads and in lowering interest rates—particularly long-term interest rates—more broadly. The impact of the LSAP program on spreads and interest rates is discussed in more detail in the Evaluation section.

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). 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 (2011).” Nine percent of the agency MBS purchases were from Ginnie Mae, while the rest were from the GSEs (see Appendix: B).

**Debt purchases.** As evidenced in Figure 4 below, 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 (See Appendix: A). Approximately 22% of the FRBNY's agency debt purchases were directed at the FHLBs, while the rest of debt purchased were from the GSEs (See Appendix: A).

**Figure 4: FRBNY Agency Debt Purchases (\$B)**

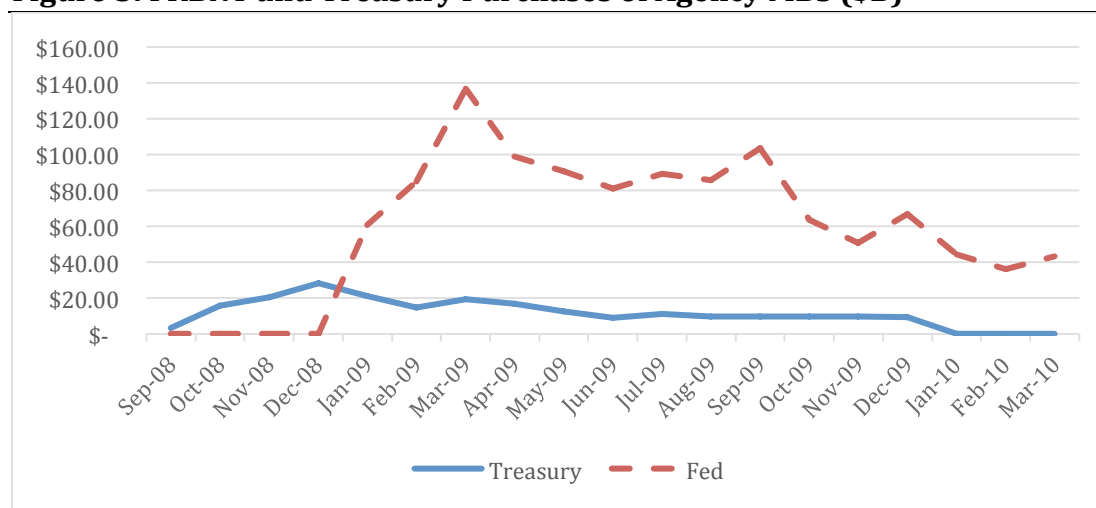


*Created by Daniel Thompson*

*Data 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 (see Figure 5). MBS purchases 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 on March 19-25 2009, and its largest series of agency MBS purchases in a single month was \$136.8 billion in March 2009 (week of February 26-March 25 2009) (See Appendix: B). For a breakdown of purchases by manager see Appendix: C.

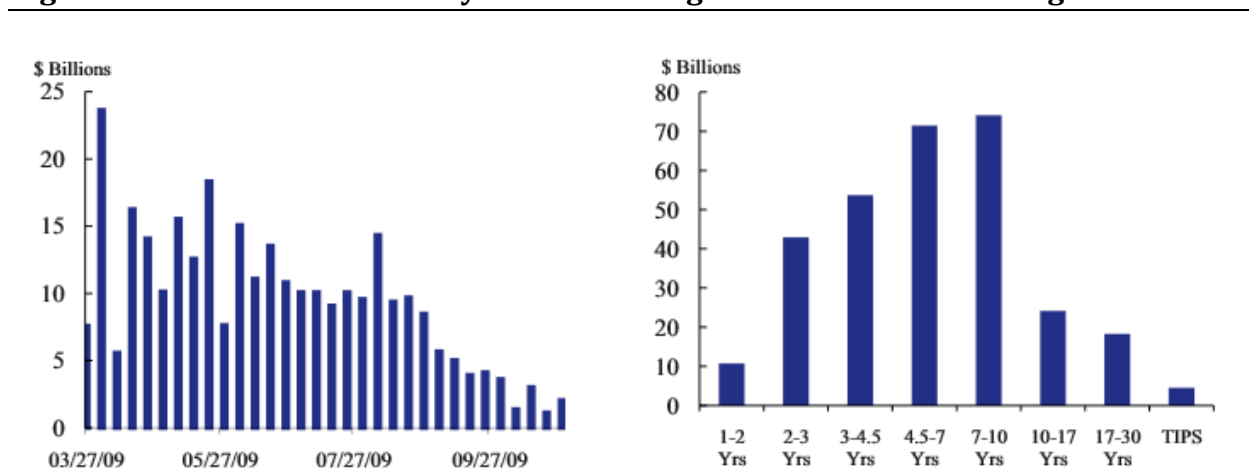
**Figure 5: FRBNY and Treasury Purchases of Agency MBS (\$B)**



Sources: 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 Transcript 11/03/2009).

