

**Report of the President's Working Group on
Financial Markets**

**Overview of Recent Events and Potential Reform
Options for Money Market Funds**

December 2020

Table of Contents

I. Overview	3
II. Background	5
A. Money Market Funds — Structure, Asset Types, and Investor Characteristics	5
B. 2010 and 2014 Reforms	6
C. State of the Money Market Fund Industry Following the 2008 Financial Crisis	8
III. Events in March 2020	11
A. Stresses in Short-Term Funding Markets	11
B. Stresses on Prime and Tax-Exempt Money Market Funds and Other Money-Market Investment Vehicles	14
C. Taxpayer-Supported Central Bank Intervention	17
IV. Potential Policy Measures to Increase the Resilience of Prime and Tax-Exempt Money Market Funds	18
A. Removal of Tie between MMF Liquidity and Fee and Gate Thresholds	22
B. Reform of Conditions for Imposing Redemption Gates	23
C. Minimum Balance at Risk	24
D. Money Market Fund Liquidity Management Changes	26
E. Countercyclical Weekly Liquid Asset Requirements	27
F. Floating NAVs for All Prime and Tax-Exempt Money Market Funds	28
G. Swing Pricing Requirement	29
H. Capital Buffer Requirements	30
I. Require Liquidity Exchange Bank Membership	31
J. New Requirements Governing Sponsor Support	33

I. Overview

In March 2020, short-term funding markets came under sharp stress amid growing economic concerns related to the COVID-19 pandemic and an overall flight to liquidity and quality among investors. Instruments underlying these markets include short-term U.S. Treasury securities, short-term agency securities, short-term municipal securities, commercial paper (“CP”), and negotiable certificates of deposit issued by domestic and foreign banks (“NCDs”). Money market funds (“MMFs”) are significant participants in these markets, facilitating investment by a broad range of individuals and institutions in the relevant short-term instruments. Because these short-term instruments tend to have relatively stable values and MMFs offer daily redemptions, investors in MMFs often expect to receive immediate liquidity with limited price volatility. However, in times of stress, these expectations may not match market conditions, causing investors to seek to liquidate their positions in MMFs. These investor actions, which are motivated by both the expectation-market condition mismatch and the structural vulnerabilities of MMFs, can amplify market stress more generally.¹

The economic and public policy considerations raised by this dynamic among investors, MMFs, and short-term funding markets are multi-faceted and significant. The orderly functioning of short-term funding markets is essential to the performance of broader financial markets and our economy more generally. It is the role of financial regulators to identify and address market activities that have the potential to impair that orderly functioning. Crafters of public policy and financial regulation also must recognize that the broad availability of short-term funding is critical to short-term funding markets and, for many decades, prime and tax-exempt MMFs have been an important source of demand in these markets although their market share has decreased and assets shifted toward government MMFs in the past decade. In addition, the participation of retail investors in MMFs raises considerations of fairness and consumer confidence, particularly in times of unanticipated stress, that can affect regulatory and public policy responses.

These dynamics and policy considerations were brought into stark relief in March 2020. While government MMFs saw significant inflows during this time, the prime and tax-exempt MMF sectors faced significant outflows and increasingly illiquid markets for the funds’ assets. As a result, prime and tax-exempt MMFs experienced, and began to contribute to, general stress in short-term funding markets in March 2020. For example, as pressures on prime and tax-exempt MMFs worsened, two MMF sponsors intervened to provide support to their funds. It did

¹ For a more detailed discussion of the structure and significance of short-term funding markets and the effects of the COVID-19 shock, as well as the effects of monetary and fiscal measures, *see* SEC staff report, “U.S. Credit Markets Interconnectedness and the Effects of COVID-19 Economic Shock,” (October 2020) (“SEC Staff Interconnectedness Report”), *available at* https://www.sec.gov/files/US-Credit-Markets_COVID-19_Report.pdf; Board of Governors of the Federal Reserve System, “Financial Stability Report,” (November 2020) at pp.13-14, *available at* <https://www.federalreserve.gov/publications/files/financial-stability-report-20201109.pdf>.

not appear that these funds had idiosyncratic holdings or were otherwise distinct from similar funds and, accordingly, it was reasonable to conclude that other MMFs could need similar support in the near term. These events occurred despite multiple reform efforts over the past decade to make MMFs more resilient to credit and liquidity stresses and, as a result, less susceptible to redemption-driven runs. When the Federal Reserve quickly took action in mid-March by establishing, with Treasury approval, the Money Market Mutual Fund Liquidity Facility (“MMLF”) and other facilities to support short-term funding markets generally and MMFs specifically, prime and tax-exempt MMF outflows subsided and short-term funding market conditions improved.²

Prime and tax-exempt MMFs have been supported by official sector intervention twice over the past twelve years. In September 2008, there was a run on certain types of MMFs after the failure of Lehman Brothers caused a large prime MMF that held Lehman Brothers short-term instruments to sustain losses and “break the buck.”³ During that time, prime MMFs experienced significant redemptions that contributed to dislocations in short-term funding markets, while government MMFs experienced net inflows. Ultimately, the run on prime MMFs abated after announcements of a Treasury guarantee program for MMFs and a Federal Reserve facility designed to provide liquidity to MMFs.⁴ Subsequently, the Securities and Exchange Commission (“SEC”) adopted reforms (in 2010 and 2014) that were designed to address the structural vulnerabilities that became apparent in 2008.

Because prime and tax-exempt MMFs again have shown structural vulnerabilities that can create or transmit stress in short-term funding markets, it is incumbent upon financial regulators to examine the events of March 2020 closely, and in particular the role, operation, and regulatory framework for these MMFs, with a view toward potential improvements. In addition,

² The MMLF makes loans available to eligible financial institutions secured by high-quality assets the financial institution purchased from MMFs. The MMLF also received \$10 billion in credit protection from the Treasury’s Exchange Stabilization Fund. Other relevant Federal Reserve facilities include, among others: (1) the Commercial Paper Funding Facility (“CPFF”), which provides a liquidity backstop to U.S. issuers of commercial paper; and (2) the Primary Dealer Credit Facility (“PDCF”), which provides funding to primary dealers in exchange for a broad range of collateral.

³ A number of other funds that suffered losses in 2008 avoided breaking the buck because they received sponsor support. *See* Money Market Fund Reform; Amendments to Form PF, Investment Company Act Release No. 31166 (July 23, 2014) [79 FR 47736 (Aug. 14, 2014)] (“SEC 2014 Reforms”) at Section II.B.4, *available at* <https://www.sec.gov/rules/final/2014/33-9616.pdf>; *See also* Steffanie A. Brady, Kenechukwu E. Anadu, and Nathaniel R. Cooper, “The Stability of Prime Money Market Mutual Funds: Sponsor Support from 2007 to 2011,” Federal Reserve Bank of Boston Supervisory Research and Analysis Working Papers (2012), *available at* <https://www.bostonfed.org/publications/risk-and-policy-analysis/2012/the-stability-of-prime-money-market-mutual-funds-sponsor-support-from-2007-to-2011.aspx>. For a description of the term “break the buck,” *see* Section II.A, below.

⁴ For a more detailed discussion of the MMF-related events in 2008, *see* Report of the President’s Working Group on Financial Markets, “Money Market Fund Reform Options,” (October 2010) (“2010 PWG Report”), *available at* <https://www.treasury.gov/press-center/press-releases/Documents/10.21%20PWG%20Report%20Final.pdf>.

absent regulatory reform or other action that alters market expectations, these prior official sector interventions may have the consequence of solidifying the perception among investors, fund sponsors, and other market participants that similar support will be provided in future periods of stress.

With that history and context, this report by the President’s Working Group on Financial Markets (“PWG”) begins the important process of review and assessment.⁵ After providing background on MMFs and prior reforms, the report discusses events in certain short-term funding markets in March 2020, focusing on MMFs. The report then discusses various measures that policy makers could consider to improve the resilience of MMFs and broader short-term funding markets.⁶ This report is meant to facilitate discussion. The PWG is not endorsing any given measure at this time.

II. Background

A. Money Market Funds — Structure, Asset Types, and Investor Characteristics

MMFs are a type of mutual fund registered under the Investment Company Act of 1940 (the “Act”) and regulated under rule 2a-7 of the Act. MMFs offer a combination of limited principal volatility, liquidity, and payment of short-term market returns, which make them a popular cash management vehicle for both retail and institutional investors. These funds also serve as an important source of short-term financing for businesses and financial institutions, as well as federal, state, and local governments.

Overall, MMFs tend to invest in short-term, high-quality debt instruments that typically are held to maturity and fluctuate very little in value under normal market conditions. However, from fund to fund, MMFs vary significantly. They hold different types of investments, serve investors of different types (*i.e.*, institutional and retail), and pursue different investment objectives. For example, tax-exempt MMFs hold short-term state and local government and municipal securities, while government MMFs almost exclusively hold obligations of the U.S. government, including obligations of the U.S. Treasury and federal agencies and instrumentalities, as well as repurchase agreements collateralized fully by government securities. Traditionally, prime MMFs invest mostly in private debt instruments, including CP and NCDs. With regard to investor characteristics, there are three types of MMFs: (1) retail MMFs, which are limited to retail investors; (2) publicly-offered institutional MMFs, which are held primarily by institutional investors and offered broadly to the public; and (3) non-publicly-offered

⁵ The PWG is chaired by the Secretary of the Treasury and includes the Chair of the Board of Governors of the Federal Reserve System, the Chair of the Securities and Exchange Commission, and the Chair of the Commodity Futures Trading Commission.

⁶ Given jurisdictional differences, this report is not intended to cover events in other jurisdictions or to suggest a uniform international approach to policy changes.

institutional MMFs.⁷ Variations in portfolio holdings also correspond with investor-specific factors such as taxing jurisdictions and, to some extent, risk/return preferences.

