

REPORT OF THE COVID-19
MARKET IMPACT WORKING GROUP

Experiences of US Money Market Funds During the COVID-19 Crisis

NOVEMBER 2020

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About the Report of the COVID-19 Market Impact Working Group

The *Report of the COVID-19 Market Impact Working Group* is being issued under the auspices of the Investment Company Institute's COVID-19 Market Impact Working Group. This group of senior industry executives is examining the causes of the 2020 market turmoil and the experiences of regulated funds. The report is intended to provide a sound, data-based foundation for any future regulatory discussions or other responses that could affect regulated funds and their investors. The report was written by a team from ICI's Research, Law, Industry Operations, and ICI Global groups.

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Experiences of US Money Market Funds During the COVID-19 Crisis

Key Points

- » From their inception more than 40 years ago, money market funds¹ had grown to more than \$4.6 trillion in assets as of June 2020, a testament to their success in providing a valuable investment and cash management product for retail investors, as well as for institutional investors such as financial and nonfinancial corporations, nonprofit organizations, and state and local governments.
- » Money market funds support financial markets, governments, and the real economy by investing this \$4.6 trillion in the US federal government and its agencies, banks and broker-dealers, businesses, and state and local governments on a short-term basis. Investors in money market funds are specifically seeking a vehicle that invests in short-term assets for the liquidity it provides. Nevertheless, money market funds are only one participant—although one of the most visible—in short-term financial markets.
- » Money market funds, which are a type of mutual fund, owe their success, in large part, to the stringent regulations they are subject to under the federal securities laws, including, most notably, Rule 2a-7 under the Investment Company Act of 1940. This rule requires money market funds to hold plentiful liquidity, to limit interest rate risk by restricting the maturity of assets they hold, and to limit credit risk by holding only high-quality short-term assets.
- » Over time, the Securities and Exchange Commission (SEC) has amended Rule 2a-7, most recently in 2010 and 2014, in an effort to make money market funds more resilient to financial market shocks. These amendments tightened the rule's risk-limiting conditions, increased portfolio transparency, required institutional prime money market funds to float their net asset values, and gave institutional and retail prime and tax-exempt money market funds the option of imposing redemption limitations (liquidity fees and gates) during extraordinary circumstances, subject to determinations by a fund's board of directors.
- » Flows to money market funds² during the COVID-19 crisis were shaped by the efforts of businesses, households, governments, and other investors to protect or build liquidity. Government money market funds served as a liquidity vehicle of choice—investors, seeking to preserve or bolster their liquidity, poured hundreds of billions of dollars into these funds. Institutional prime money market funds saw significant outflows as a percentage of their assets in March, while outflows from retail prime and retail tax-exempt money market funds were more modest.
- » Dealers, which often are affiliated with bank holding companies, were reportedly less able to intermediate fixed-income trades—including in commercial paper, in any reasonable size irrespective of credit quality—in March, in part because of regulatory requirements and large contractual obligations of their bank parents.
- » The experience of money market funds during the COVID-19 crisis and global financial crisis of 2007–2009 had some similarities but also important differences. During both periods, government money market funds saw significant inflows. In contrast to the global financial crisis, however, institutional prime money market funds were substantially more liquid, saw considerably smaller dollar outflows and made less use of Federal Reserve liquidity facilities during the COVID-19 crisis. In part, these

differences reflected elements of the SEC's 2010 and 2014 money market fund reforms that enhanced credit quality standards, shortened portfolio maturities, and added minimum liquidity levels, and required institutional prime and institutional tax-exempt funds to float their net asset values—prompting a substantial shift in assets to government funds, which are allowed to maintain a stable net asset value.

- » One aspect of the SEC's 2014 reforms—giving funds the option to impose liquidity fees or gates if their weekly liquid assets dropped below 30 percent—may have made institutional prime money market funds less resilient. Institutional prime money market funds whose weekly liquid assets dropped toward the 30 percent level had, on average, substantially stronger outflows in percentage terms than other institutional prime money market funds. Many institutional investors reportedly viewed a breach of the 30 percent weekly liquid asset level as akin to “breaking the buck,” rather than as a substantial liquidity buffer that could be used to meet redemptions. This, in turn, may have created destabilizing feedback in institutional prime money market funds, precisely the kind of risk the 2014 reforms were intended to avoid.
- » Evidence is lacking that outflows from institutional prime money market funds in March caused or amplified stresses in short-term markets. Pressure beginning in the US Treasury bond market caused repercussions that spilled over to the short-term and long-term credit markets. Outflows from prime money market funds began after dislocations became apparent in the Treasury bond and commercial paper markets.
- » The Federal Reserve established several liquidity facilities to support households, businesses, and the US economy overall, including the Money Market Mutual Fund Liquidity Facility (MMLF). The MMLF helped institutional prime money market funds meet their investors' intense demands for liquidity. But, as was true of the Federal Reserve's other liquidity facilities, the core goal of and ultimate outcome from the MMLF was to help restore liquidity in the short-term credit market and restart the flow of short-term credit to the economy.