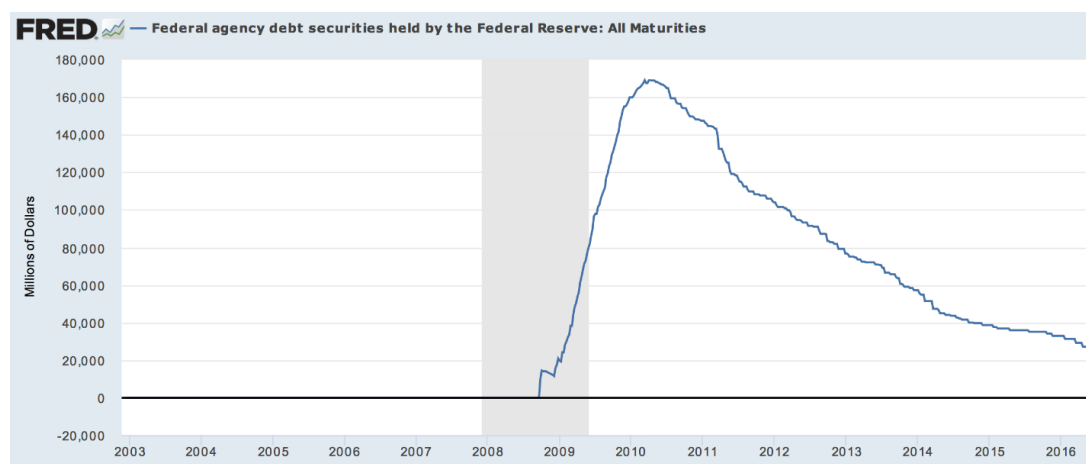
**Figure 6: Purchases of Treasury Securities    Figure 7: Distribution of Fig. 5 Purchases**



Source: FOMC presentation materials

**The Fed's Balance Sheet.** The LSAP program substantially contributed to the expansion of the Fed's balance sheet, from around \$1 trillion in September 2008 to \$2.3 trillion in January 2010 (FOMC Minutes 03/16/2010). In August 2010, the FOMC voted to limit holdings of domestic assets in the SOMA portfolio to \$2 trillion (FOMC Minutes 08/10/2010). 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). This has not been the case for the Fed's holdings of agency MBS, since it has continued to purchase and roll over MBS since October 2011 (See Figure 9).

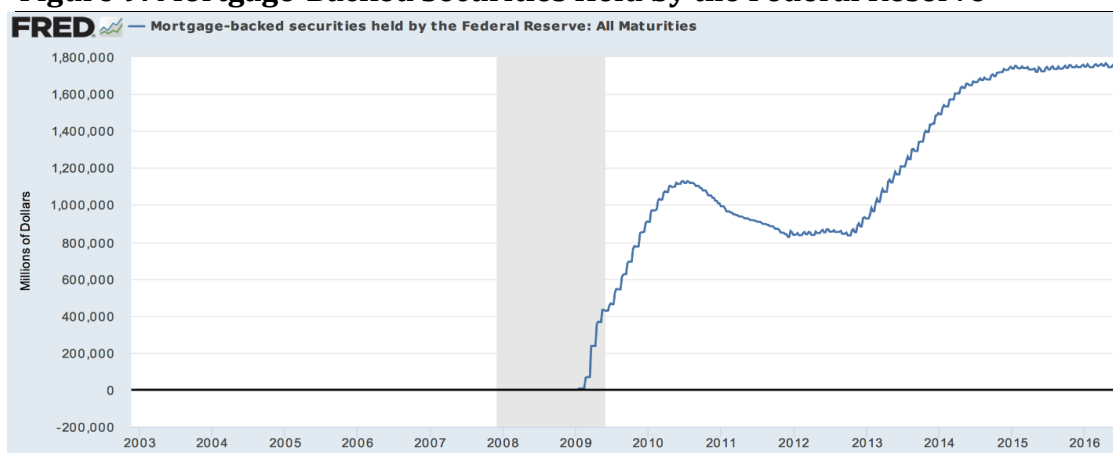
**Figure 8: Federal Agency Debt Securities Held by the Federal Reserve**



Grey bar denotes recession period, according to the St. Louis Federal Reserve

Source: [St. Louis Fed](#)

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



Grey bar denotes recession period, according to the St. Louis Federal Reserve

Note: Includes non-agency MBS Purchases

Source: [St. Louis Fed](#)

## II. Key Design Decisions

1. The LSAP program was a non-traditional macroeconomic policy measure enacted in conjunction with reductions to federal interest rates.

The Fed had reduced the federal funds and discount rates since September 2007. By November 2008, the crisis was far from over and the federal funds rate was approaching

the zero lower bound. The FOMC thus sought to develop and implement other non-traditional monetary policy measures to increase the availability of credit and reduce borrowing rates, thereby stimulating and bolstering the financial system.

After deliberation by the FOMC, the Fed announced the decision to purchase agency debt and MBS on November 25, 2008 (Fed Press Release 11/25/2008). At the following FOMC meeting in mid-December 2008, officials discussed three non-traditional strategies—“simple” quantitative easing, purchasing long-term securities, and creating or expanding special liquidity and lending facilities. The LSAP program fell into the second category, purchasing long-term securities. According to some FOMC members, there was never a genuine intent to do anything other than the announced LSAP program, noting that staff at the December 2008 meeting presented a lot of information to “get the committee comfortable.”