Another significant difference among different types of MMFs is how they price the purchase and redemption of their shares. All government MMFs, as well as retail prime and retail tax-exempt MMFs, are permitted to price their shares at a stable net asset value (“NAV”) per share (typically \$1.00) without regard to small variations in the value of the assets in their portfolios. These MMFs must periodically compare their stable NAV per share to the market-based value per share of their portfolios (or “market-based price”). If the deviation between these two values exceeds one-half of one percent (50 basis points), the fund’s board must consider what action, if any, to take, including whether to adjust the fund’s share price. If the repricing is below the fund’s \$1.00 share price, the event is commonly called “breaking the buck.” In light of the importance investors place on a stable \$1.00 share price, such an action can lead to a loss of confidence in the fund and, if it is expected to extend beyond one fund, could lead to a loss of confidence in all similar funds. As discussed below, following the SEC’s 2014 reforms, institutional prime and institutional tax-exempt MMFs are required to price their shares using a floating NAV, which reflects the market value of the fund’s investments and any changes in that value, thus reducing the risk of an adverse signaling effect from “breaking the buck.”

As investors commonly use MMFs for principal preservation and as a cash management tool, many MMF investors may have a low tolerance for losses and liquidity limitations. However, MMFs offer shareholder redemptions on at least a daily basis (and in some cases at a stable NAV), even though a potentially significant portion of portfolio assets may not be converted into cash in that timeframe without a reduction in value. When the MMF does have to sell portfolio assets at a discount, the fund’s remaining shareholders generally bear those losses. These factors can lead to greater redemptions if investors believe they will be better off by redeeming earlier than other investors—a so-called “first mover” advantage—when there is a perception that the fund may suffer a loss in value or liquidity. Historically, amid periods of stress for MMFs, institutional investors, who may have large holdings and the resources to monitor risks carefully, have redeemed shares more rapidly and extensively than retail investors.

B. 2010 and 2014 Reforms

The SEC has implemented a number of reforms over the past decade aimed at making MMFs more resilient to credit and liquidity stresses and addressing structural vulnerabilities in MMFs that were evident in the 2008 financial crisis, particularly the substantial reforms the SEC adopted in 2010 and 2014.⁸ The 2010 reforms focused on, among other things, enhancing

⁷ For example, funds not offered to the public include “central” funds that asset managers use for internal cash management.

⁸ See Money Market Fund Reform, Investment Company Act Release No. 29132 (Feb. 23, 2010) [75 FR 10060 (Mar. 4, 2010)] (“SEC 2010 Reforms”), available at <https://www.sec.gov/rules/final/2010/ic-29132.pdf>; SEC 2014 Reforms.

transparency and reducing credit, liquidity, and interest rate risks of fund portfolios to make MMFs more resilient and, in the case of stable NAV funds, less likely to break the buck. For example, the amendments introduced new liquidity requirements: At the time an MMF acquires an asset, it must hold at least 10 percent of its total assets in daily liquid assets (“DLA”) and at least 30 percent of its total assets in weekly liquid assets (“WLA”).⁹ These requirements are designed to work in combination and ensure that a MMF has the legal right to receive enough cash within one or five business days to satisfy redemption requests. To address credit risks, the amendments added a new 120-day limit on funds’ portfolio weighted average life to limit exposure to credit spreads, as well as a reduction in the limit on funds’ portfolio weighted average maturity from 90 days to 60 days to limit interest rate risk.¹⁰ The 2010 reforms increased transparency by requiring MMFs to publicly disclose portfolio holdings each month. In addition, the amendments addressed other important issues such as stress testing, orderly fund liquidation, and repurchase agreements.

The SEC’s subsequent 2014 reforms focused on the structural vulnerabilities that make MMFs susceptible to runs and provided tools intended to slow runs should they occur.¹¹ These reforms included a floating NAV requirement for all prime and tax-exempt MMFs sold to institutional investors as a means of mitigating first mover advantages for investors who redeem from these funds when the value of their assets decline. Under the floating NAV requirement, these MMFs must sell and redeem their shares at prices based on the current market-based value of the assets in their underlying portfolios rounded to the fourth decimal place (*e.g.*, \$1.0000).

⁹ All MMFs are subject to these DLA and WLA standards, except tax-exempt MMFs are not subject to DLA standards due to the nature of the markets for tax-exempt securities and the limited supply of securities with daily demand features. If a MMF’s portfolio does not meet the minimum DLA or WLA standards, it is not in violation of rule 2a-7. However, it may not acquire any assets other than DLA or WLA until it meets these minimum standards.

Daily liquid assets are: cash; direct obligations of the U.S. government; certain securities that will mature (or be payable through a demand feature) within one business day; or amounts unconditionally due within one business day from pending portfolio security sales. *See* rule 2a-7(a)(8).

Weekly liquid assets are: cash; direct obligations of the U.S. government; agency discount notes with remaining maturities of 60 days or less; certain securities that will mature (or be payable through a demand feature) within five business days; or amounts unconditionally due within five business days from pending security sales. *See* rule 2a-7(a)(28).

¹⁰ *See* SEC staff report, “Response to Questions Posed by Commissioners Aguilar, Paredes, and Gallagher,” (November 2012) at pp. 18-30, available at <http://www.sec.gov/news/studies/2012/money-market-funds-memo-2012.pdf>.

¹¹ Prior to the 2014 reforms, the Financial Stability Oversight Council (“FSOC”) proposed recommendations regarding MMF reforms to address structural vulnerabilities of MMFs that the SEC’s 2010 reforms did not address. These proposed recommendations, which FSOC made pursuant to Section 120 of the Dodd-Frank Act, included alternatives on a floating NAV, a risk-based NAV buffer of 3 percent to provide explicit loss-absorption capacity, and a minimum balance at risk. *See* Financial Stability Oversight Council, “Proposed Recommendations Regarding Money Market Mutual Fund Reform,” (November 2012) (“FSOC Proposed Recommendations”), available at <https://www.treasury.gov/initiatives/fsoc/Documents/Proposed%20Recommendations%20Regarding%20Money%20Market%20Mutual%20Fund%20Reform%20-%20November%202013.%202012.pdf>.

Prior to the 2014 reforms, rule 2a-7 permitted these funds to maintain a stable NAV per share like all other MMFs.

In addition, to provide tools to slow an investor run should it occur, the 2014 reforms provided new fee and gate tools for all prime and tax-exempt MMFs, including retail funds.¹² Under the fee and gate provisions, boards of these MMFs are permitted to impose liquidity (redemption) fees of up to 2 percent or to temporarily suspend redemptions if the fund's WLA falls below the 30 percent minimum required. In addition, funds must impose a 1 percent liquidity fee if WLA falls below 10 percent of total assets, unless the fund's board determines that imposing the fee is not in the best interests of the fund. Liquidity fees provide investors continued access to cash redemptions but may reduce the incentive to redeem. Gates, on the other hand, stop redemptions altogether for up to ten business days but may cause investors to seek a first mover advantage and redeem in advance of the imposition of gates.

Further, the 2014 amendments enhanced transparency for MMF investors and provided information about important MMF events more uniformly and efficiently. For instance, the amendments required MMFs to promptly report certain significant events in filings with the SEC, including the imposition or removal of fees or gates, portfolio security defaults, the use of sponsor support, and a fall in a retail or government MMF's market-based price per share below \$0.9975. The 2014 reforms also generally required website disclosure of these events, as well as daily website disclosure of a fund's DLA, WLA, market-based NAV, and net flows. In addition, the reforms addressed MMF diversification and valuation practices.

C. State of the Money Market Fund Industry Following the 2008 Financial Crisis

Since 2008, the composition of the MMF sector has changed substantially, and the industry continued to evolve through 2020. Chart 1 provides information about changes in net assets by type of MMF, while Chart 2 provides more detail about subcategories of prime and tax-exempt MMFs (*i.e.*, retail and institutional funds). As of September 30, 2020, total industry net assets were \$4.9 trillion, down slightly from an all-time high of \$5.2 trillion in May 2020 (see Chart 1).

¹² Government MMFs are permitted (but not required) to adopt fee and gate provisions.

Chart 1

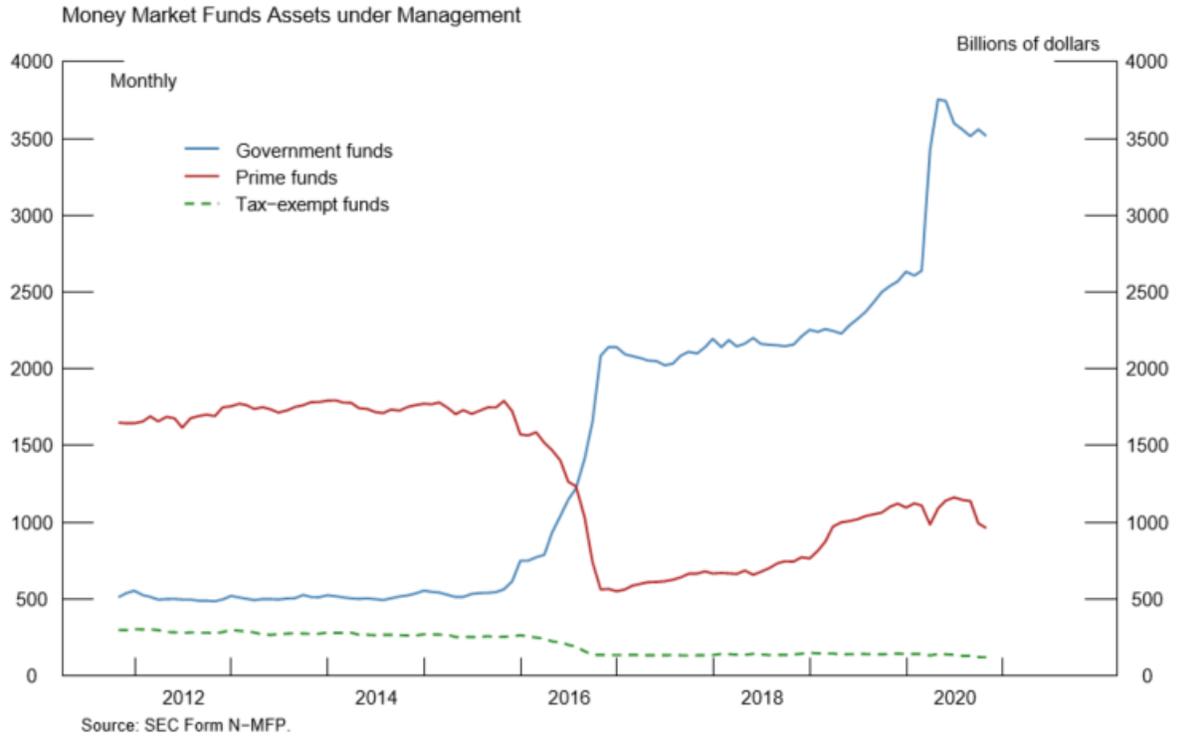
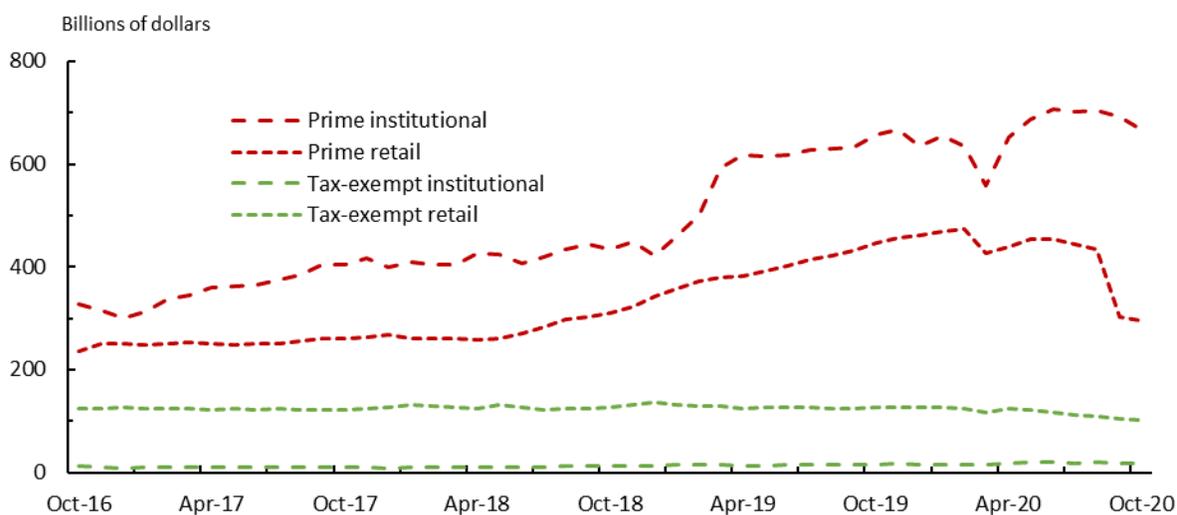