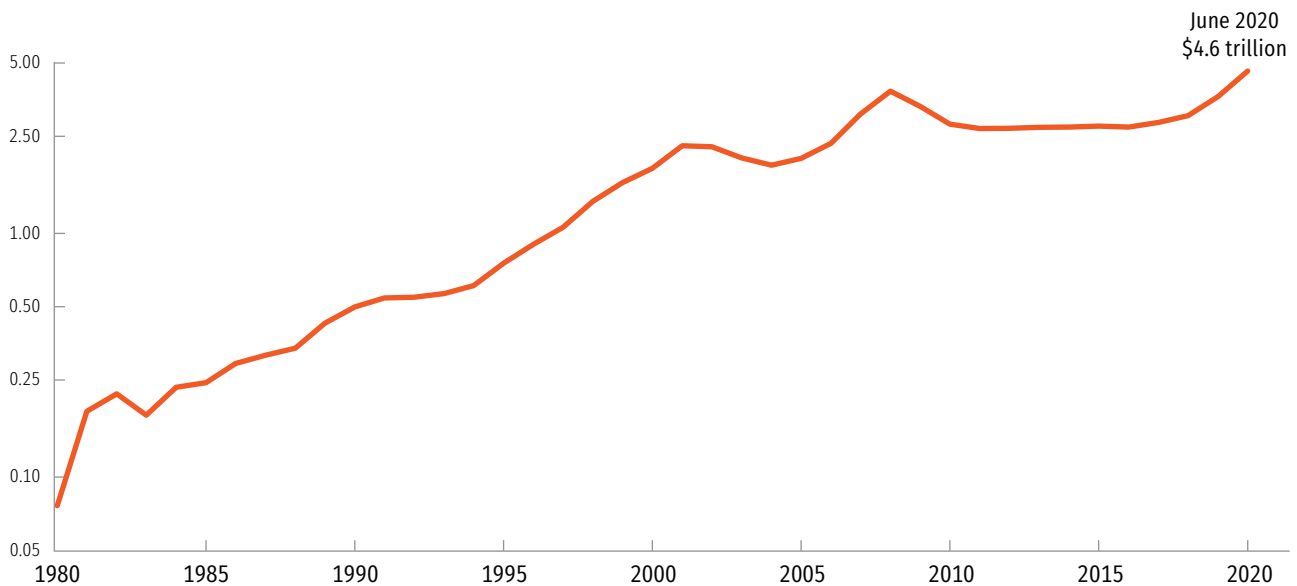
The Market for Money Market Funds

Money market funds, which date back to the early 1970s, are mutual funds that invest in high-quality, short-term debt securities and pay dividends that generally reflect short-term interest rates. Since their inception, money market funds have grown to be an important component of the US financial landscape. For example, in 1980, assets in money market funds totaled \$75 billion (Figure 3.1). By 2020, assets in these funds surpassed \$4.6 trillion dollars.

FIGURE 3.1

Assets in Money Market Funds

Trillions of dollars, log scale, year-end, 1980–June 2020



Source: Investment Company Institute

The growth of money market funds reflects their success in providing investors with a highly valuable cash management product. Retail investors³ and institutional investors⁴—the latter of which include financial and nonfinancial corporations, nonprofit organizations, and state and local governments—use money market funds to help manage their cash balances.

Types of Money Market Funds

Money market funds can be broadly classified using two features: tax treatment of interest income and investor base. Interest income, which is earned by a money market fund and passed through to its shareholders in the form of dividends, is either taxable or tax-exempt, depending on the type of securities in which the fund invests.

Taxable money market funds consist of government and prime money market funds that pay dividends that are taxable at the federal and state levels. Government money market funds, which accounted for 75 percent of money market fund assets at year-end 2019 (Figure 3.2), invest their assets in short-term US Treasury and US agency debt and repurchase agreements (repos) backed by Treasury and agency mortgage-backed debt. Prime money market funds invest their assets in all types of money market instruments, including short-term government securities, commercial paper (including asset-backed commercial paper), repos, certificates of deposit (CDs), and Eurodollar deposits.

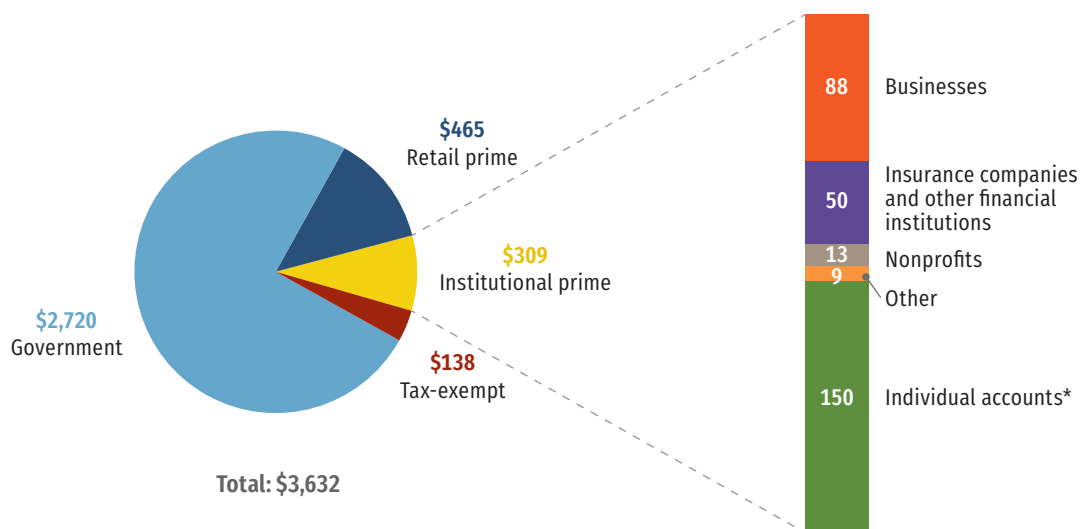
Tax-exempt money market funds invest in short-term municipal securities, primarily variable rate demand notes (VRDNs),⁵ issued by state and local governments; the interest on these securities is generally exempt from federal and state and local income taxes.

