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The Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF)

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The Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF)

Rosalind Z. Wiggins^{1,2}

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Abstract

In mid-September 2008, following the bankruptcy of Lehman Brothers, money market mutual funds (MMMFs) began to experience run-like redemption requests after a large fund “broke the buck,” due to a large position in Lehman commercial (CP). Funds, which as a group were the largest investors in CP, retreated from CP, including asset-backed commercial paper (ABCP). Funds also sought to raise cash to meet redemptions by selling assets but were reluctant to sell ABCP into a depressed market. As the CP and ABCP markets seized-up it became difficult for issuers to place new paper and concern grew about possible contagion of the broader financial markets and economy. As a result, on September 19, 2008, the Federal Reserve (the Fed) announced the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF), pursuant to which the Fed made discount window loans to depository institutions and broker dealers to purchase high-quality ABCP from eligible MMMFs providing cash for redemptions. Utilization of the AMLF peaked in October 2008 when outstanding loans totaled \$152 billion, or the equivalent of 21% of all outstanding ABCP. As markets improved, utilization of the AMLF waned and the program expired on February 1, 2010 without the government experiencing any losses. The AMLF is credited with having helped to stabilize MMMF redemptions, to restore liquidity to the ABCP market, and to have fostered liquidity in the money markets in general, but its impact must be considered in light of other coexistent programs.

Keywords: Money market mutual funds, asset-backed commercial paper (ABCP), wholesale funding, money markets, AMLF, Lehman Brothers, The Reserve Primary Fund, runs, break the buck, discount window

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² The author thanks Burcu Duygan-Bump, Assistant Director, Board of Governors of the Federal Reserve System, who provided an interview in connection with this paper.

Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility

At a Glance

During the fall of 2008, money market mutual funds (MMMFs) experienced run-like redemption requests after the Reserve Primary Fund "broke the buck" due to a large position in Lehman Brothers commercial paper (CP). As a result, many MMMFs reacted by shortening the maturity of their portfolio holdings leading to a contraction in the CP and asset-backed commercial paper (ABCP) markets, of which MMMFs were significant investors. Additionally, MMMFs needing cash found it difficult to sell their investments into an illiquid market.

On September 19, the Federal Reserve announced the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF). Under the AMLF, Federal Reserve Bank of Boston (FRBB) loaned funding to depository institutions, bank holding companies and U.S. branches of foreign banks, to purchase eligible high-quality USD-denominated ABCP from MMMFs experiencing distress. The term of the loan was coexistent with the maturity of the ABCP, which secured the loan, and the borrower paid interest at the prime credit rate. (FR OIG 2010).

Summary Evaluation

The AMLF reached its peak utilization soon after initiation— in October 2008, outstanding AMLF loans totaled \$152 billion, or the equivalent of 21% of all outstanding ABCP. As redemption pressures on funds subsided and markets improved, utilization of the AMLF waned except for an increase prior to the release of the stress test results in May 2009. The program expired on February 1, 2010 without the government experiencing any losses. The AMLF is credited with having helped to stabilize MMMF redemptions, to restore liquidity to the ABCP market, and to have fostered liquidity in the money markets in general. However, any evaluation must consider the several other programs in effect that also targeted the same problem.

Summary of Key Terms

Purpose: To help restore liquidity to the ABCP markets and thereby to help money funds meet demands for redemption

Legal Authority Sections FRA 13(3) and FRA 10

Announcement Date September 19, 2008

Operational Date September 22, 2008

Expiration Date February 1, 2010

Peak Utilization \$152.1 billion (October 1, 2008)

Participants Depository institutions and broker-dealers that purchased highly-rated ABCP from eligible US MMMFs

Rate Primary credit rate

Collateral High quality ABCP meeting certain criteria

Haircut/Recourse No/No

Term Up to 120 days for depository institutions; up to 270 days for other Borrowers

Managed by Federal Reserve Bank of Boston

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I. Overview

Background

On September 16, 2008, a day after Lehman Brothers filed for bankruptcy protection, the \$62 billion Reserve Primary Fund money market mutual fund (MMMF) “broke the buck,” announcing a net asset value of less than \$1 per share because of a large exposure to Lehman Brothers commercial paper (CP). This unexpected action prompted run-like redemption requests by many money market mutual fund (MMMF) investors. In the week following Lehman’s bankruptcy, investors withdrew \$230 billion from MMMFs, \$117 of this from prime MMMFs, as they sought out funds investing only in government securities. (Adrian, Kimbrough, and Marchioni 2011).

MMMFs scrambled to raise cash to pay redemptions while maintaining their \$1 per share NAV and many funds refused to roll over maturing CP or to purchase new CP, including asset-backed commercial paper (ABCP). Because MMMFs are the largest investor group in CP, their actions had great impact of the CP market. Within a month after Lehman’s bankruptcy, outstanding CP had declined by \$300 billion. (Ibid.) Coupled with the retraction in outstanding amounts, CP maturities became severely restricted and rates soon elevated sharply all but freezing the market for term CP and ABCP. (Ibid.)

Although needing funds, many funds resisted selling assets, at depressed prices. Notably, CP and ABCP combined represented approximately 45% of fund assets, but the secondary market was limited. (Duygan-Bump, et al. 2012). The secondary market for ABCP began to seize-up making it difficult for issuers to place new paper and there was concern about possible contagion of the broader financial markets and economy.

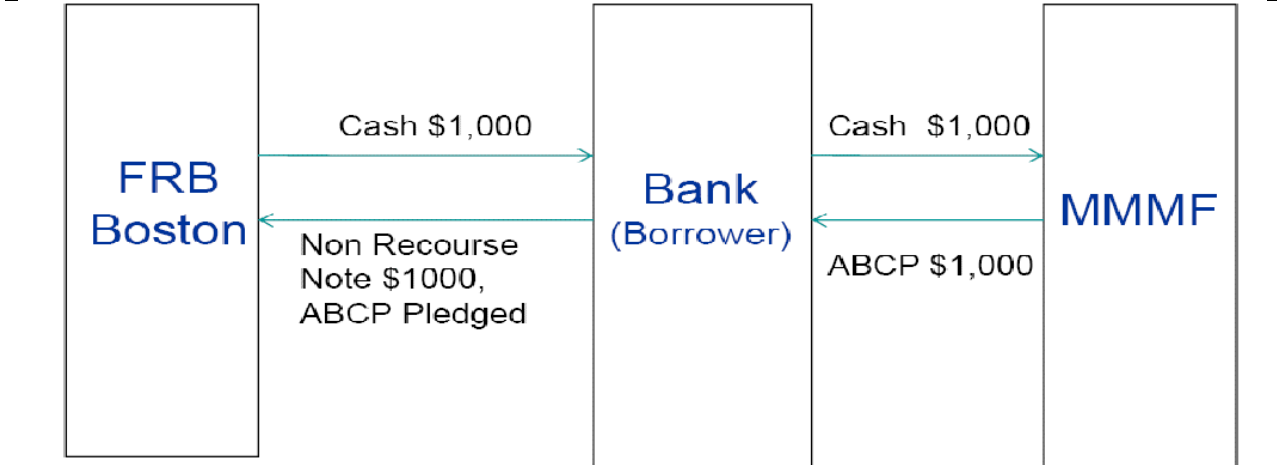
To address the redemption stresses on MMMFs, on September 19, 2008, the U.S. Treasury Department announced the Temporary Guarantee Program for Money Market Funds (Temporary Guarantee), which guaranteed MMMF accounts of funds choosing to participate against losses resulting from a fund breaking the buck.³ On that same day, the Federal Reserve also announced the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) to provide additional liquidity to borrowers that purchased paper from the MMMFs.