Chart 2¹³

Prime and Tax-Exempt MMF Assets under Management



Source: SEC Form N-MFP

The assets of government MMFs (the blue line in Chart 1), which were under \$1 trillion in August 2008, have grown considerably since then. Much of the growth occurred in 2016, when government MMF assets increased more than \$1 trillion as investors shifted money from prime and tax-exempt MMFs, which were required, starting in October 2016, to implement the more significant aspects of the 2014 reforms.¹⁴ In March 2020, government MMF assets increased by \$840 billion to \$3.6 trillion, and their assets reached nearly \$4.0 trillion at the end of April. As of September 2020, government MMFs accounted for 77 percent of industry net assets.

The net assets of prime MMFs (the red line in Chart 1) contracted substantially in the year leading up to the October 2016 deadline for implementing the 2014 MMF reforms and were \$550 billion in December 2016. By February 2020, these funds' assets had recovered to \$1.1 trillion, but their assets fell \$125 billion on net in March. As of September 2020, prime MMFs accounted for around 20 percent of industry net assets.

¹³ The 2014 amendments introduced a regulatory definition of a retail MMF (and implemented it in 2016). Because data on institutional and retail MMFs prior to October 2016 may not be entirely comparable with current statistics, Chart 2 does not include data on retail and institutional MMFs prior to October 2016.

The drop in prime retail MMF assets in September 2020 is the result of a large prime retail MMF converting to a government MMF.

¹⁴ The compliance date for the floating NAV requirement for institutional prime and institutional tax-exempt MMFs and for the fee and gate provisions for all prime and tax-exempt funds was October 14, 2016.

Net assets in tax-exempt MMFs (the dashed green line in Chart 1) have also declined since 2008, when these funds had net assets exceeding \$500 billion. Tax-exempt funds' assets fell \$120 billion in the year before October 2016 and were about \$135 billion at the end of 2016. By February 2020, tax-exempt fund assets were about \$140 billion, and they declined \$9 billion in March 2020. The vast majority of tax-exempt MMF net assets are in retail funds (see Chart 2). Tax-exempt MMFs represent under three percent of total industry net assets as of September 2020.

III. Events in March 2020

Amid escalating concerns about the economic impact of the COVID-19 pandemic in March 2020, market participants sought to rapidly shift their holdings toward cash and short-term government securities. This rapid shift in asset allocation preferences placed stress on various components of short-term funding markets, including prime and tax-exempt MMFs, the repo markets, the CP market, and short-term municipal securities markets (including the market for variable-rate demand notes (“VRDNs”). As discussed in more detail below, pressures on prime and tax-exempt MMFs again revealed structural vulnerabilities in MMFs that led to increased redemptions and, in turn, began to contribute to and increase the general stress in short-term funding markets.

A. Stresses in Short-Term Funding Markets

Private short-term debt markets. In markets for private short-term debt instruments, such as CP and NCDs, conditions began to deteriorate rapidly in the second week of March. Spreads for instruments held by MMFs began widening sharply (see Chart 3). Specifically, spreads to overnight indexed swaps (“OIS”) for AA-rated nonfinancial CP reached new historical highs, while spreads for AA-rated financial CP and A2/P2-rated nonfinancial CP widened to the highest levels seen since the 2008 financial crisis. Along with widening spreads, new issuance of CP and NCDs declined markedly and shifted to short tenors. For instance, the share of CP issuance with overnight maturity climbed steadily to nearly 90 percent on March 23.

Pricing and liquidity concerns at MMFs were driven by, and began to contribute to, these market stresses. Widening spreads in short-term funding markets put downward pressure on the prices of assets in prime MMFs' portfolios, and redemptions from MMFs likely contributed to stress in these markets, as prime funds reduced their CP holdings disproportionately compared to other holders. At the end of February, prime MMFs offered to the public owned about 19 percent of outstanding CP.¹⁵ From March 10 to March 24, these funds cut their CP holdings by \$35 billion. This reduction accounted for 74 percent of the \$48 billion overall decline in outstanding

¹⁵ Total CP outstanding at the end of February 2020 was \$1.1 trillion (source: Federal Reserve). Holdings of publicly-offered prime funds are based on data from iMoneyNet. Total prime MMF holdings of CP, including internal funds that are not offered to the public, were 29 percent of outstanding CP at the end of February 2020 (source: SEC Form N-MFP).

CP over those two weeks.¹⁶ In addition, MMFs with WLAs close to 30 percent were likely reluctant to purchase assets with maturities of more than 7 days that would not qualify as WLA to avoid going below the regulatory requirements.¹⁷ Beyond MMFs, there were also other factors contributing to stress in CP markets, including outflows from other investment vehicles that invest in these markets (see below).

Some market participants have suggested that another contributing factor to stress in CP markets was that dealers in CP markets (as well as issuing dealers and banks) were experiencing their own liquidity pressures and limits on their willingness to intermediate in money markets.¹⁸ Historically, however, because the vast majority of CP typically is held to maturity, dealers have not had a substantial role in making secondary markets in CP. This is also the case for other private short-term debt instruments that prime MMFs hold. Thus, there was no reason to expect dealers to take a materially increased intermediation role in these assets in March. There are also a large number of individual issues (*i.e.*, CUSIPs) in the private short-term debt markets, which adds complexity to intermediation.¹⁹ In contrast to the private short-term debt markets, Treasury and agency securities markets have fewer CUSIPs, large daily trading volumes, and more liquid secondary markets, with primary dealers and others playing a large daily intermediation role in these markets.

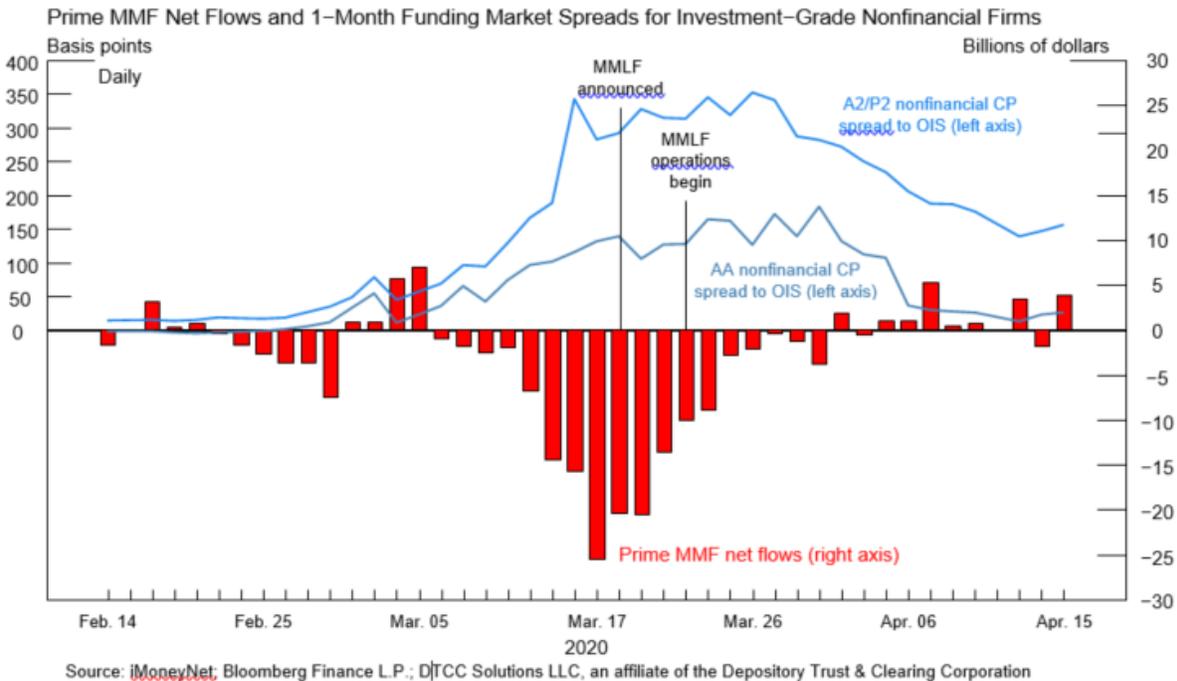
¹⁶ About \$6 billion of the reduction in MMF holdings of CP during this time was pledged as collateral to the MMLF.