Prime and tax-exempt money market funds are further classified as either retail or institutional. Retail money market funds are available for sale to “natural persons”⁶—in other words, individual investors. Retail prime money market funds had \$465 billion in assets at year-end 2019 (Figure 3.2). Institutional prime money market funds, which totaled \$309 billion, are purchased by institutional investors such as businesses (\$88 billion), insurance companies and other financial firms (\$50 billion), nonprofit organizations (\$13 billion), and other entities (\$9 billion). Institutional prime money market funds can be, and often are, purchased by individuals (\$150 billion) through broker-dealers, variable annuities, 529 plans, individual retirement accounts (IRAs), and 401(k) and similar retirement plans.⁷

FIGURE 3.2

Who Holds Money Market Funds?

Assets in money market funds, billions of dollars, year-end 2019



*Individual accounts include retail and non-institutional accounts, including accounts of individuals held through broker-dealers, variable annuities, 529 plans, IRAs, and 401(k) and similar retirement plans.

Note: Components may not add to the totals because of rounding.

Source: Investment Company Institute

Money Market Funds Provide Financing to the Economy

By investing across a spectrum of money market instruments, money market funds provide financing to a range of borrowers, including governments (federal, state, and local), businesses, and financial institutions. Financial institutions in turn often use funding from money market funds to lend to households such as through auto loans, consumer finance loans, home equity lines of credit, and credit card lending.

Money market funds provide the bulk of their funding to the federal government. As of June 2020, money market funds had assets of \$4.6 trillion. Of that, \$4.1 trillion (88 percent) was in short-term US Treasury securities, US agency debt, and repos, most of which is collateralized by US government securities (Figure 3.3). These represented sizable proportions of the total amounts outstanding of those instruments. For example, money market funds held about \$2.4 trillion (33 percent) of the \$7.1 trillion of short-term Treasuries outstanding and \$906 billion (37 percent) of the \$2.4 trillion of repos.

Prime money market funds provided \$432 billion in financing to businesses and financial institutions through holdings of commercial paper (\$213 billion; 21 percent of commercial paper outstanding) and CDs (\$217 billion; 12 percent of CDs outstanding), and Eurodollar deposits (\$2 billion). The vast majority of this financing is to banks, either domestic or foreign, that make loans to US businesses and households.

Money market funds also provided \$132 billion—representing 51 percent of outstanding tax-exempt short-term debt—to state and local governments to help meet short-term financing needs, such as temporary financing until they receive tax revenues or proceeds from bond sales, as well as to fund public works such as roads, bridges, airports, water and sewage treatment facilities, hospitals, and low-income housing. Tax-exempt money market funds provided the bulk of this funding in short-term municipal debt (\$114 billion)—which included \$88 billion in VRDNs and tender option bonds—while prime and government money market funds provided modest amounts.

FIGURE 3.3

Money Market Funds Support the Economy by Investing in a Range of Short-Term Securities

June 2020

	Total amount outstanding Billions of dollars	Money market fund holdings		Memo: percentage of total amount outstanding, by fund type				
		Billions of dollars	Percentage of total amount outstanding	Government		Prime		Tax-exempt
				Retail	Institutional	Retail	Institutional	
Taxable short-term	\$13,762	\$4,514	33%	7%	20%	3%	2%	0%
Short-term US Treasuries ¹	7,141	2,350	33	8	23	2	0	0
Repurchase agreements ²	2,425	906	37	7	25	2	3	0
Short-term US agency debt ³	938	826	88	29	57	2	0	0
Commercial paper	1,007	213	21	0	0	12	9	1
Certificates of deposit ⁴	1,753	217	12	0	0	7	6	0
Eurodollar deposits ⁵	497	2	0	0	0	0	0	0
Tax-exempt short-term ⁶	256	132	51	1	1	2	3	44

¹This category includes marketable Treasury securities that are held by the public and are due to mature by the end of June 2021.

²This category includes repurchase agreements with primary dealers, including gross overnight, continuing, and term repurchase agreements on Treasury, agency, mortgage backed, and corporate securities.

³This category includes debt issued by Fannie Mae, Freddie Mac, and the Federal Home Loan Bank System that is due to mature by the end of June 2021; it excludes agency-backed mortgage pools.

⁴This category reflects large (or jumbo) certificates of deposit, which are issued in amounts greater than \$100,000.

⁵This category represents the total outstanding as of June 2020, and includes claims on foreigners for negotiable certificates of deposit and nonnegotiable deposits payable in US dollars, as reported by banks in the United States for those banks or those banks' customers' accounts.

⁶This category includes VRDNs, tender option bonds, and other short-term debt; it excludes long-term fixed-rate debt maturing by end of June 2021.

Note: Components may not add to totals because of rounding.

Source: ICI calculations based on SEC Form N-MFP and Federal Reserve Flow of Funds data

The Regulation of Money Market Funds

Money market funds share key features with other mutual funds: they issue shares that are redeemable upon demand, invest in marketable securities, and adhere to the same rules and regulations that apply to all mutual funds. Those regulations are based on all four of the major securities laws:

- » the Securities Act of 1933, which requires registration of the mutual fund's shares and the delivery of a prospectus;
- » the Securities Exchange Act of 1934, which regulates the trading, purchase, and sale of fund shares and establishes antifraud standards governing such trading;
- » the Investment Advisers Act of 1940, which regulates the conduct of fund investment advisers and requires those advisers to register with the SEC; and, most importantly,
- » the Investment Company Act of 1940, which requires all mutual funds to register with the SEC and to meet significant operating standards.

