Federal Reserve Single-Tranche Term Repurchase Agreements

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Abstract

As mortgage defaults and foreclosures continued to climb, the severe strains that started to plague credit markets in the middle of 2007 worsened further. Losses on housing-related securities and derivative instruments continued to climb, causing substantial damage to the balance sheets of large financial institutions that had levered up on these same securities. As their positions worsened, banks found it increasingly difficult to attract funding that wasn't priced at exorbitantly high rates or for very short terms. Term funding markets, specifically those that centered on agency MBS, quickly dried up as fears of illiquidity and even insolvency spread. To remedy these concerns, the Federal Reserve announced a program called the Single-Tranche Term Repurchase Agreements (ST OMO), which auctioned off repurchase agreements (repos) to Primary Dealers every week. This provided a critical source of funding to these institutions who, at the time, could not access other avenues of funding, such as the Discount Window. The repos were short-term, priced at market rates, and matured 28 days after the settlement date. Of the 20 institutions categorized as Primary Dealers at the beginning of 2008, 19 of them participated in the program, which had auctions running from March 7, 2008 to December 31, 2008. Usage peaked at, but never exceeded $80 billion, though the Fed said in its initial press release that the program's size could have gone up to $100 billion. While the program was smaller compared to other market liquidity initiatives, ST OMO operated at capacity for most of its duration, and spreads between Agency MBS repo and Treasury repo rates fell dramatically towards the end of the issuance window.

Keywords: ST OMO, Market Liquidity Programs, Market Liquidity, Interbank Lending, Credit Markets, Repurchase Agreements, Repos

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Federal Reserve Single-Tranche Term Repurchase Agreements (ST OMO)

At a Glance

On March 7, 2008, the Fed announced a set of Single-Tranche Open Market Operations (ST OMO) that were designed to alleviate broad term funding pressures across the market, particularly with respect to agency MBS. The program, which used Section 14 of the Federal Reserve Act as its legal basis, had Primary Dealers participate in a series of auctions of 28-day repurchase agreements (repos) to provide an additional mechanism for short-term funding. These institutions did not have access to facilities like the discount window and thus their access to lender-of-last resort facilities was limited. In order to obtain repo funding, Dealers also had to pledge collateral in the event they would be unable to pay the agreement back.

Summary of Key Terms	
Purpose: To address heightened liquidity-related pressures in term funding and mortgage funding markets.	
Announcement Date	March 7, 2008
Operational Date	March 7, 2008
Date of First Issuance	March 10, 2008
Issuance Window Expiration Date	December 31, 2008.
Program Size	Estimated at $100 billion.
Usage	$80 billion per week at peak.
Outcomes	Single-tranche rate spreads down from over 180 basis points to less than 10 by January 2009. 1-month agency MBS repo rates declining dramatically following announcement.

Eligible collateral could be Treasury Securities, Federal Agency Debt, and mortgage-backed securities that were issued or guaranteed by federal agencies. ST OMO was primarily just a set of series of modified conventional open market operations that the Federal Reserve Bank of New York routinely conducted, with the primary difference being that normal repos had several tranches that were priced differently based on the riskiness of the underlying collateral. ST OMO, however, only had one tranche, thus allowing riskier collateral to be utilized at a lower effective rate. This was most notably seen with agency MBS, which was seen as the riskiest type of collateral and was used heavily in the auctions.

The auctions began on March 7, 2008, with first repo agreement settling on March 10. Of the 20 institutions categorized as Primary Dealers, 19 participated in the auctions. Dealers were not required to bid, just to connect their systems to acknowledge the auctions were taking place. The auctions were conducted at market rates, which ranged from an average of around 280 bps for the set of auctions on March 7, 2008 to an average of eight bps for those on December 30, 2008. A total of 375 auctions were conducted over the program's issuance window, totaling $855 billion in trade value. From April 30 to the expiration of the program's issuance window on December 31, 2008, there were $80 billion in repurchase agreements outstanding, indicating considerable Primary Dealer participation.

Summary Evaluation

In general, there was minimal formal evaluation done for ST OMO. It is possible that the program was used as a signaling device in an attempt to destigmatize participation in some of the traditional facilities, but the program was fairly conventional, and a natural extension of the ongoing efforts to address term funding pressures. The program was relatively small and announced around the same time as other programs like TAF, TSLF, and PDCF. Some suggest that, based on the consistently capped usage and falling repo rates as it wound down, the program was a success for the institutions that used it most. However, others suggest a limited U.S. impact, since the biggest borrowers were foreign institutions such as Credit Suisse, Deutshe Bank, and BNP Paribas.

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I. Overview

Background

By the end of 2007, signs of increasing stress on the financial system continued to grow worse and worse. Corporate bond spreads and interbank lending spreads skyrocketed, suggesting the beginning of a freeze in lending and credit markets. The LIBOR-OIS Spread, often used as a proxy for counterparty credit-risk in the banking system, spiked dramatically in the second half of 2007 from less than 20 basis points to nearly 100 basis points at the beginning of 2008.[2] Additionally, the spread between one-month agency MBS and Treasuries of the same maturity skyrocketed to almost 140 basis points by March of 2008 (English and Mosser, 2018).[3]

Mortgage funding markets especially continued to slow and funding became harder to access, particularly for banks that were the most exposed to the housing downturn. Primary Dealers, which are large financial institutions that trade with the Federal Reserve in order to implement monetary policy, were particularly vulnerable. Primary Dealers were not eligible for existing term funding programs such as TAF, and thus had less access. As such, the Federal Reserve decided to preempt the potential damage by issuing a series of expansive, slightly modified open market operations under Section 14 of the Federal Reserve Act.