¹⁷ Funds with WLAs below the 30 percent minimum threshold are prohibited from purchasing assets that are not WLAs, including CP and NCDs with maturities exceeding 7 days. On March 17 and 18, one prime MMF offered to institutional investors reported WLAs below 30 percent.

¹⁸ For example, large customer sales increased dealers' inventories of Treasuries and mortgage-backed securities. Facing balance sheet constraints and internal risk limits amid the elevated volatility, dealers cut back on intermediation more generally.

¹⁹ According to DTCC's Money Market Kinetics report as of March 31, 2020 (*available at* <https://www.dtcc.com/money-markets>), the 12-month average of daily settlements for fixed and floating rate CP was approximately \$80 billion, although only a small share of this volume appears to have been secondary market transactions, and further analysis of secondary market activity is needed. As previously noted, there was approximately \$1.1 trillion of total CP outstanding at the end of February 2020.

Chart 3



Short-term municipal debt markets. Conditions in short-term municipal debt markets also worsened rapidly in mid-March. Similar to the relationship between the CP market and prime MMFs discussed above, stresses in short-term municipal markets contributed to pricing pressures and outflows for tax-exempt MMFs which, in turn, contributed to increased stress in municipal markets. Beginning on March 12, tax-exempt MMFs experienced unusually large redemptions, with outflows accelerating over the next week. In response, tax-exempt funds reduced their holdings of VRDNs by about 16 percent (\$15 billion) in the two weeks from March 9 to March 23, with primary dealer VRDN inventories nearly tripling in the week ending March 18. VRDNs have a demand or tender feature that allows tax-exempt MMFs to require the tender agent to repurchase the security at par plus accrued interest. When a tax-exempt MMF tenders a VRDN, a remarketing agent typically remarkets the VRDN to other investors at a higher yield (and thus a lower price).

The redemption stresses on tax-exempt MMFs likely contributed to worsening conditions in short-term municipal debt markets. The SIFMA 7-day municipal swap index yield, a benchmark weekly rate in these markets, shot up 392 basis points on March 18, as remarketing agents offered VRDNs at higher yields in response to tax-exempt MMFs putting back their notes to tender agents. The spike in the SIFMA index yield caused a drop in market-based NAVs of tax-exempt MMFs (which mostly have stable, rounded NAVs).

B. Stresses on Prime and Tax-Exempt Money Market Funds and Other Money-Market Investment Vehicles

As part of the general deterioration in short-term funding market conditions, prime and tax-exempt MMFs experienced heavy redemptions beginning in the second week of March 2020. Outflows increased quickly, peaking on March 17 for prime funds (the day the Federal Reserve announced the CPFF) and on March 23 for tax-exempt funds (one business day after the Federal Reserve's MMLF was expanded to include tax-exempt securities).²⁰

Institutional prime fund outflows. Among institutional prime MMFs offered to the public, outflows as a percentage of fund size exceeded those in the September 2008 crisis. However, the dollar amount of outflows from these funds was much smaller in March 2020, in part because their assets on the eve of the pandemic were less than one-quarter of their size on the eve of the 2008 crisis. Over the two-week period from March 11 to 24, net redemptions from publicly-offered institutional prime funds totaled 30 percent (about \$100 billion) of the funds' assets, and these funds' outflows exceeded 5 percent of their assets on three consecutive days beginning on March 17. For comparison, in September 2008, the highest outflows from these funds over a two-week period were about 26 percent (about \$350 billion) of assets.²¹

A sizable portion of the institutional prime fund sector's assets are in funds that are not offered to the public.²² These non-public funds had smaller outflows than their publicly-offered counterparts, indicating that, on average, the former do not demonstrate the same vulnerabilities as funds that are offered publicly to a broad range of unaffiliated institutional investors. This difference may be attributable to investor characteristics as much as or more than the nonpublic nature of the offering. Outflows from non-public institutional prime funds totaled 6 percent (\$17 billion) of assets from March 9 to March 20.²³

Retail prime fund outflows. Although outflows from retail prime MMFs as a share of assets in March exceeded retail prime MMF outflows during the 2008 crisis, the March outflows

²⁰ The following discussion provides data on the size of the largest outflows from different types of MMFs during a given two-week (10 business day) period in March. These two-week periods do not necessarily coincide. For example, the two-week period for institutional prime funds begins two days before that for retail prime funds, in part because institutional prime funds experienced heavy redemptions earlier than retail prime funds. Using data for one-week periods provides qualitatively similar results. For comparison purposes, we also provide data on outflows for a standard two-week period from March 9 to March 20 for all types of MMFs, based on SEC Form N-MFP weekly data.

²¹ Data on daily MMF flows are from iMoneyNet. SEC Form N-MFP provides an official source of weekly flows data (for weeks ending on Fridays). For the two weeks from March 9 to 20, outflows from institutional prime funds that are offered to the public (as proxied by their presence in commercial databases) totaled \$90 billion (27 percent of assets). Form N-MFP weekly flows data are not available for the September 2008 crisis.

²² See footnote 7 and accompanying text for an explanation of publicly-offered funds versus non-public funds.

²³ Source: SEC Form N-MFP.

from retail prime MMFs were smaller than outflows from institutional prime MMFs. The redemptions from retail prime MMFs in March began a couple of days after those for institutional funds. Net redemptions totaled 9 percent (just over \$40 billion) of assets over the two weeks from March 13 to 26.²⁴ In September 2008, the heaviest retail outflows over a two-week period totaled 5 percent of assets. Retail prime funds had about 60 percent more assets in 2008 than in February 2020, so outflows were similar in dollar terms in both crises.²⁵ Some retail prime MMFs experienced declining market-based prices in March, but none of these funds reported a market-based price below \$0.9975. Moreover, retail prime MMF flows in March 2020 appear to have been unrelated to market-based prices, as funds with lower market-based prices did not experience larger outflows than other retail prime MMFs.

Tax-exempt fund outflows and declining market-based prices. Outflows from tax-exempt MMFs, which are largely retail funds, were 8 percent (\$11 billion) of assets during the two weeks from March 12 to 25.²⁶ In 2008, when tax-exempt MMF assets were more than four times larger than in February 2020, such funds had outflows of 7 percent (almost \$40 billion) of assets in one two-week period. In March, some retail tax-exempt MMFs also had declining market-based prices. Although none of these funds broke the buck, one fund reported a market-based price below \$0.9975. As with retail prime MMFs, there does not appear to have been a relationship between a decline in a particular retail tax-exempt MMF's market-based price and the size of its outflows.

Declining WLAs and relation to fees and gates. As prime funds experienced heavy redemptions, their WLAs declined, and some funds' WLAs (which must be disclosed publicly each day) approached or fell below the 30 percent minimum threshold that SEC rules require. Investor redemptions, which may have been further exacerbated by declining WLAs, can put additional pressure on fund liquidity during times of stress. As previously noted, when a fund's WLA falls below 30 percent, the fund can impose fees or gates on redemptions. Market participants reported concerns that the imposition of a fee or gate by one fund, as well as the perception that a fee or gate would be imposed by one fund, could spark widespread redemptions from other funds, leading to further stresses in the underlying markets. Although one institutional prime fund (with assets that declined from \$3.8 billion at the end of February to \$1.5 billion at the end of March) had WLAs below the 30 percent minimum, it did not impose a fee or gate in March.

²⁴ Source: iMoneyNet daily data. Similarly, data from SEC Form N-MFP show retail prime fund outflows of 7 percent of assets (\$33 billion) over the two week period from March 9 to 20.

²⁵ See footnote 13 (explaining that data on institutional and retail MMFs prior to 2016 may not be entirely comparable with current statistics).

²⁶ Source: iMoneyNet daily data. Similarly, data from SEC form N-MFP show tax-exempt fund outflows of 8 percent of assets (\$11 billion) over the two weeks from March 9 to 20.

Preliminary research indicates that prime fund outflows accelerated as WLAs declined, suggesting that the potential imposition of a fee or gate when a fund’s WLA drops below 30 percent encouraged institutional investors to redeem before that threshold was crossed.²⁷ Additionally, some market participants and observers have suggested that investors’ potential motivation to redeem as a MMF moves toward the 30 percent threshold is primarily driven by concerns about gates, rather than liquidity fees, because MMF investors have a low tolerance for being unable to access cash on demand.

Sponsor support. As strains on prime and tax-exempt MMFs worsened, two fund sponsors provided support for their funds. They did so by purchasing securities from three prime institutional MMFs and making a capital contribution to one tax-exempt fund.

Other investment vehicles that invest in securities and other instruments similar to MMFs. Other investment vehicles that invest in instruments held by MMFs also experienced outflows and stress in March. Short-term investment funds (“STIFs”) operated by banks, which have assets of about \$300 billion, had outflows in March and experienced related stress.²⁸ Ultra-short corporate bond mutual funds, which had assets of \$200 billion in February 2020, had outflows of \$33 billion (16 percent of assets) in March.²⁹ In addition, in the two weeks from March 12 to 25, outflows from European dollar-denominated MMFs investing in assets similar to U.S. prime MMFs (so-called offshore MMFs, which are largely domiciled in Ireland and Luxembourg), totaled 25 percent (about \$95 billion) of assets.³⁰

Prime and tax-exempt MMFs’ role in short-term funding markets’ stress. Short-term funding markets are interconnected with other market segments, and stress in one market can lead to stress in others. Prime and tax-exempt MMFs were not the sole contributors to the pressures in short-term funding markets.³¹ However, it appears that MMF actions were

²⁷ See Lei Li, Yi Li, Marco Macchiavelli, and Xing (Alex) Zhou, “Runs and Interventions in the Time of COVID-19: Evidence from Money Funds,” working paper (2020), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3607593.

²⁸ The Office of the Comptroller of the Currency (“OCC”), which oversees national banks operating STIFs, issued an interim final rule and an administrative order allowing STIFs to extend their dollar-weighted average portfolio maturity and dollar-weighted average portfolio life maturity to alleviate pressure on STIF management’s ability to comply with these maturity limits in light of stressed market conditions. See Short-Term Investment Funds, 85 FR 16888 (Mar. 25, 2020), available at <https://www.occ.gov/news-issuances/federal-register/2020/85fr16888.pdf>.

²⁹ Source: Morningstar data.