SEC Rule 2a-7

In addition, money market funds must comply with Rule 2a-7 under the Investment Company Act.⁸ The SEC originally proposed Rule 2a-7 in February 1982 and adopted it in July 1983, establishing for the first time specific rules restricting the portfolio composition of money market funds. The SEC has amended Rule 2a-7 several times since then, most recently in 2014. As discussed below, these amendments played a key role in the experience of money market funds during the COVID-19 crisis.

Post-Global Financial Crisis SEC Money Market Fund Reforms

In response to the global financial crisis, the SEC adopted a series of amendments to its rules on money market funds in 2010⁹ and again in 2014¹⁰ that aimed to make money market funds more resilient. They included: (i) changes to the risk-limiting conditions that govern the underlying portfolios—new credit quality criteria, shorter maturities, and minimum liquidity levels; (ii) stress testing; and (iii) increased portfolio transparency.¹¹

For example, all government and prime money market funds are required to hold at least 10 percent of their assets in cash, US Treasury securities, or securities that are deemed to be able to be liquid within one day.¹² All money market funds are required to hold at least 30 percent of their assets in cash, US Treasury securities, certain other government securities with remaining maturities of 60 days or less, or securities that are deemed to be able to be liquid within one week.¹³ Each money market fund must publicly disclose on a daily basis its daily and weekly liquid assets.¹⁴

In addition to reducing the risk profile of the underlying money market fund portfolios, and increasing the amount of information that money market funds are required to report to the SEC and the public, these reforms imposed significant structural changes across the industry, particularly on prime money market funds used by institutional investors. These structural changes largely center around three principal reforms.

New Categories of Money Market Funds

Under the first principal 2014 reform, the SEC created three general categories of money market funds—retail money market funds, government money market funds, and institutional money market funds.

Under the amended rules, retail money market funds are money market funds with policies and procedures reasonably designed to limit all beneficial owners of the fund to natural persons.¹⁵ In large part because retail investors “historically have behaved differently from institutional investors in a crisis, being less likely to make large redemptions quickly in response to the first sign of market stress,”¹⁶ the amendments exempt retail money market funds from the floating net asset value (NAV) requirement discussed below.

Government money market funds are defined as money market funds that invest 99.5 percent or more of their total assets in cash, US government securities, and/or repos that are collateralized fully.¹⁷ The SEC noted that while institutional prime money market funds experienced significant outflows during the global financial crisis, government money market funds experienced large inflows, reflecting a flight by investors to the stability and security of government money market funds.¹⁸ As a result, although many of the post-global financial crisis amendments apply to government money market funds, the floating NAV and liquidity fees and gate requirements discussed below do not apply, whether the funds are offered to retail or institutional investors.

Institutional money market funds, which are not specifically defined under the amended rules, are effectively regulated by their inability to qualify as either retail money market funds or government money market funds. As a result, these funds are subject to both the floating NAV and liquidity fee and gate requirements.

Floating NAVs

Under the second principal 2014 reform, all institutional prime and institutional tax-exempt money market funds must price and transact in their shares using “floating” NAVs. The rules also require all types of money market funds to calculate their NAVs to four decimal places (for a fund with a NAV of \$1.00, that means calculating the NAV to one-hundredth of a penny—i.e., \$1.0000). Government money market funds and retail prime and retail tax-exempt money market funds may continue to seek to maintain a stable NAV using amortized cost valuation and/or penny rounding.

According to the SEC, “the floating NAV amendments are designed to reduce the first-mover advantage inherent in a stable NAV fund, by disincentivizing redemption activity that can result from investors attempting to exploit the possibility of redeeming shares at the stable share price even if the portfolio has suffered a loss.”¹⁹ The SEC noted that “the size of institutional investors’ holdings and their resources for monitoring funds provide the motivation and means to act on this incentive” and “that institutional investors redeemed shares at a much higher rate than retail investors from prime money market funds in...September 2008.”²⁰

The floating NAV amendments also “are intended to reduce the chance of unfair investor dilution and make it more transparent to certain of the impacted investors that they, and not the fund sponsors or the federal government, bear the risk of loss.”²¹ Accordingly, the SEC explained that the floating NAV is designed “for those funds that are more vulnerable to credit events (compared to government funds) and that have an investor base more likely to engage in heavy redemptions (compared to retail investors).”²²

Liquidity Fees and Gates

The third principal 2014 reform enables—and in certain cases requires—all prime and tax-exempt funds, whether institutional or retail, to impose limitations on redemptions (so-called liquidity fees and gates) during extraordinary circumstances, subject to determinations by a money market fund’s board of directors.

Specifically, Rule 2a-7 gives a money market fund’s board the discretion to impose liquidity fees of up to 2 percent or redemption gates (a delay in processing redemptions of up to 10 business days) if the fund’s weekly liquid assets drop below 30 percent of its total assets (discretionary fees and gates). If a fund’s weekly liquid assets fall below 10 percent of its total assets, the SEC rules require the fund to charge redeeming investors a fee of 1 percent of their redemption (default liquidity fee), unless the fund’s board determines either that no fee, or a lower or higher fee (not to exceed 2 percent), would be in the best interests of the fund.

