

# The Federal Reserve and Institutional Money Market Funds in March 2020

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## ABSTRACT

In this article, I discuss which Federal Reserve (Fed) policies implemented impacted Money Market Funds (MMFs) inflows or outflows the most. The timeframe is March 2020, with the exigence of the COVID-19 pandemic. This research is necessary because it helps the Federal Reserve know which policies can support the short-term money market. The Short-term money market is vital for the economy because it provides short-term funding for banks which are the foundation of the US economy. Although MMFs are only a portion of the short-term money market, any change implemented in one sector will affect all others because they're closely intact. I used qualitative content analysis to find which policies prompt the most inflows/outflows. Through my research, I concluded that Federal Reserve Facilities to provide funding to various areas of the economy are what investors deem most worthy of investment.

## Introduction

In March 2020, the world faced an unprecedented shock in the COVID-19 pandemic that left the whole world in shambles. The short-term money market, specifically MMFs, was hit especially hard by the pandemic. The market lost its ability to supply assets to its funds as investors continued to redeem in the wake of the high demand for liquid money. There are various studies on how MMFs reacted to the pandemic (Gatch Et al. 2020; Clarida Et al. 2021; Haas Et al. 2020; Li & Epstein, 2022). But none of them focused on investor thinking *and* the timeframe of March 2020. These two factors are crucial because the COVID-19 pandemic had the most prevalent effect on the short-term money market during March 2020. Also, investor behavior is vital to a fund's assets. If there is no investment in a fund, then there cannot be any growth. Thus, this research is essential for the growth of the short-term money market and the economy as a whole. I used qualitative content analysis to determine the type of policies that prompt the greatest inflows and outflows. It was hypothesized that the policies that would prompt the most inflows are the swap lines operations and the policies that would provoke the most outflows are the ones with repurchase operations.

## Literature Review

This research aims to explore how effective central bank policies were to US Prime Money Market Funds (MMFs) prompted by COVID-19 in March 2020. The net volatility of MMFs increased due to varying inflows and outflows during this period. To better understand why this occurred, it's necessary to look at prior research. Gatch Et al. 2020 studied the experiences of MMFs in March 2020. They find that "institutional prime money market funds did experience significant outflows in March as a percentage of their assets as investors sought to preserve or enhance their cash positions." This finding suggests that investors sought to redeem before weekly

liquid assets (WLA) dropped below the 30% threshold and had to pay additional fees on redemptions. These sudden outflows depleted the reserves of the funds. As a result, the money market was thrown into turmoil.

Clarida et al. 2021 outline the actions taken by the USA's central bank: The Federal Reserve. They explain the specificities of The Fed's policies and state their respective objectives. They conclude, "The Federal Reserve acted decisively and with dispatch to deploy all the tools in its conventional kit and to design, develop, and launch within weeks a series of innovative facilities to support the flow of credit to households and businesses. These measures...provided crucial support to the economy in 2020." Haas et al. 2020 have similar research to the previous paper, but they include information on three other banks as well: the Bank of England (BOE), the Bank of Japan (BOJ), and the European Central Bank (ECB). They present the same conclusions as the previous paper.

The latter two sources are crucial because they provide an accurate description of the policies from the creator of those policies: The Federal Reserve. The first source is necessary because it delivers an investment firm's perspective—which is essential. After all, they need to know everything they can about their investments to make the most profits. Even though the three sources come from different entities, they all have the same conclusion: The Fed's (or the respective central bank's) actions have benefited the economy and have provided liquidity to short-term markets in a time of stress. Along with explaining the Fed's impact on MMFs, Gatch et al. 2020 present a slightly different conclusion. They claim the pressures in short-term credit markets during March 2020 were not caused by the significant outflows. Instead, pressures already existed in early March before significant outflows. Nonetheless, all three sources fail to explain how the new policies and actions proposed by the Fed changed investor mindsets and behavior. Although Haas et al. 2020 briefly touched on the incentive for the significant outflows being investors perceived greater risk, there was nothing on how the addition of policies changed that perceived risk.