³⁰ Source: iMoneyNet data.

³¹ For example, leveraged non-bank entities, such as hedge funds using Treasury collateral and real estate investment trusts using agency mortgage-backed security collateral, may have also contributed to pressure in short-term funding markets. See, e.g., FSOC Annual Report 2020 at p.5, available at <https://home.treasury.gov/system/files/261/FSOC2020AnnualReport.pdf>.

particularly significant relative to market size. For example, as noted above, prime funds reduced their CP holdings disproportionately compared to other holders.³²

C. Taxpayer-Supported Central Bank Intervention

On March 18, 2020, the Federal Reserve, with the approval of the Secretary of the Treasury, authorized the MMLF, which began to operate on March 23.³³ The MMLF provides non-recourse loans to U.S. depository institutions and bank holding companies to finance their purchases of specified eligible assets from MMFs under certain conditions. The non-recourse nature of the loan protects the borrower from any losses on the asset pledged to secure the MMLF loan. The Federal Reserve, along with the OCC and Federal Deposit Insurance Corporation (“FDIC”), also took steps to neutralize the effects of purchasing assets through the MMLF on risk-based and leveraged capital ratios and liquidity coverage ratio requirements of financial institutions to facilitate participation in the facility.³⁴ The MMLF program, in combination with other programs, was intended to stabilize the U.S. financial system by allowing MMFs to raise cash to meet redemptions and to foster liquidity in the markets for the assets held by MMFs, including the markets for CP, NCDs, and short-term municipal securities.³⁵ The Department of the Treasury provided \$10 billion of credit protection to the Federal Reserve in connection with the MMLF from the Treasury’s Exchange Stabilization Fund.³⁶ MMLF utilization ramped up quickly to a peak of just over \$50 billion in early April, or about 5 percent of net assets in prime and tax-exempt MMFs at the time.

Outflows from prime MMFs abated fairly quickly after the Federal Reserve’s announcement of programs and other actions to support short-term funding markets and the flow of credit to households and businesses more generally, including its initial announcement of the

³² See paragraph accompanying footnote 15.

³³ Information about the MMLF is available on the Federal Reserve’s website at <https://www.federalreserve.gov/monetarypolicy/mmlf.htm>. The Federal Reserve Bank of Boston operates the MMLF.

³⁴ See Regulatory Capital Rule: Money Market Mutual Fund Liquidity Facility, 85 FR 16232 (March 23, 2020), available at <https://www.federalregister.gov/documents/2020/03/23/2020-06156/regulatory-capital-rule-money-market-mutual-fund-liquidity-facility>; Liquidity Coverage Ratio Rule: Treatment of Certain Emergency Facilities, 85 FR 26835 (May 6, 2020), available at <https://www.federalregister.gov/documents/2020/05/06/2020-09716/liquidity-coverage-ratio-rule-treatment-of-certain-emergency-facilities>.

³⁵ The MMLF would not have worked in isolation, and other programs and monetary policy responses would not have worked as well without the MMLF. See SEC Staff Interconnectedness Report; Marco Cipriani *et al.*, “Municipal Debt Markets and the COVID-19 Pandemic,” (June 29, 2020), available at <https://libertystreeteconomics.newyorkfed.org/2020/06/municipal-debt-markets-and-the-covid-19-pandemic.html>.

³⁶ The CARES Act also temporarily removed restrictions on Treasury’s authority to use the Exchange Stabilization Fund to guarantee money market funds. See section 4015 of the CARES Act. This authority has not been used.

MMLF on March 18.³⁷ Overall market conditions also began to improve. For example, in the CP market, the share of CP issuance with overnight maturity began to fall on March 24 and spreads to OIS for most types of term CP started narrowing a few days later. After the expansion of the MMLF to include municipal securities on March 20 (and VRDNs on March 23), tax-exempt MMF outflows eased and conditions in short-term municipal debt markets improved. Beyond the MMLF, several other Federal Reserve actions and announcements in March likely contributed to these improved conditions. For example, the Federal Open Market Committee lowered the target range for the federal funds rates twice in March by a total of 150 basis points. A large increase in open market purchases of Treasury securities and agency mortgage-backed securities was announced on March 15, and establishments of the PDCF and the CPFF were announced on March 17.

While stress affected a variety of money market instruments and investment vehicles, the broad policy responses from the Federal Reserve, including the availability of secondary market liquidity for MMFs through the MMLF, appeared to have had the intended broad calming effect on short-term funding markets. For instance, although European dollar-denominated MMFs are not eligible to participate in the MMLF, outflows from these funds abated shortly after the MMLF began operations. The resulting stability in short-term funding markets, along with the fiscal stimulus provided by the CARES Act and the expectation of continued accommodative monetary policy, facilitated stability in the capital markets more generally.

IV. Potential Policy Measures to Increase the Resilience of Prime and Tax-Exempt Money Market Funds

While many of the post-2008 MMF reforms added stability to MMFs, the events of March 2020 show that more work is needed to reduce the risk that structural vulnerabilities in prime and tax-exempt MMFs will lead to or exacerbate stresses in short-term funding markets. The following discussion sets forth potential policy measures that could address the risks prime and tax-exempt MMFs pose to short-term funding markets. This report is meant to facilitate discussion. The PWG is not endorsing any given measure at this time.

³⁷ See, e.g., “Federal Reserve Issues FOMC Statement” (March 15, 2020), *available at* <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200315a.htm>; “Federal Reserve Actions to Support the Flow of Credit to Households and Businesses” (March 15, 2020), *available at* <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200315b.htm>; “Federal Reserve Board Announces Establishment of a Commercial Paper Funding Facility (CPFF) to Support the Flow of Credit to Households and Businesses” (March 17, 2020), *available at* <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200317a.htm>; “Federal Reserve Board Announces Establishment of a Primary Dealer Credit Facility (PDCF) to Support the Credit Needs of Households and Businesses” (March 17, 2020), *available at* <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200317b.htm>; “Federal Reserve Board Broadens Program of Support for the Flow of Credit to Households and Businesses by Establishing a Money Market Mutual Fund Liquidity Facility (MMLF)” (March 18, 2020), *available at* <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200318a.htm>.

These potential policy measures differ in terms of the scope and breadth of regulatory changes they would require. For example, many of the potential reforms would apply only to prime and tax-exempt MMFs, while reforms such as swing pricing could apply to mutual funds more generally. Moreover, some potential reforms would involve targeted amendments to SEC rules, which relevant MMFs could likely implement fairly quickly, while others would involve longer-term structural changes or may require coordinated action by multiple agencies. The different measures are not necessarily mutually exclusive, nor are they equally effective at mitigating the vulnerabilities of prime and tax-exempt MMFs. Policy makers could combine certain measures within a single set of reforms. Some policy measures listed below have been raised for consideration previously, including in the PWG’s October 2010 report on MMF reform options and the FSOC’s 2012 proposed recommendations on MMF reform, and warrant renewed consideration in light of recent MMF stresses.

This report focuses on reform measures for MMFs only. It is important to recognize MMFs’ role in the market events in March 2020 and to examine measures that would address concerns and structural vulnerabilities specific to MMFs. Although they are beyond the scope of this report, and as discussed generally above, there were other stresses in short-term funding markets in March 2020 that may have contributed to the pressure on MMFs.

As discussed in more detail below, the potential policy measures for prime and tax-exempt MMFs explored in this report are:

- Removal of Tie between MMF Liquidity and Fee and Gate Thresholds;
- Reform of Conditions for Imposing Redemption Gates;
- Minimum Balance at Risk (“MBR”);
- Money Market Fund Liquidity Management Changes;
- Countercyclical Weekly Liquid Asset Requirements;
- Floating NAVs for All Prime and Tax-Exempt Money Market Funds;
- Swing Pricing Requirement;
- Capital Buffer Requirements;
- Require Liquidity Exchange Bank (“LEB”) Membership; and
- New Requirements Governing Sponsor Support.

Overarching goals for MMF reform. As a threshold matter, it should be recognized that the various policy reforms, individually and in combination, should be evaluated in terms of their ability to effectively advance the overarching goals of reform. That is:

- First, would they effectively address the MMF structural vulnerabilities that contributed to stress in short-term funding markets?
- Second, would they improve the resilience and functioning of short-term funding markets?

- Third, would they reduce the likelihood that official sector interventions and taxpayer support will be needed to halt future MMF runs or address stresses in short-term funding markets more generally?

Assessment of the MMF reform options. An assessment of the effectiveness of reform options in achieving these goals should take into account: (a) how each option would address MMF structural vulnerabilities and contribute to the overarching goals; (b) the effect of each option on short-term funding markets and the MMF sector more broadly, including through its effects on the resilience, functioning, and stability of short-term funding markets, as well as whether the reform option would trigger the growth of existing investment strategies and products, or the development of new strategies and products, that could either exacerbate or mitigate market vulnerabilities; and (c) potential drawbacks, limitations, or challenges specific to each reform option. The reform options considered in this report seek to achieve the goals in different ways. For example, some are intended to address the liquidity-related stresses that were evident in March 2020, while others also touch on potential credit-related concerns. This menu of options reflects the possibility that future financial stress events may affect the liquidity of short-term investments, their credit quality, or both.

(a) How the reform options would seek to achieve the goals.

- 1) Internalize liquidity costs of investors' redemptions, particularly in stress periods.** Some options would impose a cost on redeeming investors that rises as liquidity stress increases to reflect the costs of redemptions for the fund. These options, particularly swing pricing and the MBR, could reduce or eliminate first-mover advantages for redeeming investors and protect investors who do not redeem.
- 2) Decouple regulatory thresholds from consequences such as gates, fees, or a sudden drop in NAV.** Some options, such as those that revise fee and gate thresholds or introduce the floating NAV for retail prime and tax-exempt MMFs, could eliminate or diminish the importance of thresholds (such as 30 percent WLA or an NAV of \$0.995) that may spur investor redemptions. By diminishing the importance of thresholds, these options could also give MMFs greater flexibility, for example, to tap their own liquid assets to meet redemptions.
- 3) Improve MMFs' ability to use available liquidity in times of stress.** In March 2020, some prime and tax-exempt MMFs may have avoided using their liquid assets to meet redemptions. Options such as countercyclical WLA requirements or revisions to fee and gate thresholds could make MMFs more comfortable in deploying their liquid assets in times of stress.
- 4) Commit private resources ex ante to enable MMFs to withstand liquidity stress or a credit crisis.** When prime and tax-exempt MMFs have encountered serious

strains, official sector interventions have followed quickly. Options such as capital buffers, explicit sponsor support, and the LEB could provide committed private resources to supply liquidity or absorb losses and thus reduce the likelihood that official sector support would be needed to calm markets.

