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A Look inside AMLF: What Traded and Who Benefited

Ozgur Akay
US Department of the Treasury, Office of Financial Research

Mark D. Griffiths
Miami University - Oxford

Vladimir Kotomin
Illinois State University, vkotomi@ilstu.edu

Drew B. Winters
Texas Tech University

A look inside AMLF: What traded and who benefited

Ozgur (Ozzy) Akay[a,b], Mark D. Griffiths[c], Vladimir Kotomin[d], Drew B. Winters[e,*]

[a] *Office of Financial Research: US Department of the Treasury, Washington DC 20220*
[b] *Department of Personal Financial Planning, Texas Tech University, Lubbock, TX 79409*[a]
[c] *Department of Finance, Miami University, Oxford, OH 45056*
[d] *Department of Finance, Insurance, and Law, Illinois State University, Normal, IL 61790*
[e] *Department of Finance, Texas Tech University, Lubbock, TX 79409*

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Abstract

The Federal Reserve's AMLF program was designed to provide liquidity to money market funds (MMFs). Between September 2008 and May 2009, the program made $217 billion in non-recourse loans to depository institutions and bank holding companies to purchase asset-backed commercial paper from MMFs. JP Morgan and State Street dominated the program, accounting for over 90% of all loans made. Our analysis suggests that JP Morgan exhibited more self-dealing behavior than State Street. We find that JP Morgan and State Street earned economically and statistically significant cumulative returns of 2.28% and 2.49% (respectively) over the first seven days of the program after controlling for market returns and heteroscedasticity.

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[*] Corresponding author, Tel: +1 806 834 3350; fax: +1 806 742 3197.

E-mail addresses: ozzy.akay@treasury.gov (Akay), mark.griffiths@muohio.edu (Griffiths), vkotomi@ilstu.edu (Kotomin), drew.winters@ttu.edu (Winters).

1. Introduction

On September 19, 2008, following the Lehman Brothers' bankruptcy of September 15, 2008 and after a year of other programs designed to provide liquidity to the money markets, the Federal Reserve created the Asset-backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF). This facility provided non-recourse loans to U.S. depositories and bank holding companies to finance their purchases of highly-rated asset-backed commercial paper (ABCP) from qualified money market mutual funds (MMFs).

The program was designed to help MMFs that held ABCP to meet redemptions by investors and to promote liquidity in the ABCP market by providing a market for the assets as well as needed funds. Duygan-Bump et al. (2012) find that AMLF was effective in its dual roles of (1) stabilizing MMF outflows and (2) improving ABCP market liquidity. Taking these global successes as our starting point, we examine which ABCP tended to be sold under AMLF and who benefited from the transactions using AMLF data from the Fed on 1,132 loans funding 3,249 purchases of ABCP totaling more than $217 billion. Seven financial institutions participated, with the top three, JP Morgan Chase (51.2%), State Street (41.1%), and Bank of New York Mellon (5.9%), accounting for over 98% of all loans by dollar volume.[1]

The banks that participated in AMLF were administrators, liquidity providers, credit enhancement providers, or a combination of these three roles for many ABCP issues they purchased.[2] By purchasing specific issues of ABCP using non-recourse loans from the Fed, these banks removed the need to honor guarantees on these issues and thus eliminated contingent cash

[1] Duygan-Bump et al (2012) indicated that there were 11 banks and bank holding companies involved. In four cases, two different subsidiaries of the same financial holding company participated in the program – JP Morgan Chase Broker-Dealer and JP Morgan Chase Bank, State Street Bank &Trust Company and State Street Corp, Bank of New York Mellon and Bank of New York Mellon Broker-Dealer, Citibank and Citigroup Broker-Dealer. While we analyzed them both jointly and separately, we report and discuss the combined figures.

[2] Our analysis is based upon public records made available by the Federal Reserve Bank of Boston. These data reflect a survivorship bias in that, for example, conduits set up by Bear Stearns, one of the leading securitizing firms (Kolb, 2011:209) are now listed under J.P. Morgan.

flow losses to third parties. Moreover, we find that several institutions actively repurchased ABCP for which they were a primary dealer. For example, Bank of America (BofA), Citibank (Citi) and Credit Suisse were the dealers in 78%, 89%, and 58%, respectively, of the ABCP they purchased. Of the seven institutions that participated in AMLF, only State Street appeared to take a market-wide approach.

The financial institutions participating in AMLF earned substantial profits. The two largest participants, JP Morgan and State Street made an estimated profit of $102 million on loans of $111.3 billion and $72.6 million on loans of $89.2 billion, respectively.[3] JP Morgan and State Street also earned returns of 2.28% and 2.49%, respectively, over the first seven days of the AMLF program.[4]

We conclude that, while AMLF supplied money market funds with much needed liquidity to avoid "breaking the buck," the program also provided banks with risk-free profits, the ability to avoid possible contingent cash flow losses, and the opportunity to engage in self-dealing. The program also involved no competitive bidding for funds by institutions and did not address the concentration issue (i.e., the potential for two institutions to dominate the facility).

2. Background

2.1. Asset-backed commercial paper

Commercial paper (CP) is short-term debt of private corporations with maturities of between one and 270 days.[5] Throughout the 2000s, there were between 1,000 and 2,000 issuers with a total outstanding volume in excess of $1 trillion. CP issuers are generally large firms of

[3]The Federal Reserve collected an estimated $550 million of interest on loans of $217 billion over the 09/2008-08/2009 period.

[4] However, there may be a confounding factor in that on September 20, 2008, the day after the AMLF was announced, the Treasury Department submitted draft legislation to Congress for authority to purchase troubled assets.

[5] See Covitz and Downing (2007) for a review of institutional details of the market for commercial paper.

high credit quality: more than 95% of issuers are in the top two CP rating categories, A1/P1 and A2/P2.[6] Some issuers have in-house departments that issue CP, while others place their paper through dealers, dubbed directly- and dealer-placed paper, respectively. Issuing CP is usually cheaper than taking out short-term bank loans because the intermediary is bypassed.[7]

Three distinct categories of CP are financial CP issued by financial institutions (primarily finance companies and bank-holding companies), non-financial CP issued by manufacturing and retail companies, and asset-backed CP (ABCP). Historically, commercial paper has been unsecured, i.e., backed only by a firm's ability to generate cash flows. With the advent of securitization, portfolios of various types of loans could be sold into the capital markets and have become a significant part of the market. An institution wishing to participate in the ABCP market sells its assets to an off-balance sheet bankruptcy-remote special purpose vehicle (SPV) or structured investment vehicle (SIV). The financial assets serving as collateral may be accounts receivable or a mix of many different assets (including or limited to subprime mortgages) which are jointly judged to have a low risk of bankruptcy by a recognized ratings agency. Many of these ABCP conduits exhibited a significant duration mismatch between assets and liabilities as they held medium- to long-term assets funded by issuing short-term commercial paper. Acharya et al. (2010) report that sponsors of Special Purpose Vehicles (SPV) provided four different types of guarantees, all of which reduced bank capital requirements and provided different levels

[6] See http://www.federalreserve.gov/econresdata/releases/statisticsdata.htm.

[7] However, non-financial CP issues (about 10%-15% of the CP market) are usually backed by bank lines of credit, which cover rollover risk but not necessarily default risk. Issuers frequently roll over CP instead of retiring it by having the new CP repay the maturing CP and thus, on occasion, creating a timing problem. The back-up lines of credit exist to eliminate rollover risk by providing immediate access to liquidity when such timing problems occur. However, a bank can refuse to extend a loan in the case of a *material adverse change* in the borrower's financial condition; this clause may be invoked in instances where the issuer's credit rating may have changed or is changing.

of insurance to outside investors.[8] Brunnermeier (2009:80) points out that there also existed an opportunity for regulatory and ratings arbitrage:

> *"The Basel I accord (an international agreement that sets guidelines for bank regulation) required that banks hold at least 8 percent of the loans on their balance sheets; this capital requirement. . .was much lower for contractual credit lines. Moreover, there was no capital charge at all for "reputational" credit lines – noncontractual liquidity backstops that sponsoring banks provided to structured investment vehicles… Thus, moving a pool of loans into off-balance-sheet vehicles, and then granting a credit line to that pool to ensure a AAA-rating, allowed banks to reduce the amount of capital they needed to hold. . . while the risk for the bank remained essentially unchanged."*

In 2007-2008, many of the assets serving as collateral for ABCP performed more poorly than expected making investors much less willing to purchase ABCP. As markets became less willing to purchase ABCP, cash flow concerns arose for financial institutions relying on conduits to roll over their ABCP to obtain funds for use in longer-term investments. Mismatching the durations of assets and liabilities had been profitable when ABCP was considered safe and ABCP investors were willing to accept low interest rates, but forced SIVs to quickly liquidate their longer-term investments, sometimes at substantial losses, when they were no longer able to sell ABCP.[9] As Adrian and Shin (2008) point out, bank leverage is pro-cyclical: increases in securities' prices lead to purchases of additional (often risky) securities and increases in leverage, while decreases in securities' prices lead to sales of securities and decreases in leverage. When securities prices go up, the upward adjustment of leverage entails even larger purchases of securities than that for the case of constant leverage. The adjustment of leverage and price

[8] Acharya et al. (2010) find only 2.5% of ABCP outstanding as of July 2007 entered default in the period from 7/2007-12/2008. The results of their analyses suggest: [1] all outside investors covered by liquidity guarantees were repaid in full, [2] investors in conduits with weak guarantees suffered small losses and [3] losses from the SPVs remained with the banks rather than outside investors. As the guarantees were called to make the outside investors whole, the losses were taken on the banks' balance sheets and massive deleveraging took place with the ensuing downward pressure on asset prices. Acharya et al. (2010) estimate that with a loss rate of 5% to 15%, commercial banks suffered losses of $68 billion to $204 billion on conduit assets.

[9] Adrian and Shin (2010:6) report that, *"(f)or an off-balance sheet vehicle such as a SIV . . . that finances holdings of mortgage assets by issuing commercial paper, a difference of a quarter or half percent in the funding cost may make all the difference between a profitable venture and a loss-making one*."

changes reinforce each other in an amplification of the financial cycle, making negative shocks to security prices potentially catastrophic to the highly leveraged institutions. The collapse of the sub-prime mortgage market due to an inability to value the underlying assets was such a negative shock.[10]

Figure 1 plots outstanding CP amounts in all maturities of total, non-financial, financial, and asset-backed CP, and provides a number of important insights. The CP market peaked at about $2.2 trillion outstanding just prior to the BNP announcement in August 2007, then declined steadily to a little over $1 trillion. The vast majority of the contraction occurred in ABCP which peaked at $1.2 trillion in June of 2007, making it the largest money market instrument in the United States at the time, and declined to about $400 billion by September 2010. Financial CP peaked at about $800 billion before the Lehman bankruptcy only to decline to about $500 billion as lenders became concerned about the stability of the entire financial system. These declines returned the amounts outstanding in these segments of the CP market to the pre-housing bubble levels.