In my research, I seek to address this gap. Specifically, how the policy's specifics prompted their investments. Clarida et al. 2021 highlight that the high demand for liquid cash resulted in severe outflows. However, once the Fed and other central banks implemented liquidation policies, net volatility decreased, and inflows generally increased. Li and Epstein (2022) discuss how the investor base changed over time. But they don't focus on the timeframe of March 2020.

Knowing why and how the investor mindset changed is essential for the finance industry, especially the short-term market. For example, once the Fed established the Money Market Liquidity Facility (MMLF), inflows increased and outflows decreased into prime MMFs returned to their normal levels. Why did this occur? It could have been because of several factors. Maybe, the investor saw more security in the investment since there was more support. Or, the investor may have needed more liquidity so they invested in the now more liquid prime MMFs. This will help economists determine the financial status of the public to better implement future policies.

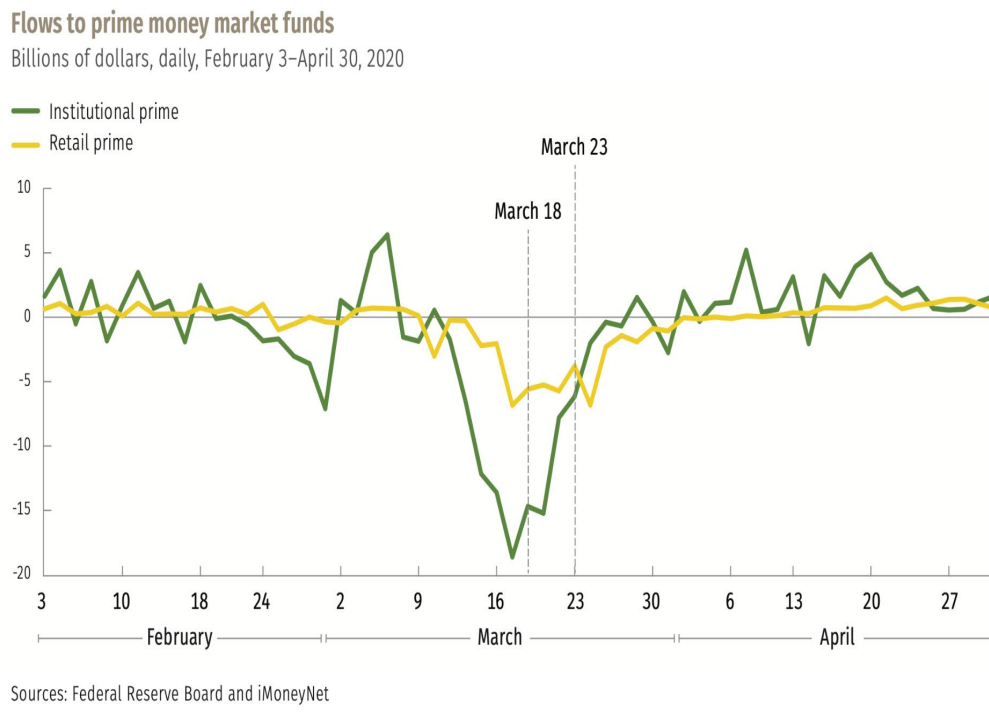
This question is also very important to MMF companies. They want to know whether or not investors are interested in their funds. If the outflows tend to increase after a new policy is implemented, the fund managers will set gates or fees to prevent more severe runs. They will also need to decide to take the help of the new MMLF. These decisions will impact not only that fund but the entire short-term money supply (in this case, M3). This is because MMFs provide a significant portion of the funding—\$3.6 trillion—of the M3 money supply. Without this funding, the market can enter a slump and possibly a recession.

To answer the question, I will conduct research using one principal method. First, I will analyze the relationship between the policy implemented and the inflows/outflows of the institutional prime fund. My goal is to find the key factors/actions implemented within policies that prompt investors to either redeem or invest. With this data, fund managers can better manage their funds to maximize growth.