The SEC adopted a tiered threshold for imposing liquidity fees and gates²³ because it believed that such an approach would “allow boards to determine with greater flexibility the best line of defense against heavy redemptions and to tailor that defense” to the fund’s specific circumstances.²⁴ The liquidity fees and gates, the SEC noted, would allow money market funds “to moderate redemption requests by allocating liquidity costs” to redeeming shareholders “and, in certain cases, stop heavy redemptions in times of market stress.”²⁵

Specifically, the SEC stated that liquidity fees “are designed to preserve the current benefits of principal stability, liquidity, and a market yield, but reduce the likelihood that, in times of market stress, costs that ought to be attributed to a redeeming shareholder are externalized on remaining shareholders and on the wider market.”²⁶ Moreover, the SEC posited that liquidity fees would be rarely imposed under normal market conditions, and that “[e]ven if a liquidity fee is imposed, fund investors continue to have the flexibility to access liquidity (albeit at a cost).”²⁷

Redemption gates, the SEC suggested, would allow funds to “temporarily stop mounting redemptions,” giving the funds time to “generate additional internal liquidity while gates [are] in place” and to try to mitigate shareholders’ redemption incentives by “better communicat[ing] the nature of any stresses.”²⁸

The SEC set the threshold level for discretionary fees and gates at less than 30 percent weekly liquid assets because 30 percent is the minimum weekly liquid assets required under Rule 2a7.²⁹ “[A] drop in weekly liquid assets below the regulatory minimum,” the SEC highlighted, “could indicate current or future liquidity problems or forecast impending heavy redemptions” and “the fund’s board, in consultation with the investment adviser, is best suited to determine whether fees and gates can address the situation.”³⁰ Additionally, the SEC reasoned that setting the threshold at 30 percent allows a fund to “impose a fee or gate while it still has substantial internal liquidity, thus putting it in better position to bear redemptions without a broader market impact because it can satisfy redemption requests through internally generated cash and not through asset sales.”³¹

FIGURE 3.4

Summary of Money Market Fund Regulatory Requirements

Type of money market fund	Net asset value	Daily liquidity requirement	Weekly liquidity requirement	Credit quality of fund's securities	Liquidity fee	Gates
Government	Stable	≥ 10%	≥ 30%	Government securities only	None (unless board opts in)	None (unless board opts in)
Institutional prime	Floating	≥ 10%	≥ 30%	Minimal credit risk	≤ 2%	Up to 10 business days in a 90-day period
Retail prime	Stable	≥ 10%	≥ 30%	Minimal credit risk	≤ 2%	Up to 10 business days in a 90-day period
Institutional tax-exempt	Floating	None	≥ 30%	Minimal credit risk	≤ 2%	Up to 10 business days in a 90-day period
Retail tax-exempt	Stable	None	≥ 30%	Minimal credit risk	≤ 2%	Up to 10 business days in a 90-day period

Source: Investment Company Institute

Affiliated Transactions

Section 17(a) of the Investment Company Act generally prohibits a mutual fund from entering into a wide range of transactions with affiliated persons; Rule 17a-9 provides an exemption from Section 17(a), permitting affiliated persons of a money market fund (or affiliated persons of such persons) to purchase distressed and non-distressed securities from the fund. Among other conditions, Rule 17a-9 requires that any purchase is paid in cash and at a price that is “equal to the greater of the amortized cost of the security or its market price (in each case, including accrued interest).” Additionally, Rule 17a9(b)(2) allows such affiliated persons to purchase the securities for any reason, so long as they promptly remit to the fund any profits realized from a later sale of the securities (known as the “claw back” requirement).

The SEC adopted Rule 17a-9 in 1996,³² but expanded the rule in 2010 to enable “advisers to address acute credit or liquidity problems in a money market fund portfolio by purchasing securities that would be difficult or impossible to sell on the open market at or near their amortized cost.”³³ The SEC has stated that under the rule’s conditions, including the pricing requirements and the claw back provision,³⁴ the affiliated transactions in question “appear to be fair and reasonable and in the best interests of fund shareholders.”³⁵

In 2014, the SEC also adopted Rule 30b1-8 under the Investment Company Act, requiring money market funds to make a filing within one business day on the new Form N-CR, which would be public, following the occurrence of certain “material events.”³⁶ Events include the provision of “financial support” by an affiliate of the fund, which may take place through the purchase of a security from the fund in reliance on Rule 17a-9, a capital contribution, or a capital support agreement, among others.³⁷

A significant number of money market funds are sponsored by advisers that are affiliates of banks. The rule’s provisions may prevent such affiliates from relying on Rule 17a-9, to avoid conflicts with banking regulations (e.g., Sections 23A and 23B of the Federal Reserve Act [FRA] and Regulation W). To provide more flexibility to these bank affiliates, in a March 19, 2020, letter, the SEC staff stated that it would not recommend enforcement action to the SEC under Section 17(a) or Rule 17a-9 against any money market fund or any affiliate of the money market fund that is subject to Sections 23A and 23B of the FRA if the affiliate purchases securities from the money market fund under the circumstances and subject to the conditions in the letter.³⁸ The relief is temporary, and will cease to be in effect upon notice from the SEC staff.³⁹

Experiences of Money Market Funds During the COVID-19 Crisis

The genesis of the COVID-19 crisis differed substantially from the global financial crisis.⁴⁰ The global financial crisis was a credit crisis. Its defining feature was a housing market bubble stoked by easy credit conditions. As that bubble imploded, a wave of high-profile defaults of banks and other financial firms followed. These developments, which played out over two years, spilled back into the real economy, leading to a recession.