2.2. Money market funds

Money market funds (MMFs) invest in short-term debt of governments and private companies. In the U.S., MMFs developed in the 1970s as an alternative to bank deposits in the era of capped deposit interest rates. Rule 2a-7 (Rule) of the Investment Company Act of 1940 guides the investment activities of MMFs. Under the Rule, a money fund must mainly invest in the highest rated debt maturing in less than 13 months. During our study period (2008-2009), the

[10] The event most often identified (Taylor and Williams (2009)) as the beginning of the financial crisis is the August 9, 2007 announcement by BNP Paribas that it had temporarily halted redemptions from three of its funds. Quoting the BNP press release on that day, "*(t)he complete evaporation of liquidity in certain market segments of the U.S. securitization market has made it impossible to value certain assets fairly regardless of their quality or credit rating."* A timeline of the financial crisis developed by the Federal Reserve Bank of St. Louis lists 10 items prior to this announcement, but none would be considered a major trigger of the financial crisis. The timeline is available at http://timeline.stlouisfed.org/index.cfm?p=timeline.

portfolio must have maintained a weighted average maturity of 90 days or less and must not have invested more than 5% in any one issuer (1% in a "second-tier," i.e., not highest-rated, issuer), except for government securities and repurchase agreements.[11, 12]

Almost all MMFs use the amortized cost method, under which securities are valued at acquisition cost rather than market value; interest earned (plus any discount received or less any premium paid upon purchase) is accrued uniformly over the remaining maturity. By declaring these accruals as a daily dividend to its shareholders, the fund is able to maintain a stable price of $1 per share. For the price to fall below $1 ("breaking the buck"), some of the securities in the fund must either suffer default or be liquidated at below the amortized cost. In the latter case, the amount of redemptions by fund shareholders must be significant.

While the U.S. CP market has been around since the 19th century, after MMFs were introduced in the U.S. in the 1970s, MMFs and the CP market have developed hand in hand: MMFs bought CP in search of superior returns on relatively safe assets, and firms were in turn encouraged to issue CP because MMFs were willing to buy it. MMFs held about 40% of outstanding CP between 1990 and 2008.[13] After the Lehman Brothers bankruptcy on September 15, 2008, a large institutional money market fund, Reserve Primary, broke the buck due to its holdings of $785 million of the Lehman-issued debt. Its price per share subsequently fell to $0.971. This was only the second occurrence of breaking the buck in the 35-year history of the money market fund industry.[14] The event led to a panic among institutional money fund

[11] These rules became more stringent after the crisis. The changes to Rule 2a-7 are outlined in SEC Press Release 2010-14 made on January 27, 2010 (accessible at http://www.sec.gov/news/press/2010/2010-14.htm).
[12] Brennan et al (2009) report that money market mutual funds managed 24 percent of US business short-term assets in 2006.
[13] See, Anderson, and Gascon (2009:596).
[14] Ironically, Reserve Primary was the first MMF offered to investors in the U.S. in 1971. Putnam Investments closed and liquidated the Putnam Prime Money Market Fund after the Lehman's bankruptcy due to large redemptions by investors, even though the fund did not hold paper issued by any failed institutions. The first case of

investors, who started making large withdrawals, causing the funds to liquidate some assets quickly.

While all money market securities are fairly liquid, CP is one of the least liquid classes of securities held by MMFs and the one generally considered riskiest by investors, especially after the Lehman's fall. Consequently, MMFs started avoiding CP, especially asset-backed, financial, and lower-rated non-financial issues, and switched to safe havens such as U.S. T-bills, driving the demand for CP down and yields up. To address this problem in a rapidly changing market, the Fed quickly implemented AMLF.

2.3. The AMLF

On September 19, 2008, after working closely with State Street in setting up the program, the Federal Reserve Bank of Boston instituted the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF).[15] The AMLF was designed to help restore liquidity in the ABCP market and assist registered money market mutual funds in maintaining adequate liquidity to meet investor redemption demand. Initially, all MMFs registered with the Securities and Exchange Commission under Rule 2a-7 with eligible ABCP were permitted to participate in AMLF. Hence, there were initially no liquidity restrictions on MMFs with respect to the amount of ABCP that could be sold to the AMLF as long as the requisite eligibility and rating requirements were met.[16]

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a money market fund breaking the buck occurred in 1994, when Community Bankers U.S. Government Money Market Fund was liquidated at 94 cents because of large losses in derivatives.

[15] This subsection is based on the AMLF FAQ, accessible at http://www.frbdiscountwindow.org/mmmf.cfm.

[16] On June 25, 2009 the Fed amended the rules to ensure that liquidity support and not credit risk support was being provided to the MMFs. To be eligible for the revised program, MMFs must have experienced net redemptions exceeding 5% of net assets in a single day or 10% over a period of five business days or less. A fund would become eligible on the day after the threshold was met and remain eligible for five business days. There were no transactions after May 8, 2009 under the AMLF program; hence, all AMLF transactions took place under the initial rules of the program.

The facility, which extended a total of $217 billion in loans, was authorized by federal regulations which permit the Federal Reserve, in unusual circumstances, to authorize Reserve Banks to extend credit to certain parties that are unable to obtain adequate credit accommodations. The AMLF, which was originally intended to expire on January 30, 2009 but was extended several times and eventually closed on February 1, 2010, allowed depository institutions and bank holding companies to borrow funds from the Federal Reserve Bank of Boston discount window to fund purchases of qualifying ABCP from eligible MMFs or other eligible entities under certain conditions. Loans under the facility were extended on a non-recourse basis at a fixed rate equal to the primary credit rate in effect at the Federal Reserve Bank of Boston at the time of the borrowing.[17] The term of the loan equaled the maturity of the ABCP collateralizing it. Further, the loans were made without a "haircut," i.e., the loans were for the full value of collateral – an unusual design necessitated by the weakened net asset values of the MMFs and the concomitant inability to charge a penalty rate for using the facility. A single loan could be used to buy several ABCP issues from the same or different MMFs as long as all the ABCP had the same remaining maturity. ABCP was purchased at the fund's amortized cost, i.e., the acquisition cost adjusted for accretion of the discount. Only asset-backed debt issued by U.S.-based borrowers with maturities of 120 days or less for bank holding companies and 270 days or less for depository institutions was eligible for the program. The securities were required to carry a rating of at least A1, P1 or F1, the highest ratings for short-term debt and without a 'negative watch' designation. Due to non-recourse nature of the loans, in the case of ABCP default, the portion of the loan collateralized by the defaulted ABCP was not to be repaid by the

[17] The primary credit rate during the life of AMLF was 25 basis points above the target federal funds rate (above 0.25% when the target rate was specified as a range from 0 to 0.25% starting on December 16, 2008).

borrower to the FRB of Boston, and no interest would be charged on this portion of the loan. None of the debt purchased under the program suffered any losses.

2.4. Other programs established during the fall of 2008

To put the analysis of the AMLF and assess its role in a larger context, we provide here the relevant background on three other programs established in the fall of 2008 to stabilize the U.S. money markets in the order in which they were introduced: TGP for MMFs, MMIFF, and CPFF.

The Treasury's Temporary Guarantee Program for Money Market Funds (TGP for MMFs) was announced on September 19, 2008 (the same day as the AMLF) and officially opened on September 29, 2008. Under this program, the Treasury effectively insured participating MMFs from "breaking the buck" (i.e., a fund's NAV falling below $0.995 per share). Quoting the Treasury's press release, the TGP for MMFs was designed *"(t)o address temporary dislocations in credit markets*".[18] The program was initially announced for a three-month period and later extended through September 18, 2009. By the end of the enrollment period on October 10, 2008, the Treasury collected $337.8 million in fees for the initial three-month period, covering $3.62 trillion of MMF assets, or 93 percent of the MMF market.[19, 20] At the program's expiration in September 2009, utilization had declined to 68 percent of the market. The Treasury experienced no losses under the program and earned $1.2 billion in fees. The program may have helped stop the wave of withdrawals institutional MMFs suffered in the first

[18] Treasury Announces Temporary Guarantee Program for Money Market Funds, September 29, 2008; accessed on August 31, 2012 at http://www.treasury.gov/press-center/press-releases/Pages/hp1161.aspx.
[19] See the 2008 and 2009 U.S. Treasury Annual Reports,
[20] MMFs with a per-share NAV of $0.9975 or greater as of September 19, 2008 paid a fee (an insurance premium) of 0.01 percent (one basis point) of total net assets, while MMFs with a per-share NAV between $0.995 and $0.9975 paid 0.015 percent (1.5 basis points) of total net assets for a three-month guarantee. Funds with a per-share NAV below $0.995 on September 19, 2008 (i.e., those who already "broke the buck") were not eligible for the program. As mentioned earlier, there was only one such fund, the Reserve Primary Fund.

few days after Lehman Brothers filed for bankruptcy and the Reserve Primary fund broke the buck.

The Federal Reserve's Money Market Investor Funding Facility (MMIFF) was announced on October 21, 2008 to provide liquidity to MMFs to increase their ability to meet redemptions and their willingness to invest in term (i.e., longer than overnight) money market instruments. The Fed stated that MMIFF was a complement to the AMLF and was designed to serve a similar purpose – increasing the liquidity available to MMFs. This facility can be viewed as a discount window for MMFs. It was closed on October 30, 2009. While no loans were made under this program, having it in place may have helped (along with the TGP for MMFs), to prevent additional waves of redemptions.

While these two programs may have been beneficial in stopping redemptions, MMFs were still reluctant to purchase commercial paper, including ABCP. In response, the Federal Reserve established the Commercial Paper Funding Facility (CPFF) which was announced on October 7, 2008 and started operating on October 27, 2008 with the stated goal to provide a liquidity backstop to CP issuers. The CPFF purchased only highest-rated (A1/P1) unsecured 90-day CP and eligible 90-day ABCP from issuers at the yield equal to the overnight index swap (OIS) rate plus 200 bps for unsecured CP and at the rate of OIS plus 300 bps for ABCP.

At the time of the initial registration, each issuer paid a facility fee of 10 bps of the maximum amount of CP that it could issue to the CPFF. The Fed collected $849 million in fees and earned about $5.25 billion in interest throughout the life of the program (which was closed on February 1, 2010, with the last CP holdings maturing on April 26, 2010), and no losses were experienced. Several studies suggest that the CPFF helped stabilize the commercial paper market – issuance increased (yields decreased) after the decline (increase) that occurred after the

Lehman Brothers bankruptcy (e.g., Anderson and Gascon (2009), Duca (2012), and Griffiths, Kotomin and Winters (2011)).[21] We provide a comparison of CPFF and AMLF in section 5.

