

The Federal Reserve's Financial Crisis Response D: Commercial Paper Market Facilities¹

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ABSTRACT

During the summer 2007 the U.S. residential mortgage market began to decline sharply negatively impacting the asset-backed commercial paper (ABCP) market, which often relied on mortgages as underlying support. Money Market Mutual Funds (MMMFs), significant investors in commercial paper (CP), quickly retreated from the market causing a substantial decline in outstanding ABCP. In September 2008, pressures on the markets severely escalated again, when the Reserve Primary Fund MMMF “broke the buck” and prompted run-like redemption requests by many MMMF investors. These disruptions resulted in higher rates and shorter maturities, practically freezing the market for term CP. Concerned about the impacts on the financial system and possible spillover to the greater economy, the Federal Reserve (the Fed) invoked its emergency powers to implement (i) the Asset-Backed Commercial Paper Money Market Fund Mutual Liquidity Facility (AMLF) and the (i) the Commercial Paper Funding Facility (CPFF), which collectively provided more than \$1 trillion dollars to MMMFs and CP issuers and helped shore up the ABCP market, preserve the MMMFs, and eventually stimulate the CP market. This case discusses the two facilities and also demonstrates the interconnectedness between financial markets, the possibility of contagion that this creates, and how this proved challenging for the Fed in fighting the crisis.

¹ This case study is one of five Yale Program on Financial Stability case modules considering the Federal Reserve's credit and lending responses to the global financial crisis:

- The Federal Reserve's Financial Crisis Response A: Lending & Credit Programs for Depository Institutions
- The Federal Reserve's Financial Crisis Response B: Lending & Credit Programs for Primary Dealers
- The Federal Reserve's Financial Crisis Response C: Providing US Dollars to Foreign Central Banks
- The Federal Reserve's Financial Crisis Response E: The Term Asset-Backed Securities Loan Facility.

Cases are available at the YPFS website, <http://som.yale.edu/ypfs>, or may be downloaded from the Social Science Research Network.

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1. INTRODUCTION

In August 2007, the decline in the U.S. subprime mortgage market began to spill over and infect the interbank wholesale funding markets. Many investors retreated from the U.S. funding markets in a “flight to quality”. Because they often utilized mortgage related assets as collateral, asset-backed commercial paper (ABCP) issuers began to experience difficulty rolling over their outstanding paper. Outstanding U.S. ABCP dropped by almost \$200 billion during the month as major investors such as Money Market Mutual Funds (MMMFs) retreated from the market. In September 2008, the Reserve Primary Fund MMMF “broke the buck,” (announced a net asset value [NAV] of less than the traditional \$1 per share) due to losses on a significant position in Lehman Brothers CP after the investment bank filed for bankruptcy. Investors, including MMMFs, also began to withdraw from the large market of unsecured commercial paper (CP) causing them to all but freeze, especially for maturities greater than overnight.

Since both the ABCP and CP markets were key funding markets for much of the economy, the stresses impacting them and the retraction in available liquidity was of great concern to the Federal Reserve (the Fed). As the crisis developed, one of its primary goals was to add liquidity to compensate for the market contraction in order to maintain the stability of the financial system and the functioning of the economy. As a result, the Fed invoked its rarely used emergency authority under Section 13(3) of the Federal Reserve Act (FRA)⁴, to establish two facilities aimed at shoring-up the ABCP and CP markets (See Figure 1): (i) the Asset-Backed Commercial Paper Money Market Fund Mutual Liquidity Facility (AMLF),⁵ and (ii) the Commercial Paper Funding Facility (CPFF), which would be the third largest facility implemented by the Fed in response to the crisis. These programs represented a shift in the Fed’s policy approach to the crisis because they were a direct effort to backstop a particular credit market that was failing. They also represented de facto extensions of the Fed’s Discount Window lending to entities that were not depository institutions.

In this case, we examine these efforts by the Fed to backstop the ABCP and CP markets. Section 2 discusses the basics of CP and ABCP, Section 3 discusses the contraction in the CP markets and the role of the MMMFs that lead to the need for the AMLF and the CPFF, Section 4 explains the AMLF, while Section 5 describes the CPFF; lastly, Section 6 discusses the Fed’s emergency powers under Section 13(3) of the FRA as they existed in 2008.

⁴ 12 U.S. Code Section 343-Discounts of obligations arising out of actual commercial transactions, as amended.

⁵ In November 2008, the Federal Reserve also established the Money Market Investor Funding Facility (MMIFF) to provide emergency lending to MMMFs (by making such funding available through banks) so that they would be able to respond to increased redemptions without having to sell securities at depressed prices. This facility was never used and expired on October 30, 2009. Also see Footnote 20 regarding the Direct Money Market Mutual Fund Lending Facility (DMLF), which would have provided direct lending to MMMFs, but which was rescinded before use.

2 COMMERCIAL PAPER MARKET FACILITIES

Figure 1: AMLF and CPFF Overview

	DATE ANNOUNCED	ELIGIBLE BORROWERS	MAXIMUM AMOUNT OUTSTANDING (\$ BILLIONS)	TOTAL LENT (\$ BILLIONS)
ASSET-BACKED COMMERCIAL PAPER MONEY MARKET FUND MUTUAL LIQUIDITY FACILITY (AMLF)	SEPTEMBER 18, 2008	DEPOSITORY INSTITUTIONS (INTENDED BENEFICIARIES= MMMFs)	152	217
COMMERCIAL PAPER FUNDING FACILITY (CPFF)	OCTOBER 7, 2008	COMMERCIAL PAPER ISSUERS	351	737

Source: Fleming 2012, Felkerson 2011.

QUESTIONS

1. Why did the AMLF use depository institutions as intermediaries rather than purchase ABCP directly from the MMMFs? How did this compare to the structure of the CPFF?
2. Under the AMLF, the Fed also chose not to apply haircuts to the ABCP purchased, why was this and what was the effect of this decision?
3. What factors do you think the Fed considered in deciding to utilize a SPV to purchase CP under the CPFF?
4. The CPFF was limited to legacy issuers of CP and also limited in the amount of CP that was eligible under the program. What was the effect of these limitations? What do you think were the policy considerations supporting these features?
5. How did the Fed determine that the CPFF loans supported by unsecured CP were “secured to its satisfaction”?
6. Did the AMLF and the CPFF effectively complement each other? Were there redundancies that could have been avoided? What does the co-existence of these two programs reveal about the Fed’s remedy process in fighting the crisis? About how markets function?

2. COMMERCIAL PAPER EXPLAINED

For over a century CP has been a fundamental tool used by financial and nonfinancial companies of various sizes to raise funds for basic needs such as payroll, accounts payable, and inventory financing. CP is usually issued in large denominations of \$100,000 or more and for maturities of 30 days or less, although it may have a maturity of up to 270 days. CP is popular with companies because it is a low cost

alternative to bank loans for financing current operations. One reason for its low cost is that it is exempt from registration with the Securities and Exchange Commission (SEC).⁶

COMMERCIAL PAPER BASICS

CP may be unsecured or secured by letters of credit or pools of assets, such as receivables. This latter form, called Asset-backed Commercial Paper (ABCP), developed in the 1980's, and played a key role in the Financial Crisis, as will be discussed below.