Program Description

The precipitous spike in mortgage defaults caused tranches of several types of private-label mortgage-backed securities (MBS) to become worthless, spreading fear of the creditworthiness of the institutions that were most exposed. These problems exacerbated strains in already stressed term funding markets and forced the Fed to intervene further by announcing a set of wide-ranging Single-Tranche Open Market Operations (ST OMO) on March 7, 2008. Like more conventional open-market operations, ST OMO was authorized under Section 14 of the Federal Reserve Act and was administered by the Federal Reserve Bank of New York.

In their initial announcement, the Federal Reserve specified that they expected program participation to peak at about $100 billion, and that, like in traditional repurchase (repo) agreements, a series of auctions would be used ("Statement Regarding System Open Market Account Activity."). Of the 20 institutions categorized as primary dealers at the beginning of 2008, 19 participated to varying degrees. Primary dealers were not required to participate, but they were mandated to connect their systems to the auctions in acknowledgement of the process.

This was not the first time that the Fed had used single-tranche repo operations to address issues in term funding markets. They had done so in the 1990's, following the events of September 11, 2001, and on August 10, 2007 as conditions worsened following BNP Paribas' freezing of $2.2 billion of funds due to an inability to value U.S. subprime mortgage securities.

[2] Full time-series is shown in Figure 1.
[3] Full time-series is shown in Figure 2.

(English and Mosser 2018; Kar-Gupta and Guernigou 2007). Additionally, traditional repo agreements and open market operations were used to control the federal funds rate by increasing the levels of reserves in the banking system. In ST OMO, however, the purpose was much different. Due to the continued and increasingly acute strain in term funding markets, the single-tranche open market operations functioned more as an extension of conventional lender of last resort facilities, rather than as a part of standard monetary Fed policy.

Normally, these varying types of collateral were spread throughout several tranches, with the price of the repo being determined by the quality of the collateral. The types of securities that were eligible as collateral, in order of least risky to most, were (i) treasury securities, (ii) federal agency debt, and (iii) mortgage-backed securities that were issued or guaranteed by federal agencies. The first (and least risky) tranche would use the collateral seen as the least risky, the second with the next least, et cetera. As ST OMO's name implies, these same types of collateral were eligible for use in the sole tranche to help bring down the effective rate of borrowing and increase liquidity for less liquid, riskier collateral, namely agency MBS.

The first auctions, which ran weekly, were conducted on March 7, 2008 and settled on March 10, 2008. Each of the agreements, with the exception of two (at 23 days), had 28 day terms.[4] The auctions, which were held at market rates, had spreads between the stop-out rate and one-month OIS stay near zero from April to the beginning of September. Additionally, there were no individual caps placed on any one Primary Dealer's participation, nor were there any minimums required. The Federal Reserve continued its sets of weekly auctions throughout 2008, with the final one taking place on December 31, 2008. The last of these repo agreements expired on January 28, 2009 and no new ST OMO auctions were conducted subsequently.

Outcomes

ST OMO, along with other programs implemented in March of 2008, was the start of the Fed's heightened awareness of the growing intensity of the financial crisis. The specific justification that the Federal Reserve cited was to "increase the availability of term financing in order to alleviate the strains in the financial markets and to support the flow of credit to U.S. households and businesses." By allowing a Treasuries, Agency debt, and Agency MBS to be pledged to the same tranche, the Fed was able to provide cheaper term funding than what was available in private markets for a wide range of collateral. The lion's share of the securities pledged in these agreements were Agency MBS, or mortgage-backed securities that were underwritten by government-sponsored enterprises such as Fannie Mae and Freddie Mac.

In the first few weeks of auctions through March and April of 2008, approximately $65 billion of credit was outstanding , with 19 Dealers participating. By May, the amount outstanding

[4] Both BNP Paribas and Credit Suisse settled one 23-day single-tranche repo each on April 7, 2008 for $6 billion and $9 billion, respectively.

had risen to $80 billion, and stayed at that level until the issuance window closed on December 31, 2008. The vast majority of the repurchase agreements were used by primary dealers associated with foreign banks who had substantial holdings in the U.S. From July 23, 2008 to December 9, 2008, foreign primary dealers held anywhere from 81% to 98% of the outstanding single-tranche agreements.[5] This shows an unintended consequence of the program, as U.S-based primary dealers drew on the facility much less despite it being a U.S-specific intervention. In fact, the three largest single-tranche auction participants: Credit Suisse, Deutsche Bank, and BNP Paribas, all had foreign parent organizations.

While Bear Stearns was one of the Dealers that participated in the program, it also received substantial aid in the form of substantial assistance by the New York Fed, which created a vehicle to buy $30 billion of Bear's bad assets to help facilitate its acquisition by JP Morgan. Bear only used ST OMO once before being acquired, settling an auction on March 11, 2008 for $500 million.

While the Federal Reserve released aggregate auction results they did not reveal how much each bank used until July 2011. Over the program's ten-month issuance window $855 billion in gross transaction value from 375 transactions were issued. Though 19 Primary Dealers participated in the program, eight of them made up approximately $745 billion, or 87% of the total amount traded at the auctions.[6] Some institutions, such as Credit Suisse, had far greater usage than most of its counterparts. The Swiss bank was involved in over $259 billion in ST OMO auctions over the program's lifespan. On the opposite end of the spectrum, HSBC participated in much fewer auctions, at just $150 million. Credit Suisse, Deutsche Bank, BNP Paribas, RBS, and Barclays were the top five Dealers to participate.[7]

Collateral used was overwhelmingly agency MBS, as they were seen as the riskiest type of collateral and comprised a financing market rife with liquidity issues. (English and Mosser 2018). From October 8 to December 17, a period where auction rates started sky-high, 89% of submitted collateral was mortgage backed securities issued or guaranteed by federal agencies ("Domestic Open Market Operations During 2008"). Demand was much larger immediately following the facility's launch. As additional programs such as the TSLF and PDCF were introduced, amounts bid at the weekly auctions decreased, but the amount of single-tranche repos outstanding still stayed at $80 billion, indicating significant demand.