Nonetheless, the three strategies discussed in December 2008, may provide some insight into the thought process of the Fed to implement the LSAP as a non-traditional 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 long-term costs than benefits. The benefits and drawbacks of all three approaches as outlined in the December meeting can be found in Figure 10 below. 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—at least \$500 billion—to give the intervention a chance of success (FOMC Transcript 12/16/2008).

**Figure 10: Non-Standard Monetary Policy Tools: Options**

	Open Market Operations		Special liquidity and lending facilities
	“Simple” Quantitative Easing	Buying Long-Term Securities <sup>1</sup>	
<b>Mechanics</b>	Purchase short-term government securities (conventional open market operations)	Purchase long-term securities	Create new facilities or expand existing ones
<b>Objective</b>	Incentivize banks to lend by ensuring that they can access substantial funding at low costs	Reduce term spreads or credit spreads, which would lower longer-term interest rates	Support specific funding markets by assuring lenders that they can fund debt instruments, boosting confidence among borrowers to issue and roll over debt
<b>Benefits</b>	Approach seemed to spur minimal to modest growth in Japan, during a period when banks and borrowers had weak balance sheets. -The amount of	-Estimates suggested that purchasing \$500B of long-term Treasury securities would lower yields by approximately 2 and 10 bps, impact of purchases would compound as Treasury	Liquidity facilities in operation at the time seemed to meet their objectives <sup>2</sup>

	expected growth (minimal to modest) seems to determine whether the above fact is a more of a benefit or a drawback	securities became scarce. -After the FOMC announced the LSAP program, agency debt and MBS rates fell 60bps, Treasury and swap yields fell 20bps, and corporate bonds fell 10bps	
<b>Drawbacks</b>		-The FRBNY needed to purchase a substantial amount of assets to achieve any effect -Greatly expand the Fed's balance sheet (risk of capital losses as long-term interest rates rise)	-Facilities needed to comply with Section 13(3) -Fed would take on more credit risk unless other parties assumed substantial first-loss positions. -Moral hazard would increase
↑ <b>LSAP Program</b>			

Source: [FOMC Transcript](#) and [FOMC Secretariat](#)

Compiled by Daniel Thompson

<sup>1</sup>Could include purchase of, government securities, non-government securities, or a combination of the two

<sup>2</sup>e.g. Term Auction Facility (TAF), Asset-Backed Commercial Paper Money Market Mutual Fund Lending Facility (AMLF), Commercial Paper Funding Facility (CPFF)

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

Having already enacted the LSAP program (see KDD 1), FOMC officials deliberated between purchasing agency debt and MBS alone or in conjunction with purchasing long-term Treasury securities.

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
- 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
- It would complement housing refinance activities better than purchases of Treasury securities
- It was easier to explain the rationale for purchasing debt and MBS to the public (FOMC Secretariat Notes 12/12/2008)
- Treasury spreads had already fallen, while private yields had not fallen (breaking a trend). Several FOMC officials concluded that lowering Treasury yields, which were already low, likely wouldn't have an effect on other yields. In contrast, yields on agency MBS remained high (FOMC Transcript 12/16/2008).

Main drawback:



- 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 Transcript 12/16/2008)

A secondary goal of the LSAP program may have been to compensate for Treasury’s MBS purchase program for Fannie Mae and Freddie Mac, which some market analysts believed had been too limited and insufficiently transparent (See Zanger-Tishler and Wiggins 2017). The secondary goal of this program needs to be considered carefully, however, as federal officials expressed concern that purchases of long-term securities through the LSAP program could be seen as credit allocation towards the GSEs and the secondary mortgage market (FOMC Transcript 12/16/2008). Also see Chairman Bernanke’s opinion in KDD 3.

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

**Treasury Securities.** Section 14, 2.B.1 of the Federal Reserve act allows the Fed to buy and sell US bonds and notes (FR ACT).

**MBS and debt.** Section 14, 2.B.2 of the Federal Reserve Act states “To 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 (FR ACT).” Here it is important to note that Fannie Mae and Freddie Mac are not quite agencies of the United States. As David Reiss has shown, however, this distinction did not seem to affect significantly the opinion of the market and the mainstream media, as their language about Fannie Mae and Freddie Mac pointed to an implied guarantee. Reiss argues that the responses of opponents to the argument did not curb substantially the opinion that the government would guarantee the GSEs’ debts (Reiss 2008).

Reflecting on the LSAP program, Chairman 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).

### **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 (see KDD 2), analysts at the Fed identified two approaches that the FRBNY could have taken related to the timing and size of its LSAP program.

- i. *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
  - Resulted in less active trading of the Fed's portfolio
  - 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 (FOMC Transcript 12/16/2008)
- ii. *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 (Ibid)

The Fed's decision to commit a substantial amount of reserves with a flexible timeline was a compromise between elements in these two strategies. With respect to the first strategy, the FOMC announced an explicit commitment amount. 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 (FOMC Secretariat 12/12/2008). 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 Transcript 12/16/2008).