Program Description

³ See U.S. Treasury Temporary Guarantee Programs for Money Market Funds. <https://www.treasury.gov/press-center/press-releases/Pages/hp1161.aspx> and McNamara 2016 for a discussion of the program.

The AMLF provided nonrecourse loans to depository institutions and bank holding companies (Borrowers) ⁴ which in turn used the funds to purchase high-quality ABCP from MMMFs that were experiencing redemption pressures. As shown in Figure 1 and further described below, potential Borrowers applied for loans from the Federal Reserve Bank of Boston (FRBB), which loans were secured by specifically-identified ABCP to be purchased from an eligible MMMF. The term of the FRBB loan was coexistent with the term of the ABCP, and its principal was equal to the amortized value of the ABCP, which was the prescribed purchase price. The Borrower was required to hold the ABCP until maturity, at which time it repaid the loan and applicable interest at the Prime credit rate. Only US-denominated ABCP meeting certain ratings and other criteria was eligible for purchase.

Figure 1: Structure of the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF)



Note: This figure represents the operation of the AMLF using a stylized transaction, in which a MMMF obtains \$1,000 in funds. An eligible borrower purchases ABCP from an eligible MMMF at its amortized cost of \$1,000. The eligible borrower obtains a nonrecourse loan for \$1,000 from the FRBB with the same maturity as the remaining maturity of the ABCP at the primary credit rate and pledges the \$1,000 ABCP as collateral. The FRBB does not impose a haircut on the collateral backing the \$1,000 loan to the eligible borrower.

Source: Duygan-Bump, et al. 2012.

The FRBB administered the AMLF across all 12 Federal Reserve districts utilizing existing discount window infrastructure (documentation and processes) and customary transaction parties such as Depository Trust Company (DTC).

⁴ Eligible AMLF borrowers included U.S. depository institutions, U.S. bank holding companies, U.S. broker-dealer subsidiaries of such holding companies, and U.S. branches and agencies of foreign banks. When used in this discussion, depository institution or bank refers to all eligible institutions, unless the context requires otherwise.

Authority for the AMLF. The Fed could not purchase the ABCP outright due to statutory limitations and so the AMLF was structured to lend the funds to purchase ABCP (*Duygan-Bump et al. 2012*). Banks, bank holding companies, broker-dealers and foreign branches were enlisted as potential AMLF intermediaries and borrowers. The Fed relied on Section 10B of the Federal Reserve Act (FRA)⁵, which authorized Reserve banks to make usual lending to depository institutions. (*FOMC Mins. Sept. 19, 2008*) Additionally, the Fed then relied on its emergency authority under Section 13(3) of the FRA—which permitted it to make loans to any individual, partnership or corporation in “unusual and exigent circumstances” if the Fed determined that the entity was “unable to secure adequate credit accommodations from other banking institutions”. Pursuant to Section 13(3), the Fed could authorize the Federal Reserve banks to make loans directly to broker-dealers and bank holding companies.⁶

Eligible Borrowers. To be considered eligible to borrow under the AMLF, a potential Borrower had to have in place with any Federal Reserve bank a master agreement that permitted borrowing from the discount window and (after June 26, 2009) enter into the AMLF Form of Letter Agreement (AMLF Agreement) agreeing to the terms of the program. If it did not, then it needed to complete the Operating Circular No. 10 documents for establishing discount window eligibility submitting the documents to its local Federal Reserve bank. There were differing registration documents for U. S. entities and for branches of Non-U.S. entities. An unregistered entity could also utilize a registered entity as a correspondent through whom it arranged the borrowing by completing a Form of Correspondent Credit and Payment Agreement. (See Appendix A).

⁵ *12 USC 347b(a)*, as amended: FRA §10B. Advances to Individual Member Banks

⁶ The Fed did authorize direct lending to MMMFs under 13(3). On October 3, 2008, the Fed approved the Direct Money Market Mutual Fund Lending Facility (DMLF) which provided for direct lending to MMMFs. After approval, consultation with market participants indicated that they would not use the facility, most likely because of “statutory and fund-specific limitations” and the DMLF was rescinded by notation vote, dated October 10, 2008, without implementation. (Fed. Res. Mins Oct. 3, 2008). The DMLF may be indicative of the Fed’s limited knowledge of MMMFs, a type of entity that it did not regularly deal with, or of the extreme pressure and urgency in the face of which it was compelled to make decisions and design billion dollar rescue facilities.

“As staff discussed potential options with money fund managers, however, a seemingly insurmountable problem became apparent: even if the Fed were willing to lend to MMFs, some funds lacked the authority to borrow money, and even those that had the authority generally were extremely reluctant to use it because they feared that disclosure of their borrowing would spook investors.”

<https://www.brookings.edu/wp-content/uploads/2018/08/02-Novels-LCLR-Prelim-Disc-Draft-2018.09.11.pdf>

Additionally, a potential borrower that was a broker/dealer participating in the Primary Dealer Credit Facility (PDCF)⁷ could rely on its authorizing documentation under the PDCF to satisfy the AMLF resolution requirements. (*AMLF FAQs*).

A commentator emphasizes that main borrowers under AMLF were bank holding companies and this was crucial in the operations of this program as the Fed were the sole regulator of them. This meant that the Fed did not have to coordinate with other bank regulators in allowing regulatory forbearance.

Requesting an Advance under the AMLF. A Borrower requested an advance under the AMLF by completing the ABCP MMMF Liquidity Facility Request Form⁸ which required specific details regarding (i) the collateral to be purchased, (ii) the MMMFs that it was being purchased from and (iii) after June 26, 2009, share confirmation information from the MMMF's transfer agent to satisfy the redemption threshold (discussed below). (*Ibid.*).

After June 26, 2009, any Borrower that had filed the Circular No. 10 documents prior to that date had to also submit, prior to any new extension of credit, the FRBB's Certification governing ABCP eligibility.⁹ (*Ibid.*).

The AMLF required that the ABCP that would be purchased and that would secure the loan had to be transferred to the FRBB's restricted account at the DTC before an advance/loan was approved. Once the ABCP was recorded, determined to be eligible, and valued, the loan funds would be transferred to the Borrower, who would then pay the MMMF.

Summary of Loan Terms. The Borrower was required to purchase the eligible ABCP collateral at the "amortized cost", which was defined for purposes of the AMLF as "the Fund's acquisition cost of the ABCP as adjusted for amortization of premium or accretion of discount on the ABCP through the date of its purchase by the Borrower." (*AMLF T&Cs*). In all cases, the amount of the loan equaled the purchase price of the ABCP collateral.

The term of an AMLF loan matched the maturity of the ABCP collateral that was purchased with, and secured, the loan. Allowable terms varied from overnight to 270 days. For Borrowers that were banks and bank holding companies, no advance under the AMLF could extend beyond 120 days. For Borrowers that were not banks, terms could extend up

⁷ The PDCF was a Fed lending program established under FRA Section 13(3) for primary dealers that operated similar to discount window lending as it functioned as a lender-of-last-resort facility. See *Wiggins and Metrick 2015* for a discussion of the program.

⁸ Document is referred to in the research but not yet located.