In contrast, the COVID-19 crisis was a public-health crisis, causing the deepest and fastest downturn in economic activity since World War II. The defining features were the virus itself, governments' sharp restrictions on economic activity as they struggled to contain the virus, an expected collapse in the real economy that fed back into financial markets, a sharp and fast decline in financial markets, and a vast demand for liquidity due to uncertainty, fear, and the need for cash to remain solvent (i.e., to pay bills).⁴¹

As this paper details, developments in the money market fund sector also generally differed significantly between the two crises, in terms of market stresses, patterns of dollar flows, effects of money market fund regulations, government responses, and the use of Federal Reserve liquidity facilities by money market funds.

Money Market Fund Flows During the COVID-19 Crisis

Money market fund flows during the COVID-19 crisis were shaped by the efforts of businesses, households, and governments to preserve or build liquidity. At the peak of the financial market uncertainty associated with COVID-19, there was a massive demand for liquidity, which created obvious strains in the short-term markets.

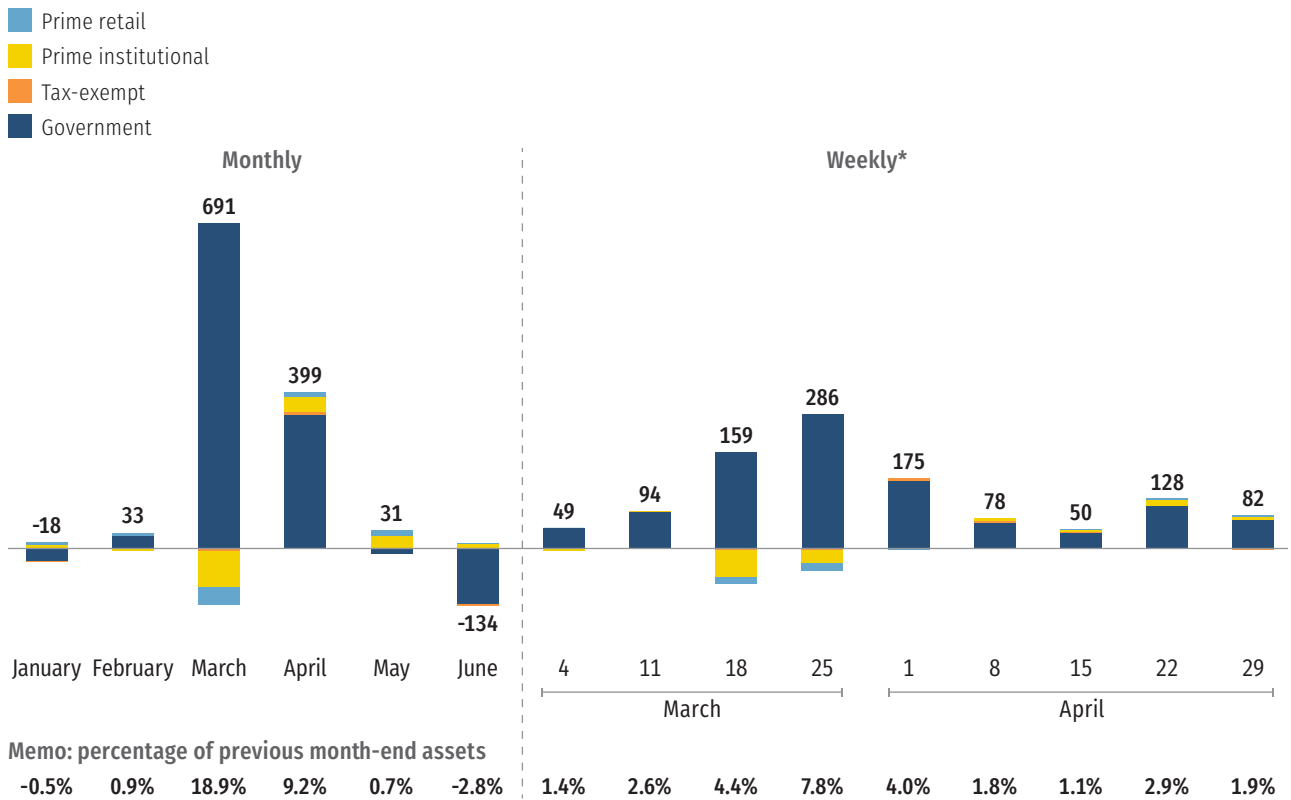
Government Money Market Funds Were a Liquidity Vehicle of Choice in March

During the COVID-19 crisis, government money market funds served as a liquidity vehicle of choice. Investors seeking to preserve or bolster their liquidity poured hundreds of billions of dollars into these funds (Figure 3.5). Inflows to government money market funds were \$834 billion in March (left panel), with the great majority occurring in the second half of the month (right panel). At the same time, institutional prime money market funds saw outflows, which totaled \$91 billion in March. In contrast, retail prime and tax-exempt money market funds saw significantly more muted outflows of \$48 billion and \$6 billion, respectively.

FIGURE 3.5

Investors Sought Liquidity in Government Money Market Funds During March 2020

Flows of money market funds, billions of dollars, January–June 2020



*Weekly figures are estimated as the change in assets from the previous week.

Source: Investment Company Institute

During the worst of the COVID-19 crisis, investors of all types used government money market funds to help them preserve liquidity. Indeed, even if all of the money taken out of institutional and retail prime money market funds (\$139 billion) moved to government money market funds, that only accounts for 17 percent of the \$834 billion in inflows. Other sources had to provide another \$695 billion of inflows to government money market funds in March. Some of that \$695 billion in inflows no doubt came from stock, bond, and hybrid mutual funds, which experienced outflows of \$348 billion in March. But even if all of those dollars went into government money market funds, another \$347 billion had to come from investors outside of prime money market funds and mutual funds.