Purchases of up to \$100 billion in GSE direct obligations under the program will be conducted with the Federal Reserve's primary dealers through a series of competitive auctions and will begin next week. Purchases of up to \$500 billion in MBS will be conducted by asset managers selected via a competitive process with a goal of beginning these purchases before year-end. (FOMC Press Release 11/25/2008).

In March 2009, several members of the FOMC proposed an alternative to establishing an upper limit. They argued that the Fed should announce its intention to increase the size of its balance sheet by a certain percentage. According to these members, a balance sheet approach would allow the FRBNY increased flexibility to purchase MBS, debt, and Treasury securities, since none of these assets would have a fixed limit (FOMC Transcript 03/18/2009). The balance sheet approach was never implemented.

While the decision to incorporate elements from both approaches did not seem to resolve the concern that the LSAP program was directed at a narrow market segment, FOMC members opted to purchase agency debt and MBS in spite of the risk of credit allocation. They felt that the beneficial spillover effects from the LSAP program, which aimed to lower mortgage rates, would lower borrowing costs more broadly (FOMC Secretariat 12/12/2008).

## **5. Only primary dealers could participate in the program.**

The Fed's designated primary dealers were the only institutions allowed to participate in any of the three components of the LSAP program (FRBNY Manager Contracts; FRBNY FAQ: Debt 08/20/2010). See FRBNY Primary Dealers, for more information about primary dealers and the criteria that the Fed uses to determine which institutions can be primary dealers.

## **6. The FRBNY initially used asset 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. The FRBNY chose BlackRock, Goldman Sachs Asset Management, PIMCO, and Wellington Management to serve as asset managers, based on their operational capacity, size, competitive fee structure, and knowledge of the MBS market. The FRBNY selected J.P. Morgan to be the program custodian and tasked J.P. Morgan with providing fund accounting and administrative services (FRBNY FAQ: MBS 08/20/2010).

Each manager was required to create a separate account (with an alias) for the sole purpose of buying and selling agency MBS. The manager would pay cash for securities (delivered to custodian) and would receive payment for the securities. Managers could not delegate a third party to conduct operations without consent from the FRBNY. If the FRBNY did consent to a third party, managers would pay the third party and would be held liable for the third party (Managers' Contracts 12/2008).

Managers had the sole right to determine the broker dealer and established the rate of execution services. Per its contracts with the managers, the FRBNY would not disclose managers' procedures or methods used for the purchase of securities (Ibid).

Managers were required to offer advice (upon request) related to residential loan modification and to provide assistance (upon request) to influence residential loan modification and policies of RMBS servicers of Agency MBS. In addition, managers were obligated to provide the FRBNY with reports, submit weekly market updates to the FRBNY and the custodian, and meet with FRBNY members each month (Ibid).

Managers' responsibilities did not include: determining payment mechanics, collecting principal, interest, dividends or other amounts due on any assets, servicing or administering any assets. Managers were not permitted to engage in securities lending transactions. From December 2008 until September 15, 2009, each manager was paid a quarterly fee. The fee was calculated monthly using the formula 1.25 bps multiplied by one-sixteenth of the face value of agency MBS in the custodian's account (Ibid).<sup>5</sup>

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<sup>5</sup> Current Face amount (based on quarterly notational value) includes unsettled Trades, TBAs, and dollar roll transactions. Based on the custodian's records.

Beginning in August 2009, the FRBNY ended its contracts with PIMCO and Goldman Sachs Asset Management. Wellington Management Company would be retained as the sole investment manager and BlackRock would remain for analytical support services. The external investment managers were phased out for two reasons. First, the need for four managers had decreased, since the FRBNY was beginning to reduce agency MBS purchases (FOMC Transcript 09/23/2009). Second, the FRBNY's staff had begun to develop the expertise to carry out purchases on their own. On August 17, 2009, the FRBNY announced that Wellington Management Company would be retained as the sole investment manager. It also kept BlackRock for analytical support services (FRBNY FAQ: MBS 08/20/2010).

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 (Wellington Contract 08/12/2009). As a provider of analytical services, BlackRock would provide to the custodian and the FRBNY: reports on portfolio and compliance, client data, and access to analytical tools. BlackRock's fee was \$330,000 a month, paid quarterly (BlackRock Contract 08/14/2009). Beginning on March 2, 2010, the FRBNY began to use internal staff to execute MBS purchases and assumed full trading responsibilities by the program's termination (FRBNY FAQ: MBS 08/20/2010). (Note: this section does not cover every right and duty of each party under the contract. For more information, see FRBNY Managers Contracts)

#### **7. The FRBNY tasked J.P. Morgan Chase to serve as the custodian.**

On December 30, 2008, the FRBNY entered into a contract with J.P. Morgan Chase (JPM) whereby JPM would serve as the LSAP program's sole custodian. Under the contract, JPM was obligated to create a new account in the FRBNY's name to hold assets (more accounts could be created at FRBNY's request), which it would identify on its books. JPM was also tasked to create a new account in the FRBNY's name to hold cash (more accounts could be created at FRBNY's request). At its discretion, JPM could credit or debit the account as needed (JPM Contract 12/30/2008).