Agency MBS repo to Treasury repo spreads narrowed rapidly at the end of March as the single-tranche operations, along with other facilities, had became operational throughout the month. Thse spreads would shoot up again following Lehman's bankruptcy, signaling more problems in repo markets that used agency MBS as collateral. Repo spreads would gradually narrow before falling to their pre-Lehman rates by the end of 2008.

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[5] Calculated by dividing the amount ST OMO credit that foreign banks were holding by the total amount outstanding for each week beginning on July 23, 2008 and ending on December 9, 2008.

[6] The eight banks were Credit Suisse Securities LLC, Deutsche Bank Securities Inc, BNP Paribas Securities Corp, RBS Securities Inc, UBS Securities LLC, Goldman, Sachs & Co, and Morgan Stanley & Co. Inc.

[7] See Figure 3 for the full list of Primary Dealers.

II. Key Design Decisions

1. The Single-Tranche Term Repurchase Agreements were designed to alleviate considerable liquidity-related pressures in term funding markets, specifically agency MBS.

However, there were several other programs, such as the Term Securities Lending Facility (TSLF), and the Primary Dealer Credit Facility (PDCF), that were also introduced around the same time. All of these programs were designed to alleviate stress on various funding markets, specifically term funding, triparty repo, and agency MBS (which ST OMO also aimed to address).

2. Legal authority for the operations came from Section 14 of the Federal Reserve Act.

Unlike other crisis response programs launched in March 2008 that used Section 13(3) as their legal basis, ST OMO used section 14, which was also the basis for the Fed's conventional monetary policy tools, specifically its open market operations. Since ST OMO was not radically different from conventional open-market operations, it used the same legal justification and did not require "unusual or exigent circumstances" as defined in Section 13(3). The program was immediately implementable because of this.

3. The program was administered by the Federal Reserve Bank of New York.

Since this program was essentially a set of wider-ranging open market operations, the Federal Reserve Bank of New York, which was in charge of conducting all open-market operations, administered it as well.

4. The Federal Reserve did not place an explicit cap on the measures, but estimated that up to $100 billion could be outstanding at any given time.

However, the amount of outstanding agreements originally started at $65 billion, before rising to $80 billion per month, or $20 billion per week, until the issuance window closed on December 31, 2008.[8]

5. All primary dealers were eligible to participate in the program.

19 of the 20 institutions classified as primary dealers (per the Fed's list in 2007) participated. However, institutions were not required to participate, only to acknowledge them by connecting their systems. Only one Dealer, Greenwich Capital Markets, Inc., did not participate.

[8] See Figure 5 for more information.

6. **Treasury debt, agency debt, and mortgage backed securities were all eligible to use as collateral.**

These were usable as collateral for normal repo agreements. However, each type of security was only allowed to be used for one of the three tranches in a typical repo. For ST OMO, all three types could be pledged to the same (and only) tranche. This was done because it was likely that the majority of assets pledged as collateral would be agency MBS (Spence 2008). Under a conventional three-tranche agreement, agency MBS used as collateral would, due to their riskiness and less-liquid nature relative to Treasuries and Agency debt, demand a higher rate for the agreement. Thus, allowing all three types of securities to be pledged to the same tranche lowered the effective rate paid by most borrowers and injected liquidity into a market that had, by March 2008, was almost frozen.

7. **The repo agreements had 28 day terms.**

However, there were two auctions that had 23 day terms.[9]

8. **There does not appear to have been a cap on Dealers' participation, and there were no minimum amounts required.**

However, the Federal Reserve expected no more than $100 billion dollars of agreements would be outstanding at any one time.

9. **Auctions were conducted at market rates.**

At the start of the program stop rates were, on average, 280 basis points, before hovering around 220 from May 2008 to the middle of September. However, spreads between single-tranche stop-out rates and the one-month OIS rate stayed relatively low before the bankruptcy of Lehman on September 15 caused them to shoot up, peaking at over 180 basis points by the week of October 8. By the final set of auctions the stop out rate had actually fallen below the one-month OIS rate, thus leading to negative spreads.[10] Stop-out rates ranged from nearly 380 basis points to just one basis point for select auctions during the program's lifespan.

10. **Auctions ran weekly, and commenced on March 7, 2008 to December 31, 2009.**

Conventional repo and reverse repo agreements, also conducted via auction, often had terms that would stretch anywhere from overnight to 65 days, though shorter-term, normally overnight agreements, were far more common.

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[9] Both BNP Paribas and Credit Suisse settled one 23-day single-tranche repo each on April 7, 2008 for $6 billion and $9 billion, respectively.

[10] Full time-series is shown in Figure 4.

III. Evaluation

ST OMO was not given much attention nor formal evaluation. It was simply a set of open market operations conducted to address serious market-wide stresses rather than of conventional monetary policy. This has led to two important distinctions. First, that the funding term for ST OMO repos were longer than conventional repurchase agreements. Repo and reverse repo agreements conducted in normal times usually had overnight terms, with the longest term allowed normally being 65 days. Second, the single-tranche aspect of the program allowed agency MBS to be put up as collateral at a lower effective rate despite their underlying risk, thus providing much-needed funding to considerably strained term funding markets, which had all but frozen. However, since ST OMO was also introduced around the same time as many other programs, such as TSLF and the PDCF, it was more difficult to disentangle the standalone impact that it had on term funding markets.