- 5) **Further improve liquidity and portfolio risk management.** Changes to liquidity management requirements could include raising required liquid-asset buffers. Other options could motivate more conservative risk management by explicitly making fund sponsors or others responsible for absorbing any heightened liquidity needs or losses in their MMFs.
- 6) **Clarify that MMF investors, rather than taxpayers, bear market risks.** Government support has repeatedly provided emergency liquidity to prime and tax-exempt funds and also has obscured the risks of liquidity and credit shocks for MMFs. Some options, such as the floating NAV for retail prime and tax-exempt MMFs, swing pricing, and the MBR could make risks to investors more apparent.

(b) Effects on short-term funding markets. The reform options are intended to reduce the structural vulnerabilities of MMFs, which could make them a more stable source of short-term funding for financial institutions, businesses, and state and local governments. This would improve the stability and resilience of short-term funding markets.

At the same time, some of the reform options would likely diminish the size of prime and tax-exempt MMFs, which would also affect the functioning of short-term funding markets. A shrinkage of MMFs could reduce the supply of short-term funding for financial institutions, businesses, and state and local governments. Making prime and tax-exempt MMFs less desirable as cash-management vehicles also could cause investors to move to less regulated and less transparent mutualized cash-management vehicles that are also susceptible to runs that cause stress in short-term funding markets.

A reduction in the size of prime and tax-exempt MMFs may not necessarily be inappropriate if, for example, the growth of these funds has reflected in part the effects of implicit taxpayer subsidies and other externalities (that is, broader economic costs of runs that are not borne by investors or the funds). In addition, if these MMFs remain run prone, a reduction in the size of the industry could mitigate the effects of future runs from these funds on short-term funding markets.

The aftermath of the 2014 MMF reforms provides a precedent for the consequences of a substantial reduction in the size of prime and tax-exempt funds, although a future experience could differ. In the year before the October 2016 implementation deadline for those reforms, aggregate prime MMF assets shrank by \$1.2 trillion (69 percent) and tax-exempt MMF assets declined about \$120 billion (47 percent). Nonetheless, to the extent that spreads for instruments

held by these MMFs were affected, they generally widened only temporarily, and investor migration to other mutualized cash-management vehicles was largely limited to shifts to government MMFs. (Over the next three years, prime MMFs regained about half of the 2015-2016 decline.)

These considerations are important, because some of the reform options could reduce the size of the prime and tax-exempt fund sectors by:

- *Reducing attractiveness of prime and tax-exempt MMFs for investors.* The costs associated with some options, such as capital buffers and LEB membership, may reduce the funds' yields. The MBR would limit the liquidity of their shares in some circumstances. The floating NAV requirement and swing pricing would make NAVs more volatile and MMF shares less cash-like. And investors may view some policies, such as swing pricing and the MBR, as unfamiliar, restrictive, and complicated.
- *Increasing costs associated with MMF sponsorship.* Some options, such as the introduction of capital buffers, required LEB membership, and explicit sponsor support, could raise operating costs for sponsors. Other options, such as swing pricing and MBR, may also have sizable implementation costs. Increased costs and operational complexity could lead to increased concentration and a reduction in the overall size of the MMF industry.

(c) Potential drawbacks, limitations, and challenges specific to each option.

Evaluation of the reform options also should take into account potential drawbacks, limitations, and challenges of each option, such as implementation challenges or limits on an option's ability to achieve the desired goals. The report discusses these considerations for each option below.

Several specific policy options are described below, along with a high-level analysis of the potential benefits and drawbacks of each option.

A. Removal of Tie between MMF Liquidity and Fee and Gate Thresholds

Liquidity fees and redemption gates are intended to give MMF boards tools to stem heavy redemptions by imposing a fee to reduce shareholders' incentives to redeem or by stopping redemptions altogether for a period of time. Currently, MMF boards have discretion to impose fees or gates when WLAs fall below 30 percent of total assets and generally must impose a fee of 1 percent if WLAs fall below 10 percent, unless the board determines that such a fee would not be in the best interest of the fund or that a lower or higher (up to 2 percent) liquidity fee is in the best interests of the fund.

Definitive thresholds for permissible imposition of liquidity fees and redemption gates may have the unintended effect of triggering preemptive investor redemptions as funds approach

the relevant thresholds. Some preliminary research suggests that redemptions accelerated in March 2020 from funds with declining WLAs.³⁸ Removing the tie between the 30 percent and 10 percent WLA thresholds and the imposition of fees and gates is one possible reform. Fund boards could be permitted to impose fees or gates when doing so is in the best interest of the fund, without reference to any specific level of liquidity.

Potential benefits:

- Removing the tie between the WLA thresholds and funds' ability to impose gates and fees would reduce the salience of these thresholds and could diminish the incentive for preemptive runs.
- This may improve the usability of WLA buffers by making MMFs more comfortable in deploying their liquid assets in times of stress.

Potential drawbacks, limitations, and challenges:

- While this option would remove a focal point that may trigger runs, it would do little otherwise to mitigate run incentives.
- If MMFs maintain fewer liquid assets (by holding WLA levels closer to 30 percent) as a result of this change, the funds may be less equipped to manage significant redemptions without engaging in fire sales.
- Permitting funds to impose fees or gates without reference to a specific threshold may cause broader contagion if investors fear the imposition of fees or gates in other funds that otherwise would have been seen as safe.

B. Reform of Conditions for Imposing Redemption Gates

Reforming rules regarding redemption gates to reduce the likelihood that gates may be imposed could diminish investors' incentives to engage in preemptive runs. For example, funds could be required to obtain permission from the SEC or notify the SEC prior to imposing gates. Alternatively, fund boards could be required to consider liquidity fees before gates, making it less likely that gates would be imposed. Another option could be to lower the WLA threshold at which gates could be imposed to, for example, 10 percent.

Gate rules also could be reformed to make gates "soft" or "partial." With soft gates, for example, if redemptions on a particular day exceed a certain amount, a fund could reduce each investor's redemption pro rata to bring total redemptions below that amount, with remaining redemption amounts deferred to the next business day (and continuing daily deferrals until all redemption requests are satisfied). This affords investors at least some liquidity, in contrast to the complete curtailment of liquidity when a fund suspends all redemptions.

³⁸ See footnote 27, above.

Potential benefits:

- Reforming the rules around gates might reduce concerns that gates will be imposed immediately upon a breach of the 30 percent WLA requirement and reduce the salience of that threshold, particularly if investors are more concerned about gates than fees.
- Gates could still be imposed, but only in very dire conditions when runs on funds are likely anyway.
- This may improve the usability of WLA buffers by making MMFs more comfortable in deploying their liquid assets in times of stress.
- A “soft” or “partial” gate could reduce disruptions caused by the imposition of a gate by allowing shareholders to redeem a portion of shares as normal, with a portion held for a limited time to help the fund slow the rate of redemptions during stress periods without engaging in fire sales.

Potential drawbacks, limitations, and challenges:

- If thresholds remain, they could still be focal points for runs on MMFs.
- While this option could reduce the salience of a threshold that may trigger runs, it would do little otherwise to mitigate run incentives.
- Reducing the likelihood that a gate may be imposed could reduce the potential utility of gates as a tool to slow investor redemptions.
- Providing the SEC a role in granting permission for imposition of gates may result in less timely action than the current framework involving the MMF’s board, particularly if multiple MMFs seek SEC permission in a short period of time, which could allow runs to continue or accelerate. Absent a threshold, it could be challenging to develop objective criteria in advance for quickly approving or denying such requests in a consistent and appropriate manner amid a fast-moving crisis.
- If MMFs maintain fewer liquid assets (by holding WLA levels closer to 30 percent) as a result of this change, the funds may be less equipped to manage significant redemptions without engaging in fire sales.
- Like other gates, a “soft” (or “partial”) gate may spur preemptive runs, but a soft gate may be less effective at slowing runs than a full gate, as investors can continue to redeem even after a soft gate has been imposed.
- “Soft” or “partial” gates could introduce accounting and administrative complexities.

C. Minimum Balance at Risk

An MBR is a portion of each shareholder’s recent balances in a MMF that would be available for redemption only with a time delay to ensure that redeeming investors still remain partially invested in the fund over a certain time period. As such, even if the investor redeems all of her available shares, she would still share in any losses incurred by the fund during that timeframe. A “strong form” of MBR would also put a portion of redeeming investors’ MBRs first in line to absorb any losses, which creates a disincentive to redeem. The size of the MBR

would be a specified fraction of the shareholder’s maximum recent balance (less an exempted amount). An MBR mechanism could be used in a floating NAV fund to allocate losses only under certain rare circumstances, such as when the fund suffers a large drop in NAV or is closed.

Potential benefits:

- A properly calibrated “strong” MBR could reduce the vulnerability of MMFs to runs.
- A strong MBR can internalize the liquidity costs of investors’ redemptions and thus reduce or eliminate the first-mover advantage for redeeming investors. It would do so by subordinating a portion of their shares to put them at greater risk if the fund suffers a loss. This can weigh against incentives to redeem in a stress event, so it can be particularly helpful as liquidity costs rise.³⁹
- The disincentive to redeem created by an MBR strengthens mechanically as stresses increase and put subordinated shares at greater risk. Hence, the MBR does not create a threshold effect that might spur redemptions.
- Under a strong form of MBR, the subordinated shares of redeeming investors provide extra loss absorption to protect the investments of non-redeeming investors.
- An MBR could provide more transparency to shareholders regarding their risk, as shareholders’ account information could include their balances and the size of their MBRs.