Under the contract, JPM had the right to conduct securities lending transactions. It was obligated to present assets to the FRBNY if they matured or if there was a call for redemption. They were also obligated to present statements on the account. JPM's duties to the managers were to provide information about the status of the account, execute transactions per the managers, and notify the managers when transactions had completed (Ibid).

Unlike the four investment managers, JPM could:

- Act as a dealer of agency securities
- Offer brokerage services to other customers and act as a financial advisor
- Serve as an agent for more than one financial customer
- Possess a material interest in the securities themselves
- Generate a profit from anyone of the above

In addition to the compensation fee the FRBNY would reimburse JPM for any out-of-pocket expenses (legal fees, tax fees, etc.) related to the LSAP program.

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

Debt needed to be fixed-rate, non-callable, senior benchmark, at competitive prices, and off-the-run. In August 2010 the FRBNY also allowed on-the-run debt (on-the-run refers to the security that has been most recently issued). The FRBNY allowed on-the-run securities in August 2010 because liquidity had improved and spreads for on-the-run securities had fallen. 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).

**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. 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 (FRBNY FAQ: Debt 08/20/2010). While the Fed aimed to purchase long-term debt securities, most debt purchases were medium-term securities because fewer long-term securities were available (see Figure 3; Gagnon et al. 2011). The FRBNY created additional bank reserves to finance these purchases. The FRBNY generally held auctions to purchase GSE debt once a week, which it announced one day prior to the auction (FRBNY FAQ: Debt 08/20/2010).

The FRBNY conducted dollar roll transactions of agency debt using auctions, which differed from its purchases of agency MBS, as the FRBNY and its asset managers purchased MBS directly. Multi-price reverse auctions of agency debt allowed the FRBNY to conduct transactions at market prices, as primary dealer counterparties could indicate the quantity and price that they would sell. This in turn, enabled potential investors to compete for bids (Gagnon et al. 2011). Gagnon et al. also note that the announcements increased participation in the auctions, as they gave dealers time to appraise their inventories (2011).

**10. The composition of MBS purchases was tilted toward "production" MBS (newly issued thirty-year securities) in the TBA market.**

By concentrating purchases on newly issued 30-year securities ("production" MBS), the FRBNY aimed to curb the decline of primary mortgage rates by providing a market for new loans. The FOMC also targeted purchases toward higher coupons like production MBS because those assets had the most liquidity problems (FOMC Transcript 04/29/2009). The FOMC also focused purchases on the to-be-announced market (TBA; where MBS trades weeks or months before delivery), because it offered greater flexibility. In particular, 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 roll (FOMC Transcript 03/18/2009).

**11. The FRBNY purchased agency MBS outright beginning in January 2009, added dollar rolls in March 2009, and added coupon swaps in June 2010.**

For the first two months of the LSAP program, the FRBNY purchased agency MBS outright. By March 2009, however, the FOMC decided to use dollar rolls for some of its MBS transactions. The FRBNY began to participate in dollar roll transactions to mitigate temporary imbalances in the market, specifically those related to supply and demand (FOMC Transcript 03/18/2009). A dollar roll is a reverse repurchase agreement with a settlement date ranging from one calendar week to three calendar months in the case of agency MBS purchases (FRBNY Data). In the words of Patricia Mosser, VP of the FRBNY, a dollar roll is “a transaction that simultaneously purchases MBS for delivery in [one month] and sells identical MBS to be delivered in [the next month] (Ibid).” By March, the FOMC also recognized that dollar rolls had become relatively cheaper. In the first week of March, the forward financing rate for MBS dropped 100 bps compared to the MBS cash repo rate. According to the FOMC, dollar roll transactions reduced the costs of managing mortgage inventory and helped lower spreads (Ibid).

In June 2010, the FRBNY began using coupon swaps in addition to dollar rolls to settle transactions (FRBNY FAQ 08/20/2010). This allowed the FRBNY to exchange assets that were not ready for settlement for assets that were. Dollar rolls and coupon swaps did not reduce the FRBNY’s balance sheet, as they basically exchange one asset for an asset of the same face value (Ibid).

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

**Agency Securities.** In March 2009, the FOMC decided to expand its purchases of debt and MBS in order to extend purchases of these securities. FOMC officials estimated that the hole in the demand for the agencies’ securities was still quite large. They also argued that the market expected the Fed to extend purchases of the agencies’ MBS at a pace of at least \$500 billion every six months. The FOMC decided to increase MBS purchases by \$750 billion (aggregate \$1.25 trillion) to indicate the Fed’s commitment to stabilizing the financial system. While a handful of officials felt that the purchases of agency debt had been less effective than agency MBS, they argued that failing to increase the FRBNY’s commitment to purchase debt or cancelling it altogether would generate more disruptions than render benefits (FOMC Transcript 03/18/2009).