⁹ Document is referred to in the research but not yet located.

to 270 days.¹⁰ Prepayment of the AMLF loans was not permitted, in whole or in part, except in the event of bankruptcy or receivership of the Borrower.

Loans under the AMLF were extended at the discount window's primary credit rate in force on the date of the loan and no other fees applied. During its tenure, the primary credit rate ranged from 2.25%, at its inception, to 0.50% at its expiration. Rates were fixed for the term of the loan.

Loans were Secured and Nonrecourse. Unlike under many Fed liquidity programs implemented to fight the crisis, no haircut was applied to the ABCP purchased. Also, unlike some programs, AMLF loans were nonrecourse to the Borrower if said Borrower complied with the AMLF requirements. If the Borrower failed to repay the Federal Reserve's loan, the Borrower could surrender the ABCP. Additionally, the risk that the value of the ABCP would decrease was borne by the Fed, not by the Borrower. This risk was transferred to the Fed once the ABCP had been approved as AMLF-eligible and the Borrower had successfully transferred the securities to the FRBB's account at the DTC.

Eligible ABCP Collateral. The ABCP securing an AMLF loan had to be of high-quality and meet certain specific criteria. Originally, AMLF-eligible collateral was limited to ABCP that:

- was U. S. dollar-denominated;
- was purchased by the Borrower on or after September 19, 2008, from a registered investment company that held itself out as a MMMF;
- was purchased by the Borrower at the MMMF's "amortized cost" — acquisition cost as adjusted for amortization of premium or accretion of discount on the ABCP through the date of its purchase by the Borrower;
- was rated A-1/P-1/F1 by at least two Nationally Recognized Statistical Rating Organizations (NRSROs). If rated by only one NRSRO, the ABCP must have been rated within that NRSRO's top rating category;

¹⁰ Why the terms varied for banks vs. broker-dealers? Interview?

- was issued by an entity organized under the laws of the United States or a political subdivision thereof under a program that was in existence on September 18, 2008 and actively issuing eligible ABCP directly to market investors; and
- had a stated maturity that did not exceed 120 days if the borrower was a depository institution, or 270 days if the borrower was not a depository. (ABCP that had an extendable maturity could not be eligible collateral). (*AMLF T&Cs*)

Amortized Cost. To prevent sales at depressed values that might incite another MMMF to “break the buck”, the Fed required the Borrower to purchase the ABCP at the MMMF’s amortized cost (the carrying value of the investment in the MMMF’s accounting records). A commentator notes that this was a necessary feature for any MMMFs to have incentives to participate. A purchase from the MMMF at amortized cost caused no detriment to remain MMMF shareholders and, therefore, did not create further incentives for MMMF shareholders to redeem shares and place further liquidity pressure on the MMMFs. (*FR OIG 2010*). MMMFs determined the amortized cost, and Borrowers certified to the purchase of the pledged ABCP at amortized cost as a condition of program participation.

Credit Ratings. Given that the AMLF loans were nonrecourse to the Borrowers, the credit ratings for eligible collateral were set high and the FRBB daily reviewed the credit ratings of collateral for impairment.¹¹ Even so, on April 22, 2009, the criteria for eligible collateral were tightened to require that AMLF-eligible ABCP be rated no lower than A-1/P-1/F1 (by any rating agency) at the time it was pledged. Additionally, paper that was rated A-1/P-1/F1, but was on “negative watch” for downgrade by any major NRSRO, was excluded.¹² (*Ibid.*).

Redemption Threshold. On June 25, 2009, a second program modification was adopted, a redemption threshold which required that MMMFs seeking to sell ABCP pursuant to the facility had to have experienced recent *material outflows*. (*AMLF FAQs*). The redemption threshold is discussed in detail below.

¹¹ FR OIG 2010. Some limited impairment did occur. As of May 27, 2009, the Fed reported \$1 billion in AMLF collateral was rated A-1/P-1/F1 but on watch for downgrade and less than \$500 million was rated below A-1/P-1/F1, due to deterioration that occurred after it was pledged. (*FR Bd Gov June 2009*).

¹² The initial standard would have permitted a lower rating as long as two NRSROs had rated it at the A-1/P-1/F1 level. Paper with this rating that was on a “negative watch” for downgrade would also have qualified.

Eligible MMMFs. As originally enacted, the AMLF was open to any fund that qualified as a MMMF under Securities and Exchange Commission Rule 2a-7¹³ issued pursuant to the Investment Company Act of 1940 (Rule 2a-7). Although one of the stated purposes of the program was to “help restore liquidity to the ABCP markets and thereby to help money funds meet demands for redemption,” at first a selling MMMF did not have to meet any specific standard or provide proof that it had suffered significant or unusual redemption requests. (*Ibid.*). This is largely explained by the Fed’s Inspector General in a 2010 report by reference to the emergency that they faced and time constraints. The focus was on addressing the runs on MMMFs and unlocking the ABCP market:

“Operationally, the AMLF’s original policies and procedures were established quickly to address the financial crisis in the ABCP market that led to MMMF redemptions. . . Based on the severe market stress conditions that existed at the time and the pressure of investor redemption demands on the MMMFs, the AMLF terms did not specifically require that the ABCP be purchased solely from MMMFs experiencing material ‘redemption pressure’” (*FR OIG 2010*).

And it should also be noted that the AMLF was the first facility put in place by the Fed following Lehman’s bankruptcy and the first where the Fed sought to address distress among entities that it did not regularly deal with and a specific market.

As stated above, AMLF-eligible collateral had to be purchased from an eligible MMMF after September 19, 2008.

Redemption Threshold Defined. After the initial aggressive utilization of the facility had subsided, the FRBB’s review revealed that some funds utilizing the facility might not have experienced significant redemption requests. To refocus the program, on June 25, 2009, a redemption threshold was established.

Under the new requirement, which was intended to ensure that the facility was utilized as a backstop to fund redemption requests, Borrowers could only pledge ABCP to the AMLF that was purchased from an MMMF that had experienced *material outflows*, which were defined as:

- outflows of at least five percent of the MMMF’s net assets in a single day; or
- outflows of at least ten percent of the MMMF’s net assets within the prior five business days or less. (*FR PR June 25, 2009.*)

Material outflows were calculated as “net redemptions” — “redemptions less shares sold and dividends reinvested . . . calculated based on changes in the end of day net asset levels viewed at the consolidated fund level.” (*AMLF FAQs.*) Fluctuations in individual share

¹³ 17 CFR 270.2a-7. Among other things, Rule 2a-7 sets out the limits of what MMMFs can invest in.

classes of a fund were not considered in determining whether the fund was eligible to pledge ABCP to the AMLF. (*Ibid.*).

Figure 2: AMLF Redemption Criterion & Eligibility Period

An MMMF begins with net assets of \$100 million and experiences net redemptions as follows over the following nine business day period:

DAY	1	2	3	4	5	6	7	8	9	10	11	12
Net Sales (Redemptions)	-	(4)	(4)	(3)	1	2	(6)	1	(2)	(3)	-	-
Ending Net Assets	100	96	92	89	90	92	86	87	85	82	-	-
					EP ¹	EP	EP	EP	EP			
								EP ²	EP	EP	EP	EP
											EP ³	EP

¹The fund would enter a 5-day eligibility period on day 5 due to the 10% net redemptions over the preceding 3-day period (days 2-4).

²The fund would enter a new 5-day eligibility period on day 8 due to the single day redemptions exceeding 5% on the preceding day (day 7).