3. Data and summary statistics of the AMLF program

Between September 22, 2008 and May 8, 2009, the AMLF made 1,132 loans to seven financial institutions to finance purchases of 3,249 issues of ABCP from 191 MMFs, issued by 91 different ABCP programs.[22]

Table 1 provides a list of days during the program on which loans were made and ABCP was purchased from MMFs with details on the loans made and the ABCP sold on each day. The loans made under the AMLF program totaled $217.26 billion. Almost three quarters of all loans by dollar volume ($159.06 billion, or 73.21%) were made between September 22 and September 30, 2008 (the end of the third quarter). This is not surprising for several reasons. First, the Treasury Department announced on September 19, 2008 that it would insure MMFs from breaking the buck, which stopped the wave of withdrawals from MMFs. Second, the funds that initially sold ABCP holdings to the AMLF borrowers may have abstained from future investments in ABCP at least temporarily, may have reduced such investments, or may have switched to the shortest maturities of ABCP.[23] Third, quarter-ends tend to be the periods of heightened liquidity needs (Ogden 1987, Griffiths and Winters 1997, 2005). Finally, after

[21] There was also the FDIC's Temporary Liquidity Guarantee Program (TLGP), announced on October 14, 2008, which had two components: One that guaranteed newly-issued senior unsecured debt of insured depository institutions and most U.S. holding companies (the Debt Guarantee Program) and another that guaranteed certain noninterest-bearing transaction accounts at insured depository institutions (the Transaction Account Guarantee Program). ABCP, being secured debt, did not qualify for the Debt Guarantee Program. The instruments guaranteed by the TGLP were dominated by financial commercial paper (not asset-backed) and medium-term notes.

[22] The original file provided by the Fed (http://www.federalreserve.gov/newsevents/files/amlf.xls) comprises 1,133 loans to finance purchases of 3,257 ABCPs. We eliminated 8 ABCP purchases (all financed by the same loan) for which ABCP sold did not qualify for AMLF. The largest loan was for $2,614.1M and involved 29 CP issues (the largest number of issues financed by one loan); the smallest loan was for $0.248M. Duygan-Bump et al. (2012) restrict their analysis to 105 prime MMMFs, which represent 42 percent of AMLF-eligible individual prime funds.

[23] A large increase in issuance of shortest-term ABCP after the Lehman Brothers bankruptcy is consistent with this conjecture. We discuss this point later in the paper.

October 27, 2008 many ABCP issuers were able to sell their commercial paper directly to the Fed's Commercial Paper Funding Facility (CPFF), which we discuss later in the paper. The size of the AMLF peaked at $152 billion (21.92% of ABCP outstanding at the time) in its second week. While the facility was officially closed on February 1, 2010, the last loan was made on May 8, 2009 (maturing in August 2009). Outside of the September 22 through September 30, 2008 window, May 5, 2009 experienced the largest loan volume, $23.15 billion, or 10.7% of all AMLF loans.[24]

Table 2 provides the list of financial institutions taking loans under the AMLF to purchase ABCP. The list shows that seven financial institutions participated in the program with the top three – JP Morgan Chase (51.2%), State Street (41.1%), and Bank of New York Mellon (5.9%) – accounting for over 98% of all loans. Table 2 also reports estimated profits which run approximately 10 basis points on the total amount of ABCP purchased. For example, JP Morgan made an estimated profit of $102 million on loans of $111 billion with an average maturity of 51 days.[25] Stigum (1990) notes that 10 basis points is an attractive opportunity in money markets. However, ex ante, these profits were not guaranteed (the guarantee was against losses) and at the time, concern centered on the ability to identify toxic assets. We believe that our analysis answers the question of why these particular institutions chose to participate in AMLF.

Table 3 identifies the MMFs that sold the largest amounts of ABCP via the AMLF. The top 13 sellers, each of which sold over 2% of the total ABCP into the AMLF, accounted for

[24] The most likely reason for the sharp increases in sales of ABCP to the AMLF by MMFs is the rule change announced by the Fed on May 4, 2009 that MMFs must experience net redemptions exceeding 5% of net assets in a single day or 10% over a period of five business days or less to be eligible to sell paper to the AMLF. The rule became effective on June 25, 2009.

[25] The profits are estimated as total par value of ABCP purchased less total amortized cost of ABCP purchased less total interest paid to the Fed.

approximately 50% of the total CP sold. These 13 MMFs sold a total of $109.4 billion of ABCP, which represented between 15% and 20% of the total ABCP market at the time.

One of the intentions of the AMLF was to limit sales of ABCP at fire-sale prices and to provide the ABCP market (which had already experienced a substantial contraction) an orderly sale/liquidation method generating both liquidity and price support for the market. Our preliminary analysis, which lends prima facie support to this claim, indicates that the program clustered not only in time but also in both the financial institutions and MMFs participating instead of being a broad-based market solution.

4. Analysis of AMLF transactions

4.1. MMFs, fund families, and JP Morgan and State Street participation

As shown in Table 2, 92.3% of the AMLF loans went through JP Morgan and State Street. To examine how JP Morgan and State Street participated in the program, we identify every MMF that sold $1 billion or more into the AMLF. Table 4 includes, in addition to every $1 billion participant, all other fund family members that participated in the AMLF. For each participating MMF, we provide the financial institutions that purchased the ABCP sold and identify the funds' custodian.

Panel A of Table 4 lists the MMFs where both JP Morgan and State Street participated in purchases of ABCP. These purchases cover 1,283 transactions (39.5% of the total transactions) for approximately $104.1 billion (47.9% of the total dollar value). JP Morgan participated in 588 purchases which represents 31.2% of their transactions under AMLF. State Street participated in 687 purchases in this set of transactions or 59.8% of their total transactions under AMLF.

Panel B of Table 4 lists the MMFs where either JP Morgan or State Street participated in purchases of ABCP, but not both. These purchases cover 1,509 transactions (46.4% of the total transactions) for $102.4 billion (47.2% of the total dollar value). JP Morgan participated in 1,009 purchases representing 53.6% of their transactions under AMLF. State Street participated in 340 purchases, or 29.6% of their AMLF transactions. We note that JP Morgan's MMFs are in this group and that JP Morgan handled all purchases from them. Also, Dreyfus has participation from JP Morgan and not State Street, but the majority of ABCP it sold was purchased by BNY/Mellon. Dreyfus is a subsidiary of BNY/Mellon.

Comparing Panels A and B from Table 4 provides two insights. First, MMF families with at least one fund selling in excess of $1 billion are equally likely to do split deals between JP Morgan and State Street versus stand-alone deals. Second, State Street is more likely to participate in split deals while JP Morgan is more likely to go alone, although State Street did not participate as actively after October 2008. The majority of JP Morgan's deals after October 2008 are with MMFs with which they did deals at the outset of AMLF (September and October of 2008).

We also identify the custodians for the MMFs selling ABCP into the AMLF program. A custodian holds and safeguards the securities owned by a mutual fund. Panel A of Table 4 contains 10 MMF families, and State Street is the custodian for nine of them. Barclays is the only fund family exception in this group. Panel B contains 15 MMF families, five of which sold ABCP to State Street under the AMLF, and four of the five use State Street as their custodian. Dreyfus sold the majority of their ABCP to BNY/Mellon, with the remainder sold to JP Morgan. BNY/Mellon is the custodian for Dreyfus. The other nine of the 15 MMF families sold ABCP to JP Morgan. Both the JP Morgan and Fidelity MMF families use JP Morgan as their custodian.

The remaining six MMF families that sold exclusively to JP Morgan use a variety of custodians including State Street but not JP Morgan.

Table 4 contains data on ABCP sales from 25 different MMF families. State Street participated in 15 of the 25 families, and for 13 of these 15 families it was the custodian holding the ABCP. State Street did not participate in purchasing ABCP from ten of the MMF families; for nine of these ten families, JP Morgan handled the vast majority of the purchases but was the custodian in only three cases.

4.2. AMLF financial institutions and their relation with ABCP programs

There are 91 ABCP programs in our sample.[26] In this section, we report the relations between these programs and the seven AMLF financial institutions, with the focus on JP Morgan and State Street.

Table 5 lists the seven financial institutions participating in the AMLF program and whether a given financial institution has a relation with the underlying ABCP program, with a relation defined as being: (1) an administrator, (2) a liquidity provider, (3) a credit enhancer, or (4) some combination of the three.[27] JP Morgan has such relations for about 11% of the ABCP it purchased, while State Street has relations for approximately 5.5% of the ABCP it purchased. Interestingly, BofA (63%), Citi (46%), and Suntrust (73%) have relations with the ABCP programs for a significant portion of the ABCP they purchased. BNY/Mellon (0.5%) and Credit Suisse (0.0%) have virtually no role as administrator, liquidity provider or credit enhancer with the ABCP they purchased. However, BNY/Mellon purchased ABCP almost exclusively from MMFs of a subsidiary (Fidelity), and Credit Suisse purchased ABCP exclusively from its own

[26] The list of the 91 programs is available upon request.

[27] We thank Everett Rutan at Moody's Investors Service, Inc. for providing detailed information on the ABCP programs.

MMFs. These results suggest that the five "small" players in AMLF participated in the program for self-interest possibly related to the previously mentioned issues dealing with contingent cash flows. Of the two big players, JP Morgan appears to show more self-interest than State Street.

Commercial paper is sold either directly to investors or placed with investors through dealers. Dealers that place commercial paper stand ready to buy it back, thus creating a secondary market. All of the financial institutions that participated in AMLF have the ability to serve as dealers in the commercial paper market. Accordingly, we now examine whether the institutions were dealers in the ABCP they purchased under AMLF.

We identify the dealers for 86 of the 91 programs, representing 95.7% (94.2%) of the par value (number of ABCP issues) purchased through the facility. It is common that a financial institution having a role as an administrator, liquidity provider, or credit enhancement provider also acts as a dealer and market-maker for the conduit. Most ABCP programs have multiple dealers. The mean (median) number of dealers in our sample is 4.57 (4.00). Only the BNY/Mellon and Suntrust are not ABCP dealers.

Table 6 has the dealers in columns and borrowers in rows, so BNY/Mellon and Suntrust do not have columns; the first cell of the table shows that BofA was a dealer for 31.81% of the ABCP purchased through AMLF by JP Morgan. The BofA column shows that BofA was a dealer in 78.21% of the ABCP it purchased.

Examining Table 6 in detail shows that BofA, Citi and Credit Suisse are dealers in 78%, 89%, and 58% (respectively) of the ABCP they purchase. This supports the contention that the small players in AMLF are self-dealing. That is, their transactions were designed to address internal commitments and obligations rather than market issues. Similarly, JP Morgan is a dealer in 56% of the ABCP it purchased, whereas it is one of the dealers for 63% of the ABCP

purchased by State Street. Conversely, although State Street is listed as a dealer for ABCP programs, it was not an active dealer for any of the programs involved in the AMLF facility. Accordingly, between the two big players JP Morgan continues to exhibit more self-dealing than State Street. Finally, the data in Table 6 indicate that the financial institutions participating in the AMLF that are also dealers in ABCP used the program to assist their market maker role in the commercial paper market, consistent with the Fed's stated objective of providing liquidity to this market.