**Treasury Securities.** Concurrent with the expansion in agency debt and MBS limits, the FOMC also decided to purchase \$300 billion in long-term Treasury securities. FOMC officials were also encouraged by the macroeconomics effects that resulted from the Bank of England’s decision on March 5, 2009, to purchase long-term Treasury securities. FOMC officials noted that the BoE’s purchase of Treasury securities had positive spillover effects in private markets. 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 (Ibid). FOMC officials also felt 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 (FOMC Memo 03/18/2009). They felt that the Treasury securities portfolio would also be easier to wind down and sell off than the agencies' securities (FOMC Transcript 03/18/2009). They also cited 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 (FOMC Memo 03/18/2009)."

The FRBNY wound down the LSAP program months before it terminated its purchases of Agency debt and MBS.

The FRBNY announced and gradually reduced its purchases of agency debt and MBS to avoid raising market interest rates (FOMC Transcript 09/23/2009). Gagnon et al. note that the FRBNY was successful with its wind down strategy, as the termination of the LSAP program did not raise interest rates by any noticeable amount (Gagnon et al. 2011).

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

Several FOMC officials felt 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 Transcript 12/15/2008). The FOMC's aim for more public transparency emerged in direct response to reports from several prominent media outlets in January 2009, which categorized the purchase programs as both unprecedented and unclear (FOMC Transcript 01/28/2009). Given these concerns and to avoid leaks of what it perceived as potentially disruptive information, the FOMC established a Transparency Committee in early 2009, which determined what information would be released and what information would remain confidential. This Committee was tasked with assessing information for all of the FRBNY's major rescue programs. (FOMC Minutes 04/28/2009).

The FRBNY also attempted to make its LSAP programs transparent by announcing auction dates and changes to the programs beforehand. Gagnon et al., who are directly affiliated with the FRBNY, 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). In particular, Gagnon et al. find that the FRBNY's announcement of the program and subsequent announcements of changes to the program directly lowered long-term interest rates (2011).

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 (Ibid).

### III. Evaluation

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

Gagnon et al. argue that the LSAP program succeeded in lowering long-term interest rates, including: two-year and ten-year Treasury yields, ten-year agency debt yield, current-coupon thirty-year agency MBS yield, ten-year Treasury term premium,<sup>6</sup> the ten-year swap rate, and the Baa corporate bond index yield. Gagnon et al. also argue that the programs had a more direct impact on lowering agency debt and MBS's interest rates, which also improved market liquidity (2011). Neely concurs with Gagnon et al., finding that the Fed's announcements to purchase agency debt and MBS lowered yields and interest rates for U.S. and foreign bonds (2011).

Using event study methodology of the program's announcements, Krishnamurthy and Vissing-Jorgensen also find that the LSAP program lowered MBS yields. They also assert that the LSAP program succeeded in lowering corporate yields (by lowering corporate credit risk) (2011). D'Amico and King conclude that the yields on debt and MBS purchased under the LSAP program fell more than the yields on securities that were not purchased by the program. In addition, they assert that the LSAP program reduced medium and long-term Treasury yields (2010).

After conducting an empirical analysis of Treasury and Fed's MBS purchase programs, however, Stroebel and Taylor conclude that government interventions did not have a major impact on lowering mortgage rates. Instead, they posit that changes in prepayment risk and default risk mainly drove the decline in rates (Stroebel and Taylor 2011).

In contrast to Stroebel and Taylor, a report issued by the OIG found that the LSAP program had a direct impact on lowering mortgage rates, which contributed to increased rates of housing refinance. Lowered mortgage rates also directly improved the GSEs' financial condition, as these lowered rates led to an increase in housing refinance activity. In 2012 and 2013, the GSEs particularly began to benefit from an increase in housing refinances after their regulator raised the GSEs' guarantee fees on MBS (FHFA OIG 10/23/2014).

From an operational standpoint, Gagnon et al. highlight the potential pitfalls of announcing a commitment amount (particularly if that commitment is large). They argue that stating a commitment could cause market participants to expect the FRBNY to commit the entire

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<sup>6</sup> The term premium is the additional return investors demand to hold a Treasury security with a longer duration. They attribute this fall in the premium to Tobin's portfolio-balance effect, which understands that the purchases of Treasury securities raise the price of a security and lower its premium.



amount, irrespective of market conditions. While Gagnon et al. recognize the potential benefits of clearly articulating commitment size to the market (for more see KDD 7), 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 (2011).”

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. The authors attribute this outcome in part to the sound program management strategies employed by the FRBNY – in particular the transparency with which it purchased assets and its carefulness not to deplete the market of certain securities (Kohn and Sack 2018).

Ten years after the onset of the Global Financial Crisis, the Federal Reserve’s balance sheet still comprises more than \$4 trillion in assets, quadruple its size a decade earlier and before the implementation of the LSAP Program. Despite initial concerns to the contrary, Kohn and Sack are confident the Federal Reserve poses no systemic risk as it begins to unwind crisis-era positions, primarily because of its continued “control of the federal funds rate even in an environment of abundant reserves (Kohn and Sack 2018).