Michael J. Fleming explained that, while ST OMO had market-determined pricing, which appeared to keep auction rates high, the usage of the program and the subsequent decline in stop-out rates suggests that the auctions were priced well (Fleming 2012). Certain institutions, such as Credit Suisse, Goldman Sachs, BNP Paribas, Countrywide, and Cantor Fitzgerald had over half their outstanding credit at the Federal Reserve as single-tranche repos (Eisenbeis and Herring, 2014). Robert Eisenbeis and Richard Herring suggested that these five Primary Dealers, as well as Morgan Stanley, RBS, UBS, Deutsche Bank, and Barclays had a non-negligible amount of ST OMOs outstanding, and thus benefitted quite a bit. However, this group of dealers, the authors of the paper stated that ST OMO "had negligible impact (Eisenbeis and Herring, 2014)." Generally, however, there appears to be very limited evaluation on the impact of ST OMO itself, especially compared to TAF, TSLF, and PDCF. In spite of its use as a lender of last resort facility, the small size of the program ($80 billion outstanding at any given time) and standard legal basis may have contributed to a relative lack of evaluation, as well.

Bill English and Trish Mosser discussed some aspects of ST OMO, explaining that, "it was simple to announce and implement and was well-understood by the primary dealers, with no stigma attached to its use" (English and Mosser 2018). Additionally, since it was a Section 14 program and used conventional authority, its implementation was immediate. The authors cited an immediate, verifiable positive impact on one-month repo spreads for agency MBS, which quickly fell after ST OMO and the other primary dealer programs had been put in place. Initial demand was quite high for the program, but tapered off once other, broader facilities were put in place.[11] Finally, they explained that, due to the comparatively narrow range of usable collateral, the program was not as effective as it could have been in easing term funding market strains (English and Mosser 2018).

Despite a lack of academic attention, in 2011 the program garnered a fair bit of press in the public sphere, most notably in an article written by Bob Ivry. He lambasted the program for being "secretive" and containing transaction-level details such as bank-specific participation,

[11] See Figure 6 for more information.

collateral used, and rates paid, that had not been revealed to anyone in the public sphere. (Ivry 2011).

David Altig, Executive Vice President and the Director of Research at the Federal Reserve Bank of Atlanta, challenged these criticisms, stating that he believed the transactions were not secretive, as the New York Fed had issued a press release on March 7, 2008 that specified some of the details of ST OMO. Additionally, Altig argued that the press releases, combined with the overall auction results (which *were* published) and the fact that the list of Primary Dealers was readily available, suggested that the program was far from secretive.

Well known financial journalist Felix Salmon mostly sided with Altig in the discussion about ST OMO, but he pointed out that Altig's remarks "made the Fed seem a *lot* more transparent than it actually is." Additionally, he criticized the Fed for not bothering to enhance public understanding of the program, explaining that Ivry's article was the first time that many in the public sphere, including Representative Barney Frank, found out about the program. (Salmon 2011).

While it is true that, in the summer of 2011, the Federal Reserve released transaction-level data for many of these programs, including ST OMO, it was forced to do so after being sued by Bloomberg reporters in November of 2008 under the Freedom of Information Act (FOIA). Only after a 16-month legal battle, combined with an appeal that ended with a ruling against the Fed, did it release transaction-level data. The reluctance could have been due to a lack of desire on the part of the Fed to not disclose the information of individual banks that were most vulnerable to avoid stigma against them (Feur 2010; Ivry and Keoun 2011).