4.3. Assets held by ABCP conduits

In this section, we examine whether JP Morgan or State Street had any systematic preference in the type or quality of assets they acquired. We have the portfolio asset composition for 64 of the 91 ABCP programs in our sample, which accounts for 83.15% (83.96%) of the par value (number of ABCP issues) sold through the facility. Table 7 reports asset ratings and Table 8 reports the three largest asset classes held by the ABCP conduits sold through the AMLF. Tables 7 and 8 report information by MMF family name using the same 25 families from Table 4 that have at least one MMF that sold $1 billion or more of ABCP under the program. Panel A of each table provides information for the deals split between JP Morgan and State Street, and Panel B reports information for the deals that are not split.

A significant portion of the assets held by ABCP conduits are classified as either (1) not rated or (2) securities. We report the percentage of holdings in both categories, along with the three rating categories with the largest weight in the portfolio in Table 7.[28] The conduit assets composition in Table 7 can be divided into three groups: (1) 15% securities or less, (2) more than

[28] Note, the rated weights are small because they are a percentage of the entire portfolio which includes large percentages of non-rated assets and securities.

15% securities, and (3) the Reserve Primary Fund. The Reserve Primary Fund is important because its 'breaking the buck' was one of the significant events during the financial crisis and thus provides a useful benchmark. The Reserve Primary Fund held ABCP with a portfolio composition of 55% securities and only 8% non-rated assets. Our data do not provide additional details on the securities held by the ABCP conduits. However, multiple sources [e.g., Duygan-Bump et al (2012), Brunnermeier (2009)]suggest that the instruments held in the ABCP conduits' securities category typically include rated asset-backed, mortgage-backed, and corporate securities. Approximately 21% of the conduit's assets were rated Aa2. Comparing the Reserve Primary Fund to the other fund families suggests that the Reserve Primary Fund focused more on rated securities and in particular highly-rated securities than any other participant in AMLF.

We also note the lack of quality in the ratings reported in Table 7. Historically, only businesses with short-term ratings of P1 or P2 were able to issue commercial paper, with the bottom of the P2 category equivalent to a Baa bond rating. The small amounts of holdings of Baa and higher rated securities along with the large amount of non-rated assets suggest that the ABCP conduits held much riskier assets than the traditional issuers of commercial paper. This is consistent with the findings reported by Duygan-Bump et al (2012).

In Panel A of Table 7 and setting aside the Reserve Primary Fund, we have five split deals with less than 15% securities and four split deals with more the 15% securities. This suggests that in split deals JP Morgan and State Street are indifferent to the amount of securities held in the ABCP conduit. Panel B of Table 7 provides the asset classes of the ABCP conduits where JP Morgan and State Street did not split deals. Recall that in the case of Dreyfus, JP Morgan participated without State Street but the majority of the deals went through BNY/Mellon

(see Table 4). State Street has five stand-alone deals, in all of which it remained indifferent to the amount of securities held by the ABCP conduit, as two deals have less than 15% securities and three deals have more. Alternatively, when JP Morgan deals alone, it prefers deals with 15% or less securities. Specifically, JP Morgan went alone with eight fund families, and the only family where the level of securities in the ABCP conduit exceeded 15% involved its own MMFs.

Table 8 provides the three largest classes of assets in the portfolio of the ABCP conduits from the MMF families with at least one MMF selling $1 billion or more of ABCP. In Panel A, five of the ten families sold ABCP with securities being the largest underlying asset class. Panel B suggests that State Street did not shy away from ABCP with securities as a primary underlying asset. In fact, securities are among the three largest underlying asset classes in four of the five stand-alone deals. Setting Dreyfus aside because of its association with BNY/Mellon, Panel B suggests that JP Morgan was more reluctant to do stand-alone deals where securities were a main underlying asset, except in the case of their own funds. In the seven solo deals not involving their own MMFs, JP Morgan did two deals where securities were among the top three asset classes and in both cases, securities were only the third largest asset class. Instead, JP Morgan focused on deals where the assets in the ABCP conduit were primarily loans and trade receivables.[29]

The asset class 'securities' in Tables 7 and 8 would include mortgage-backed securities and thus could include the "toxic assets" that investors and the government recognized had issues with appropriate valuation. In this setting, securities were likely high risk, while NR (non-rated) assets which include loans and trade receivables were likely lower risk. Our analysis suggests that State Street was indifferent to the proportion of securities as the underlying asset class for

[29] Approximately 35% of J.P. Morgan's stand-alone deals occurred later in the sample when ABCP was of higher quality.

the ABCP it purchased, while JP Morgan appears to be looking for deals with better quality assets except when they transacted with their own funds.

4.4. Analysis of returns

In this subsection, we examine the effect of participation in the AMLF on the stock returns of the various participants. Specifically, we regress the stock returns of the participants on a compound dummy variable representing the first seven days of the program and the CRSP equally weighted index. The model is estimated between 1/1/2007 and 12/31/2010 using an autoregressive regression with GARCH effects.

$$R_{j,t} = \alpha_j + \beta_1 R_{m,t} + \beta_2 AMLF_{j,t} + \sigma_{j,t}\varepsilon_{j,t} \qquad (1)$$

$$\sigma_{j,t} \sim GARCH(1,1) \quad \varepsilon_{i,t} \sim D(0,1)$$

where:

$R_{j,t}$ = the return of stock *j* on day *t*.

AMLF = a dummy variable with a value of 1 for each of the first seven days of the AMLF program (9/22/08 – 9/30/08) and 0 otherwise.

$R_{m,t}$ = the return on CRSP value-weighted index on day *t*.

The results from this regression are presented in Table 9. We find that JP Morgan, State Street and Credit Suisse earned statistically (at the 5% level) significant returns of 2.28%, 2.49%, and 1.56%, respectively, over the first seven days of the AMLF program that cannot be explained by the market returns after controlling for the increased volatility (via incorporating GARCH effects into the equation). Because of the market disruptions during the event period, the AMLF dummy coefficients should be interpreted in a comparative framework, rather than relative to zero. JP Morgan, at 2.28%, is 42 basis points larger compared to next largest (BofA) AMLF parameter estimate while State Street, at 2.49%, is 63 basis points larger than BofA. We

also re-estimated the equation adding a variable to capture the unusual AMLF activity on May 5 of 2009. The May 5th dummy variable is not significant at generally accepted levels for any of the financial institutions. As a robustness check, we re-estimate Equation (1) with a dependent variable of the daily returns on the financial services SPDR (Spider) index exchange-traded fund, XLF. The AMLF dummy variable is not statistically significant and has an estimated coefficient of only 0.37%.

Given the market capitalizations of State Street and JP Morgan, the returns from the government-sponsored AMLF provided significant capital/economic support to these firms. State Street's capital grew (retained value) by about $0.5 billion across the first week of AMLF, while JP Morgan's capital grew (retained value) by about $3.5 billion during the same period. Significant re-capitalization of the participating financial institutions in the middle of the financial crisis was not mentioned as a purpose of AMLF but could have been anticipated given the use of non-recourse loans and the opportunity to eliminate potential contingent cash flow liabilities arising from guarantees issued to support ABCP conduits.

5. A comparison of the AMLF and the CPFF

The Federal Reserve Bank of Boston developed AMLF over one weekend and began operations on Monday, September 22, 2008. The program was to address concerns that forced sales of ABCP by MMFs would cause additional problems in that market. AMLF operated through loans from the Federal Reserve to intermediary borrowers which were used in turn to purchase ABCP from MMFs. This process was designed to overcome practical (legal) constraints in lending directly to MMFs.

CPFF (announced 10/7/08 and implemented 10/27/08) was designed to provide liquidity to CP issuers by purchasing ABCP and unsecured CP directly from issuers. CPFF operated through a SPV created and funded by the Federal Reserve Bank of New York. These two programs addressed similar issues one month apart in the crisis. AMLF provided liquidity to MMFs that held ABCP and support to the market immediately following the Lehman bankruptcy by purchasing existing ABCP from the funds. One month later, CPFF provided access to liquidity for CP issuers as investors (including the MMFs) remained reluctant to purchase CP.

Table 10 shows weekly ABCP outstanding, as well as ABCP sold to AMLF and CPFF and ABCP holdings by the two facilities (in $ billion, at par, as of Wednesday of each week and Thursday through Wednesday for sales, to be consistent with the Fed reporting of weekly CP figures) from the end of August 2008 through early May 2009 (the last week with CP sales to the ALMF). First, we observe that the amount of ABCP outstanding (column 1) declined by almost 20% throughout the period but there were no dramatic declines in the weeks immediately following the Lehman Brothers bankruptcy. Second, AMLF was rarely used after the introduction of CPFF. Third, CPFF was used actively in the first two weeks, after which there are sharp increases in CP sales to the facility every three months as the old CP matures and new CP is sold to the CPFF (recall that the CPFF only purchased 90-day CP).

Table 11 supplements Table 10 by providing the breakdown of weekly ABCP issuance by maturity ranges (Thursday through Wednesday). After the Lehman Brothers bankruptcy on September 15, 2008, the shortest-term ABCP issuance increases dramatically and longer-term ABCP issuance volume falls, suggesting that investors (such as MMFs) were not willing to buy paper with maturities longer than just a few days even after the implementation of the AMLF, and issuers had to rely on rolling over the shortest term CP. After CPFF is implemented,

however, issuance of the shortest-term paper falls to the pre-Lehman bankruptcy levels and issuance of longer-term paper rises.

Figure 2 plots the daily series of one-day and 90-day ABCP yields and holdings of ABCP by AMLF and CPFF. This complement to Tables 10 and 11 shows that placing the shortest-term ABCP right after the Lehman bankruptcy was much more costly. While the 90-day ABCP rate does not increase right after the Lehman's fall, recall that issuance of longer-term ABCP declined dramatically following the event, indicating major difficulties for most issuers in placing term ABCP. The sharp increase in the 90-day ABCP yield coincides with the start of AMLF and is consistent with the unwillingness of MMFs to purchase term ABCP despite their ability to sell it to the facility. On the other hand, both one-day and 90-day ABCP rates declined after the start of CPFF.

In sum, both programs provided liquidity to the ABCP market following the Lehman bankruptcy. Specifically, AMLF provided liquidity to MMFs by purchasing highly illiquid ABCP which was at the center of the financial crisis, and CPFF followed by creating liquidity for CP issuers that had difficulty rolling their CP when it matured because investors were staying out of the market. Because it took longer to set up CPFF, the AMLF can be viewed as an emergency program designed to offset the time needed to set up the SPV to facilitate the operation of CPFF and thus avoid the role of financial intermediaries as needed in AMLF. The need for speed and the constraints under which the Fed operates resulted in a program that created riskless profits and self-dealing opportunities. The design of the CPFF removed financial institutions as intermediaries in providing public liquidity support and thereby provided more market-wide support than the AMLF. In this respect, compared to the AMLF, the CPFF is more consistent with Freixas, Parigi, and Rochet's (2004) prescription that the lender of last resort role

of central banks be more effective and focused on saving a market ("platform") rather than any particular firm.