## Methods

There are four categories of actions done by the Federal Reserve: Monetary Policy, Liquidity and funding operations, direct support for providing credit, and banking initiatives. It's important to know which Fed actions impact which sectors because they will change an investor's decision. If their fund does not meet the criteria, the investor will redeem. The monetary policy actions generally stabilize the economy and limit inflation. The three most common objectives were to achieve maximum employment and price stability, maintain the reserve supply, and support the smooth functioning of markets. The liquidity and funding operations kept the money flowing in the economy. The two main objectives were to lessen strains in global dollar funding markets and to support the flow of credit to households and businesses. The direct support for providing credit created organizations within the Fed to aid different types of funds. The two goals were to provide liquidity and speed the flow of credit to households and businesses. The banking initiatives eased strains caused by the coronavirus on banks, households, and businesses. I predict that the policies that will prompt the most inflows are the swap lines operations. I predict the policies that will provoke the most outflows are the ones with repurchase operations.

I used a qualitative content analysis method to analyze which factors within policies affected institutional investors to either redeem or invest. I organized all the actions by date order and determined their intricacies. Then, I looked at flow data from the Federal Reserve Board (figure 1) after a policy proposal to determine if it caused an increase or decrease in flows. After finding out whether it increased or decreased, I organized the policies by how much they increased or decreased inflows or outflows. The scale was small, medium, and large.



**Figure 1.** Source: Investment Company Institute

Then, I took the policies that caused the most change. From there, I determined why those specific policies caused significant increases or decreases in flows. To do this, I analyzed the specifics of those policies. These specifics are actual efforts made by the Fed. For example, on March 18th, the Federal Reserve Board (FRB) announced its new Money Market Liquidity Facility (MMLF). I went through what this facility would do and how it would help MMFs.

This form of research is the ideal method to answer which factors caused significant inflows or outflows of funds. Since institutional investors want to make the most profits, they will invest in MMFs with the best asset flow. Furthermore, since MMFs are primary assets for liquid purposes, investors search for liquidity as well. To determine what an investor deems worthy, I must think like an investor.

## Analysis and Results

**Table 1.** Source: Clarida Et al. 2021

	A	B	C	D
1	Date	Policy action	Net flows (-/+)	Amt Increase
2	3/3/2020	FOMC lowers FFTR by 1/2 percentage point, to 1 to 1-1/4 percent	Decrease	Small
3	3/9/2020	Updates the monthly schedule of repo operations	Increase	Medium
4	3/12/2020	Introduces new weekly recurring one- and three-month term repo operations	Decrease	Medium
5	3/15/2020	FOMC lowers FFTR by 1 percentage point, to 0 to 1/4 percent, and introduces forward guidance	Decrease	Small
6	3/15/2020	FOMC to increase its holdings of Treasury and agency mortgage by at least \$500 billion and \$200 billion, backed securities respectively, over the coming months	Decrease	Small
7	3/15/2020	Discount window: reduction in primary credit rate by 150 basis and introduction of term loans up to 90 days. Reserve requirements: reduction to 0 percent, effective on March 26	Decrease	Small
8	3/15/2020	FOMC enhances standing U.S. liquidity swap lines with Bank of Canada, Bank of England, Bank of Japan, European Central Bank, and the Swiss National Bank	Decrease	Small
9	3/15/2020	FRB encourages banks to use their capital and liquidity buffers as they lend to households and businesses who are affected by the coronavirus	Decrease	Small
10	3/16/2020	Introduces a second daily overnight repo operation and increases the amount offered in each to \$500 billion	Decrease	Large
11	3/17/2020	FRB announces Commercial Paper Funding Facility	Increase	Medium
12	3/17/2020	FRB announces Primary Dealer Credit Facility	Increase	Medium
13	3/18/2020	FRB announces Money Market Mutual Fund Liquidity Facility	Decrease	Small
14	3/19/2020	FOMC announces temporary swap lines with 9 additional central banks	Increase	Large
15	3/20/2020	FOMC increases frequency of 7-day maturity operations of standing swap lines	Increase	Large
16	3/22/2020	Agencies provide additional information to encourage financial institutions to work with borrowers affected by COVID-19	Increase	Medium
17	3/23/2020	FOMC announces it will continue to purchase Treasury securities and agency MBS "in the amounts needed." It also includes in the backed securities purchases agency CMBS for the first time	Increase	Large
18	3/23/2020	FRB announces Term Asset-Backed Securities Loan Facility	Increase	Large
19	3/23/2020	FRB announces Primary Market Corporate Credit Facility	Increase	Large
20	3/23/2020	FRB announces Secondary Market Corporate Credit Facility	Increase	Large
21	3/23/2020	FRB says it expects to announce Main Street Lending Program soon	Increase	Large
22	3/31/2020	FOMC announces temporary FIMA Repo Facility	Increase	Large