³Finally, the fund enters a new 5-day eligibility period on day 11 due to the 10% net redemptions over the preceding 4-day period (days 7-10).

Source: Author constructed based on information from [AMLF FAQs](#)

Because the FRBB could not verify net asset redemption levels using publicly available information, an MMMF seeking to sell ABCP pursuant to the AMLF was required to secure from its transfer agent a Certification Letter certifying to changes in the fund’s share levels (as an approximation of end of day net asset levels), over the prior 10-day period. The MMMF would need to provide this letter to the Borrower who would submit it to the FRBB with the Request for Advance. (See Figure 2 for an example of how the redemption threshold and eligibility period operated.)

Eligibility Period. Once an MMMF experienced the trigger level of material outflows, eligible any ABCP satisfying the applicable eligibility requirements purchased from the MMMF on the five business days following the trigger day could be pledged pursuant to the AMLF. The 5-day eligibility period was intended to provide funds a way to manage the redemption event. They would be able to utilize the AMLF the next day if redemptions continued, but did not quite reach the eligibility trigger levels. If redemptions subsided after a day or two, the MMMF could choose not to utilize the AMLF. Additionally, if the trigger level was again met at any time (even during the original 5-day eligibility period) a new 5-day period would begin. Once an eligibility period ended, the MMMF would be ineligible for the program until it again experienced an eligibility-triggering event.

Administration by FRBB. The FRBB administered the AMLF and was authorized to make loans to eligible Borrowers on behalf of the other Reserve banks. All AMLF loans were

recorded as assets by the FRBB. For loans extended to Borrowers that settled to depository accounts in districts other than Boston, the funds were credited to the Borrower's depository account by the appropriate Reserve Bank and settled between the Reserve Banks through the interdistrict settlement account.

The FRBB reported the weekly average and Wednesday amounts of AMLF credit outstanding on its H.4.1 weekly statistical release. Beginning on June 10, 2009, the Fed also included additional anonymous information on AMLF transactions in its monthly reports (Federal Reserve Credit and Liquidity Programs and the Balance Sheet). This information included number of Borrowers, Borrower by type of institution, collateral by type and credit rating, and data on the concentration of borrowing. No public disclosure was made of the individual Borrowers participating in the program or the amount of loans made to such Borrowers until 2010, when the Fed was compelled to make such disclosure under the Dodd-Frank Wall Street Reform and Consumer Protection Act.

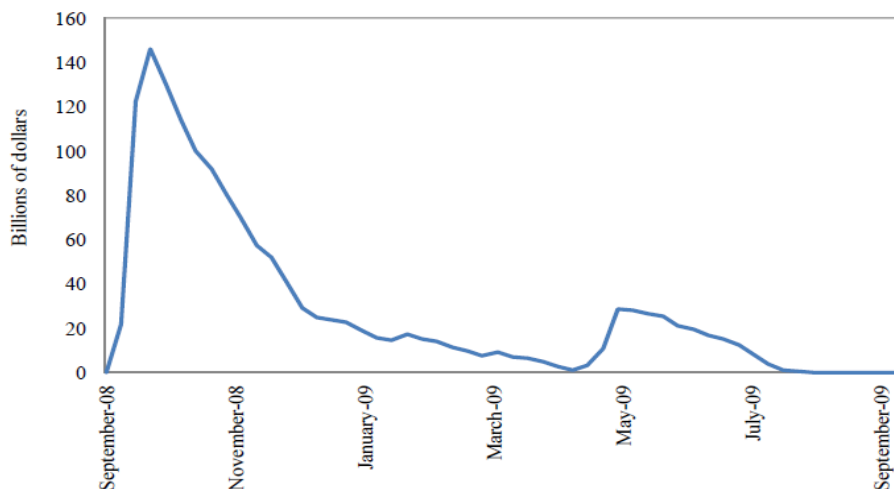
Borrower Administrative Issues. Because some Borrowers would be regulated banks and bank holding companies, the question arose as to how the ABCP purchased with AMLF loans would impact such entities' reporting and capital requirements. To facilitate AMLF operations, the Fed adopted temporary limited exceptions to (i) its leverage and risk-based capital rules, and (ii) its restrictions on affiliate transactions. (*FR OIG 2010*).

Because the Borrower would bear no credit or market risk in holding ABCP pursuant to the AMLF, the Borrower would not be assessed any regulatory capital charge with respect to such ABCP and such ABCP would receive a zero-percent risk weight for risk-based capital purposes and would be excluded from average total consolidated assets for leverage purposes. Also, under the AMLF, Borrowers could purchase ABCP from affiliates and so such transactions were exempted from the usual restrictions on affiliate transactions.

Outcomes

The first loans made pursuant to the AMLF occurred on September 22, 2008, and maximum outstanding loans peaked at \$152.1 billion on October 1, 2008, which equaled 21% of then outstanding ABCP. Borrowings declined thereafter as the market stabilized and redemption pressures waned. As of December 17, 2008, the aggregate amount of outstanding advances under the AMLF was \$27.4 billion. (See Figure 3.)

Figure 3: Loans extended under the AMLF, September 2008-September 2009



Note: Data are weekly averages, based on the Fed's H.4.1 statistical release
Source: *Duygan-Bump et al. 2012*

There was a bounce of activity from April 24 to May 8, 2009, prior to the government's pending release of its Supervisory Capital Assessment Program (SCAP)¹⁴ (also known as the bank stress tests) results. There was the possibility that the tests might result in some ABCP issuers being downgraded, which would have reduced the credit rating of their ABCP and, thus, made such ABCP ineligible for AMLF funding. (*FR OIG 2010*). When the Fed's later review revealed usage by funds that had not likely experienced unusual redemption requests, it was prompted to adopt the redemption threshold as discussed above.

Borrowers, Paper Purchased & MMMFs that Sold. During the program's tenure, AMLF Borrowers purchased ABCP from 105 MMMFs, or 42% of AMLF-eligible prime MMMFs. The ABCP purchased was issued by 90 out of 170 active ABCP issuers and 47 out of 71 unique ABCP sponsors. The average AMLF loan was \$68 million and had an average maturity of 47 days (and a maximum of 168 days). (*Duygan-Bump et al. 2012*).

There were seven Borrowers under the AMLF when viewed on consolidated group basis,¹⁵ but borrowings were dominated by just two, State Street Corp and JPMorgan Chase and Co., which borrowed total amounts of \$89 billion and \$111 billion, respectively, or an aggregate of 92% of the amounts lent pursuant to the program. (*Condon 2011*). Other institutions participating in the AMLF included Bank of New York Mellon (BNY Mellon), Citigroup, Bank

¹⁴ See *Ross 2016* for a detailed description of the SCAP.

¹⁵ In some cases, more than one related entity of a holding company was the named Borrower. For example, JPMorgan Chase Bank and JPMorgan Chase Broker Dealer were both Borrowers. (*AMLF Trans. Data.*)

of America, SunTrust Banks Inc., and Credit Suisse Group AG. (*AMLF Trans. Data*). No institution that asked to borrow was rejected. (*Condon 2011*).

JPMorgan Chase and BNY Mellon used AMLF funds to purchase ABCP from funds run by their own money-management units as well as from other funds. JPMorgan Chase used \$17.6 billion or 16% of the total that it borrowed for this purpose. In BNY Mellon's case, it used \$11.5 billion or 89% of the \$12.9 billion that it borrowed to purchase ABCP from its proprietary funds. (*Ibid.*).