6. Conclusion

The AMLF moved $217 billion of liquidity into MMFs through 3,249 purchases of asset-backed commercial paper. Duygan-Bump et al. (2012) find that AMLF was effective in its dual roles of (1) stabilizing MMF outflows and (2) improving ABCP market liquidity. We agree and deepen the study of AMLF by examining what ABCP tended to be traded and who benefited from the trading.

Our results suggest self-dealing by six of the seven institutions participating on the borrowing side of AMLF. The one exception is State Street, which took a more market-wide approach to AMLF. This self-dealing took a variety of forms. First, the five institutions that participated in the program on a smaller scale purchased ABCP almost exclusively from related MMFs. Second, borrowers that are also ABCP dealers had the majority of their transactions involve the ABCP for which they were the dealer. Third, when JP Morgan was the only institution to buy ABCP, it tended to purchase paper backed by less risky assets, except when purchasing ABCP from its own funds, in which case it acquired paper backed by riskier assets. Further, when JP Morgan participated during the latter part of the AMLF program, the majority of these deals were with MMFs with which they had done earlier deals. That is, JP Morgan continued to support MMFs with which it had already established relationships.

Through the use of non-recourse loans and absent the usual haircut involved when posting collateral, the seven institutions took no credit or market risk and tied up no capital in AMLF-related transactions. As a result, the holdings obtained under this program by design had

a zero percent risk weight assessed for risk-based regulatory capital charge purposes. In fact, the AMLF further reduced the risk of these institutions when dealing with ABCP for which they had provided guarantees; they were able to buy back the ABCP they previously guaranteed and transfer the risk to the Fed. The AMLF also reduced the risk for the institutions that made the market in ABCP since a dealer stands ready to buy back any CP it has placed should the lender need to sell. This process would move the ABCP from the MMF to the dealer who would likely hold the ABCP on their balance sheet until maturity. Given the non-recourse loans, the dealers could meet their market-making obligations without taking any additional risk.

The design of AMLF allowed risk transfers and self-dealing. The risk transfer was clearly part of the program design and a source of profits for the institutions. However, the program, initiated on an emergency basis, provided a major source of capital stability to the financial institutions that participated in a large number of deals. It is not obvious whether self-dealing was anticipated and we have not seen a discussion of self-dealing under AMLF elsewhere. Nonetheless, it is important that policy makers are aware of all the implications of their programs.

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Table 1. AMLF Descriptive Statistics by Days with loan volume

Date	Loan volume, $mln	% total loan volume	# of loans	% all loans	Avg. loan, $mln	# of CP issues bought	% of all CP issues bought	Avg. # of CP issues per loan	Avg. CP purchase, $mln
Sept 22, 2008	24,321	11.2	99	8.7	246	264	8.1	2.7	92
Sept 23, 2008	31,113	14.3	120	10.6	259	328	10.1	2.7	95
Sept 24, 2008	17,608	8.1	106	9.4	166	366	11.3	3.5	48
Sept 25, 2008	22,387	10.3	117	10.3	191	419	12.9	3.6	53
Sept 26, 2008	18,249	8.4	93	8.2	196	258	7.9	2.8	71
Sept 29, 2008	25,239	11.6	114	10.1	221	325	10.0	2.9	78
Sept 30, 2008	20,145	9.3	113	10.0	178	247	7.6	2.2	82
Oct 1, 2008	2,489	1.1	31	2.7	80	42	1.3	1.4	59
Oct 2, 2008	1,978	0.9	27	2.4	73	52	1.6	1.9	38
Oct 3, 2008	1,679	0.8	21	1.9	80	42	1.3	2.0	40
Oct 6, 2008	484	0.2	6	0.5	81	7	0.2	1.2	69
Oct 7, 2008	943	0.4	17	1.5	55	27	0.8	1.6	35
Oct 8, 2008	957	0.4	9	0.8	106	16	0.5	1.8	60
Oct 9, 2008	434	0.2	14	1.2	31	17	0.5	1.2	26
Oct 10, 2008	474	0.2	8	0.7	59	10	0.3	1.3	47
Oct 14, 2008	647	0.3	7	0.6	92	17	0.5	2.4	38
Oct 15, 2008	1,005	0.5	8	0.7	126	17	0.5	2.1	59
Oct 16, 2008	191	0.1	4	0.4	48	6	0.2	1.5	32
Oct 21, 2008	130	0.1	1	0.1	130	2	0.1	2.0	65
Oct 22, 2008	32	0.0	1	0.1	32	3	0.1	3.0	11
Oct 24, 2008	8	0.0	1	0.1	8	2	0.1	2.0	4
Nov 4, 2008	20	0.0	1	0.1	20	1	0.0	1.0	20
Nov 13, 2008	151	0.1	2	0.2	75	2	0.1	1.0	75
Nov 21, 2008	2,965	1.4	16	1.4	185	58	1.8	3.6	51
Nov 26, 2008	47	0.0	2	0.2	23	2	0.1	1.0	23
Dec 1, 2008	328	0.2	3	0.3	109	6	0.2	2.0	55
Dec 8, 2008	200	0.1	1	0.1	200	1	0.0	1.0	200
Jan 6, 2009	200	0.1	1	0.1	200	3	0.1	3.0	67
Jan 16, 2009	2,652	1.2	13	1.1	204	43	1.3	3.3	62
Jan 22, 2009	100	0.0	1	0.1	100	2	0.1	2.0	50
Jan 26, 2009	55	0.0	2	0.2	27	4	0.1	2.0	14
Jan 27, 2009	807	0.4	6	0.5	135	9	0.3	1.5	90
Jan 28, 2009	2,266	1.0	12	1.1	189	68	2.1	5.7	33
Jan 29, 2009	1,321	0.6	10	0.9	132	23	0.7	2.3	57
Jan 30, 2009	443	0.2	4	0.4	111	5	0.2	1.3	89
Feb 3, 2009	50	0.0	1	0.1	50	1	0.0	1.0	50

Feb 4, 2009	727	0.3	3	0.3	242	12	0.4	4.0	61
Feb 12, 2009	897	0.4	7	0.6	128	31	1.0	4.4	29
Feb 23, 2009	95	0.0	1	0.1	95	4	0.1	4.0	24
Feb 26, 2009	503	0.2	6	0.5	84	11	0.3	1.8	46
Mar 5, 2009	292	0.1	8	0.7	36	20	0.6	2.5	15
Mar 12, 2009	4,017	1.8	11	1.0	365	25	0.8	2.3	161
Apr 24, 2009	3,109	1.4	9	0.8	345	40	1.2	4.4	78
Apr 30, 2009	100	0.0	1	0.1	100	1	0.0	1.0	100
May 5, 2009	23,149	10.7	63	5.6	367	362	11.1	5.7	64
May 6, 2009	2,223	1.0	29	2.6	77	46	1.4	1.6	48
May 7, 2009	0	0.0	1	0.1	0	1	0.0	1.0	0
May 8, 2009	28	0.0	1	0.1	28	1	0.0	1.0	28
Total or Average	**217,258**	**100.0**	**1,132**	**100.0**	**127**	**3,249**	**100.0**	**2.3**	**56**

Based on data obtained from: (http://www.federalreserve.gov/newsevents/files/amlf.xls)

Table 2 Summary Statistics by Institution Taking Loans under the AMLF Program

Institution	Loan vol, $mln.	% total Loan vol	# of loans	% all loans	Avg. loan, $mln.	# of CP issues bought	% all CP issues bought	Avg. # of CP issues per loan	Avg. CP Purchase, ($M)	Profit, ($M)	WAM of CP bought, days	WA yield of CP bought
JP Morgan Chase	111,320	51.2	569	50.3	196	1,882	58	3.3	59.1	102.0	50.6	2.28
State Street	89,241	41.1	437	38.6	204	1,149	35	2.6	77.7	72.6	41.2	2.86
Bank of NY Mellon	12,924	5.9	58	5.1	223	135	4	2.3	95.7	20.6	76	2.92
Bank of America	1,557	0.7	19	1.7	82	22	1	1.2	70.8	2.1	44.9	3.27
Citigroup	1,437	0.7	40	3.5	36	52	2	1.3	27.6	2.5	67.9	2.46
Suntrust	540	0.2	7	0.6	77	7	0	1.0	77.2	2.9	67.3	4.83
Credit Suisse	238	0.1	2	0.2	119	2	0	1.0	119.2	0.4	102.5	2.30
Total or Average	217,258	100.0	1,132	100.0	192	3,249	100	2.9	66.9			

Notes:
Profit = par of CP bought –amortized cost of CP bought – AMLF loans interest based on a 360-day year;
WAM is weighted average maturity of CP acquired by an institution (weights based on par value of CP);
WA yield is weighted average discount yield computed as (total par of CP bought – total amortized cost of CP bought)(360/WAM)*

Based on data obtained from: (http://www.federalreserve.gov/newsevents/files/amlf.xls)

Table 3.Largest sellers of ABCP through the AMLF program

Money Market Fund Selling ABCP	# CP Issues Sold	CP sold at amort. cost $mln	Fund's % of Total CP Sold	Cum % of Total CP Sold
Reserve Primary Fund	108	19,299	8.9	8.9
JPMorgan Prime Money Market Fund	98	15,559	7.2	16.1
Money Market Master Portfolio / Barclays Global Investors Funds	50	9,273	4.3	20.3
Blackrock Liquidity Tempfund	61	9,127	4.2	24.5
Columbia Cash Reserves	46	8,588	4.0	28.5
Liquid Assets Portfolio / Short Term Investments Trust	87	8,272	3.8	32.3
Prime Portfolio / Morgan Stanley Institutional Liquidity Funds	48	6,674	3.1	35.4
Federated Prime Obligations Fund	88	6,542	3.0	38.4
Columbia Money Market Reserves	47	6,141	2.8	41.2
Financial Square Prime Obligations Fund / Goldman Sachs Trust	30	5,570	2.6	43.8
Dreyfus International Cash Advantage Fund	28	5,318	2.5	46.2
DWS Money Market Series	48	4,705	2.2	48.4
Cash Investment Money Market Fund / Wells Fargo Funds Trust	75	4,358	2.0	50.4

Based on data obtained from: (http://www.federalreserve.gov/newsevents/files/amlf.xls)

Table 4. AMLF Transactions by Fund

All funds that sell $1 billion or more in AMLF program, plus all funds from the same family that also participated in AMLF, plus Oppenheimer and Schwab funds for name recognition