CP is issued at a discount, meaning that the buyer pays less than face value for the security and then receives face value at maturity. The difference in the amount paid and face value is the interest earned. CP is usually issued in the form of a promissory note and with a specific maturity date. CP is considered low risk in part because of its short maturity and is often rolled-over at maturity with new paper being issued to pay off the outstanding security. Interest rates on CP are usually slightly higher than those on Treasury bills (Ibid. 590). (For a more complete history of the development of CP, see Anderson and Gascon 2009.)

In 1970, CP comprised only one-fourth of the dollar volume of money market assets outstanding. By 2006, it comprised two-thirds and had developed into a key element of the wholesale funding market. (Ibid., 596). Since its introduction, CP has been a fairly stable market and there have been only a few defaults of high quality CP.

On June 21, 1970, Penn Central⁷ filed for bankruptcy defaulting on approximately \$77.1 million of its CP and igniting a run in the CP market that caused a decline of \$3 billion. As a result, the Fed intervened to permit commercial banks to borrow at the discount window.

After Penn Central, nearly all CP issuers retained backup liquidity lines from commercial banks and rating agencies began to require backup lines for added security. If an issuer couldn't roll the CP, they could borrow the same amount from the bank as long as they were still solvent. In the wake of the collapse of the hedge fund Long term Capital Management in 1990, many issuers used their backup lines because the CP market for financial firms stopped functioning for a couple of months. Thus, the structure of the CP market is to push all the liquidity risk of CP (ABCP and unsecured) onto the banking system when anything goes wrong (Anderson and Gascon 2009).

As shown in Figure 2, the Fed reported that for most of 2008 that there was a total of \$1.8 trillion in outstanding commercial paper; \$763.6 billion was "asset backed" and \$975.4 billion was not. The overwhelming majority of outstanding CP and ABCP had been issued by financial institutions. And as shown on Figure 3, maturities varied although the vast majority of CP was issued with maturities of -4 days. By December 2009, there were more than 1,700 companies in the United States that issued commercial paper.

⁶ CP is exempt from SEC registration if the following three criteria are met: (i) the maturity of the paper is less than 270 days, (ii) notes must be of a type not ordinarily purchased by the general public, and (iii) issues must be used to finance "current transactions" (Anderson and Gascon 2009, 590, Fn3).

⁷ It is worth noting that historically CP market problems have stemmed from nonfinancial companies, such as Penn Central, PG&E, and Enron, defaulting or being downgraded. What was different about the 2007-2009 financial crisis was that (i) ABCP, which was considered more "stable" because it was collateralized, was actually run *first*, in August 2007, and (ii) it was more than a year later before the run impacted unsecured financial CP.

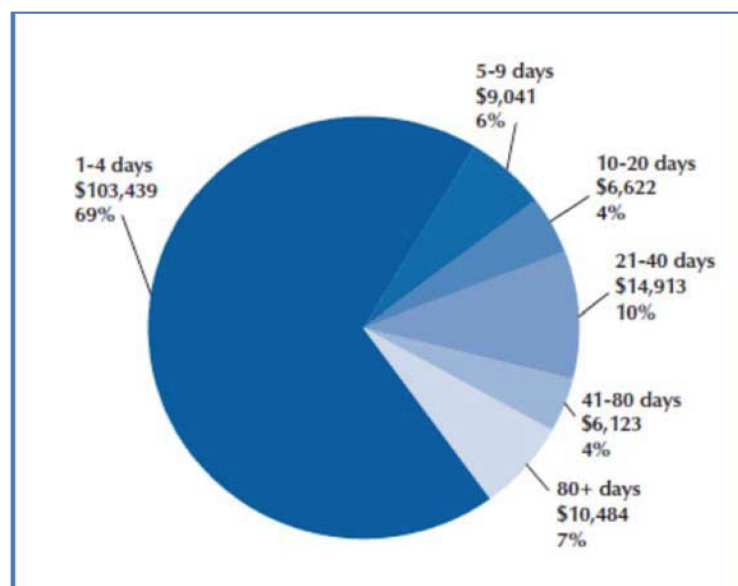
Outside of the United States, the international Euro-Commercial Paper Market had over \$500 billion outstanding (200_), made up of instruments denominated predominately in euros, dollars and sterling. (Anderson and Gascon 2009).

Figure 2: Commercial Paper and Asset-backed Commercial Paper Outstanding, 2006 to 2009



Source: 2015 research stlouisfed.org

Figure 3: Commercial Paper Issuance by Maturity, 2008 (average, \$billions)



Source: Federal Reserve Board, Volume Statistics for Commercial Paper Issuance (Anderson and Gascon 2009).

Figure 4: Commercial Paper Outstanding by Issuer and Placement

	Financial types			Nonfinancial			Asset-backed			All
	Dealer	Directly	Total	Dealer	Directly	Total	Dealer	Directly	Total	Total
Total (average), \$ billions										
2001	336.5	280.6	617.0	205.9	38.5	244.4	500.8	127.6	628.4	1489.8
2008	552.2	231.5	783.7	174.6	17.1	191.7	663.1	100.4	763.6	1739.3
Share (percent)										
2006	22.6	18.8	41.4	13.8	2.6	16.4	33.6	8.6	42.2	100.0
2008	31.7	13.3	45.1	10.0	1.0	11.0	38.1	5.8	43.9	100.0

Source: Federal Reserve Board, *Volume Statistics for Commercial Paper Issuance* (Anderson and Gascon 2009).

ASSET-BACKED COMMERCIAL PAPER

Beginning in the 1980s, partially as a response to the events of the 1970s, a new type of CP began to emerge, ABCP, which was considered more stable than unsecured CP. ABCP combined assets into a conduit, a special purpose vehicle (SPV), which then issued the ABCP. Use of the SPV permitted a firm to remove the assets from its books for tax purposes. Issuing firms sometimes combined different types of assets—credit card receivables with mortgage receivables with student loans. When combined this way, however, the ABCP was still being issued by one company and for that reason it was called a “single seller conduit”.

Because only the largest companies could afford to develop a distribution network, most CP Issuers used agents, or dealers, to place their CP with investors. Most agents were financial companies, which also placed their own CP.

Eventually, companies sponsoring conduits began purchasing assets from other companies, which they then combined with their own assets to form a “multi-seller conduit.” Because of the combined nature of these asset pools, the rating agencies required that the conduit sponsors provide liquidity support, which was often provided by way of a bank issued letter of credit or a guarantee. In the event of a liquidity need, the sponsor would draw on the letter of credit, or provide direct funding to the conduit SPV. When CP investors began refusing to roll-over their CP and demanded cash payment instead of accepting new CP as payment, issuers faced unexpected liquidity pressures to fund these payments. This would prove to be a severe problem for many companies that had sponsored SPVs that were negatively impacted by ratings downgrades and devaluations.

To provide a suitably high rating, rating agencies also required CP Issuers to secure credit-enhancements to address default risk. To satisfy this requirement, many issuers purchased credit default swaps (CDS), a form of insurance in which the purchaser pays premiums for the promise of the CDS issuer to pay it an agreed upon sum in the event of default.⁸ Because of the mixed nature of the pools of assets supporting ABCP and CP issued by the multiple-seller conduits, the ratings of the ABCP they issued came to largely reflect the credit rating of the sponsoring entity. This was also a function of the fact that disclosure regarding exactly what asset made up an underlying pool was often vague and imprecise.⁹

⁸ Many CP issuers bought credit default swaps from AIG whose concentration in the market was one factor in its near demise.