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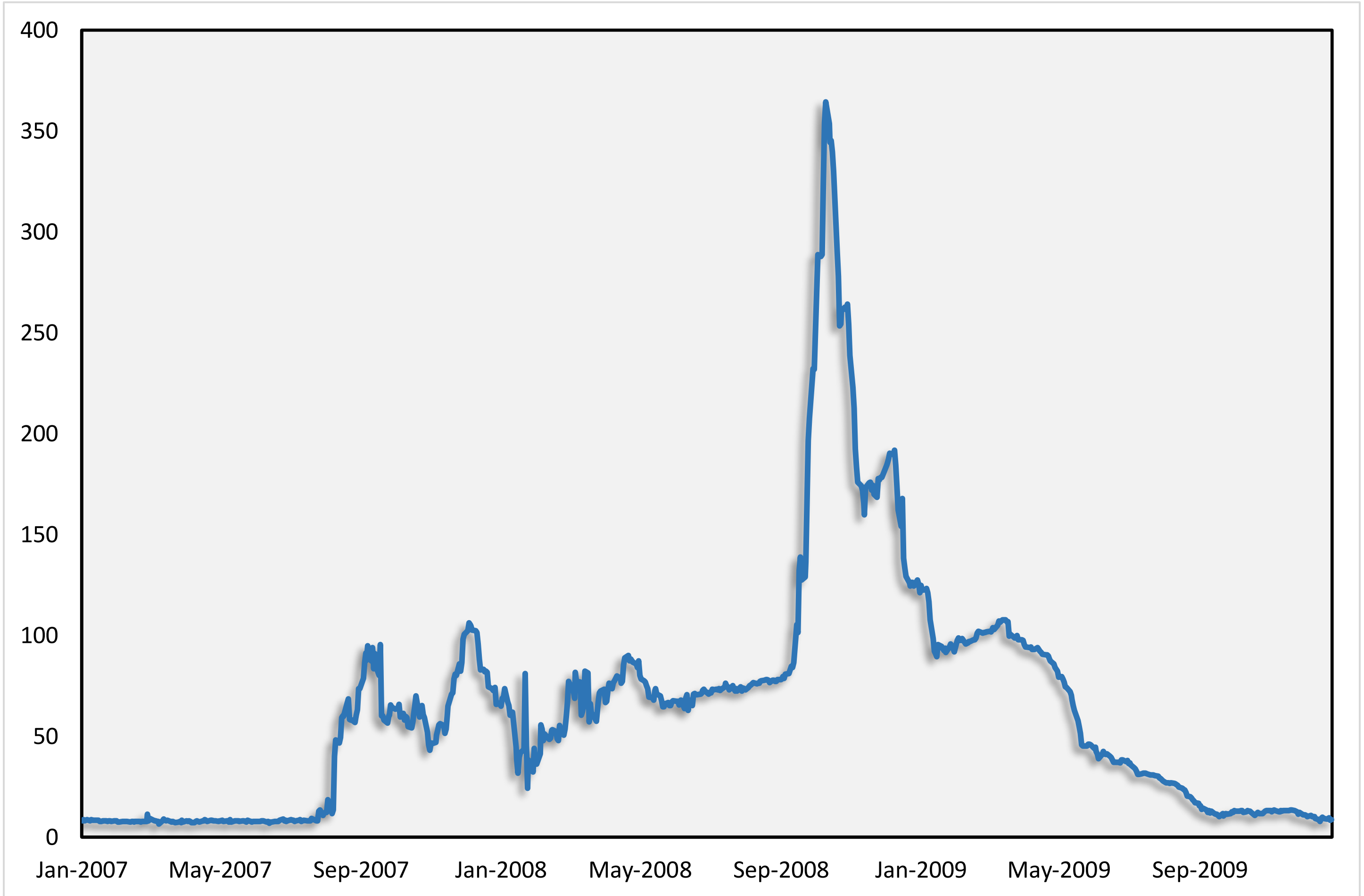
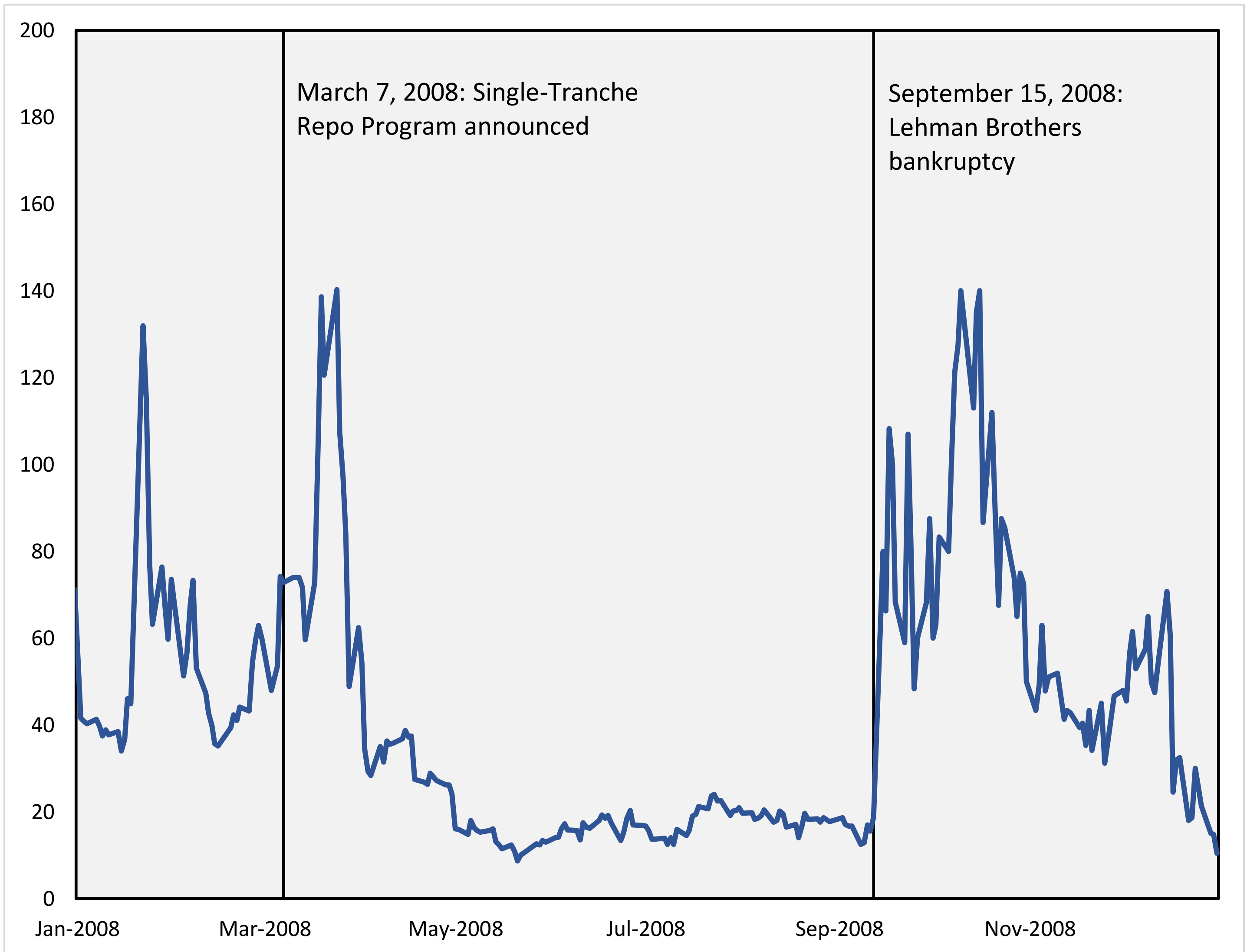
Figure 1: 3 Month Libor-OIS Spread (bps)