Panel A. Funds from which both JP Morgan Chase and State Street purchased ABCP

Fund Name	$ mil.	#	JP	SS	Other	Custodian
AIM						State Street Bank & Trust Co.
Money Market Fund	47	2	2	0	0	
Premier Portfolio - INS	215	2	2	0	0	
V.I. Money Market Fund	2	1	1	0	0	
Liquid Assets Portfolio	8,272	87	41	46	0	
Premier Portfolio	1,049	21	9	12	0	
STIC Prime Portfolio	2,266	32	1	31	0	
Total	11,851	145	56	89	0	
Barclays						Treesource Industries
Money Market Master Portfolio	9,273	50	0	50	0	
Prime Money Market Fund	1,757	15	15	0	0	
Prime Money Market Master Portfolio	1,699	16	0	16	0	
Total	12,729	81	15	66	0	
BlackRock						State Street Bank & Trust Co.
Metropolitan Series Money Market Portfolio	357	21	21	0	0	PFPC Trust Company
Liquidity Tempcash	2,335	38	17	21	0	
Liquidity Tempfund	9,127	61	43	17	Citi (1)	
Money Market Portfolio	177	24	14	10	0	
BlackRock Series Fund, Inc.	10	5	5	0	0	
Money Market V.I. Fund	51	10	4	6	0	
Summit Cash Reserves Fund	3	3	2	1	0	
FFI Institutional Fund	1,056	10	10	0	0	
FFI Premier Institutional Fund	554	5	5	0	0	
Master Money LLC	3,947	46	7	39	0	
Total	17,618	223	128	94	1	

Panel A. *Continued*

Fund Name	$ mil.	#	JP	SS	Other	Custodian
DWS						State Street Bank & Trust Co.
Money Market Prime Series	50	2	2	0	0	
Money Market Series	4,705	48	10	38	0	
Money Market VIP	7	2	2	0	0	
Daily Assets Fund Institution	395	10	0	10	0	
Money Market Portfolio / Cash Account Trust	60	2	2	0	0	
Total	5,217	64	16	48	0	
Federated						State Street Bank & Trust Co.
Capital Reserves	38	1	1	0	0	
Prime Cash Obligations	2,621	42	35	7	0	
Prime Obligations	6,542	88	59	29	0	
Prime Value Obligations	1,012	15	1	14	0	
Total	10,213	146	96	50	0	
Goldman Sachs						The Northern Trust Company
Financial Square Money Market	3,103	31	16	15	0	State Street Bank & Trust Co.
Financial Square Prime Obligations	5,570	30	19	11	0	
Institutional Liquid Assets, Money Market Portfolio	38	9	9	0	0	
Institutional Liquid Assets, Prime Obligations	57	9	9	0	0	
Money Market	8	5	5	0	0	
Total	8,776	84	58	26	0	

Panel A. *Continued*

Fund Name	$ mil.	#	JP	SS	Other	Custodian
Merrill Lynch						State Street Bank & Trust Co.
Premier Institutional Fund	647	5	0	5	0	
Institutional Fund	1,963	18	7	11	0	
Institutional Money Market	38	1	0	0	Citi (1)	
Premier Institutional	3,004	29	6	23	0	
Ready Assets Trust	509	22	15	7	0	
Retirement Reserves	1,082	36	26	10	0	
Total	7,243	111	54	56	1	
Reserve						State Street Bank & Trust Co.
Liquid Performance Money Market	50	1	0	1	0	
Primary Fund	19,299	108	42	66	0	
Total	19,349	109	42	67	0	
T. Rowe Price						State Street Bank & Trust Co.
Prime Reserve Fund	1,919	68	33	33	Citi (2)	
Prime Reserve Portfolio	10	31	15	14	Citi (2)	
Reserve Investment	2,513	86	12	74	0	
Summit Cash Reserves	1,671	66	32	32	Citi (2)	
Total	6,114	251	92	153	6	

Panel A. *Continued*

Fund Name	$ mil.	#	JP	SS	Other	Custodian
UBS						State Street Bank & Trust Co.
Cash Reserves Fun	29	6	2	4	0	Investors Fiduciary Trust
Cashfund Inc.	91	4	3	1	0	
LIR Money Market Fund	35	2	0	2	0	
Liquid Assets Fund	120	3	2	1	0	
Money Market Fund	1	3	1	2	0	
PACE Money Market Investments	17	4	2	2	0	
RMA Money Market Portfolio	597	8	8	0	0	
Retirement Money Fund	595	7	7	0	0	
Select Prime Institutional Fund	3,468	32	6	26	0	
Total	4,954	69	31	38	0	

Panel B. Funds for which either JP Morgan Chase or State Street dominated the ABCP purchases

Fund Name	$ mil.	#	JP	SS	Other	Custodian
Charles Schwab						State Street Bank & Trust Co.
Advisor Cash Reserves	474	7	0	7	0	
Cash Reserves	856	10	0	10	0	
Investor Money Fund	254	9	0	9	0	
Money Market Fund	263	5	0	5	0	
Retirement Advantage Money Fund	17	4	0	4	0	
Value Advantage Money Fund	771	6	0	6	0	
Total	2,636	41	0	41	0	
Dreyfus						The Bank of New York Mellon
Cash Management	3,052	15	5	0	BNYM (10)	
Cash Management Plus	1,226	7	2	0	BNYM (5)	
Cash Advantage	5,318	28	11	0	BNYM (17)	
Cash Advantage Plus	362	4	0	0	BNYM (4)	
Preferred Money Market	1,139	10	3	0	BNYM (7)	
Liquid Assets	2,854	24	3	0	BNYM (21)	
Money Market Reserves	25	1	0	0	BNYM (1)	
Variable Investment Money Market	64	7	0	0	BNYM (7)	
Worldwide Dollar Money Market	205	8	3	0	BNYM (5)	
Basic Money Market	297	6	1	0	BNYM (5)	
Institutional Money Market	24	7	0	0	BNYM (7)	
Institutional Reserves Money Fund	1,094	8	2	0	BNYM (6)	
Money Market Instruments Inc.	671	10	2	0	BNYM (8)	
Money Market Reserves / Dreyfus/Laurel	199	8	2	0	BNYM (6)	
General Money Market Fund, Inc.	3,356	19	5	0	BNYM (14)	
Money Market Portfolio	47	5	4	0	BNYM (1)	
Total	19,934	167	43	0	124	

Panel B. *Continued*

Fund Name	$ mil.	#	JP	SS	Other	Custodian
Columbia						State Street Bank & Trust Co.
Cash Reserves	8,588	46	0	46	0	
Daily Cash Reserves	216	9	0	8	BofA (1)	
Money Market Fund, Variable Series	59	12	0	11	BofA (1)	
Money Market Reserves	6,141	47	0	47	0	
Total	15,005	114	0	112	2	
Evergreen						State Street Bank & Trust Co.
Institutional Money Market Fund	4,172	46	0	44	Suntrust (2)	
Money Market Fund	1,755	33	0	33	0	
Prime Cash Management	2,623	41	0	41	0	
Total	8,551	120	0	118	2	
Fidelity						The Bank of New York Mellon
Cash Reserves	721	4	4	0	0	JPMorgan Chase Bank
Money Market Central Fund	4	3	3	0	0	
Money Market Fund	42	4	4	0	0	
Prime Money Market Portfolio	163	7	0	0	BNYM (7)	
Money Market Portfolio, Colchester	3,572	43	43	0	0	
Prime Fund	126	4	4	0	0	
Prime Money Market Portfolio, Colchester	573	25	25	0	0	
Retirement Money Market Portfolio	98	4	4	0	0	
Select Money Market Portfolio	45	9	9	0	0	
Money Market Portfolio, Variable Insurance	23	4	4	0	0	
Total	5,367	107	100	0	7	

Panel B. *Continued*

Fund Name	$ mil.	#	JP	SS	Other	Custodian
JPMorgan						JPMorgan Chase Bank, N.A.
Liquid Assets Money Market Fund	2,053	42	42	0	0	
Prime Money Market	15,559	98	98	0	0	
Total	17,612	140	140	0	0	
Janus						State Street Bank & Trust Co.
Institutional Cash Management	564	18	18	0	0	
Institutional Money Market	1,337	29	29	0	0	
Total	1,901	47	47	0	0	
Marshall						Marshall & Ilsley Trust Co.
Prime Money Market	1,150	18	18	0	0	
Total	1,150	18	18	0	0	
Morgan Stanley						JPMorgan Chase Bank, N.A.
Active Assets Institutional Money Trust	305	17	17	0	0	State Street Bank & Trust Co.
Active Assets Money Trust	436	17	17	0	0	
Institutional Liquidity Funds	2,010	37	37	0	0	
Select Dimensions Investment Series	17	6	6	0	0	
Variable Investment Series	148	14	14	0	0	
Institutional Liquidity Funds - Prime Portfolio	252	3	3	0	0	
Liquid Asset Fund / Morgan Stanley Inv. Adv. Inc.	19	2	2	0	0	
Morgan Stanley Liquid Asset Fund Inc	505	9	9	0	0	
Prime Portfolio / Morgan Stanley Inst. Liq. Funds	6,674	48	48	0	0	
Total	10,366	153	153	0	0	

Panel B. *Continued*

Fund Name	$ mil.	#	JP	SS	Other	Custodian
Mount Vernon						U.S. Bank
Securities Lending Prime Portfolio	1,408	25	15	0	BofA (10)	
Total	1,408	25	15	0	10	
Oppenheimer						Citibank
Cash Reserves	7	2	2	0	0	
Institutional Money Market	865	21	21	0	0	
Variable Account Funds	2	1	1	0	0	
Money Market Fund Inc.	66	3	3	0	0	
Total	940	27	27	0	0	
Russell Investment						State Street Bank & Trust Co.
Money Market	1,042	20	0	20	0	
Total	1,042	20	0	20	0	
SEI						U.S. Bank National Association
SDIT Money Market Fund	209	11	0	11	0	
SDIT Prime Obligation Fund	1,358	15	0	15	0	
SLAT Prime Obligation Fund	554	23	0	23	0	
Total	2,120	49	0	49	0	
Tamarack						Wells Fargo Bank
Prime Money Market	1,653	31	27	0	Citi (4)	
Institutional Prime Money Market	459	19	15	0	BofA (1), Citi (3)	
Prime Money Market	214	4	0	0	BofA (4)	
Total	2,325	54	42	0	12	

Panel B. *Continued*

Fund Name	$ mil.	#	JP	SS	Other	Custodian
WellsFargo						Wells Fargo Bank
Cash Investment Money Market Fund	4,396	76	75	0	Citi (1)	State Street Bank & Trust Co.
Heritage Money Market Fund	2,313	72	71	0	Citi (1)	
Money Market Fund	2,258	66	66	0	0	
Money Market Trust	482	60	60	0	0	
Overland Express Sweep	354	60	59	0	Citi (1)	
Prime Investment Money Market Fund	2,288	65	65	0	0	
VT Money Market Fund	12	31	31	0	0	
Total	12,102	430	427	0	3	

Based on data obtained from: (http://www.federalreserve.gov/newsevents/files/amlf.xls)

Table 5. Summary Statistics of the AMFL Purchases by Borrower

	Par value (in $mil.)		Number of purchases	
Borrower	Role=0	Role=1	Role=0	Role=1
JP Morgan Chase	99,445.15	12,233.75	1624	258
State Street	84,645.49	4,889.41	1098	51
Bank of New York Mellon	12,786.02	69.00	132	3
Bank of America	586.35	977.23	12	10
Citi	773.11	670.45	28	24
Suntrust	145.11	400.00	5	2
Credit Suisse	240.00	0.00	2	0
Total	198,621.22	19,239.84	2,901	348

The table reports the total number and par value of the ABCP purchases by Borrower. Role=1 indicates that the borrower has a relation with the ABCP program in the form of being the administrator, liquidity provider, credit enhancement provider, or a combination of the three roles. Role=0 indicates no such relationship exists.