⁹ This lack of detailed disclosure would contribute to the panic that spread through the markets once defaults began to increase in the subprime mortgage market resulting in runs, similar to the classic manifestation of a bank run. Because investors could not

Figure 5: Commercial Paper Outstanding by Underlying Asset Type

	2002	2006	2007	2008
Consumer Assets				
Credit Card receivables	41.9	44.2	44.4	45.9
Auto Loans and Leases	12.3	13.8	16.0	17.8
Credit Cards	14.9	190.5	13.1	12.7
Student Loans	1.0	4.2	7.2	8.5
Residential Mortgages	8.2	11.3	4.8	4.4
Other Consumer	5.5	4.3	3.1	2.4
Commercial Assets	51.5	43.3	54.8	44.9
Trade Receivables	14.6	15.4	13.9	14.0
Commercial Loans and Leases	6.6	12.4	13.6	12.9
Equipment Loans and Leases	10.6	3.4	3.6	4.1
Other Commercial	19.6	12.1	14.7	13.9
Securities	6.6	12.5	9.7	10.1
Total (percent)	100	100	100	100

Source: Moody's ABCP Query; Data are share of total outstanding as of Year-end

As shown in Figure 5, ABCP was used to finance consumer and commercial assets such as credit card receivables, auto loan receivables, student loans, residential mortgages, trade receivables, commercial loans and leases, and equipment loans and leases. As the securitization of residential mortgages boomed beginning in 2000, so too did ABCP. Originators of mortgages, banks and nonbanks like mortgage companies, sold the new mortgages for cash that they relented. The purchased mortgages became part of pools backing ABCP, many which were relying on internal funding, i.e. that the existing paper would be rolled over to pay investors.

When the mortgage market began to decline in 2007, some investors refused to rollover ABCP, requiring the SPV to fund cash payments. Soon conduits thereafter, the devaluation of residential mortgage-backed securities meant that some conduits failed their “cushion tests” for internal funding requiring them to raise additional funds. Some had to sell into depressed markets and experienced losses. Although the direct impact of these developments was relatively small¹⁰, the panic that they incited was large, resulting in a \$200 billion decline in ABCP in the month of August 2007.

3. CRISIS AND THE ROLE OF THE MONEY MARKET MUTUAL FUNDS

AUGUST 2007-THE ABCP CRISIS

MMMFs are regulated by the SEC and are subject to the Investment Company Act of 1940, which generally restricts the investments that they may make to high quality securities with maturities of less

determine precisely if their ABCP contained subprime mortgages, they abandoned it rather than hold onto the risk. See Gorton and Metrick 2012 discussing how the CP market panic was like a “bank run.”

¹⁰ For example, 10 percent of ABCP issuers exercised an option extending maturities on their paper rather than redeem it. Also between August 6 and 14, 2007 four conduits (representing 1.2 percent of ABCP outstanding) failed their cushion tests and liquidated their portfolios. In total between August 2007 and July 2008, 27 conduits that relied on internal liquidity closed. (Anderson and Gascon 2009, 603).

than 13 months.¹¹ Beginning in the 1970s, MMMFs began to play an important role in the CP market. They would buy large-denominated CP, e.g. \$100 billion, and then make it available to their retail customers in much smaller increments of, for example \$1,000.

By August 2007, MMMFs were the largest holders of CP, accounting for \$615.6 billion in outstanding CP, a full 38.5 percent, as shown on Figure 6. (Anderson and Gascon 2009, 596). MMMFs were also major holders of ABCP and as securities were downgraded and the market came under stress, they were challenged to maintain their \$1 per share NAV. However, sponsors of at least 44 MMMFs impacted by distressed ABCP provided additional funding to their funds, overall investor outflows were modest, and no fund failed. (McCabe 2010, 8).

2008 DEVELOPMENTS-LEHMAN AND THE RESERVE PRIMARY FUND

The CP markets, especially the ABCP market, struggled through the early part of 2008. After the fire sale of Bear Stearns to J.P. Morgan Chase in March 2008 there were extensive rumors that Lehman Brothers was also on the brink of failure. Investors had to consider whether to sell at a loss Lehman Brothers CP that they owned or hold it in the hope that the firm would be rescued.

On September 16, 2008, the day after Lehman Brothers declared bankruptcy, The Reserve Primary Fund, a \$62 billion prime MMMF, “broke the buck”¹² declaring a NAV of \$0.97 per share, and announcing a 7-day delay on paying redemptions. It attributed its actions to the need to write down its \$785 billion (face value) position in Lehman CP. Within days, the fund suffered a staggering \$40 billion in withdrawals, and it would ultimately have to suspend operations and liquidate. The failure of the Reserve fund’s sponsor to stabilize it, and the fund’s collapse shook investor confidence in sponsor support that had come to be presumed by the market, although not legally required. The damage soon spread to many funds, which also experienced runs by investors, which put them at risk.

McCabe (2010) found that the financial crisis exposed three types of MMMF risks that had been overlooked because of the funds’ long history of stability: (1) portfolio risk, (2) investor risk and, (3) sponsor risk.¹³ With respect to sponsor risk, McCabe concluded that the system of sponsor support had created an aura of “guarantee” that investors relied upon. However, this mechanism was purely discretionary and had created a systemic risk for the MMMFs. Despite the prevailing perception, sponsors were not required to support their funds.

Many sponsors stepped in to support funds experiencing losses after the initial shock to the ABCP market in 2007, sparing investors. When the Reserve Fund failed to back-up its Primary Fund a year later, investor confidence was shaken. Institutional investors, which utilized MMMFs largely as bank-accounts, making frequent short-notice withdrawals, responded badly to the prospect that their funds might be unavailable. They withdrew their funds from prime MMMFs invested in CP, especially ABCP, and reallocated them into MMMFs that held only U.S. Treasuries. (Anderson and Gascon 2010, 604).

¹¹ Rule 2a-7 of the Investment Company Act requires that a fund’s portfolio must maintain a weighted average maturity of less than ninety days and that the fund cannot invest in more than 5 percent in any one issuer, except for government securities and repos. Eligible investments include CP, Repos, short-term bonds and other MMMFs. (Adrian, Kimbrough and Marchioni 2011, 28).

¹² Only two funds had previously broken the buck, the First Multifund for Daily Income in 1978, and the Community Bankers Government Money Market Fund in 1994. (Mamudi and Burton 2008).

¹³ McCabe defined these as : (1) *portfolio* risks arising from the credit, liquidity, and interest-rate risks posed by a fund’s assets; (2) *investor* risk due to the composition of an MMF’s investors and the likelihood that they will suddenly and disruptively redeem shares; and (3) *sponsor* risk that reflects the possibility that an MMF sponsor will not provide financial support for an ailing fund (McCabe 2010,1).

The redistribution was swift and significant. MMMFs received \$117 billion in redemption requests during the week following Lehman's bankruptcy. In the four weeks beginning on September 10, 2008, the assets of prime MMMFs dropped by \$450 billion (21%) as investors fled to government-only funds; of this amount, \$410 billion was pulled from funds marketed to institutions.