After the first sight of Table 1, it's evident that the policies that prompted the most inflows were policies involving swap lines and credit facilities to increase liquidity. To further determine which factors could have caused increases in inflows, it's necessary to thoroughly examine each of the policies that caused increases following March 17. This date is the best choice because that's when the general flow trend changed from negative to positive.

First, the Federal Open Market Committee (FOMC) announced temporary swap lines with 9 additional central banks. A swap line is essentially when two countries exchange their currency in terms of respective exchange rates. They then use this supply of money for overnight or short-term lending. Although five of these banks were afterward, four of them, the Bank of England, European Central Bank, Swiss National Bank, and Bank of Japan, traded on the 19th. Operations with different banks were exchanged with different amounts, rates, and maturity dates. These differences matter because the amounts must be accurate. Otherwise, they eliminate the purpose of this operation, which the Federal Reserve Bank of New York (2023) defines as "to improve liquidity conditions in global money markets and to minimize the risk that strains abroad could spread to U.S. markets, by providing foreign central banks with the capacity to deliver U.S. dollar funding to institutions in their jurisdictions."

Second, the FOMC increased the frequency of the 7-day maturity operation of standing lines. According to the Federal Reserve Board (2020), “These swap lines among these central banks are available standing facilities and serve as an important liquidity backstop to ease strains in global funding markets, thereby helping to mitigate the effects of such strains on the supply of credit to households and businesses, both domestically and abroad.” Essentially, this operation increases the number of swap lines. But, it focuses on the 7-week options because it’s best to keep cash flowing and not sit with any country for too long.

Third, agencies provided additional information to encourage financial institutions to work with borrowers affected by COVID-19. The objective is to encourage banks to modify loans for borrowers in debt. But, they explicitly state that this would not be considered a troubled debt restructuring (TDR). This classification is important because if a loan modification were considered a TDR, the borrower would have to pay more total interest over a longer period. This led to improved loan performance and reduced credit risk according to the Board of Governors of the Federal Reserve (2020b).

Fourth, the FOMC announced it will continue to purchase treasury securities and mortgage-backed securities (MBS) along with commercial MBS for the first time (Board of Governors of the Federal Reserve, 2020d). The goal of this operation is to maintain the federal funds rate at the target of 0 to ¼ percent. This is important because it prompts banks to lend from each other to keep cash flowing. This helps to prevent the bank runs that were a significant cause of the 2008 recession.

Fifth, the Federal Reserve Board (FRB) announced the Term Asset-Backed Securities loan facility (Board of Governors of the Federal Reserve, 2020c). The goal of this facility was to allow companies access to credit so that they are better able to maintain business operations and capacity during the period of dislocations related to the pandemic (Clarida et al. 2021). It’s widely evident that liquidity, credit, and cash flow are three themes visible in almost every policy implemented by the Federal Reserve to improve the Money Market.

Sixth, the FRB announced the Primary Market Corporate Credit Facility for new bond and loan issuance and the Secondary Market Corporate Credit Facility (SMCCF) to provide liquidity for outstanding corporate bonds. This facility is open to investment-grade companies and will provide bridge financing for four years. Borrowers may elect to defer interest and principal payments during the first six months of the loan, extendable at the Federal Reserve’s discretion, to have additional cash on hand that can be used to pay employees and suppliers. The Federal Reserve will finance a special purpose vehicle (SPV) to make loans from the PMCCF to companies. According to the Board of Governors of the Federal Reserve (2020c), the Treasury, using the ESF, will make an equity investment in the SPV.