Table 6. Percentage of ABCP purchased by Borrower by Dealer

	Dealer				
Borrower	BofA	Citi	CS	JPMC	SST
JP Morgan Chase	31.81%	74.49%	30.01%	**56.07%**	0.00%
State Street	25.78%	69.47%	23.56%	63.39%	**0.00%**
Bank of New York Mellon	9.12%	97.18%	42.81%	53.49%	0.00%
Bank of America	**78.21%**	29.12%	13.93%	42.15%	0.00%
Citi	35.84%	**89.06%**	18.51%	58.44%	0.00%
Suntrust	14.70%	100.00%	88.08%	14.70%	0.00%
Credit Suisse	0.00%	58.33%	**58.33%**	0.00%	0.00%

The table reports the dealer information in percentage terms of the ABCP purchased by borrower. The coding on dealers is as follows: BofA (Bank of America), Citi (Citibank), CS (Credit Suisse), JPMC (JP Morgan Chase) and SST (State Street).

Both tables are based on data obtained from:
(http://www.federalreserve.gov/newsevents/files/amlf.xls)

Table 7. Average Rating Composition of the ABCP Conduits Sold by Funds

			Top Three Rating Categories		
Fund Family Name	NR	Securities	R1	R2	R3
Panel A: Split Deals between JP Morgan and State Street					
AIM	21%	41%	Baa2 (4%)	Aaa (4%)	Aa3 (4%)
Barclays	33%	22%	Aaa (8%)	A3 (5%)	Baa2 (4%)
BlackRock	34%	18%	Aaa (6%)	A3 (6%)	Aa1 (6%)
DWS	20%	10%	Aa3 (7%)	Aaa (7%)	B2 (6%)
Federated	31%	2%	Aaa (10%)	A3 (7%)	A2 (6%)
Goldman Sachs	43%	1%	A3 (7%)	Aa1 (6%)	Aaa (5%)
Merrill Lynch	31%	22%	Aaa (7%)	A3 (6%)	Baa1 (5%)
Reserve	8%	55%	Aa2 (21%)	Aa3 (1%)	B1 (1%)
T. Rowe Price	33%	11%	Aa1 (7%)	A3 (7%)	Aaa (6%)
UBS	32%	2%	A3 (7%)	Aaa (7%)	Aa3 (7%)
Panel B: Deals *not* Split between JP Morgan and State Street (*italics are State Street deals***)**					
Columbia	*31%*	*46%*	*A3 (4%)*	*Aa1 (3%)*	*Baa1 (3%)*
Evergreen	*32%*	*2%*	*Aaa (7%)*	*Baa2 (7%)*	*B1 (7%)*
Russell Investment	*17%*	*28%*	*A3 (8%)*	*A1 (8%)*	*A2 (7%)*
Schwab	*27%*	*14%*	*B3 (8%)*	*B1 (5%)*	*Aa3 (4%)*
SEI	*29%*	*56%*	*Aa1 (3%)*	*A3 (2%)*	*Baa1 (2%)*
Dreyfus	37%	14%	A3 (8%)	Aa1 (6%)	A2 (3%)
Fidelity	50%	4%	B3 (8%)	Baa2 (5%)	B1 (4%)
Janus	42%	13%	B1 (10%)	A2 (4%)	Aaa (4%)
JPMorgan	32%	20%	A3 (7%)	Aa1 (6%)	Baa2 (5%)
Marshall	44%	1%	A3 (9%)	Baa1 (5%)	Aa1 (5%)
Morgan Stanley	29%	30%	Baa2 (5%)	A3 (4%)	Aa3(4%)
Mount Vernon	41%	3%	Aaa (7%)	B2 (7%)	Aa3 (6%)
Oppenheimer	43%	9%	Baa2 (8%)	Aa2 (5%)	A3 (5%)
Tamarack	31%	3%	Aaa (9%)	Aa3 (7%)	A3 (6%)
WellsFargo	44%	15%	A3 (6%)	A1 (5%)	Aa1 (5%)

The table reports the top three ratings categories of the assets held by ABCP programs sold through the AMLF.

Table 8. Top Three Asset Classes in ABCP Conduits Sold by Funds

Fund Family Name	Top Three Asset Classes		
Panel A: Split Deals between JP Morgan and State Street			
AIM	Securities (41%)	Trade receivables (11%)	Credit card receivables (10%)
Barclays	Securities (22%)	Credit card receivables (14%)	Trade receivables
BlackRock	Securities (18%)	Student loans	Student loans (11%)
DWS	Credit card receivables (18%)	Auto loans (14%)	Trade receivables (12%)
Federated	Credit card receivables (18%)	Commercial loans (13%)	Auto loans (12%)
Goldman Sachs	Commercial loans (23%)	Student loans (18%)	Government guaranteed loans (13%)
Merrill Lynch	Securities (21%)	Commercial loans (14%)	Student loans (14%)
Reserve	Securities (55%)	Commercial mortgage loans (12%)	Cbo & Clo (8%)
T. Rowe Price	Student loans (21%)	Commercial loans (15%)	Credit cards receivables (14%)
UBS	Credit card receivables (21%)	Auto loans (14%)	Trade receivables (14%)
Panel B: Deals *not* Split between JP Morgan and State Street (*italics are State Street deals***)**			
Columbia	*Securities (46%)*	*Student loans (12%)*	*Commercial loans (11%)*
Evergreen	*Trade receivables (21%)*	*Commercial loans (19%)*	*Credit cards receivables (15%)*
Russell Investment	*Trade receivables (30%)*	*Securities (28%)*	*Credit card receivables (14%)*
Schwab	*Commercial loans (39%)*	*Auto loans (18%)*	*Securities (14%)*
SEI	*Securities (55%)*	*Commercial loans (9%)*	*Student loans (8%)*
Dreyfus	Commercial loans (23%)	Student loans (20%)	Securities (14%)
Fidelity	Auto loans (21%)	Commercial loans (16%)	Trade receivables (15%)
Janus	Trade receivables (24%)	Auto loans (14%)	Securities (13%)
JPMorgan	Commercial loans (17%)	Securities (20%)	Student loans (27%)
Marshall	Commercial loans (30%)	Student loans (18%)	Trade receivables (11%)
Morgan Stanley	Securities (30%)	Commercial loans (13%)	Credit card receivables (11%)
Mount Vernon	Credit cards receivables (21%)	Trade receivables (13%)	Auto loans (12%)
Oppenheimer	Government guaranteed loans (31%)	Credit card receivables (14%)	Trade receivables (9%)
Tamarack	Credit card receivables (16%)	Auto loans (16%)	Commercial loans (14%)
WellsFargo	Commercial loans (17%)	Student loans (15%)	Securities (15%)

The table reports the largest three assets in the ABCP portfolios sold by the mutual fund families.

Table 9: Estimation of the Returns to Financial Institutions Participating in the AMLF Program

Auto-regression (with GARCH effects) of the returns of financial institutions participating in AMLF on a compound dummy (0/1) for the first seven days of the programs availability (9/22/08 through 9/30/08), and the CRSP value-weighted market index adjusted for dividends and stock splits over the period 1/1/07 through 12/31/10. AMLF equals 1 for the first seven days of the AMLF program and zero otherwise. Standard errors appear in parentheses.

$$R_{j,t} = \alpha_j + \beta_1 R_{m,t} + \beta_2 AMLF_{j,t} + \sigma_{j,t}\varepsilon_{j,t}$$
$$\sigma_{j,t} \sim GARCH(1,1) \quad \varepsilon_{i,t} \sim D(0,1)$$

Dependent Variable	Intercept	Market Index	AMLF Dummy	Adjusted R^2
JP Morgan	0.0003 (0.0008)	1.6788*** (0.0480)	0.0228** (0.0100)	0.5115
State Street	0.0003 (0.0011)	1.8240*** (0.0609)	0.0249** (0.0127)	0.4715
Bank of America	-0.0004 (0.0012)	2.0751*** (0.0687)	0.0186 (0.01443)	0.4758
Bank of NY Mellon	0.0001 (0.0008)	1.6488*** (0.0450)	0.0160* (0.0093)	0.5718
Citibank	-0.0013 (0.0014)	2.0785*** (0.0792)	0.0263 (0.0164)	0.4068
Credit Suisse	-0.0002 (0.0007)	1.6996*** (0.0409)	0.0156** (0.0085)	0.6326
SunTrust	0.0000 (0.0012)	1.7322*** (0.0691)	-0.0131 (0.0143)	0.3869
XLF(FinSpd)	-0.0005 (0.0005)	1.6124*** (0.0301)	0.0037 (0.0063)	0.7409

*Significant at the 10% level, ** Significant at the 5% level, ***Significant at the 1% level

Table 10. Weekly ABCP outstanding, sales to and holdings of AMLF and CPFF, $ billion

Wednesday	ABCP outstanding, $bln, at par	ABCP sales to AMLF, $bln, at par	AMLF holdings, $bln, at par	ABCP sales to CPFF, $bln, at par	CPFF holdings of ABCP, $bln, at par
8/27/08	745.6	--	--	--	--
9/3/08	742.1	--	--	--	--
9/10/08	740.9	--	--	--	--
9/17/08	708.3	--	--	--	--
9/24/08	711.7	73.3	72.7	--	--
10/1/08	694.0	88.9	152.1	--	--
10/8/08	675.8	6.1	139.5	--	--
10/15/08	675.9	2.6	122.8	--	--
10/22/08	668.2	0.4	107.9	--	--
10/29/08	701.0	0.0	96.0	50.3	50.3
11/5/08	711.9	0.0	85.1	25.0	75.3
11/12/08	718.3	0.0	76.5	4.1	79.4
11/19/08	699.5	0.2	61.9	5.5	84.9
11/26/08	697.8	3.0	53.3	10.5	95.5
12/3/08	692.5	0.3	49.2	0.6	96.0
12/10/08	698.9	0.2	34.4	6.8	102.8
12/17/08	710.5	0.0	27.4	4.6	107.3
12/24/08	703.0	0.0	24.0	12.3	119.7
12/31/08	703.7	0.0	23.8	1.7	121.4
1/7/09	698.8	0.2	21.1	0.1	121.5
1/14/09	693.0	0.0	16.1	0.0	121.5
1/21/09	676.4	2.7	14.8	2.6	124.1
1/28/09	668.7	3.2	16.0	45.3	107.6
2/4/09	670.0	2.5	16.9	16.8	110.6
2/11/09	663.0	0.0	14.2	6.2	111.6
2/18/09	648.2	0.9	12.7	7.3	111.3
2/25/09	646.3	0.1	10.0	7.8	112.0
3/4/09	643.2	0.5	8.1	3.5	115.0
3/11/09	634.7	0.3	6.8	5.7	113.5
3/18/09	625.6	4.0	7.6	6.5	113.0
3/25/09	627.8	0.0	6.8	8.4	111.9
4/1/09	634.8	0.0	6.1	8.8	119.0
4/8/09	632.5	0.0	3.7	0.4	119.3
4/15/09	621.4	0.0	2.0	2.0	119.4
4/22/09	615.4	0.0	0.8	1.6	120.2
4/29/09	604.6	3.1	3.7	32.5	100.5
5/6/09	603.3	25.5	29.0	12.4	102.8