Amid this widespread turmoil, 78 MMMFs received support from their sponsors in the form of cash contributions to the fund or the purchase of securities from the fund, sometimes at prices that exceeded fair market value. Of these 78 funds, the Fed reported that 21 of them would have "broken the buck" if they had not received this additional support. It is also possible that many more funds might have experienced continued troubles if the U.S. Department of the Treasury (Treasury Department) had not stepped in on September 19, 2008 to guarantee MMMF accounts against losses resulting from a drop in a fund's NAV below \$0.995 per share. (Henriques 2008).¹⁴

AFTERMATH

The runs on MMMFs made them reluctant to purchase CP, for fear that they might spark redemptions and they began to decline rollovers when the CP they held matured. In the month following Lehman's bankruptcy outstanding CP declined by \$300 billion, from \$1.8 trillion to \$1.5 trillion, a drop of 16.6%. Seventy percent of this decline was a flight from financial CP and another 20% was withdrawal from the ABCP market, which still had not recovered from the prior year's retreat.

As MMMFs retreated from the market, it became difficult for issuers to place CP. If MMMFs did accept CP, it was only at very short maturities, which enabled them to better manage risk, real or perceived. By the end of September 2008, 75 percent of CP (traditionally with 30+-day maturities) was being rolled over daily creating enormous rollover risk. (Andersen and Gascon, 606).¹⁵ This contraction in maturities was coupled with elevated rates, which increased sharply after September 2008, reflective of borrowers scrambling for funds in a constricted market. CP issuance declined by 24 percent in late 2008. (Adrian, Kimbrough and Marchioni 2011, 29). As shown on Figure 2, the prolonged impact of this decline was significant, resulting in a \$1 trillion reduction in outstanding ABCP between late 2007 and 2009.

The withdrawal of the MMMFs from buying term CP caused severe funding stresses on the issuers, the majority of which were financial institutions, which continuously needed tens of billions of dollars of CP to fund their highly-leveraged operations. This circumstance in turn created increased pressure on the banks that the issuers would begin to draw down under credit lines. Investors thus, also began to worry about the stability of the banks. If investors pulled away from many CP issuers, banks providing liquidity support would not be able to stand behind their guarantees, or the liquidity support would be exhausted and the sponsor of the conduits, often the same bank providing the liquidity support, would have to directly fund the CP conduit's liquidity needs.

An additional market stressor was that MMMFs holding significant portfolios of term CP were unable to sell assets to raise funds. If assets could be sold in a strained market, they would fetch only marginal prices. This would then put pressure on MMMF balance sheets as they might have to mark-to-market other assets held.

¹⁴ See US Treasury 9/29/2009 for details of the guarantee facility which operated similar to the FDIC guarantee of bank accounts, with each participating MMMF paying an upfront fee based on the number of shares outstanding and NAV as of September 19, 2008. The guarantee utilized the \$50 billion Exchange Stabilization Fund, which would later prove a point of criticism.

¹⁵ Notably, however, total issuance of CP and even ABCP decreased little, evidence that the crisis was one of liquidity with investors becoming unwilling to take risks for more than day at a time. (Anderson and Gascon 2010, 606).

Figure 6: Major Holders of Commercial Paper*

	Percent				\$ Billions
	1952-1971	1972-1991	1992-present	2008	2008
Money Market Mutual Funds	—	18.2	34.7	38.5	615.6
Funding Corporations	3.3	11.5	12.9	23.0	367.5
Foreign Sector	15.6	4.6	9.5	14.6	233.2
State & Local Governments	—	—	8.1	7.7	123.8
Security Brokers & Dealers	—	4.7	3.0	4.1	65.7
Mutual Funds	3.3	2.6	5.7	3.3	52.0
Life Insurance Companies	2.2	7.5	5.2	2.7	42.8
Private Pension Funds	—	8.2	2.8	2.3	36.9
State & Local Gov. Retirement Funds	—	0.8	3.2	2.0	31.9
Commercial Banking	18.4	7.5	0.4	0.9	15.0
Nonprofit Organizations	42.7	23.3	8.2	0.7	10.4
Nonfarm Nonfinancial Corporate Business	14.0	9.0	4.0	0.3	4.7
Monetary Authority	0.5	—	—	—	0.0
Savings Institutions	—	1.2	—	—	—
Credit Unions	—	0.1	0.1	—	—
GSEs	—	0.6	2.1	—	—
Total (percent)	100.0	99.7	100.0	100.0	
Total (\$ billions)	13.3	262.9	1,234.4	1,599.5	1,599.5

*Data reported here are for open market paper, which contains both CP and bankers acceptances. CP comprises 85 percent of open market paper over the sample and 99 percent since 1998.

Source: Federal Reserve Board, *Flow of Funds*, Table L.208 (Anderson and Gascon 2009).

4. THE FEDERAL RESERVE'S RESPONSE - THE ASSET-BACKED COMMERCIAL PAPER MONEY MARKET FUND MUTUAL LIQUIDITY FACILITY (AMLF)

Beginning in September 2007, the Fed took steps to address the disruptions occurring in the funding markets by utilizing its traditional monetary policy tools to provide increased liquidity to depository institutions, and then to primary dealers. (See Wiggins and Metrick 2015A and Wiggins and Metrick 2015B, respectively.) There was real concern on the part of the Fed that the constricted markets might lead to contagion and cause systemic failure of the financial system, and then effect the real economy.

When the money markets failed to recover, the Federal Reserve changed its approach from providing liquidity to specific types of entities and adopted several liquidity programs designed to support specific *credit markets* that had seized — the commercial paper market, along with the asset securitization market,¹⁶ were the first of such markets. (See Figure 7 for significant dates.)

¹⁶ See Wiggins and Metrick 2015E for an analysis of the Term Asset-Backed Loan Facility (TALF) addressing the securitization market.

Figure 7: Significant Dates Relating to the Commercial Paper Markets, 2007-2010

August 2007	Asset-backed commercial paper crisis
September 15, 2008	Lehman Brothers announces bankruptcy
September 16, 2008	Reserve Primary Fund “breaks the buck” pricing its shares at 97 cents due to repricing of Lehman CP
	Run on commercial paper/Run on money market mutual funds
September 19, 2008	U. S. Treasury announces the Temporary Guarantee Program for MMFs
	Federal Reserve announces the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF)
October 1, 2008	Maximum amount Outstanding under AMLF-\$152 billion
October 7, 2008	Federal Reserve announces the Commercial Paper Funding Facility (CPFF)
January 28, 2009	Maximum Amount Outstanding under the CPFF-\$351 billion
May 8, 2009	Last borrowing under the AMLF
October 13, 2009	Last AMLF borrowing matures
February 1, 2010	AMLF Expired
February 1, 2010	CPFF Expired
April 26, 2010	Last CP purchased under CPFF matures
August 30, 2010	CPFF LLC dissolved

Source: Federal Reserve website; Federal Reserve Bank of New York website.

Announced on September 19, 2008, the same day that the Treasury Department announced its guarantee of MMMFs accounts, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF), provided nonrecourse loans to depository institutions¹⁷ and bank holding companies to purchase eligible high-quality ABCP from eligible MMMFs.

The Federal Reserve Board minutes reflect that the Fed undertook this action for two reasons: (1) to assist MMMFs that held ABCP to meet demands for redemptions by investors and (2) to foster liquidity in the ABCP market. It took this action in light of the “severe difficulty in obtaining funding” that MMMFs were experiencing as “conditions in the secondary market for ABCP were illiquid”.¹⁸ (Fed. Res. Mins. Sept. 19, 2008). There was great concern that without additional liquidity in the credit markets, MMMFs would be forced to sell ABCP and other short-term assets into an illiquid market “resulting in a cycle of losses to MMMFs and even higher levels of redemptions and a weakening of investor confidence in MMMFs and the financial markets.” (Fed. Res. website).

¹⁷ Eligible AMLF lenders 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.