Potential drawbacks, limitations, and challenges:

- The MBR could present implementation and administration challenges. For example, MMFs, intermediaries, and service providers would need to update systems to: (1) compute the MBR on an ongoing basis for each shareholder account and update the allocation of unrestricted, holdback, or subordinated holdback shares for each account to reflect any additional subscriptions or redemptions and the passage of time; and (2) prevent a shareholder from redeeming holdback or subordinated holdback shares in transaction processing systems.⁴⁰ In addition, a “strong form” of MBR may create the need to convert existing MMF shares or issue new subordinated shares to comply with typical state law limitations on allocating losses to a subset of shares in a single share class.
- An MBR mechanism may have different and unequal effects on investors in stable NAV and floating NAV MMFs. During the holdback period, investors in a stable

³⁹ See, for example, FSOC Proposed Recommendations; Patrick E. McCabe, Marco Cipriani, Michael Holscher, and Antoine Martin, “The Minimum Balance at Risk: A Proposal to Mitigate the Systemic Risks Posed by Money Market Funds,” *Brookings Papers on Economic Activity* (Spring 2013), available at https://www.brookings.edu/wp-content/uploads/2016/07/2013a_mccabe.pdf.

⁴⁰ Many MMF investors hold their shares through intermediaries (such as broker-dealers, banks, trust companies, and retirement plan administrators) that establish omnibus accounts with the fund. An intermediary’s omnibus account aggregates shares held on behalf of its underlying clients or beneficiaries, and the fund does not have access to information about these underlying clients or beneficiaries. As a result, intermediaries would be involved in implementing MBR reforms.

NAV MMF would only experience losses if the fund breaks the buck, but investors in a floating NAV MMF are always exposed to changes in the fund's NAV and would continue to be exposed to such risk for any shares held back.

- The MBR is an unfamiliar concept in the fund industry that may result in investor discomfort or confusion, particularly when it is first introduced.
- Calibrating the appropriate size for an MBR could be a challenge; an MBR that is too small may not create sufficient disincentives to redeem in stress events, but one that is too large would unnecessarily reduce the liquidity of the fund's shares.

D. Money Market Fund Liquidity Management Changes

MMFs currently are subject to daily and weekly liquid asset requirements and must disclose the amount of daily and weekly liquid assets each day on the fund's website. Changes to liquidity management requirements could include a new category of liquidity requirements. For example, instead of focusing solely on daily and weekly liquid assets, creating an additional category for assets with slightly longer maturities (*e.g.*, biweekly liquid assets) could strengthen funds' near-term portfolio liquidity when short-term funding markets become stressed.

As another alternative, an additional threshold, such as a WLA threshold of 40 percent, could be set to augment current liquidity buffers. If a fund's WLAs fell below this threshold, penalties such as requiring the escrow of fund management fees until the level of WLA is restored could be imposed on fund managers, rather than investors. This effectively would require funds to maintain a larger amount of WLAs than currently required.

Potential benefits:

- An additional tier of liquidity may make MMFs more resilient to significant redemptions by ensuring they maintain assets that will soon become WLAs. Additional liquidity requirements also could limit "barbell" strategies (where a fund offsets its short-term assets with riskier longer-term assets that enhance returns but increase the riskiness of the fund's portfolio).
- Rules to penalize fund managers first for having inadequate portfolio liquidity have the potential to diminish the salience of WLA thresholds to investors by ensuring that initial consequences for crossing the thresholds are not imposed directly on investors.

Potential drawbacks, limitations, and challenges:

- Requiring funds to purchase additional near-term liquid assets or maintain larger WLAs to avoid penalties might encourage funds to take greater risks in the less liquid parts of their portfolios, particularly in a low interest rate environment, absent other measures to constrain this behavior.
- Imposing the escrow of fees or other penalties on fund managers if WLAs do not meet a new higher minimum requirement could further diminish the usability of

WLA buffers by making MMFs less comfortable in deploying their liquid assets in times of stress.

- Further increases in liquid asset requirements may provide funds only a little extra time during a run, as institutional prime fund outflows exceeded 5 percent of assets per day at the height of the run in March 2020.
- Additional liquid asset requirements for MMFs could heighten roll-over risks for issuers of short-term debt that may see more demand for issuance in shorter tenors. In addition, to the extent that new investors would replace MMFs in the tenors outside the near-term liquidity requirements, transparency regarding the nature of these investors may be lower.
- It is not clear whether the required escrow of fees or other penalties could be imposed on fund managers in a way that would not also affect MMF investors (*e.g.*, fund managers may respond by reducing the amount of fees they waive).

Additional considerations:

- Funds that purchase additional near-term liquid assets or maintain larger WLAs to avoid penalties may generate lower yield compared to similar investment products, which may reduce investor demand for such funds. As noted above, a reduction in the size of the prime and tax-exempt MMF sectors could affect the resilience and functioning of short-term funding markets in a variety of ways.

E. Countercyclical Weekly Liquid Asset Requirements

During the market stress in March 2020, prime and tax-exempt MMFs that were close to the 30 percent WLA threshold may have avoided using their liquid assets to meet redemptions. MMFs' incentives to maintain WLAs well above the 30 percent minimum, even in the face of significant outflows, may include the desires to avoid: (1) prohibitions on purchasing assets that are not WLAs; (2) raising investor concerns about the potential imposition of fees or gates; and (3) potential scrutiny resulting from public disclosure of low WLA amounts. A countercyclical WLA requirement could reduce some or all of these concerns. Under this approach, minimum WLA requirements could automatically decline in certain circumstances, such as when net redemptions are large or when the SEC provides temporary relief from WLA requirements. Any thresholds linked to a fund's minimum WLA requirements (*e.g.*, fee or gate thresholds) would also move with the minimum.

Potential benefits:

- A countercyclical WLA requirement could reduce the salience of the 30 percent WLA threshold and may lessen redemption pressures when a fund is near that threshold.
- This may improve the usability of WLA buffers by making MMFs more comfortable in deploying their liquid assets in times of stress.

Potential drawbacks, limitations, and challenges:

- Funds that reduce WLAs in stress events would be less equipped to manage additional redemptions without engaging in fire sales.
- Even if the WLA threshold is reduced, threshold effects may still motivate investors to redeem. In addition, investors may still prefer to redeem from funds that are approaching or breaching the standard 30 percent threshold, and reduced WLA minimums may in fact call attention to potential stress and prompt greater investor outflows.
- The benefits of this change for funds' use of liquid assets may be modest, as current rules do not preclude funds from using WLAs to meet redemptions or prohibit funds from allowing their WLAs to fall below 30 percent.
- Appropriately calibrating a countercyclical WLA requirement, including determining whether it would be an automatic mechanism or one that the SEC has to adjust in a crisis, could be challenging.

F. Floating NAVs for All Prime and Tax-Exempt Money Market Funds

Retail prime MMFs and retail tax-exempt MMFs currently can use a rounded NAV and value portfolio assets at their amortized cost, which permits the funds to sell and redeem shares at a stable share price (*e.g.*, \$1.00) without regard to small variations in the value of the securities in their portfolios. A floating NAV requirement would ensure that these MMFs instead sell and redeem their shares at a price that reflects the market value of a fund's portfolio and any changes in that value. This would be consistent with floating NAV requirements that currently apply to institutional prime and institutional tax-exempt MMFs. Although this option would only affect retail MMFs, those funds had large outflows in March 2020, and outflows likely would have continued or worsened without official sector intervention.⁴¹

Potential benefits:

- The floating NAV eliminates the salience of a MMF's NAV dropping more than 0.5 percent (\$0.995). Unlike stable NAV funds, MMFs with floating NAVs cannot "break the buck."
- Stable NAVs can create an incentive to redeem when MMF portfolios assets lose value because redeeming investors can receive more for their shares than they are worth, while losses are concentrated among non-redeeming investors. In contrast, a floating NAV mitigates that incentive to redeem as losses are spread across all shareholders on a *pro rata* basis whether they redeem or not. Thus, a floating NAV

⁴¹ Retail prime MMFs and tax-exempt MMFs were under stress during March 2020, with one tax-exempt MMF receiving sponsor support, although stress among retail funds was less severe than that for institutional prime MMFs. *See* Section III.B, above (explaining that outflows from retail prime funds totaled 9 percent (or just over \$40 billion) of assets during the two weeks from March 13 to 26, and outflows from tax-exempt MMFs—which are largely retail funds—were 8 percent (\$11 billion) of assets during the two weeks from March 12 to 25).

- requirement may decrease retail prime and tax-exempt MMFs’ vulnerabilities to runs by mitigating the first mover advantage for redeeming investors.
- Floating NAVs make portfolio risks more transparent by making fluctuations in share values readily observable, which could better align investors’ expectations with the risks of portfolio holdings.

Potential drawbacks, limitations, and challenges:

- A floating NAV requirement would not affect institutional MMFs, which have historically been the most vulnerable to runs but already have floating NAVs.
- Institutional prime MMFs with floating NAVs still experienced runs in March; floating NAVs do not prevent runs.

Additional considerations:

- Floating NAVs could result in a reduction in the size of retail prime and retail tax-exempt MMF sectors by making retail MMF shares less cash-like, which could reduce investor demand. As noted above, a reduction in the size of the prime and tax-exempt MMF sectors could affect the resilience and functioning of short-term funding markets in a variety of ways.

G. Swing Pricing Requirement

Under current rules, MMF investors redeeming their shares in a prime or tax-exempt fund typically do not incur the costs associated with this redemption activity. Instead, these costs are largely borne by other investors in the fund, and this contributes to a first-mover advantage for those who redeem quickly in a crisis. Swing pricing effectively allows a fund to impose the costs stemming from redemptions directly on redeeming investors by adjusting the fund’s NAV downward when net redemptions exceed a threshold.⁴² That is, when the NAV “swings” down, redeeming investors receive less for their shares. A swing pricing requirement could help ensure that redeeming shareholders bear liquidity costs throughout market cycles (*i.e.*, not only in times of market stress). In the United States, an optional swing pricing framework is permissible for certain mutual funds, but not for MMFs. Although swing pricing is largely untested for MMFs, it has been helpful for other types of non-U.S. mutual funds.⁴³

⁴² If a fund has net inflows above the swing threshold, swing pricing would instead adjust the fund’s NAV upward.

⁴³ *See, for example*, Jin, Dunhong, Marcin Kacperczyk, Bige Kahraman, and Felix Suntheim, “Swing Pricing and Fragility in Open-end Mutual Funds,” IMF Working Paper WP/19/227 (2019); Association of the Luxembourg Fund Industry, Swing Pricing Update 2015 (Dec. 2015) (“ALFI Survey 2015”) at 21, available at <http://www.alfi.lu/sites/alfi.lu/files/ALFI-Swing-Pricing-Survey-2015-FINAL.pdf>.