Timing of Flows from Prime Money Market Funds

Some commentators have conjectured that outflows from prime money market funds, particularly institutional prime funds, were a primary cause, if not the *sole* cause, of the distress in the financial markets in March 2020.⁴² These suggestions are inconsistent with the data and early press reports.

First, dislocations in the financial markets in March 2020 were widespread, hitting many different markets, including markets in which prime money market funds are not significant players, such as markets for US Treasury bonds, longer-term US agency securities, municipal securities, corporate bonds, foreign exchange, and other instruments.⁴³ The simplest explanation for distress in these other markets in March was that investors, faced with great uncertainty, sought to maximize liquidity positions.

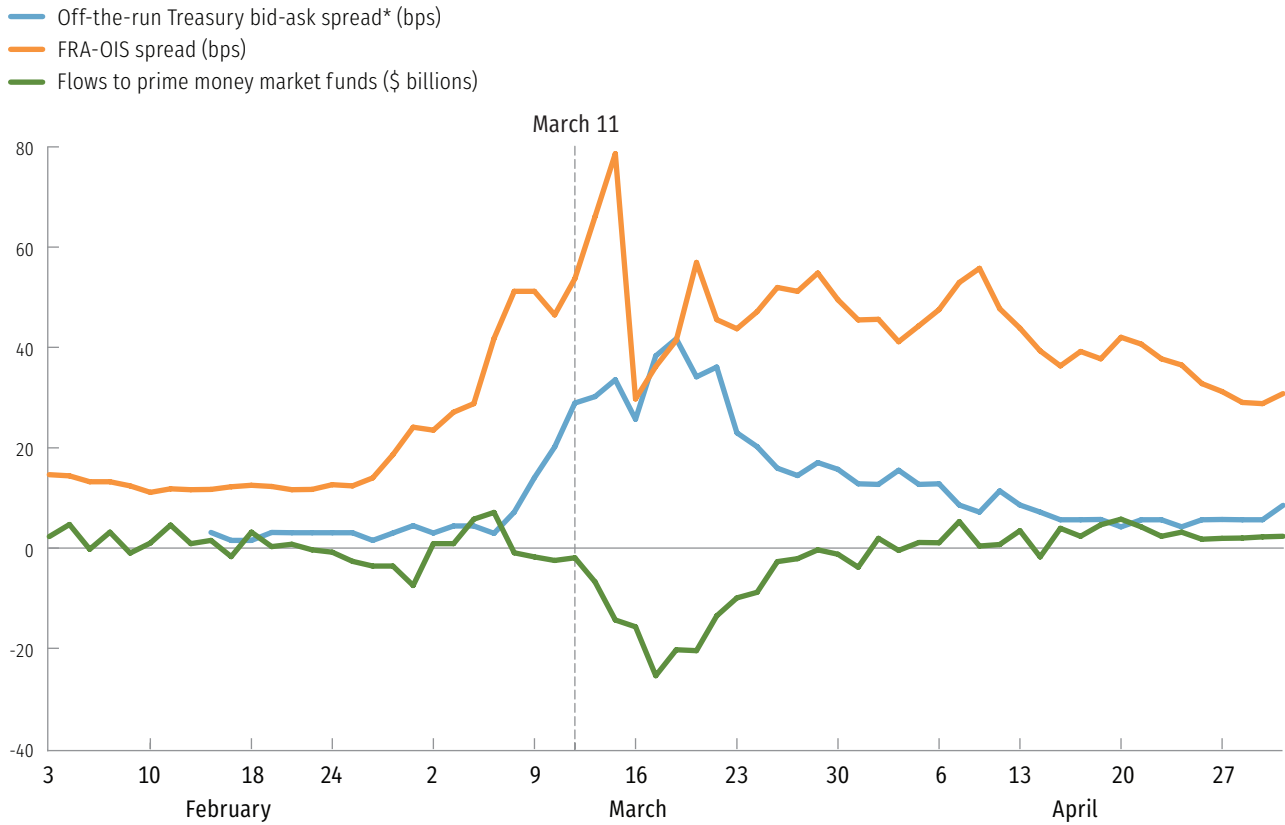
Second, contrary to some arguments,⁴⁴ the timing of events in March suggests that the collective outflows from both institutional and retail prime money market funds did not trigger the stresses in short-term funding markets. Figure 3.6 shows daily flows of prime money market funds from the beginning of February to the end of April. These are plotted against two measures of market distress. The bid-ask spread on off-the-run Treasuries is a measure of stress in the Treasury bond market,⁴⁵ while the FRA-OIS spread is a guide to stress in the interbank lending market.⁴⁶ These spreads tend to widen when bond and money markets come under stress. As Figure 3.6 shows, by March 11 these spreads had widened substantially, yet prime money market funds had seen virtually no outflows.⁴⁷

Moreover, if the hypothesis that prime money market funds caused the stresses in the short-term funding markets is correct, there should at least be a positive correlation between flows to these funds and the FRA-OIS spread. In fact, the correlation is *negative* in March.⁴⁸ This pattern is most clearly seen between March 13 and 16, when the FRA-OIS spread fell nearly 50 basis points—indicating less market stress—yet outflows from prime money market funds were picking up.

FIGURE 3.6

Stresses in Fixed-Income Markets Preceded Outflows from Prime Money Market Funds

Daily, February 3–April 30, 2020



*The off-the-run Treasury spread is calculated using the bid and offer prices on the next most recently issued 10-year US Treasury note.