¹⁸ Later, fostering liquidity in the money markets more generally was also stated as a supporting reason. See Fed Res. Aug. 2010, 31.

ELIGIBILITY

Loans made to depository institutions pursuant to the AMLF were fully collateralized by the purchased ABCP. A MMMF had to have experienced “material outflows”—defined as at least five percent of net assets in a single day or at least 10 percent of net assets within the prior five business days—before the ABCP that it sold could be eligible collateral for AMLF loans. Any ABCP purchased from a MMMF that had experienced material outflows could be pledged to the AMLF at any time within the five business days following the date that the threshold level of redemptions was reached if it satisfied eligibility requirements.

COLLATERAL

Loans made under the AMLF were fully collateralized, but not over collateralized. Unlike other programs, no haircut was applied to the ABCP purchased. Loans were also nonrecourse to the depository institution, which could hand over the ABCP if the borrowing MMMF defaulted. The risk that the value of the ABCP would decrease was born by the Fed not the lending bank. Given this, the ABCP securing an AMLF loan had to meet certain eligibility criteria. Collateral eligible for the AMLF was limited to ABCP that:

- was purchased by the borrower on or after September 19, 2008, from a registered investment company that held itself out as a MMMF and had experienced recent “material outflows”;
- was purchased by the borrower at the mutual fund’s 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 not rated lower than A-1/P-1/ F1 at the time it was pledged (paper that was rated A-1/P-1/F1, but was on watch for downgrade by any major rating agency, was excluded);
- 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
- had a stated maturity that did not exceed 120 days if the borrower was a bank, or 270 days if the borrower was a non-bank. (Fed. Res. Aug. 2010).

Since it relied on the Federal Reserve’s emergency authority under Section 13(3) of the FRA, which permits it to make loans to any individual, partnership or corporation, the Fed could have authorized the Federal Reserve banks to make loans directly to the MMMFs.¹⁹ However, the AMLF was structured as an indirect funding mechanism because of “statutory and fund-specific limitations,” which prevented the MMMFs from borrowing directly from the Fed. (Folkerson 2011, 22).

The AMLF was administered by the Boston Federal Reserve Bank, which was authorized to make loans to eligible MMMFs in all 12 Federal Reserve Districts. [Why Boston?] The last borrowing under the AMLF occurred on May 8, 2009 and by October 13, 2009, all outstanding borrowings had matured; all were repaid in full with interest. The AMLF was originally established until January 30, 2009. It was later extended until, and expired on February 1, 2010.

¹⁹ It did exactly this two weeks later on October 3, 2008, when it 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 which it was compelled to make decisions and design billion dollar rescue facilities. [Interview]

Complete 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.

USAGE AND RESULTS

Loans under the AMLF peaked at \$150 billion shortly after its implementation in October 2008. Fleming et al. (2009) considered the facility to have been successful in decreasing redemptions from MMMFs and in calming the stress in the CP markets by providing greater assurance to both issuers and investors that issuers would be able to roll over their maturing CP. Duygan-Bump et al. (2012) also concluded that the AMLF helped stabilize asset outflows from money market funds and reduced ABCP yields significantly. More specifically, they found that use of the AMLF was more likely by funds with larger redemption requests that held larger ABCP positions in their portfolios. They further found that the AMLF helped stabilize asset outflows from MMMFs with greater decreases occurring at funds that held more eligible collateral. In addition, they show that yields on eligible ABCP decreased significantly relative to yields on comparable but ineligible paper.

5. THE FEDERAL RESERVE'S RESPONSE - THE COMMERCIAL PAPER LENDING FACILITY

After the adoption of the AMLF, which applied only to ABCP held by MMMFs, the CP market in general continued to experience severe disruption. By October 2007, the market for term maturities had all but frozen, making it difficult for firms that relied on CP for their funding needs. To inject liquidity into the broader CP market and provide relief to the myriad of firms, other than MMMFs, that relied on this type of funding, on October 7, 2007, the FOMC approved the Commercial Paper Funding Facility (CPFF). The CPFF in effect extended the Fed's Discount Window lending to issuers of CP regardless of the type of entity.

The legal memo supporting the CPFF indicated that it was based on the Fed's Section 13(3) FRA emergency authority and that its purpose was to:

“ . . . provide liquidity to the CP market in coordination with the Federal Reserve's existing credit facilities. The CPFF was designed to encourage investors to engage in term lending in the CP market, resulting in lower CP rates and increased demand for CP” (Alvarez et al. 2009, 1).

Because the CPFF was designed to offer funding beyond what was already available in the market, its focus became term lending and it offered 90-day loans, at the prime credit rate. The CPFF was available to “legacy issuers”, any company that had issued CP prior to its inception²⁰, including those with a foreign parent. ²¹The maximum amount of CP that an issuer could sell to the CPFF, its Maximum Face Value²², was the maximum amount that the issuer had had outstanding between January 1 and August 31, 2008. CP eligible for purchase was only that rated A1/ P1/F1 and could be unsecured or asset-backed. The Fed committed to hold the CP to maturity.

²⁰ Later revision to the CPFF clarified that issuers that had an inactive CP program (i.e., one that had not issued CP for any period of three consecutive months or longer between January and August 31, 2008) could not revive such program in order to utilize the CPFF. (FRBNY Jan. 23, 2009).

²¹ See discussion at page 21 discussing usage by subsidiaries of foreign corporations.

²² The Maximum Face Value was calculated as the greatest amount of U.S. dollar-denominated A-1/P-1/F1 CP that the issuer had outstanding on any day between January 1 and August 31, 2008. The CPFF Registration Instructions also provided that-- “If the Issuer has more than one commercial paper program, [the Maximum Face Value] should be the aggregate amount outstanding under all programs on a single day and all of the Issuer's programs should be listed. . . . The Issuer agrees that while participating in this Facility, it will not sell commercial paper to the CPFF such that the total amount of commercial paper outstanding (including commercial paper held by the CPFF and other investors) would exceed the Maximum Face Value.” (CPFF Issuer Registration Form and Qualification Certification).

COSTS AND FEES

Eligible CP Issuers were required to preregister with the CPFF and pay a facility fee equal to 10 basis points of its Maximum Face Value. A firm could register and delay utilization of the facility.

A haircut was applied to the CP purchased. As shown on Figure 8, rates varied, between 100-300 basis points over the overnight index swap rate, depending on whether the CP was secured or unsecured. The rates were set to discourage usage once market alternatives became available. Because the Fed had to be “secured to its satisfaction”, unsecured CP proved a challenge. To address this issue, a surcharge, equal to 100 basis points, was added to each transaction involving unsecured CP as a credit support fee. An issuer could avoid this fee by providing (1) a collateral arrangement for the CP, (2) obtaining an endorsement or guarantee for its CP obligations, or (3) by participating in the Federal Deposit Insurance Corporation's ("FDIC") Temporary Liquidity Guarantee Program ("TLGP").

Figure 8: Applicable Fees under the CPFF

Type of Fee	Type of CP	
	Unsecured	ABCP
Haircut	3-month overnight index swap rate (OIS) + 100 bp	3-month overnight index swap rate (OIS) + 300 bp
Credit Support	100 bp on settlement as an insurance fee	—
Total	OIS + 200 bp	OIS + 300 bp

Source: Federal Reserve Website

DESIGN CHALLENGES

In establishing the CPFF the Federal Reserve was providing funding to entities beyond those covered by its traditional monetary powers, depository entities and its primary dealers.²³ It had done this with the AMLF and had reached MMMFs by employing depository institutions as conduits, but that facility was limited to one type of highly-regulated entity. To be effective, the CPFF would have to be accessible to a wide range of CP issuers, a group that included financial and nonfinancial entities.