A commentator emphasizes that the main borrowers under AMLF were bank holding companies and this was crucial in the operations of this program as the Fed were the sole regulator of them. This meant that the Fed did not have to coordinate with other bank regulators in allowing for regulatory forbearance and other operations.

Vanguard Group Inc. and Legg Mason Inc. were the only money fund providers among the top ten that did not utilize the AMLF. Not surprisingly, the Reserve Primary Fund was the fund that sold the most ABCP pursuant to the AMLF, selling a total of \$19.4 billion while the fund was liquidating. (*Condon, 2010*).

Wind-down and Expiration. Due to improved market conditions for ABCP (and possibly also the existence of other Fed programs such as the Commercial Paper Funding Facility (CPFF)¹⁶, which also purchased AMLF-eligible ABCP) the last borrowing under the AMLF occurred on May 8, 2009 and matured on August 3, 2009. All loans made under the facility were repaid in full, with interest totaling \$543 million, in accordance with the terms of the facility. The AMLF was originally established with an expiration date of January 30, 2009, however, the Fed extended the program three times and it finally expired on February 1, 2010.

II. Key Design Decisions

1. The AMLF was established under the Federal Reserve's emergency powers under Section 13(3) of the Federal Reserve Act.

In establishing the AMLF the Fed sought to provide liquidity to MMMFs through broker-dealers and bank holding companies. Therefore, it relied on its authority under Section 13(3) of the Federal Reserve Act (FRA) (12 U.S. Code Section 343), which permitted the Board, in unusual and exigent circumstances, to authorize Reserve Banks to extend credit to individuals, partnerships, and corporations that were unable to obtain adequate credit accommodations. In making its determination to invoke Section 13(3) the Fed made note that the MMMF industry held \$3.4 trillion in assets (October 1, 2008) including \$285 billion of the \$840 billion in outstanding ABCP and cited the significant increase in redemption

¹⁶ See *Wiggins 2017* for a description of the CPFF.

requests battering the funds at a time when strains in the financial markets made it difficult for them to sell assets:

In ordinary circumstances, MMMFs would have been able to meet these redemption demands by selling assets. At the time of the establishment of the AMLF, however, many money markets were extremely illiquid, and the forced liquidation of assets by MMMFs was placing increasing stress on already strained financial markets. If they continued, such forced sales could depress the price of ABCP and other short-term debt instruments, resulting in further losses to MMMFs and even higher levels of redemptions and a weakening of investor confidence in MMMFs and the financial markets more generally. (*FR Sect 129 Report AMLF*).

2. The AMLF was funded through loans from the Federal Reserve discount window.

The Fed funded the AMLF with loans from its discount window, extending this lending beyond the entities that it traditionally lent to in that the indirect beneficiaries of the AMLF loans were ultimately understood to be the MMMFs. (*FR OIG 2010*). No special funding authorization other than invoking Section 13(3) was needed. The Fed utilized its standard discount window lending documentation and processes for the AMLF and charged the discount window primary credit lending rate for AMLF loans. Also, as discussed below, funding through the discount window helped facilitate the quick implementation of the program. No other fees were charged for AMLF loans, and no haircut was applied to the ABCP pledged as collateral.

3. The Federal Reserve made loans to depository institutions, broker-dealers, BHCs, and foreign branches which purchased eligible ABCP from MMMFs rather than lend to the fund directly or purchase and hold the ABCP directly.

Although the Fed had authority under Section 13(3) to lend directly to MMMFs, it did not lend to such entities and so, did not have established operational relationships with the funds that were to benefit from the AMLF. Additionally, as discussed at page 5 and footnote 8, fund limitations may have made the funds reluctant or unable to borrow directly from the Fed. Also, the Fed was not authorized to purchase ABCP directly from the funds.

To facilitate quick implementation of the program, the Fed relied on institutions with which it had existing relationships (depository institutions, bank holding companies and broker-dealers) to act as intermediaries and be the actual Borrowers under the program. It loaned funds to these institutions from its discount window and they in turn purchased eligible ABCP from eligible MMMFs. The fact that the loans were made at the primary credit lending rate and that the loan maturity matched that of the ABCP reinforced the role of the Borrowers as pass-throughs. As long as the ABCP matured and was paid in full, the borrowers effectively earned the spread between the high rate on the ABCP and the primary credit rate.

4. The Federal Reserve funded the loans from the discount window and relied on existing processes and known entities to quickly implement the AMLF.

In designing the AMLF, the Fed was faced with providing a remedy quickly for fear that continued stress would jeopardize the ABCP market and MMMF industry, and possibly the broader economy. To achieve this goal in limited time, the Fed utilized depository institutions as intermediaries, its existing discount window processes and documentation, and the Reserve system interbank payment system, for the basic infrastructure of the program. Most potential Borrowers would likely already have had in place the required discount window accounts and agreements that would enable them to request advances under the AMLF. If a potential Borrower did not, the Fed further simplified access by permitting such an entity to utilize a depository institution that already had such agreements as a correspondent; executing the discount window agreements was not even necessary. Also, potential Borrowers that were primary dealers participating in the PDCF could rely on that documentation for AMLF borrowing. These decisions enabled the AMLF to become operational in just a weekend.

As a counterpoint, after announcing the AMLF, the Fed implemented the CPFF, which sought to unlock the still illiquid commercial paper market. For the CPFF, the Fed did establish a special purpose vehicle (SPV) to facilitate the purchase and custody of the CP and ABCP purchased, which were purchased from a wide variety of issuers rather than from a closed class of regulated MMMFs. Further, the CPFF took much longer to structure than the weekend that transpired between the announcement of the AMLF and its first loans and would grow to be much larger than the AMLF.

5. U.S. subsidiaries of foreign entities were permitted to borrow under the AMLF.

In seeking to encourage wide access and participation, the Fed permitted U.S. subsidiaries of foreign banks that were depository institutions, bank holding companies, or broker-dealers to borrow under the AMLF. Such entities were required to submit slightly different application documents than those required of U.S. entities, but it appears that this was a condition of discount window lending and not unique to AMLF participation. Only Credit Suisse Group AG participated in AMLF and the participation was small—just \$240 million, or 0.1% of the total.

A commentator emphasizes that the main borrowers under AMLF were bank holding companies and this was crucial in the operations of this program as the Fed were the sole regulator of them. This meant that the Fed did not have to coordinate with other bank regulators in allowing for regulatory forbearance and other operations.

6. Loans under the AMLF were nonrecourse to the Borrower and mirrored the purchase price and maturity of the ABCP that was pledged as collateral.

The Fed sought to make the AMLF attractive to potential Borrowers so that they would participate, yet it was required to ensure that its loans were properly secured.¹⁷ Loans made under the AMLF were fully collateralized, but not over-collateralized. They were nonrecourse to the Borrower if all the requirements in the AMLF Agreement were adhered to; the nonrecourse protection would be forfeited if the agreement was breached. ([FR website](#)). In the event of a default of the Borrower, the Fed would look to the collateral, the assets underlying the ABCP, and any financial support provided by the issuer of the ABCP. Unlike under many Fed liquidity programs implemented to fight the crisis, no haircut was applied to the ABCP purchased, and thus the amount of the loan, as well as its term, matched the purchase price and the term of the ABCP securing it.