The SMCCF will purchase in the secondary market corporate bonds issued by investment-grade U.S. companies and U.S.-listed exchange-traded funds whose investment objective is to provide broad exposure to the market for U.S. investment-grade corporate bonds. The Treasury, using the ESF, will make an equity investment in the SPV established by the Federal Reserve for this facility (Board of Governors of the Federal Reserve, 2020c).

Seventh, the FRB announced the Main Street Lending Program. To implement the Program, the Federal Reserve Bank of Boston set up a special purpose vehicle (SPV) to purchase participations in loans originated by eligible lenders. Lenders retained a percentage of the loans. U.S. businesses and nonprofit organizations may have been eligible for loans if they met the criteria set out in the term sheets. Loans issued under the Program have a five-year maturity, deferral of principal payments for two years, and deferral of interest payments for one year. Eligible lenders were able to originate new loans or increase the size of (or “upsized”) existing loans made to eligible borrowers. According to the Board of Governors of the Federal Reserve (2023), the Program ceased purchasing participation on January 8, 2021. The Federal Reserve Bank of Boston will continue to fund the SPV until the SPV’s underlying assets mature or are sold.

As for policies prompting the most outflows, the results are admonishing. From around March 7th, the flows into MMFs were continuously negative. It wasn’t until around March 17th that inflows finally started to return. This occurrence is strange because the Fed had been establishing policies since the beginning of March

to support MMFs, but inflows only started once specific facilities were established. Specifically, the first of these facilities was the Commercial Paper Funding Facility. This facility would supply credit and funding (Clarida et al. 2021) for auto loans and mortgages as well as liquidity to meet the operational needs of a range of companies. This additional support would ensure the smooth functioning of the market so households and businesses can recover from the pandemic's shock. To determine why certain policies didn't invoke a positive change in flows, it's best to analyze their specifics. With that information, a more plausible conclusion can be drawn.

Another strange occurrence is the change in flows after the Money Market Mutual Fund Liquidity Facility. There was a small increase in outflows after it was announced. This seemed ironic because this program was specifically directed towards MMFs yet they ended up harming them. "For both institutional and retail funds, there is a positive relationship between the outflows suffered by a fund during the run and the fund's usage of the MMLF." Anadu et al. (2021) estimate "the magnitude of this relationship through regression analysis: a \$1 billion dollar increase in outflows during the run (March 6-20, 2020) leads to an increase in MMLF asset pledges by \$337 million in institutional funds and \$275 million in retail funds; these effects are not only statistically significant but also economically important." Two securities that the MMLF expanded were municipal variable-rate demand notes and bank certificates of deposits (CDs). These provide interest on deposits to funds from the Fed. This is likely the reason outflows increased. Fund managers wanted to make a profit while avoiding the illiquidity risks associated with leaving their money in the market.

Third, the FOMC lowers the Federal Funds Target Rate (FFTR) by 1/2 percentage point, to 1 to 1-1/4 percent. The goal of this action is to increase the ease of banks lending to each other. If the FFTR is lower, banks will be more inclined to loan because the interest they have to pay is much lower. Although a 1/2 percentage point decrease may not seem significant, since banks loan in the millions, it makes a huge difference. The importance of lending between banks is that it increases the money supply. Due to the money multiplier (essentially a geometric series), money lent out will create a much greater effect than the initial amount. But MMFs flows still decreased after this was announced. It's possible that the goal was not to increase MMF flows. The Fed itself stated the goal was to achieve its maximum employment and price stability goals (Clarida et al., 2021).

Fourth, the FRB introduces new weekly recurring one and three-month term repurchase operations. This is essentially a loan with securities as collateral. The goal was to increase the money supply. But, as stated earlier, this wasn't a goal closely related to MMFs. That may be why there were greater net negative inflows.

Fifth, the FOMC lowers FFTR by 1 percentage point, to 0 to 1/4 percent, and introduces forward guidance. This is essentially the same action as above but on a more rigorous scale. However, there is a new feature: forward guidance. This method forecasts future monetary policy to the public. The goal is to help increase confidence about future inflation. But, as stated earlier, since the initiative was not towards MMFs, it didn't help it gain flow.