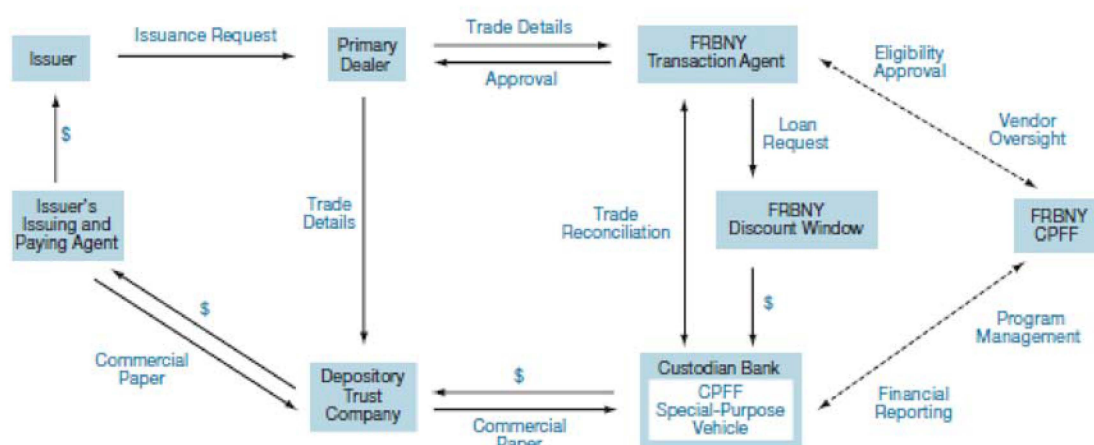
Also, because the Fed would be dealing in a security that it did not normally handle, it had to build new legal, trading, investment, custodial, and administrative infrastructure as well as establish essential financial and operational risk controls. (Adrian, Kimbrough and Marchioni 2011, 30).

As shown in Figure 9, to meet these challenges, the Fed established a new special purpose vehicle (SPV) to facilitate the CP purchases: CPFF LLC. The Federal Reserve Bank of New York (FRBNY), which administered the CPFF, provided three-month loans to CPFF LLC. The LLC would then use the funds to purchase CP directly from eligible issuers. The FRBNY's loans were secured by all of the CPFF LLC's assets including the CP that it purchased, fees that it collected, and any proceeds from investments.

²³ The Fed's normal authority includes loans of cash and securities to depository institutions and primary dealers as well as purchases and sales of U.S. Treasury and government agency securities.

Faced with a compressed time frame, the Fed hired Pacific Investment Management Company (PIMCO) and State Street Bank and Trust Company (State Street) to advise it in setting up the CPFF infrastructure. It utilized the primary dealers as agents. Since they actively underwrote, placed and made markets in CP, they were well suited to intermediate between the CP issuers and the Fed. (Adrian, Kimbrough and Marchioni, 2011, 31). Trades were cleared through the Depository Trust Company. This combination of existing and new infrastructure, and consultation with market experts, permitted the Fed to analyze a number of options in designing the facility such as fees, managing credit risk, hypothetical losses, and moral hazard,²⁴ and still have the CPFF was up and running by October 27, 2008, just 20 days after its announcement.²⁵

Figure 9: Issuance to the Commercial Paper Funding Facility



*Note: Solid lines represent steps in the transaction; dashed lines represent some of the controls.

Source: Adrian et al. 2011, 31.

At the time of its termination, the CPFF had accumulated approximately \$5 billion in earnings from interest income, credit enhancement fees and registration fees. (Bd. Gov. Report Aug. 2010, 27).

Complete data files regarding loans made to the SPV and purchases of CP pursuant to the CPFF are available at the Federal Reserve's website—

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

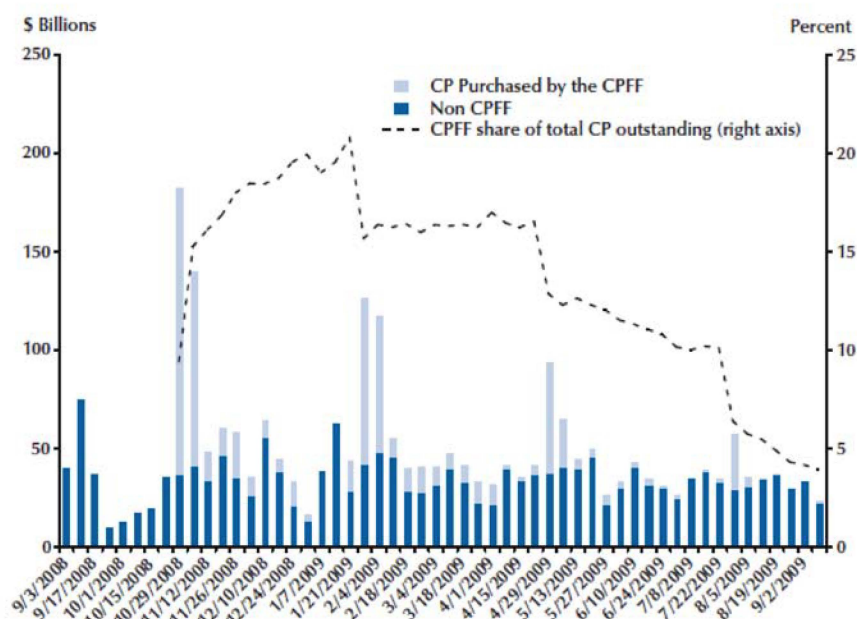
²⁴ See Adrian, Kimbrough and Marchioni 2011 for discussion of some of the analysis that went into the design of the CPFF. See also footnote 19 for a contrasting situation regarding the DMLF.

²⁵ By contrast, the AMLF was announced on September 19, 2008 and began operations on September 22. However, it must be considered that the AMLF was much less complex than the CPFF. It operated via a custodian bank, and lending occurred directly through the discount window. MMMFs sold ABCP to their custodian bank, which would subsequently pledge the ABCP to the discount window against a cash loan. (Adrian, Kimbrough and Marchioni 2011, 34).

USAGE AND IMPACT OF FACILITIES

The first purchases by the CPFF occurred on October 27, 2008. Usage of the CPFF was aggressive and it immediately had an impact on the CP markets. On the first day of operation, the CPFF purchased more than \$50 billion of CP; in its first week, \$144 billion. During the next few weeks, it purchased the overwhelming majority of newly issued 3-month CP. Assets of CPFF LLC more than doubled after one month reaching \$293 billion, and reached \$333 billion by the end of December 2008. The CPFF reached its peak of \$350 billion (maximum amount outstanding at any one time) during the third week of January 2009 when the CP first purchased by CPFF LLC matured and was rolled over. At this time, CPFF LLC owned 20 percent of all outstanding CP. Figure 10 illustrates the CPFF's share of new issues and outstanding CP during its tenure.

Figure 10: CPFF Share of Purchases and Outstanding Commercial Paper



Source: FRB, H4.1 Table; Federal Reserve bank of New York (Anderson and Gascon 2009).

Figure 11 shows the patterns of usage by the 82 issuers participating in the CPFF, which notably, included a number of U.S. subsidiaries of foreign banks.