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## 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://www.newyorkfed.org/medialibrary/media/research/epr/11v17n1/1105gagn.pdf>

- FAQ: Reinvestment of Principal Payments on Agency Debt and Agency Mortgage-Backed Securities in Treasuries (FRBNY 10/05/2010) - outlines how the FRBNY will reinvest principal payments from agency debt and MBS into Treasury securities.  
[https://www.newyorkfed.org/markets/agency\\_agencymbs\\_faq.html](https://www.newyorkfed.org/markets/agency_agencymbs_faq.html)

## **Implementation Documents**

- FAQ: Reinvestment of Principal Payments on Agency Debt and Agency Mortgage-Backed Securities in Treasuries (FRBNY 10/05/2010) - outlines how the FRBNY will reinvest principal payments from agency debt and MBS into Treasury securities.  
[https://www.newyorkfed.org/markets/agency\\_agencymbs\\_faq.html](https://www.newyorkfed.org/markets/agency_agencymbs_faq.html)
- Federal Reserve announces it will initiate a program to purchase the direct obligations of housing-related government-sponsored enterprises and mortgage-backed securities backed by Fannie Mae, Freddie Mac, and Ginnie Mae (11/25/2008) - announces the implementation of the LSAP program.  
<https://www.federalreserve.gov/newsevents/pressreleases/monetary20081125b.htm>

## **Legal/Regulatory Guidance**

- The Federal Reserve Act: Section 14, Open Market Operations (Federal Reserve 12/23/1913) - provides the legal authority for the LSAP program.  
<https://www.federalreserve.gov/aboutthefed/section14.htm>

## **Press Releases/Announcements**

- Statement (FOMC 11/25/2008) - announces the LSAP program and the Fed's commitment to purchase up to \$100 in agency debt and \$500 billion in agency MBS.  
<https://www.federalreserve.gov/newsevents/pressreleases/monetary20081125b.htm>
- Statement (FOMC 12/16/2008) - clarifies the LSAP program as a monetary policy measure adopted concurrent with a reduction in the Federal funds rate to 0%-0.25%.  
<https://www.federalreserve.gov/newsevents/pressreleases/monetary20081216b.htm>
- Statement (FOMC 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://www.federalreserve.gov/newsevents/pressreleases/monetary20090318a.htm>
- Statement (FOMC 11/04/2009) - reduces the FRBNY's commitment from \$200 billion of Treasury debt securities to \$175 billion.  
<https://www.federalreserve.gov/newsevents/pressreleases/monetary20091104a.htm>
- Statement (FOMC 08/10/2010) - announces that the FRBNY would reinvest principal payments from agency debt and MBS in Treasury securities, thereby keeping the Fed's holdings of securities constant.  
<https://www.federalreserve.gov/newsevents/pressreleases/monetary20100810a.htm>

## Media Stories

- What is quantitative easing? (Financial Times 12/17/2008) – *defines quantitative easing in general terms and calls quantitative easing uncertain and risky.*  
<https://www.ft.com/content/edca4b66-cc67-11dd-9c43-000077b07658>
- Fed to Begin Buying Mortgage-Backed Securities (New York Times 01/05/2009) – *announces the Fed's first purchases of agency MBS.*  
<http://www.nytimes.com/2009/01/06/business/economy/06feds.html>
- 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://www.forbes.com/2009/03/18/federal-reserve-treasurys-business-washington-fed.html#62bc58da2705>

## Key Academic Papers

- Flow and Stock Effects of Large-Scale Treasury Purchases (D'Amico and King 09/2010) – *concludes that the yields on debt and MBS purchased under this program fell more than the yields on securities that were not purchased by the program and asserts that the programs reduced medium and long-term Treasury yields.*  
<https://www.federalreserve.gov/pubs/feds/2010/201052/201052pap.pdf>
- 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.*  
<https://www.newyorkfed.org/medialibrary/media/research/epr/11v17n1/1105gagn.pdf>
- 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://files.stlouisfed.org/files/htdocs/conferences/qe/Neely\\_-\\_2010-018\\_1.pdf](https://files.stlouisfed.org/files/htdocs/conferences/qe/Neely_-_2010-018_1.pdf)
- 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)* <http://www.nber.org/papers/w17555.pdf>
- Estimated Impact of the Federal Reserve's Mortgage-Backed Securities Purchase Program (Stroebel and Taylor 2011) – *concludes that changes in prepayment risk and default risk, not government interventions, mainly drove the decline in mortgage rates.*  
<https://www.federalreserve.gov/pubs/feds/2010/201052/201052pap.pdf>

## Reports/Assessments

- Impact of the Federal Reserve's Quantitative Easing Programs on Fannie Mae and Freddie Mac (FHFA OIG 10/23/2014) – *argues that the LSAP program directly lowered*

mortgages, which stimulated housing refinance activity.  
[https://www.fhfa.gov/Content/Files/EVL-2015-002\\_1.pdf](https://www.fhfa.gov/Content/Files/EVL-2015-002_1.pdf)