Sixth, the FOMC is to increase its holdings of Treasury and agency mortgages by at least \$500 billion and \$200 billion, backed securities respectively, over the coming months. This means the Fed has bought Treasury securities to increase the money supply. This was a good move by the Fed to increase spending. There's a cloud covering the COVID-19 pandemic and there was high spending. However, during the beginning of the pandemic, due to supply chain issues, spending was halted. Again, there's a recurring goal to improve the national long-term economy, not the short-term money market.

Seventh, the Discount window: reduction in primary credit rate by 150 basis points and introduction of term loans up to 90 days. Reserve requirements: reduction to 0 percent, effective on March 26. Removing the reserve requirement was a big shift in the US's monetary policy because it shifted from a limited reserve system to an ample reserve system. The goal was to help banks gain the funding necessary to meet the demands of their customers since many were withdrawing their deposits. Customers wanted liquid cash instead of bank



deposits because of the market situation. This did have a minor impact on MMFs but not enough to cause a positive flow.

Eighth, the FOMC enhances standing U.S. liquidity swap lines with the Bank of Canada, Bank of England, Bank of Japan, the European Central Bank, and the Swiss National Bank. The swap lines are available standing facilities and serve as an important liquidity backstop to ease strains in global funding markets, thereby helping to mitigate the effects of such strains on the supply of credit to households and businesses, both domestically and abroad (Board of Governors of the Federal Reserve, 2020a). This was a very great decision by the Fed to ease the dollar's illiquidity. But, it was directed toward foreign markets. If the Fed had done something to ease the dollar's illiquidity domestically, it would have increased inflows.

Ninth, the FRB encourages banks to use their capital and liquidity buffers as they lend to households and businesses that are affected by the coronavirus. These buffers are reserves of money (not to be confused with required reserves) that banks can draw upon when "on a rainy day." This action was taken later towards the middle of March when the policies affecting MMFs were announced. That's why the decline wasn't too bad but, it still didn't convince institutional investors enough to invest more.

Tenth, the FRB introduces a second daily overnight repo operation and increases the amount offered in each to \$500 billion. This action resulted in the highest redemption of funds throughout all of March 2020. This is peculiar because the goal was to ensure that the supply of reserves remains ample and to mitigate the risk of money market pressures that could adversely affect policy implementation. The issue was probably that this program creates a dependency on the Federal Reserve for MMFs. This dependency eliminates transactions with private banks. According to Tran (2023), if these trends continue they will marginalize the role of private markets for short-term funds, weakening the usefulness of market price signals arising through the autonomous supply and demand for funds among private entities.

So from these results, it's evident that there are a few patterns. The majority of net positive flows come from the establishment of facilities. The majority of the net negative flows come from repurchase agreements. From this correlation, I connected facilities and inflows. A positive correlation is present. The more liquidity facilities established, the greater the inflows. This trend is visible in Figure 1. Why investors believe facilities are better supporters of MMFs than repurchase operations or liquidity swap lines remains a question. It's probably because repurchase agreements require interest payments which could prompt further losses to a fund's assets. Or, it could be because central-bank lending programs put ceilings on private domestic lending rates (Bahaj & Reis, 2021).

## Conclusion

After obtaining the results from the data, it's clear that my hypothesis was partially correct. I was right about the causes of outflows being repos. However, I was wrong about the policies that prompt the most significant inflows. I predicted that swap line operations would cause the most inflows. Instead, it was the establishment of liquidity facilities. These appear to be the best choice because they increase the liquidity of the short-term money market without any major consequence. These consequences include extra fees and higher interest payments.

However, there are limitations to my research. Several other factors played into the inflows and outflows, including foreign banking situations and price levels. The investors may know things about the MMFs that aren't revealed to the public. These extraneous variables could very well have changed investor behavior. The importance of these results is that if there were ever another short-term market crisis, the Fed knows to implement more and expand existing liquidity facilities to provide funding to the short-term money market.

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