Figure 11-A: Maximum of Daily Outstandings Under Commercial Paper Funding Facility by Borrower – October 27, 2008 to January 25, 2010 (U.S. Million Dollars)

Rank	Parent/Sponsor	Maximum Borrowing	Average Borrowing	Number of Days
1	UBS	37,290.8	14,721.0	184
2	Citigroup	25,126.8	6,495.7	294
3	Dexia SA	21,457.3	10,570.1	371
4	Royal Bank of Scotland Group	20,460.5	7,623.0	357
5	Fortis Bank SA/NV	18,176.2	7,616.1	287
6	The Liberty Hampshire Company	16,358.1	8,159.1	456
7	Hudson Castle	16,217.4	10,438.9	456
8	American International Group	16,195.7	11,490.7	454
9	General Electric Co	16,137.7	3,196.6	115
10	Bank of America	14,931.0	2,946.9	90
11	BSN Holdings	14,823.2	8,512.9	455
12	Natixis	13,724.0	5,324.5	274
13	Barclays PLC	12,928.5	7,644.2	361
14	ING Groep NV	8,647.4	2,152.3	322
15	State Street Bank & Trust	8,480.5	2,794.5	189
16	Dresdner Bank	8,161.1	1,973.7	230
17	Merrill Lynch & Co	7,962.0	1,588.9	91
18	GMAC LLC	7,909.8	2,684.5	184
19	Ford Credit	6,943.9	3,127.0	323
20	Handelsbanken	5,663.1	1,179.2	213
21	Danske Bank A/S	5,461.0	1,075.7	94
22	Allied Irish Bank	5,111.3	1,305.4	217
23	Erste Group Bank AG	4,966.1	986.7	120
24	Toyota Motor Corp	4,626.2	913.1	148
25	American Express Co	4,470.4	882.3	106
26	Morgan Stanley	4,328.6	857.0	128
27	Commerzbank AG	4,290.1	971.2	219
28	Bayerische Motoren Werke AG	3,894.3	1,223.2	240
29	KBC BANK NV	3,671.9	1,449.2	322
30	BNP Paribas	3,357.9	662.7	104
31	Northcross	3,085.2	1,697.5	274
32	WestLB	2,985.3	1,630.1	371
33	Unicredit	2,533.3	504.4	141
34	HSBC Holdings PLC	2,486.1	494.6	182
35	KBC	2,466.8	783.3	187
36	Free State of Bavaria	2,426.0	862.2	183
37	Prudential Financial Inc.	2,357.5	486.4	184
38	Rabobank	2,149.7	425.3	127
39	NordLB	1,909.5	972.7	373
40	Sumitomo Mitsui Banking Corporation	1,684.3	402.8	204

Source: Kamakura Corporation and Federal Reserve

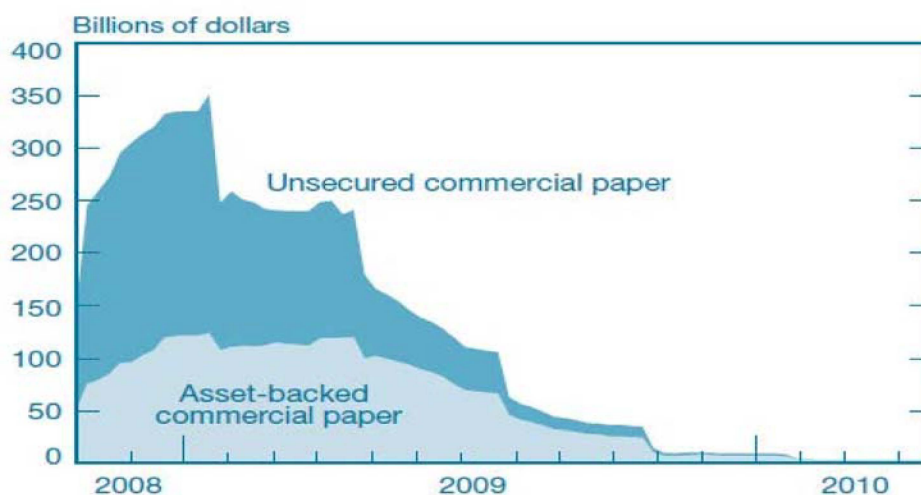
Figure 11-B: Maximum of Daily Outstandings Under Commercial Paper Funding Facility by Borrower – October 27, 2008 to January 25, 2010 (U.S. Million Dollars)

Rank	Parent/Sponsor	Maximum Borrowing	Average Borrowing	Number of Days
41	Chrysler Financial Services	1,651.4	955.5	406
42	Metlife	1,639.2	324.3	133
43	Verizon	1,479.2	293.7	91
44	DZ Bank AG	1,474.9	454.2	190
45	Harley-Davidson Inc	1,341.4	458.8	197
46	HSH Nordbank AG	1,193.3	664.8	274
47	National Rural Utilities Cooperative	1,106.7	219.2	120
48	Bank of Nova Scotia	993.5	196.1	90
49	Republic of Korea	753.0	449.9	365
50	PACCAR Inc	729.9	144.5	107
51	Mizuho Corporate Bank, Ltd.	708.2	140.4	101
52	Syngenta AG	696.1	137.4	90
53	Mitsui & Co Ltd	665.9	131.9	114
54	Deutsche Post AG	627.7	144.2	182
55	Banco Espirito Santo SA	507.1	302.1	275
56	Bank of Montreal	497.1	99.1	91
57	Lincoln National Corp	472.1	93.3	153
58	Caixa Geral de Depósitos	446.9	88.7	94
59	PNC Bank	440.7	87.0	91
60	Mitsubishi UFJ Financial Group	413.3	81.8	91
61	Hartford Financial Services Group	373.0	143.8	185
62	Caterpillar Financial Services	316.3	145.4	303
63	Torchmark Corp	303.2	113.8	244
64	Mitsubishi Corp	298.1	58.8	139
65	Fifth Third Bank	297.1	88.3	181
66	Members United Corporate Credit Union	268.0	53.5	91
67	Aegon NV	248.6	50.3	182
68	Principal Financial Group Inc	231.7	91.5	199
69	Genworth	202.4	40.3	100
70	Sumitomo Corp	198.8	39.3	111
71	Baxter International Inc	148.9	29.4	97
72	COFCO Ltd	148.5	78.7	272
73	Old Republic Capital Corp	129.3	51.1	199
74	McDonalds Corporation	109.4	40.2	223
75	Georgia Transmission Corp	109.3	21.7	133
76	Royal Bank of Canada	100.0	39.5	181
77	Wisconsin Corporate Credit Union	98.3	19.4	90
78	Shinhan Financial Group Co Ltd	79.6	61.0	361
79	Zions First National Bank	79.3	15.7	90
80	KB Financial Group Inc	29.8	5.9	140
81	Goldman Sachs	10.0	2.0	90
82	Chartwell Investment Partners, LP	9.9	9.8	452

Source: Kamakura Corporation and Federal Reserve

As market conditions improved, utilization of the CPFF waned (see Figure 12). By December 2009 CPFF LLC held only \$10 billion of assets, and the balance fell to zero by April 2010. The aggregate lent under the facility during its tenure was \$737 billion. It was the third largest program (in terms of dollars expended) implemented by the Fed to combat the financial crisis. Only the Term Auction Facility and the U.S. dollar swaps with foreign central banks were larger.

Figure 12: Commercial Paper Funding Facility Issuance Outstanding



Source: Federal Reserve Bank of New York (Adrian et. al 2011).