## VI. Appendices

### Appendix A

#### FRBNY Purchases of Agency Debt (\$B)

Period	Purchases of:		
	Freddie Mac Debt	Fannie Mae Debt	FHLB Debt
December 2008	\$6.1	\$5.8	\$3.1
January 2009	4.8	4.0	2.5
February 2009	4.2	2.4	2.8
March 2009	5.8	7.1	4.0
April 2009	2.9	6.6	5.0
May 2009	5.2	6.4	2.2
June 2009	6.7	6.1	3.0
July 2009	3.8	4.8	1.9
August 2009	4.6	5.2	1.5
September 2009	5.7	4.3	2.6
October 2009	7.6	5.4	2.7
November 2009	2.4	4.0	1.7
December 2009	1.9	1.5	1.4
January 2010	2.3	1.7	0.9
February 2010	1.6	1.1	1.6
March 2010	1.4	0.9	0.7
<b>Total<sup>1</sup></b>	<b>\$67.1</b>	<b>67.4</b>	<b>37.7</b>
<b>Total committed</b>	<b>\$172.1</b>		
<b>Unused commitment</b>	<b>\$2.9 of \$175<sup>2</sup></b>		

Source: FHFA and Treasury

Notes: Cumulative draws may not add up due to rounding



## Appendix B

### MBS Purchases January 2009-March 2010 (\$B) (QE 1)

Period <sup>2</sup>	Net Transactions <sup>1</sup>		
	Freddie Mac MBS	Fannie Mae MBS	Ginnie Mae MBS
January 5-7, 2009	\$ 6.9	\$ 2.9	\$ .4
January 8-14, 2009	15.8	5.6	2.0
January 15-21, 2009	5.4	11.7	1.8
January 22-28, 2009	5.3	7.2	4.3
January 29-February 4, 2009	9.7	10.5	2.0
February 5-11, 2009	14.7	7.2	1.4
February 12-18, 2009	7.9	10.9	1.0
February 19-25, 2009	8.4	15.6	1.0
February 26-March 4, 2009	15.6	13.6	1.0
March 5-11, 2009	9.7	16.8	0.6
March 12-18, 2009	12.5	5.2	2.1
March 19-25, 2009	13.5	18.5	1.3
March 25-April 1, 2009	14.4	17.0	1.6
April 2-8, 2009	7.4	22.2	0.9
April 9-15, 2009	1.3	20.2	0.3
April 16-22, 2009	5.6	19.8	0.8
April 23-29, 2009	9.1	13.5	0.5
April 30-May 6, 2009	5.0	17.2	3.3
May 7-13, 2009	4.4	20.6	2.2
May 14-20, 2009	7.5	13.1	4.1
May 21-27, 2009	11.0	12.0	2.5
May 29-June 3, 2009	5.0	18.8	2.1
June 4-10, 2009	7.4	14.6	1.0
June 11-17, 2009	5.5	11.3	3.5
June 18-24, 2009	8.5	10.2	3.6
June 25-July 1, 2009	7.2	13.1	2.8
July 2-8, 2009	3.2	9.9	4.1
July 9-15, 2009	6.9	11.3	4.1
July 16-22, 2009	6.5	11.2	3.5
July 23-29, 2009	5.4	14.5	0.3
July 20-August 5, 2009	5.0	14.2	0.0
August 6-12, 2009	2.3	17.7	0.5
August 13-19, 2009	5.9	17.5	1.7
August 20-26, 2009	7.3	15.8	2.4
August 27-September 2, 2009	8.3	17.3	0.0
September 3-9, 2009	3.6	12.4	2.9
September 10-16, 2009	6.3	15.7	3.5
September 17-23, 2009	6.0	15.9	1.1
September 24-30, 2009	7.6	10.6	1.8



October 1-7, 2009	8.0	8.1	4.0
October 8-14, 2009	7.3	8.4	0.5
October 15-21, 2009	6.7	8.4	3.0
October 22-28, 2009	5.3	11.4	1.4
October 29-November 4, 2009	3.3	12.6	0.2
November 5-11, 2009	2.9	9.8	0.8
November 12-18, 2009	5.9	3.8	6.4
November 19-25, 2009	6.5	6.0	3.5
November 26-December 2, 2009	5.7	7.7	2.6
December 3-9, 2009	4.8	9.6	1.5
December 10-16, 2009	7.6	7.2	1.2
December 17-23, 2009	7.8	7.2	0.0
December 24-30, 2009	3.3	6.0	0.0
December 31, 2009-January 6, 2010	1.8	10.2	0.0
January 7-13, 2010	9.7	3.5	0.9
January 14-20, 2010	1.3	8.5	2.3
January 21-27, 2010	5.1	4.2	2.7
January 28-February 3, 2010	5.7	3.7	2.7
February 4-10, 2010	4.0	4.5	2.6
February 11-17, 2010	4.5	4.0	2.6
February, 18-24, 2010	5.4	4.3	1.4
February 25-March 3, 2010	3.6	6.3	0.1
March 4-10, 2010	4.4	5.6	0.0
March 11-17, 2010	4.8	4.8	0.4
March 18-24, 2010	3.6	4.1	0.3
March 25-31, 2010 <sup>3</sup>	5.2	0.9	0.0
<b>Total net transactions<sup>4</sup></b>	<b>\$432.3</b>	<b>\$703.6</b>	<b>\$114.0</b>
<b>Total committed</b>	<b>\$1,250</b>		
<b>Unused commitment</b>	<b>\$0 of \$1,250</b>		

Source: [FHFA and Treasury](#)

Notes: Cumulative dividends paid may not add up due to rounding