The term of an AMLF loan matched the maturity of the ABCP collateral that was purchased with, and secured, the loan. Allowable terms varied from overnight to 270 days. For Borrowers that were banks and bank holding companies, no advance under the AMLF could extend beyond 120 days. For Borrowers that were not banks, terms could extend up to 270 days.¹⁸ Prepayment of the AMLF loans was not permitted, in whole or in part, except in the event of bankruptcy or receivership of the Borrower.

7. Only certain high-quality ABCP could be pledged as collateral under the AMLF.

To make the AMLF attractive to potential Borrowers, the credit risk associated with the ABCP was borne by the Fed, which could only seize the collateral in the event of default. The Fed did not vet the underlying issuers of the ABCP that it received as collateral for AMLF loans. To minimize the risk that it undertook, the Fed limited the ABCP that could be pledged as collateral under the AMLF to high quality ABCP, i.e., that which was:

- rated A-1/P-1/F1 by at least two Nationally Recognized Statistical Rating Organizations (NRSROs). If rated by only one NRSRO, the ABCP must have been rated within that NRSRO's top rating category.

On April 22, 2009, the criteria for eligible collateral were tightened to require that AMLF-eligible ABCP be:

- rated no lower than A-1/P-1/F1 at the time it was pledged. Additionally, paper that was rated A-1/P-1/F1, but was on “negative watch” for downgrade by any major NRSRO, was excluded.

¹⁷ See [FRA Section 13\(3\)](#), 12 U.S. Code Section 343.

¹⁸ Why the terms varied for banks vs. broker-dealers? Interview?

In implementing a new program, it might be reasonable to consider this heightened standard. It would also be prudent to consider what impact this higher standard might have on the quantity of potential eligible collateral.

8. The amount of ABCP that any one Borrower could purchase was not limited.

Unlike some other Fed programs adopted during the crisis, the AMLF was announced without a stated total amount.¹⁹ This may have been an indication of the Fed's commitment to do what was needed to avoid another crash of the ABCP market like the one that occurred during the previous summer and to shore up the MMMFs, the collapse of which would have further negative consequences on investors' confidence. Just announcing the program as open ended might have had an added benefit in that it avoided debate as to whether the amount was, or was not, sufficient.

Additionally, at no time was the amount of loans that one Borrower could request under the AMLF limited. Ultimately, there were seven Borrowers (on a consolidated basis) under the AMLF, but borrowings were dominated by just two, State Street Corp. (\$89 billion) and JPMorgan Chase and Co. (\$111 billion), which borrowed 92% of the amounts lent pursuant to the program.

9. The amount of ABCP that could be purchased from any one MMMF was not limited.

As a program designed to stabilize the runs experienced by some MMMFs and to prevent another fund from "breaking the buck", the AMLF did not include limits on the amount of ABCP that a MMMF could sell to a Borrower. To do so might have hindered its impact as a backstop since the sufficiency of such a limit could always be questioned. Nor could the Fed be expected to anticipate the amount of ABCP that any one fund might need to sell to meet the unprecedented redemption requests that were occurring. For example, the Reserve Primary Fund sold the most ABCP of any fund pursuant to the AMLF, \$19.4 billion, and still ultimately it had to close.

10. The AMLF was intended for MMMFs that experienced heightened redemption requests.

Although the AMLF was designed to stabilize the redemption runs experienced by some MMMFs, the program did not originally require representations or proof that the fund had, indeed, experienced such redemptions. A review by the Fed after an early 2009 spurt of borrowing, when redemptions had returned to normal, revealed that some funds might be using the program for other than its intended purposes. (*FR OIG 2010*). To fine-tune the program and restrict future funding to those MMMFs that were in fact facing unusual

¹⁹ One measure of the program's potential magnitude is that on September 17, 2008, two days before the program was announced, there was \$765.5 billion in ABCP outstanding. If one assumes that MMMFs held 34% of this amount (the percentage of ABCP the MMMFs held at the end of year 2007), the total would be \$260 billion. (*FR OIG 2010*).

redemptions, on June 25, 2009, the Fed added a requirement that eligible ABCP pledged as collateral had to be purchased from an MMMF which had experienced *massive outflows* (5% of net assets in one day or 10% of net assets in five days or less) within the 5-day period prior to the purchase. By including (i) a specific definition and a clear calculation method, and (ii) requiring a certificate from the fund's Transfer Agent to support its claim of massive outflows, the Fed created a clear and objective process for determining when the redemption threshold was met that fostered the AMLF's goals. After the change the AMLF was unused. In creating a new program like the AMLF, one might consider including a similar redemption threshold and standard from the start.

11. The AMLF provided MMMFs a period in which to consider whether to sell ABCP to address redemptions.

As originally implemented, a MMMF could decide to sell ABCP pursuant to the AMLF a few days or weeks after it (presumably) experienced high redemption requests, making it somewhat questionable how closely the sale of the ABCP was tied to funding the redemptions. With the adoption of the redemption threshold, funds were compelled to make the decision to utilize the program within 5 days after the event triggering eligibility. In this way, the program retained some flexibility—funds could wait a few days to see if redemptions naturally declined—while also more closely aligning its usage with the heightened redemptions to which it was intended to respond.

12. The Fed exercised regulatory forbearance in exempting participating banks and bank holding companies from relevant capital standards and restrictions on affiliate transactions.

Because some Borrowers would be regulated banks and bank holding companies, the question arose as to how the ABCP purchased with AMLF loans would impact such entities' reporting and capital requirements. To facilitate AMLF operations, the Fed adopted temporary limited exceptions to (i) its leverage and risk-based capital rules, and (ii) its restrictions on affiliate transactions. These exemptions were put in place the same day the AMLF was launched. (*FR OIG 2010*).

A commentator emphasizes that the main borrowers under AMLF were bank holding companies and this was crucial in the operations of this program as the Fed were the sole regulator of them. This meant that the Fed did not have to coordinate with other bank regulators in allowing for regulatory forbearance and other operations.

Because the Borrower would bear no credit or market risk in holding ABCP pursuant to the AMLF, the Borrower would not be assessed any regulatory capital charge with respect to such ABCP and such ABCP would receive a zero-percent risk weight for risk-based capital purposes and would be excluded from average total consolidated assets for leverage purposes. Also, under the AMLF, Borrowers could purchase ABCP from affiliates and so such transactions were exempted from the usual restrictions on affiliate transactions under Section 23A of the FRA.

III. Evaluation

The AMLF has generally been viewed as a factor in helping to stabilize the MMMFs as they coped with redemption requests and with providing liquidity to the ABCP market, although there have been some criticisms.

A study by a group from the Fed and FRBB has commented favorably on the facility. Using detailed data, *Duygan-Bump et al. (2012)* concluded that the AMLF helped stabilize asset outflows from money market funds, with greater reductions in outflows occurring at funds that held more eligible collateral. The study shows that yields on eligible ABCP decreased significantly relative to yields on comparable but ineligible paper. The authors, however, also conclude that the lack of haircuts on collateral securing the AMLF loans created an incentive for MMMFs to use their riskiest eligible ABCP for the facility.

Once individualized data regarding the AMLF was released in 2010, the program was criticized for not utilizing a bidding process to determine Borrowers, some of whom earned significant amounts from their AMLF borrowings. For example, State Street reported earning \$75.6 million on the \$89 billion of ABCP that it purchased pursuant to the program. JPMorgan also earned an estimated \$93 million with respect to the \$111 billion in ABCP that it purchased, some of it from its own funds. Controversy centered on these amounts being earned from acting purely as a pass through while the Fed bore all the risk of the investments. (*Condon 2011*).