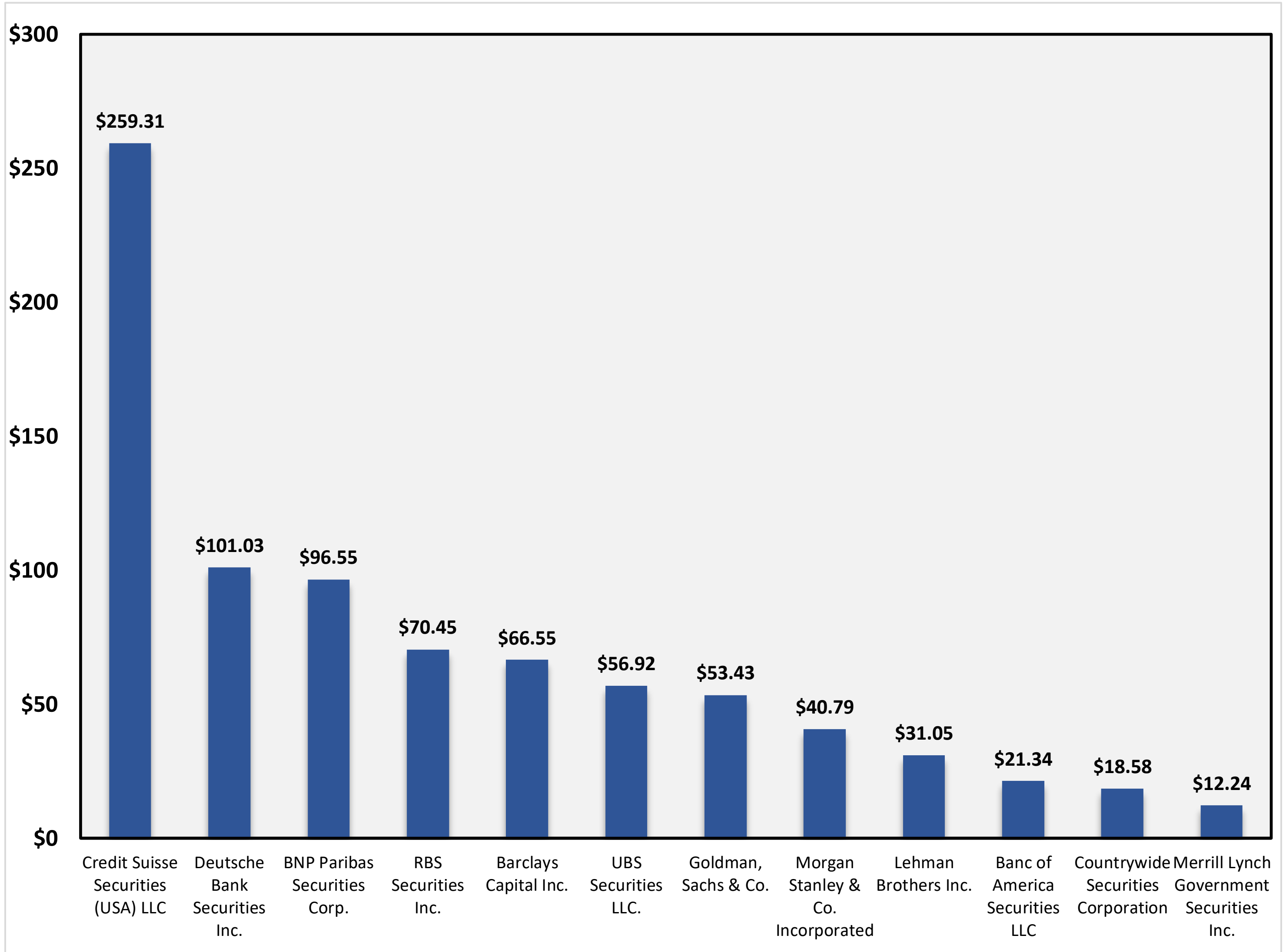
Source: Bloomberg

Figure 2: 1-Month Agency MBS Repo to 1-Month Treasury Repo (bps)