The CPFF expired on February 1, 2010. All loans that were made to CPFF LLC by the FRBNY were repaid in full in accordance with the terms of the facility, and all of the CP that CPFF LLC purchased was repaid in accordance with the respective stated terms. The last of the CPFF LLC's CP holdings matured on April 26, 2010, and the LLC was dissolved on August 30, 2010. The CPFF LLC accumulated nearly \$5 billion in earnings, primarily from interest income, credit enhancement fees, and registration fees, which was paid to the FRBNY as managing member.

USAGE BY FOREIGN BANKS

As Figure 11 shows, a wide variety of different types of entities did utilize the CPFF. Some of the largest and most prolific users were giants like Citibank, AIG, and General Motors, which also received additional funding from the government to stay afloat during the crisis. One fact that would come to light regarding the facilities employed by the Fed against the crisis, including the CPFF, was that a large percentage of the utilization was by U.S. subsidiaries of foreign banks. An analysis of the CPFF transaction data shows that on average European banks in aggregate had borrowings of \$145.5 billion, 57.28% of the average outstanding borrowings under the CPFF. Not surprisingly, a number of banks

that were experiencing well-reported difficulties were among the list of top borrowers including UBS, Dexia, SA26, Royal Bank of Scotland, and Fortis SA/NA²⁷. (VanDeventer, 2011).

IMPACT

In testifying before the U.S. House of Representatives, Chairman Ben Bernanke cited the impact of the CPFF as favorable— “[It has] allow[ed] many firms to extend significant amounts of funding into next year” resulting in “greater stability in the money market mutual funds and the Commercial Paper market.” (Bernanke 2008). Overall, the CPFF was one of the largest facilities instituted by the Federal Reserve in turns of usage and amounts committed in fighting the crisis. Only the Term Auction Facility²⁸ and the U.S. dollar swaps²⁹ with foreign central banks were larger.

A report that the Federal Open Market Committee (FOMC) received at its January 2009 meeting described the impact of the Fed’s measures, including the CPFF, on the CP markets as follows:

Conditions in the commercial paper (CP) market improved over the intermeeting period, likely reflecting recent measures taken in support of this market, greater demand from institutional investors, and the passing of year-end. Yields and spreads on 30-day A1/P1 nonfinancial and financial CP as well as on asset-backed commercial paper (ABCP) declined modestly and remained low. Yields and spreads on 30-day A2/P2 CP, which is not eligible for purchase under the CPFF, dropped sharply after the beginning of the year as some institutional investors reportedly reentered the market. The dollar amounts of outstanding unsecured financial and nonfinancial CP and ABCP rose slightly, on net, over the intermeeting period. This small change was more than accounted for by the increase in CP held by the CPFF. In contrast, credit extended under the AMLF declined over the intermeeting period. (Fed. Res. Jan. 27-28, 2009).

In explaining the high usage of the CPFF Adrian, Kimbrough and Marchioni (2011) point to two factors: (i) its directness and (ii) its scope:

“First, the CPFF addressed problems in short-term debt markets at their root—through direct lending to issuers—at a time when issuers faced potential liquidity shortfalls as a result of market dislocations. Indeed, the main factor distinguishing the CPFF from the other two facilities [the AMLF and the MMIFF³⁰] is the CPFF’s role as a backstop to issuers, whereas the other facilities provide emergency lending to institutional money market investors. Second, the CPFF backstopped issuance of both unsecured and secured commercial paper, while the AMLF funded only ABCP and the MMIFF special-purpose vehicles purchased only certificates of deposit, bank notes, and commercial paper from specific financial institutions. (Ibid., 34).

6. THE FEDERAL RESERVE’S POWERS UNDER SECTION 13(3) OF THE FRA

Section 13(3) of the Federal Reserve Act (FRA) was enacted in 1932 so that the Fed would have some authority to respond if a rash of bank failures interrupted the ability of nonbanks to obtain credit, depressing the economy. The Fed can invoke Section 13(3) to lend to an “individual, partnership or

²⁶ See Wiggins et al., Cross-border Resolution D: Dexia Group (2014).

²⁷ See Wiggins et al., Cross-border Resolution C: Fortis Group (2014).

²⁸ See Wiggins and Metrick, Federal Reserve Crisis Response B: Lending & Credit Programs for Primary Dealers (2016).

²⁹ See Wiggins and Metrick, Federal Reserve Crisis Response C: Providing US Dollars to Foreign Central Banks (2016).

³⁰ See footnote 6.

corporation” if it finds that “unusual and exigent circumstances” exist, that the borrower does not have other means of credit available, and that the loans can be secured to the Fed’s satisfaction.

In enacting the AMLF and the CPFF the Fed relied on its Section 13(3) authority based on its finding that the CP market was not functioning. This determination also provided a basis to support a further finding that unusual and exigent circumstances existed as well as the requirement that the borrower was unable to secure adequate credit accommodations from other banking institutions. (Alvarez Memo Mar. 3, 2009).

After the Lehman bankruptcy on September 15, 2008, the Federal Reserve was faced with an escalating trauma that was multifaceted and interconnected and its minutes show that it tasked itself with attacking the problem—

As you all know, the Lehman bankruptcy led to sharp outflows from prime money market mutual funds into Treasury-only funds... The result was a collapse in Treasury bill yields. . .

At the same time, the outflows from prime money market funds led to a sharp drop in the demand for commercial paper, a significant rise in commercial paper rates, and a shortening of commercial paper maturities []. Term bank funding spreads rose sharply, with the one-month and three-month LIBOR–OIS spreads increasing to levels that make the earlier peaks look like modest speed bumps []. The Lehman bankruptcy caused counterparty risk concerns to intensify. Moreover, the Lehman bankruptcy disrupted a number of markets because participants in these markets were uncertain how to adjust their long- and short-position exposures that offset their open positions with Lehman. The result was a sharp drop in the willingness of counterparties to engage with one another, especially at term. Essentially, the result was a massive coordination problem that has led to a very unattractive equilibrium. I would put it this way: “I won’t lend to you even though I think you’re okay because I am not sure others will lend to you either. I need some assurance that others will lend to you in order to have some assurance I can get my money back if I need it.” Even though it has been in the interest of all parties to engage, no party has been willing to go first. (FOMC Trans. Oct 28-29, 2008, 4).

Foremost among the Fed’s concerns was the possible impact of the disruptions in the CP market on the real economy. Many financial intermediaries used CP to finance lending activities that were an integral part of their businesses and the difficulty in issuing CP sharply reduced their ability to provide new to firms and individuals. Evidence showed that there was a threat of severe restriction of lending not just to the financial system, but to the greater economy as well: residential mortgages, home equity lines, credit cards and other consumer loans. (Ibid., 14).

Months later Chairman Bernanke would comment on the lending markets that remained stalled despite the Fed’s aggressive provision of liquidity to banks and financial institutions—

“concerns about capital, asset quality, and credit risk continue to limit the willingness of many intermediaries to extend credit, even when liquidity is ample. Moreover, providing liquidity to banks and financial institutions does not itself address directly instability or declining credit availability in critical nonbank markets such as the commercial paper market, or the market for asset-backed securities, both of which normally play major roles in the extension of credit in the United States.” (Bernanke Jan. 13, 2009).

See also Porter (2009), 502-509, which provides an analytical discussion of the Fed’s utilization of its Section 13(3) powers during the financial crisis.

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