Commenting on such arguments in 2011, William Nelson a Fed official, said that urgency was a factor and that at the time the Fed was responding to a “national emergency” — “Had we implemented the program with less attractive terms, we would have risked falling short in our effort to stop the run on money-market mutual funds and seeing a far worse financial crisis.” (*Ibid.*).

Also in 2011, Brian Reid, Chief Economist of the Investment Company Institute, a trade group for MMMFs favorably reviewed the program saying that “[the] AMLF was critical in restoring liquidity and confidence to the commercial-paper market. . . Money-market funds turned from net sellers of commercial paper into net buyers after the Fed launched the program.” (*Condon 2011*).

It must also be noted; however, several factors make it difficult to isolate any specific impact that the AMLF had on reviving the CP markets. During the crisis many fund sponsors provided significant assistance to their funds, funds, taking advantage of separate 23A exemptions. Some of these may have “broken the buck” without such aid. (*Brady, Anadu and Cooper 2012*). Also, the Temporary Guarantee, CPFF, and the Money Market Investor Funding Facility (MMIFF)²⁰, all programs that were directed at providing liquidity

²⁰ The MMIFF was a companion Section 13 (3) program designed to also provide liquidity to the MMMFs. Under the MMIFF, the Fed would provide loans to a series of SPVs established by the private sector, which would in turn use these funds, along with funds from the issuance of ABCP, to purchase eligible money market instruments (certificates of deposit, bank notes and commercial paper) from eligible money market investors, including

to and stabilizing the MMMFs and CP market were coexistent with the AMLF which experienced its greatest usage near its inception.

Significantly, the CPFF, which would grow to be one of the Fed's largest crisis-fighting programs, made its first purchases on October 27, 2008; at the time utilization of the AMLF was decreasing after an initial spurt of usage. By the end of the year, the total value of commercial paper purchased under the CPFF equaled \$335 billion, out of which one-third was ABCP (\$110 billion). (Wiggins 2017). Aside from one small stint of activity during spring 2009, the AMLF remained generally unused as the ABCP that it financed matured.

IV. References

12 U.S. Code §343 (*Federal Reserve Act §13(3)*), as amended.

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12 U.S. Code § 347b (a) (*Federal Reserve Act §10B*) as amended.

<http://www.icyte.com/cytes/show/893332?key=3be4b4cf924a3e48abfa8157ddf53b715a941078>

17 C.F.R. § 270.2a-7 (SEC Rule 2a-7), as amended.

<http://web.archive.org/web/20120907011552/http://www.law.cornell.edu/cfr/text/17/270.2a-7>

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<http://www.federalreserve.gov/newsevents/press/monetary/monetary20090311a1.pdf>

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MMMFs. Although no loans were issued under the MMIFF, it cannot conclusively be said that its availability did not have an impact on the market. (See Wiggins MMIFF Intervention when complete.)

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_____, Press Release, June 25, 2009.

<http://www.federalreserve.gov/newsevents/press/monetary/20090625a.htm>

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http://www.federalreserve.gov/newsevents/reform_amlf.htm

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www.bloomberg.com, 12/01/2010. <http://www.bloomberg.com/news/articles/2010-12-01/failed-reserve-primary-tops-users-of-fed-s-aid-to-u-s-money-market-funds>

_____, Fed Made State Street profitable as Money-Fund Middleman in '08,

www.bloomberg.com, 08/23/2011. <http://www.bloomberg.com/news/articles/2011-08-23/fed-made-state-street-profitable-as-money-fund-middleman-in-08>

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<https://www.frbdiscountwindow.org/Home/GeneralPages/Asset-Backed-Commercial-Paper-ABCP-Money-Market-Mutual-Fund-MMMF-Liquidity-Facility-AMLF-or-the-Facility->

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V. List of Resources

Summary of Program

AMLF: Program Terms and Conditions: Updated February 5, 2010 – Federal Reserve Discount Window webpage outlining the basic terms of the AMLF.

<https://www.frbdiscountwindow.org/Home/GeneralPages/Asset-Backed-Commercial-Paper-ABCP-Money-Market-Mutual-Fund-MMMF-Liquidity-Facility-Terms-and-Conditions>

AMLF: Frequently Asked Questions and Answers, Updated February 5, 2010 - Federal Reserve Discount Window webpage providing details regarding the rules and requirements of applying for eligibility and participating in the AMLF.

<https://www.frbdiscountwindow.org/Home/GeneralPages/Asset-Backed-Commercial-Paper-ABCP-Money-Market-Mutual-Fund-MMMF-Liquidity-Facility-AMLF-or-the-Facility->

Implementation Documents

Application Instructions – Federal Reserve webpage providing terms, instructions and documents to be adhered to and executed by issuers seeking to qualify to access the discount window, a condition for AMLF eligibility.

<https://www.frbdiscountwindow.org/Home/Pages/Agreements/Required-Agreements#auth>

Operating Circular No. 10: LENDING – Federal Reserve circular providing substantive terms and instructions on how an entity may obtain advances from, incur obligations to, or pledge collateral to obtain to a loan from a Federal Reserve bank. Includes among other documents the following:

http://web.archive.org/web/20100612225540/http://www.frb services.org/files/regulations/pdf/operating_circular_10.pdf

Appendix 3- Application Package for U.S. Borrowers

Appendix 4-Application Package for Branches or Agencies of Non-U.S. Borrowers — Documents that need to be completed by a non-US borrower to participate in the program. Similar to the documents required by U.S. borrowers.

Letter of Agreement to Correspondent Credit and Payment Agreement (Appendix 5) - Letter agreement pursuant to which a Borrower which does not have a Federal Reserve account selects a correspondent to receive discount window advances and make payments on its behalf.

AMLF Form of Letter Agreement- As of June 29, 2009 this form of letter agreement, which tracks specific terms of the AMLF, had to be executed by new Borrowers seeking to participate in the AMLF as evidence of the institution's acceptance of the terms and conditions of the AMLF. This document included a form for designating an agent/correspondent for payment.

<https://www.frbdiscountwindow.org/~media/Documents/mmmfloa.ashx>

AMLF Advance Request Form– Form submitted by the Borrower to request an advance under the AMLF, specifying information regarding the Borrower, the ABCP, and the MMMF.²¹

ABCP MMMF Liquidity Facility Request Form —Form required to be submitted by the Borrower identifying specific details regarding (i) the collateral to be purchased, (ii) the MMMFs that it was being purchased from and (iii) after June 26, 2009, share confirmation information from the MMMF's transfer agent to satisfy the redemption threshold.²²

Transfer Agent Certification - Form completed by an MMMF's transfer agent to verify compliance with the redemption threshold; submitted with the AMLF Advance Request Form.²³

²¹ Document is referred to in the research but not yet located.

²² Document is referred to in the research but not yet located.

²³ Document is referred to in the research but not yet located.

Legal/Regulatory Guidance

Minutes of September 19, 2008 - FOMC Minutes adopting and authorizing the AMLF and related rule changes.

<http://www.icyte.com/cytes/show/893334?key=8538464e2b41de0f3068b082922f52d15155a0d7>

Section 13(3) of the Federal Reserve Act (12 USC §343) – Section of the Federal Reserve act that embodies the Fed's emergency authority.

<http://www.icyte.com/cytes/show/893321?key=5c5ca9407869f376b69fc7faab3c6c35a8d169d7>

Section 10B of the Federal Reserve Act (12 USC §347(b) (a)) – Section of the Federal Reserve Act that embodies the Fed's power to lend to depository institutions.