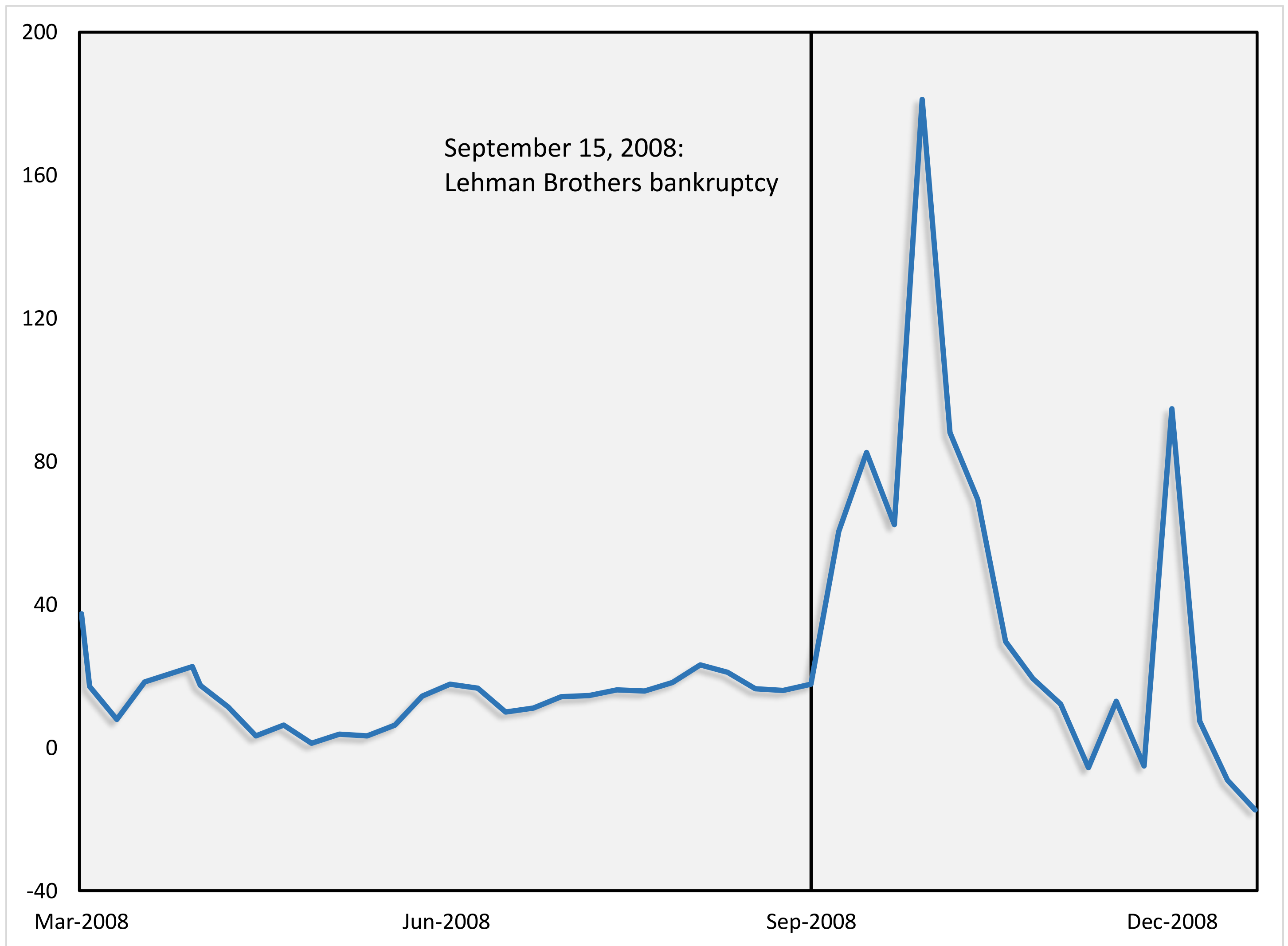
Source: FRBNY Primary Dealer Survey

Figure 3: Total single-tranche auction participation, by primary dealer (USD billions).



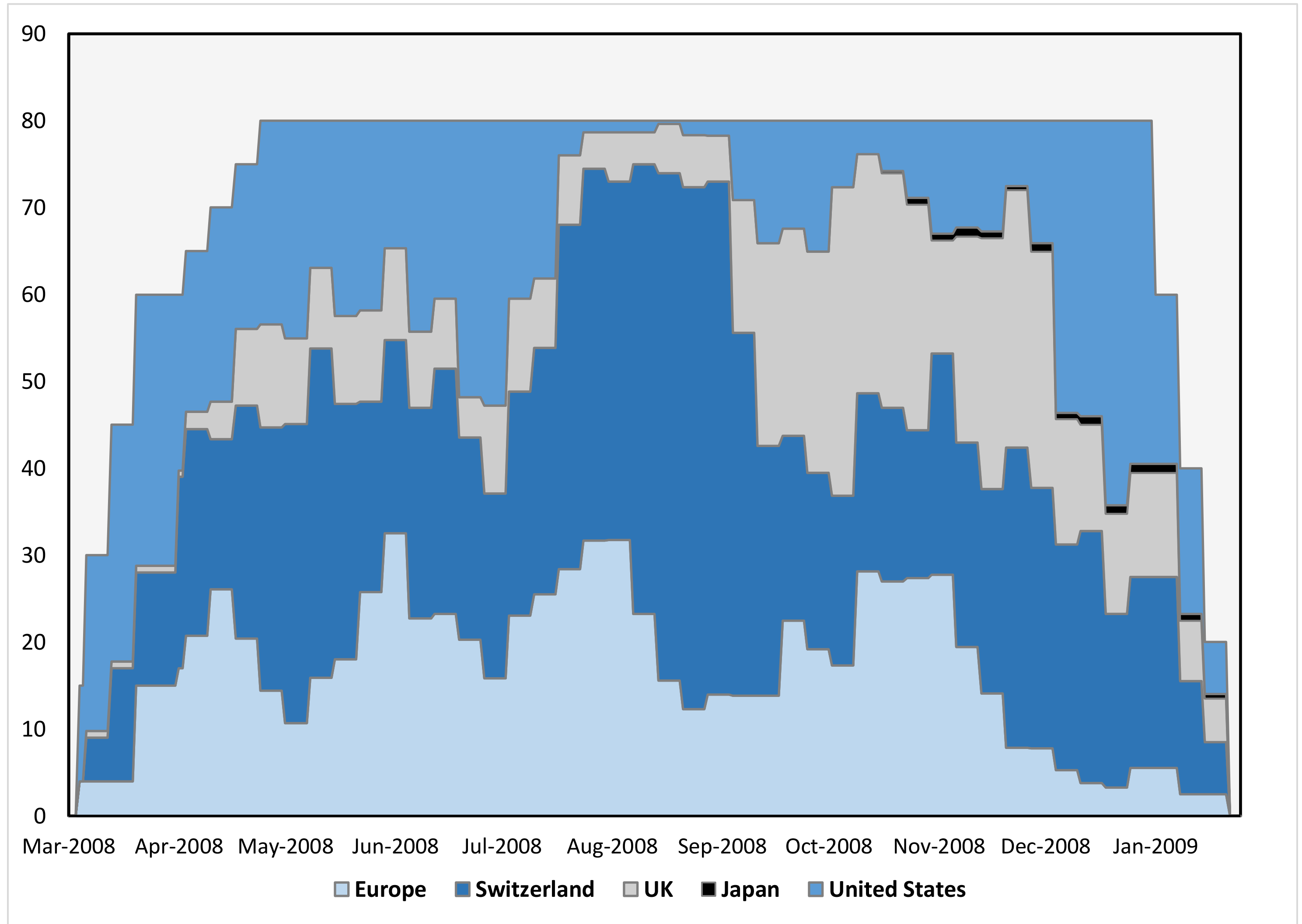
Source: Federal Reserve Board of Governors