Potential benefits:

- A properly calibrated swing pricing mechanism could reduce the vulnerability of MMFs to runs.
- Swing pricing can internalize the liquidity costs of investors' redemptions and thus reduce or eliminate the first-mover advantage for redeeming investors. By making redemptions costly, swing pricing can weigh against incentives to redeem in a stress event, so it can be particularly helpful as liquidity costs rise. Swing pricing also benefits investors who do not redeem by reducing dilution to the value of a fund's shares and insulating these investors from the effects of others' redemption activity.
- Swing pricing can improve long-run fund performance by reducing dilution.
- If swing pricing is available (and used occasionally) in "normal" times, its use can help investors understand that they bear liquidity risks in a MMF. Moreover, regular deployment of swing pricing would make its use in stress events less unsettling for investors.

Potential drawbacks, limitations, and challenges:

- Eligible U.S. mutual funds have yet to implement swing pricing, largely because implementation would require substantial reconfiguration of current distribution and order-processing practices. MMFs could face similar challenges.
- Unlike other mutual funds, some MMFs strike their NAVs more than once per day and allow intraday purchases and redemptions for any orders received prior to a given NAV strike. The potential management of swing pricing considerations multiple times per day could be particularly challenging in times of market stress.
- It may be challenging to design and calibrate a swing pricing mechanism that can effectively internalize liquidity costs for redeeming investors, especially during stress events.

H. Capital Buffer Requirements

Capital (or "NAV") buffers, which could be structured in a variety of ways, can provide dedicated resources within or alongside a fund to absorb losses and can serve to absorb fluctuations in the value of a fund's portfolio, reducing the cost to taxpayers in case of a run.⁴⁴ For a floating NAV fund, capital buffers could be reserved to absorb the fund's losses only under certain rare circumstances, such as when it suffers a large drop in NAV or is closed.

⁴⁴ See, for example, Craig M. Lewis, "Money Market Fund Capital Buffers," (April 6, 2015), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2687687; Samuel G. Hanson, David S. Scharfstein, and Adi Sunderam, "An Evaluation of Money Market Fund Reform Proposals," (May 2014), available at <https://www.imf.org/external/np/seminars/eng/2013/mmi/pdf/Scharfstein-Hanson-Sunderam.pdf>.

Potential benefits:

- A capital buffer adds ex ante loss-absorption capacity to a MMF that would mitigate MMF shareholders' risk of losses and their incentives to redeem in a stress event.
- A buffer would mitigate the MMF industry's reliance on discretionary, ex post sponsor support by assuring that MMFs already have resources in place to absorb losses.
- Owners of capital will have incentives to mitigate risk-taking by the fund. For example, if capital is provided by the fund's sponsor, the sponsor will have an explicit incentive to manage portfolio risks to preserve the capital.

Potential drawbacks, limitations, and challenges:

- A capital buffer financed from unaffiliated investors could be complex to administer.
- Sizable capital buffers are costly to finance, and building adequate capital buffers from MMF income could take substantial time, particularly in a low interest rate environment, and could disadvantage current MMF investors for the benefit of future MMF investors.
- Calibrating the appropriate size for a capital buffer could be a challenge; MMFs would continue to be vulnerable if the buffer is too small, but one that is too large would be unnecessarily costly.
- A capital requirement could increase MMF industry concentration because provision of initial capital would be a substantial burden for some asset managers and could cause them to exit the industry. In addition, such a requirement may favor bank-sponsored funds.

Additional considerations:

- The costs of financing a capital buffer would be borne by MMF sponsors and investors, and these costs could result in a reduction in the size of the prime and tax-exempt MMF sectors. As noted above, a reduction in the size of these MMFs could affect the resilience and functioning of short-term funding markets in a variety of ways.

I. Require Liquidity Exchange Bank Membership

To provide a liquidity backstop during periods of market stress, prime and tax-exempt MMFs could be required to be members of a private liquidity exchange bank. The LEB would be a chartered bank. Under one LEB proposal, MMF members and their sponsors would capitalize the LEB through initial contributions and ongoing commitment fees. During times of market stress, the LEB would purchase eligible assets from MMFs that need cash, up to a maximum amount per fund. The LEB would not be intended to provide credit support.

Potential benefits:

- The existence of a liquidity backstop provided by an LEB could diminish investors' incentives to run.
- An LEB would commit private resources, including bank capital, ex ante to provide liquidity to MMFs. This framework could partially internalize the costs of liquidity protection for the MMF industry and reduce distortions that can arise from an expectation of official sector support in times of stress.
- Chartered banks generally have access to Federal Reserve liquidity through the discount window, although the duration and extent of access is not guaranteed. To the extent that the LEB has access to the discount window, that access may further mitigate liquidity pressures on MMFs and reduce the likelihood of fire sales.
- Pooling liquidity resources for MMFs may offer efficiency gains. An LEB would provide liquidity to MMFs that need it, rather than requiring each MMF to hold liquidity separately.

Potential drawbacks, limitations, and challenges:

- Access to the LEB backstop during times of market stress, without further consideration of risk management measures, could have moral hazard effects that motivate some funds to take greater risks in the less-liquid parts of their portfolios.
- The LEB, which would not provide traditional banking services, is not intended to operate as a commercial bank, and commercial banks are not organized to buy assets from entities facing financial difficulties. As such, it is unclear whether such an entity would be able to obtain a banking charter.
- Access to the discount window by the LEB is not guaranteed, particularly in the size and term that may be needed to provide material liquidity support to MMFs under stress.
- To the extent that liquidity provided by the Federal Reserve exceeds what is provided to a typical commercial bank, the LEB would not be significantly different from other types of historical official sector support.
- As a bank, the LEB would be subject to supervision and regulation, including restrictions on transactions with affiliate funds.⁴⁵ In addition, investors in the LEB may themselves become bank holding companies. If an investor became a bank holding company, it would be subject to consolidated supervision and regulation, and would be required to serve as a source of strength to the LEB.⁴⁶
- The LEB would need significant capital to both be in a position to provide meaningful liquidity for MMFs in stress events and be seen as a credible liquidity backstop. Building adequate capacity from MMF income could take several years, particularly in a low interest rate environment. Moreover, the need to comply with applicable leverage-based capital requirements on a continuous basis – even during

⁴⁵ 12 U.S.C. 371c; 12 CFR 223.

⁴⁶ 12 U.S.C. 1841 *et seq.*

- periods of peak usage under stress – could render the LEB’s lending capacity insufficiently robust in extremis.
- News that an LEB is running out of capacity could accelerate runs.
 - Requiring fund sponsors to provide initial capital for an LEB would likely favor large and bank-affiliated sponsors and could cause some others to exit the industry, thus increasing industry concentration.
 - Administering an LEB may raise complex governance and fairness concerns, particularly in times of stress.

Additional considerations:

- Requiring membership in an LEB likely would impose a cost on sponsors and reduce yields for investors, both of which could result in a reduction in the size of the prime and tax-exempt MMF sectors. As noted above, a reduction in the size of these MMFs could affect the resilience and functioning of short-term funding markets in a variety of ways.

J. New Requirements Governing Sponsor Support

In times of market stress, sponsor support has been a tool for stabilizing MMF share prices and providing liquidity. Support of funds was relatively common during the 2008 financial crisis as a number of MMF sponsors purchased large amounts of portfolio securities from their MMFs or provided capital support to their MMFs.⁴⁷ However, the discretionary nature of sponsor support contributes to uncertainty about who will bear risks in periods of stress, including when there is a run on a MMF. Moreover, the inability of one sponsor to provide support for a distressed fund accelerated the run on MMFs in September 2008. Currently, sponsors may provide support to MMFs under certain conditions established by rule 17a-9 under the Act, and must make public disclosure of any “financial support” to increase transparency about sponsor involvement.⁴⁸ However, bank sponsors are subject to limits on transactions with affiliates under section 23A of the Federal Reserve Act. In March, the Federal Reserve, in conjunction with the FDIC and OCC, provided temporary relief from these restrictions.⁴⁹ The SEC staff also issued a temporary no-action letter in March to permit the purchase of certain

⁴⁷ See SEC 2014 Reforms, at paragraph accompanying footnote 53; 2010 PWG Report. A sponsor may also provide support when the fund is not under stress. As one example, a sponsor may provide support in a form of capital contribution to maintain a fund’s stable NAV when liquidating a fund that experienced small losses as assets matured.

⁴⁸ See Investment Company Act rule 17a-9 [17 CFR 270.17a-9]; SEC Form N-CR, Part C; and SEC Form N-MFP, Item C.18.

⁴⁹ See Letters dated March 17, 2020, available at <https://www.federalreserve.gov/supervisionreg/legalinterpretations/fedreserseactint20200317.pdf>.

MMF securities by an affiliate where reliance on rule 17a-9 could conflict with sections 23A and 23B of the Federal Reserve Act.⁵⁰

A regulatory framework governing sponsor support could clarify who bears MMF risks by establishing when a sponsor would be required to provide support.⁵¹

Potential benefits:

- Explicit sponsor support, similar to a capital buffer, would commit private resources ex ante to absorb losses, mitigate risks to MMF shareholders, and reduce their incentives to redeem in a stress event.
- Similar to a capital buffer financed by MMF sponsors, explicit sponsor support could strengthen sponsors' incentives to reduce portfolio risks.

Potential drawbacks, limitations, and challenges:

- Making sponsor support for MMFs explicit would favor bank-sponsored funds and would likely increase MMF industry concentration.
- Making support explicit would require new official sector oversight to ensure that sponsors have resources to provide support.

Additional considerations:

- Formalizing sponsor support would impose an expected cost on sponsors and likely would cause them to charge higher fees to investors, which could lead to a reduction in the size of the prime and tax-exempt MMF sectors. At the same time, explicit support could boost demand for these funds by making them less risky. As noted above, changes in the size of these MMFs could affect the resilience and functioning of short-term funding markets in a variety of ways.

⁵⁰ See Letter to Susan Olson, Investment Company Institute (March 19, 2020), available at <https://www.sec.gov/investment/investment-company-institute-031920-17a>.

⁵¹ This reform could also include changes to obviate the need for future SEC staff no-action letters relating to the interaction of rule 17a-9 and certain banking law provisions, which may provide more certainty with respect to sponsor support.