<http://www.icyte.com/cytes/show/893332?key=3be4b4cf924a3e48abfa8157ddf53b715a941078>

SEC Rule 2a-7 (17 C.F.R. § 270.2a-7) – SEC Rule governing MMMFs.

<http://web.archive.org/web/20120907011552/http://www.law.cornell.edu/cfr/text/17/270.2a-7>

Press Releases/Announcements

09/19/2008 Press Release - Federal Reserve Board announces the creation of the AMLF.

<http://www.federalreserve.gov/newsevents/press/monetary/20080919a.htm>

12/02/2008 Press Release – Federal Reserve Board extends the AMLF through April 30, 2009. <http://www.federalreserve.gov/newsevents/press/monetary/20081202b.htm>

01/30/2009 Press Release – Federal Reserve Board announces the adoption of two final rules providing temporary limited exceptions from (i) the Board's leverage and risk-based capital rules for bank holding companies and state member banks and (ii) sections 23A and 23B of the Federal Reserve Act, which establish certain restrictions on and requirements for transactions between a bank and its affiliates, in order to facilitate lending under the AMLF.

<http://www.federalreserve.gov/newsevents/press/monetary/20090130a.htm>

2/3/2009 Press Release - Federal Reserve Board announces the extension, through October 30, 2009, of five liquidity facilities including the AMLF.

<http://www.federalreserve.gov/newsevents/press/monetary/20090203a.htm>

06/25/2009 Press Release - Federal Reserve Board announces extensions of, and modifications to, several its liquidity programs including the AMLF to February 1, 2010 and implements a redemption threshold test under the AMLF.

<http://www.federalreserve.gov/newsevents/press/monetary/20090625a.htm>

1/27/2010 Press Release – Federal Reserve Board releases a statement from its January 26-27 FOMC meeting confirming the upcoming expiration of several liquidity facilities, including

the AMLF, in light of improved economic conditions.

<http://www.federalreserve.gov/newsevents/press/monetary/20100127a.htm>

Media Stories

Rushing to Save Money-Market Funds (www.money/cnn.com - 09/19/2008) - Article discussing the Treasury Department's guarantee and the two Federal reserve programs aimed at stabilizing MMMFs.

http://money.cnn.com/2008/09/19/markets/money_markets/index.htm

Reserve Primary Tops Users of Fed Aid to Money Funds (www.bloomberg.com - 12/01/2010) - Article discussing the usage of the AMLF focusing on MMMFs.

<http://www.bloomberg.com/news/articles/2010-12-01/failed-reserve-primary-tops-users-of-fed-s-aid-to-u-s-money-market-funds>

Fed Made State Street Profitable as Money-Fund Middleman in '08 (www.bloomberg.com - 08/23/2011) - Article discussing the usage of the AMLF focusing on the Borrowers.

<http://www.bloomberg.com/news/articles/2011-08-23/fed-made-state-street-profitable-as-money-fund-middleman-in-08>

Key Academic Papers

How Effective Were the Federal Reserve Emergency Liquidity Facilities? Evidence from the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, (Duygan-Bump et al. 2012), *Journal of Finance (Forthcoming)* – Paper provides analysis of detailed AMLF data to examine impact.

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1596677##

Federal Reserve Liquidity Provision during the Financial Crisis of 2007-2009 (Fleming 2012), *Annu. Rev. Fin. Econ.* 2012.4:161-177 - Paper provides an overview of the various Federal Reserve lending programs including the AMLF.

<http://www.annualreviews.org/doi/pdf/10.1146/annurev-financial-110311-101735>

Federal Reserve Crisis Response D: Commercial Paper Market Facilities (Wiggins and Metrick, YPFS Case Study 2015-1D-v1, 2016) – Case study examining the programs adopted by the Federal Reserve during the 2007-2009 financial crisis to address the disrupted commercial paper market. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2723547

Reports/Assessments

AMLF Transaction Data – Data files regarding loans made pursuant to the AMLF are available at the Federal Reserve website at —

http://www.federalreserve.gov/newsevents/reform_amlf.htm

Domestic Open Market Operations During 2008 (January 2009) – A report prepared for the FR FOMC by the Markets Group of the FRBNY discussing various lending programs including the AMLF. <https://www.newyorkfed.org/medialibrary/media/markets/omo/omo2008.pdf>

Domestic Open Market Operations During 2009 (January 2010) - A report prepared for the FR FOMC by the Markets Group of the FRBNY discussing various lending programs including the AMLF. <https://www.newyorkfed.org/medialibrary/media/markets/omo/omo2009.pdf>

Domestic Open Market Operations During 2010 (March 2011) - A report prepared for the FR FOMC by the Markets Group of the FRBNY discussing various lending programs including the AMLF. <https://www.newyorkfed.org/medialibrary/media/markets/omo/omo2010.pdf>

Federal Reserve Bank of Boston Financial Statements - Financial Statements as of and for the Years Ended December 31, 2009 and 2008 and Independent Auditors' Report; includes information regarding the AMLF.

<http://www.federalreserve.gov/monetarypolicy/files/BSTBostonfinstmt2009.pdf>

Federal Reserve Board 95th Annual Report, 2008 - Compilation of policy actions taken by the FR Board, minutes of the FOMC meetings, and litigation occurring in 2008, which includes mentions of the AMLF.

<http://www.federalreserve.gov/boarddocs/rptcongress/annual08/default.htm>

Federal Reserve Board Monthly Reports on Credit and Liquidity Programs and the Balance Sheet - Report of the FR Board prepared from June 2009 to August 2012 as part of its efforts to enhance transparency in connection with its lending and financial stability programs. After August 2012, similar information was published in the "Quarterly Report on Federal Reserve Balance Sheet Developments".

<http://www.federalreserve.gov/monetarypolicy/clbsreports.htm>

OIG Report (November 2010) - Report prepared by the Fed Office of Inspector General that discusses the function and status of the various Fed lending programs, including the AMLF, and which identifies the risks in each facility.

http://oig.federalreserve.gov/reports/FRS_Lending_Facilities_Report_final-11-23-10_web.pdf

Periodic Report Pursuant to Section 129 of the EESA (November 3, 2008) - Fed report specifically addressing the AMLF. Report is updated by the later, general, Section 129 reports.

<http://www.federalreserve.gov/monetarypolicy/files/129amlf.pdf>

Periodic Report Pursuant to Section 129 of the EESA (December 29, 2008) - Fed report updating the status of outstanding lending facilities authorized under Section 13(3).

<http://www.federalreserve.gov/monetarypolicy/files/129periodicupdate.pdf>

Periodic Report Pursuant to Section 129 of the EESA (February 25, 2009) - Fed report updating the status of outstanding lending facilities authorized under FRA §13(3).

<http://www.federalreserve.gov/monetarypolicy/files/129periodicupdate02252009.pdf>

Periodic Report Pursuant to Section 129 of the EESA (June 26, 2009) - Fed report updating the status of outstanding lending facilities authorized under FRA §13(3).

<http://www.federalreserve.gov/monetarypolicy/files/129periodicupdate06262009.pdf>

Periodic Report Pursuant to Section 129 of the EESA (August 25, 2009) – Fed report updating the status of outstanding lending facilities authorized under FRA §13(3).
<http://www.federalreserve.gov/monetarypolicy/files/129periodicupdate08252009.pdf>