Figure 4: Single-tranche stop out rate to one-month OIS rate (bps)



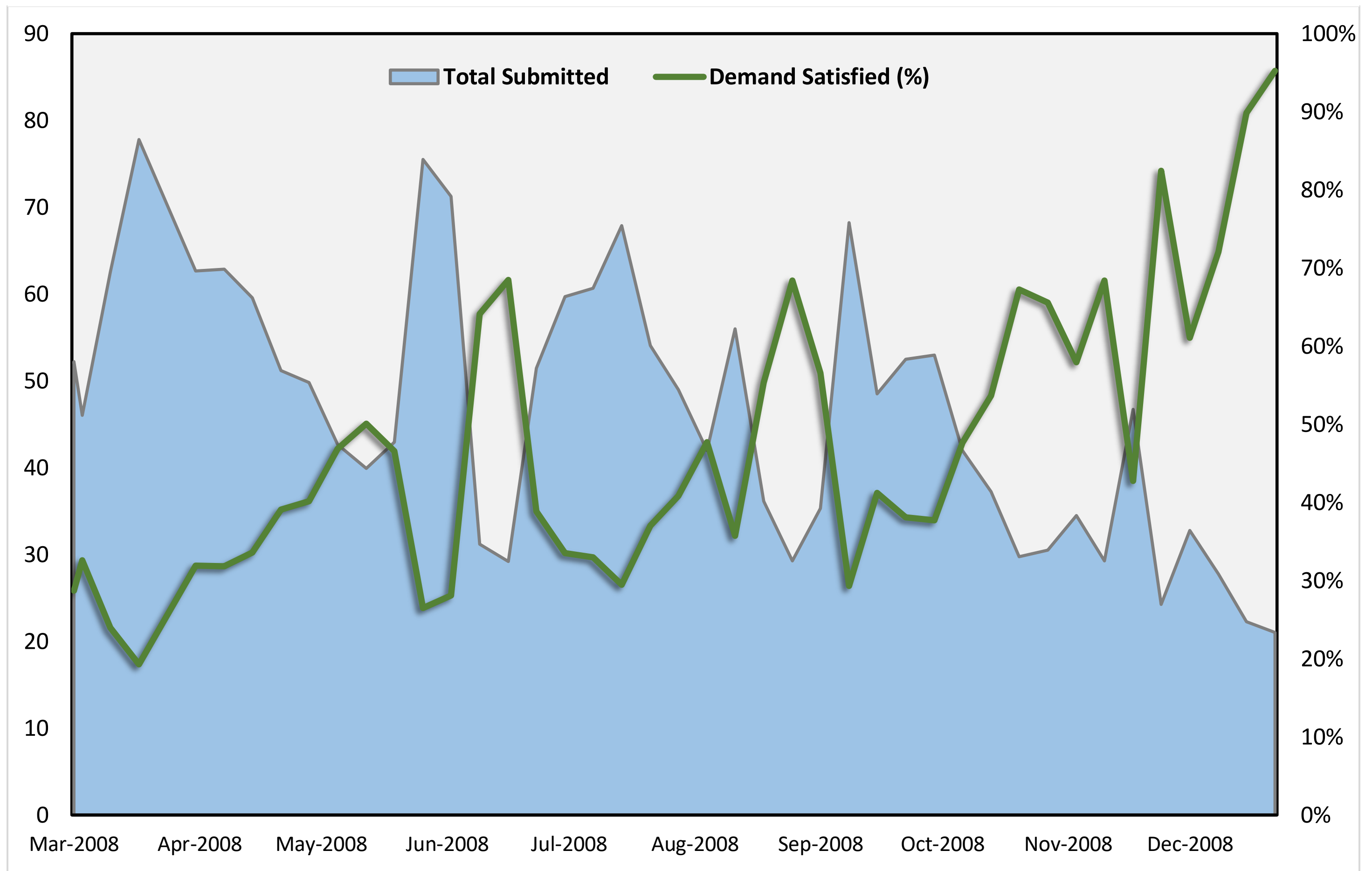
Source: Federal Reserve Board of Governors; Bloomberg (OIS)

Figure 5: Single-tranche repurchase agreements outstanding (USD billions).



Source: Federal Reserve Board of Governors

Figure 6: Amounts submitted to single-tranche auctions (left axis, USD billions) and demand satisfied (right axis, %)



Source: FRBNY

Notes on figures:

Figure 3: Seven other primary dealers participated in the auctions in smaller capacities. Their approximate participation was as follows: Cantor Fitzgerald & Co. – *$7.93 billion*; Citigroup Global Markets Inc. – *$7.70 billion*; Dresdner Kleinwort Securities LLC - *$5.26 billion*; Daiwa Securities America Inc. - *$2.72 billion*; J.P. Morgan Securities Inc. - *$2.50 billion*; Bear, Stearns & Co., Inc. - *$500 million*; HSBC Securities (USA) Inc. - *$152 million*.

Figure 6: Demand Satisfied is calculated by dividing the total amount submitted by primary dealers during a given weekly single-tranche repo auction by the amount accepted by the Federal Reserve Bank of New York. Thus, it is the ***weekly*** proportion of primary dealer demand for the facility that was met by the FRBNY. In March of 2008, weekly amounts accepted were $15 billion, and from April to the final auction on December 31, 2008, weekly amounts accepted stayed constant at $20 billion.