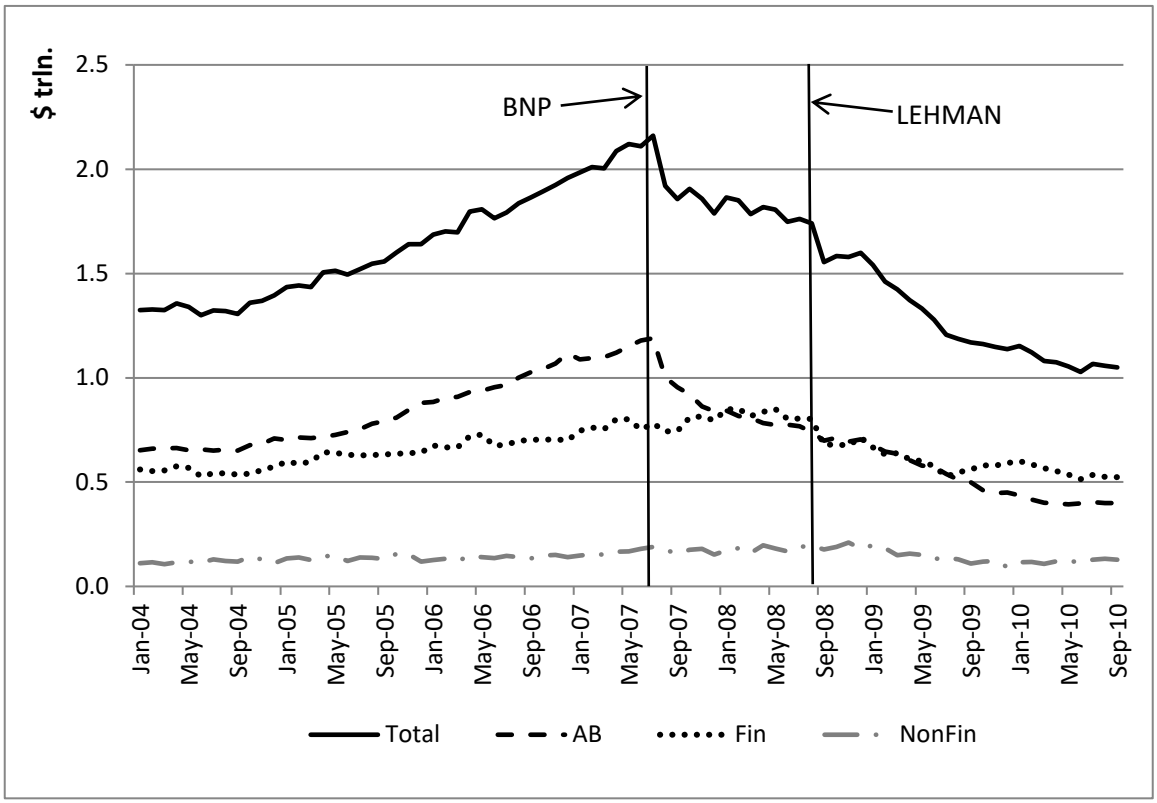
Data Source: http://www.federalreserve.gov/econresdata/releases/statisticsdata.htm.

Table 11. Weekly issuance of ABCP, Thursday through Wednesday, $ billion.

	Maturity, days					
Date	**1-4**	**5-9**	**10-20**	**21-40**	**41-80**	**> 80**
8/27/08	173.9	15.8	11.4	31.4	13.2	19.3
9/3/08	124.3	13.1	10.2	24.4	9.8	11.6
9/10/08	139.2	15.3	10.9	39.6	14.1	31.1
9/17/08	209.3	7.7	9.6	24.9	4.8	9.8
9/24/08	446.2	19.6	9.7	15.8	2.8	4.3
10/1/08	481.6	23.8	13.8	22.8	9.6	9.6
10/8/08	414.5	21.1	22.1	28.3	8.8	14.5
10/15/08	365.2	24.9	18.4	41.4	11.6	15.4
10/22/08	340.2	19.3	14.3	44.0	15.7	22.7
10/29/08	302.7	16.7	10.9	30.3	4.5	56.9
11/5/08	235.5	12.2	8.1	25.6	11.6	44.5
11/12/08	172.5	14.4	5.4	18.1	9.2	19.1
11/19/08	221.5	15.0	7.3	31.0	24.7	29.3
11/26/08	203.8	32.4	12.8	15.7	18.1	25.2
12/3/08	139.1	16.9	4.4	13.6	15.2	6.4
12/10/08	182.5	18.5	8.2	32.3	14.5	21.9
12/17/08	162.3	16.6	1.1	28.6	6.9	12.8
12/24/08	145.3	27.6	14.6	20.4	5.0	6.9
12/31/08	85.5	18.9	2.2	9.0	1.2	2.4
1/7/09	100.8	16.1	5.1	21.8	5.2	11.3
1/14/09	125.4	15.4	5.2	33.8	9.8	19.9
1/21/09	103.4	16.1	7.2	27.4	10.9	10.9
1/28/09	130.6	15.0	12.5	33.0	9.2	37.0
2/4/09	122.8	18.3	7.5	19.2	8.6	13.1
2/11/09	122.1	19.0	5.1	38.8	8.5	15.4
2/18/09	94.5	19.8	6.2	33.9	10.0	12.0
2/25/09	107.2	18.4	4.4	29.4	11.1	10.5
3/4/09	105.0	17.3	5.8	25.4	6.8	9.6
3/11/09	96.8	15.9	4.5	33.1	12.1	12.8
3/18/09	99.0	16.9	5.2	37.5	10.8	9.1
3/25/09	100.6	16.4	3.5	31.9	7.5	8.2
4/1/09	97.7	16.3	2.9	18.4	6.3	10.2
4/8/09	88.7	17.7	6.5	30.0	8.1	16.9
4/15/09	77.3	21.1	5.9	28.2	7.4	16.3
4/22/09	101.2	19.5	7.0	32.1	8.0	15.6
4/29/09	126.9	15.6	7.6	25.9	7.8	39.3
5/6/09	110.4	17.6	6.6	17.9	7.7	20.4

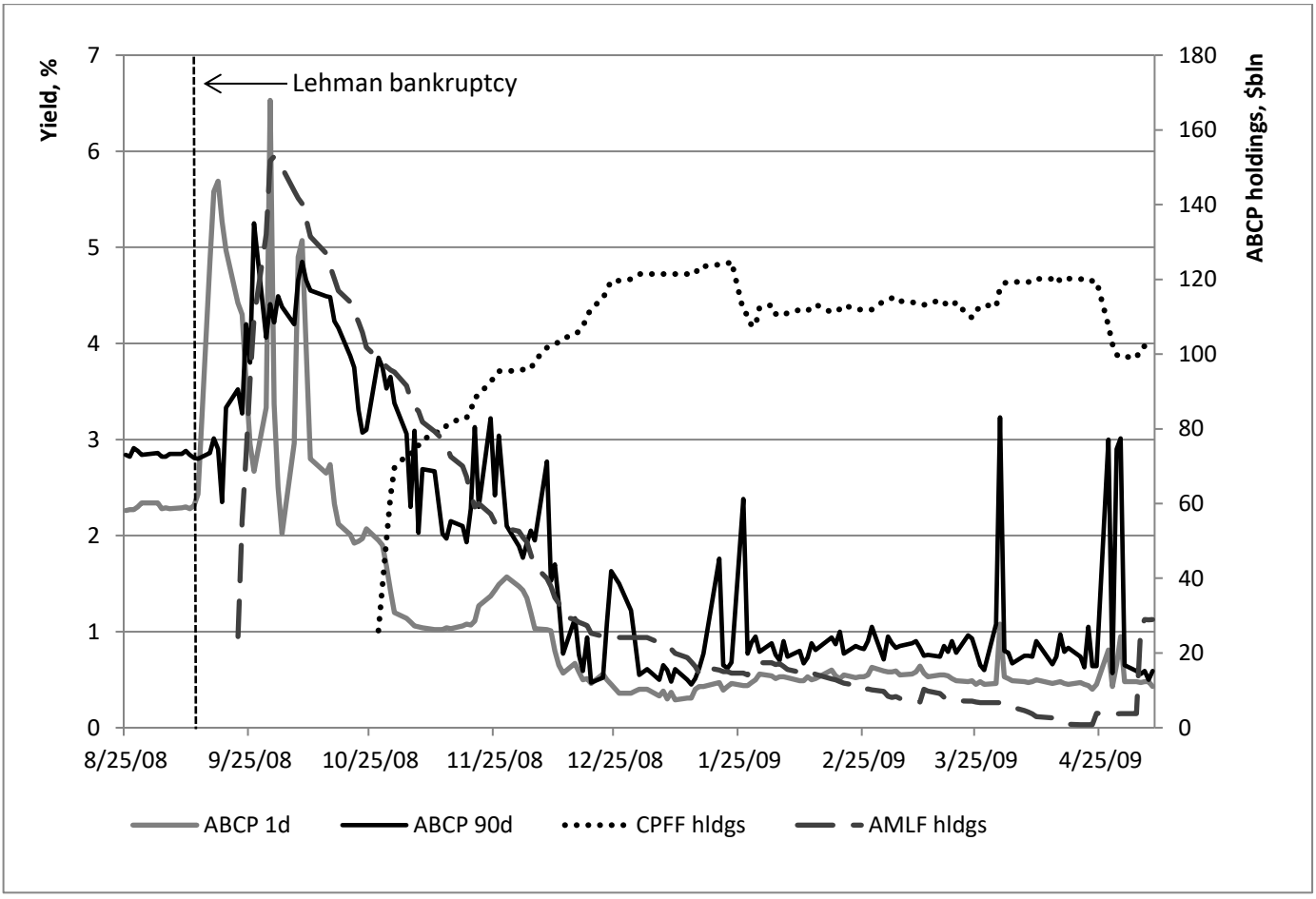
Data Source: http://www.federalreserve.gov/econresdata/releases/statisticsdata.htm.

Figure 1
Amounts of Commercial Paper Outstanding January 2004 – September 2010



Data Source: http://www.federalreserve.gov/econresdata/releases/statisticsdata.htm.

Figure 2
ABCP rates and ABCP holdings by AMLF and CPFF, August 25, 2008 – May 8, 2009.



Note: ABCP holdings of the AMLF and the CPFF are at par, in $ billion. Daily holdings were computed as the ABCP purchased by a given facility up to date minus ABCP purchased by the facility that has matured up to date.