Note: The off-the-run bid-ask spread on 10-year US Treasury note and the FRA-OIS spread are both shown on the left scale in basis points (bps). Flows to prime money market funds are also shown on the left scale, but in billions of dollars.

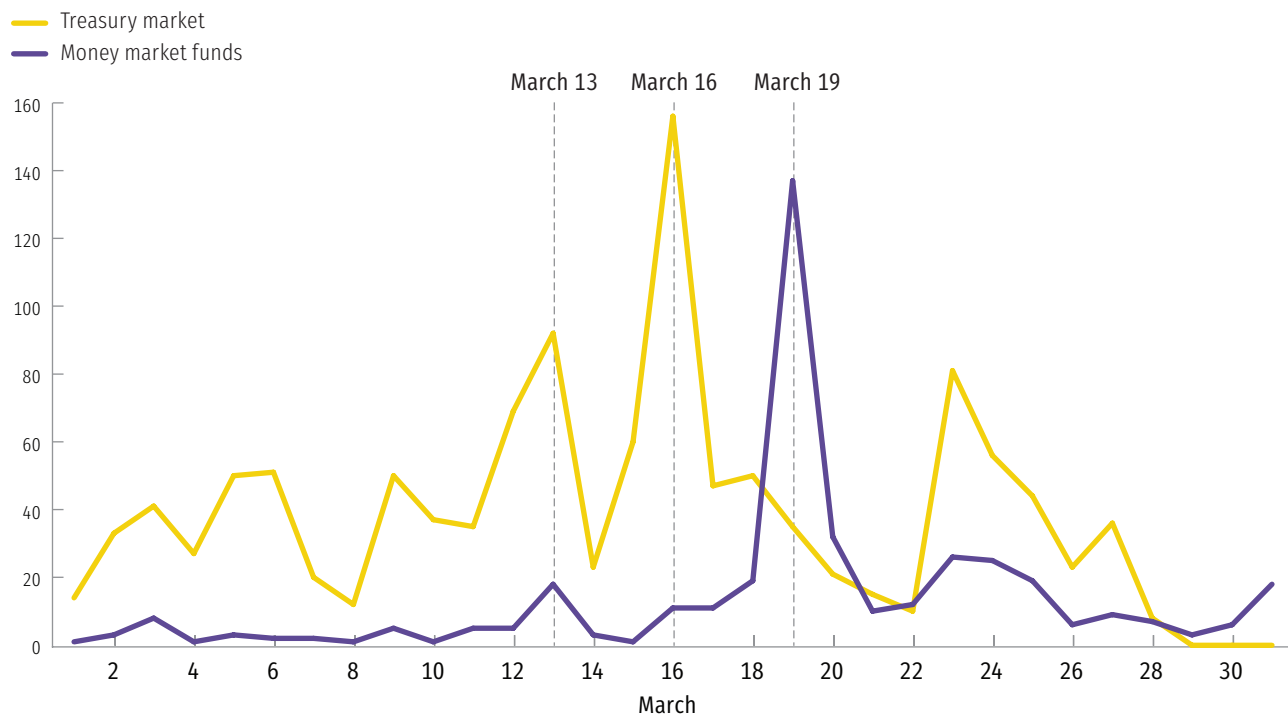
Sources: Bloomberg (FRA-OIS spread), iMoneyNet (flows to prime money market funds), and ICI calculations of Bloomberg data (bid-ask spread on off-the-run 10-year US Treasury note)

Finally, press reports do not support the theory that money market funds were at the forefront of the market stress. In March 2020, Treasury markets were in the news several days before any real mention of money market funds (Figure 3.7). Mentions of the term *Treasury market* (and similar search terms) began increasing during the first few days of March 2020, then spiking on March 13 and March 16—dates on which the Federal Reserve undertook strong actions to support the functioning of the Treasury market.⁴⁹ In contrast, there were very few mentions of the term *money market fund* (and similar terms) in the press until March 19, the day after the Federal Reserve established the Money Market Mutual Fund Liquidity Facility (MMLF).

FIGURE 3.7

Media Focused on Treasury and Repo Markets in the First Half of March 2020

Daily media mentions of selected terms, March 1–March 31, 2020*



*Mentions are based on a search of print and online news stories from the United States and United Kingdom from March 1 to March 31, 2020. Analysis was conducted in Cision, a leading media monitoring database, using Boolean logic to search for relevant terms. The search yielded 2,082 articles. For the yellow line, search terms include *Treasury market* AND *COVID-19*, a number of variants of both terms, and common misspellings of both terms. For the purple line, search terms included *money market funds* AND *COVID-19*, a number of variants of both of those terms, and common misspellings of both terms. The purple line is probably overinclusive because one search variant was *money market* AND *COVID-19*, which would count articles that discussed money markets but may have made no mention of money market funds per se.

Source: Investment Company Institute

Similarities and Differences Between the COVID-19 Crisis and the Global Financial Crisis in the Experiences of Institutional Prime Money Market Funds

Some commentators have likened the experience of prime money market funds during the COVID-19 crisis to that of the global financial crisis.⁵⁰ Although there were some similarities between the experiences of prime money market funds during the global financial crisis and the COVID-19 crisis, the differences are more striking.

Similarities

Similarities between prime money market fund experiences during the COVID-19 crisis and the global financial crisis included patterns of flows on a percentage basis, impaired short-term credit markets, federal intervention, and modest outflows from retail funds.

Percentage flow patterns: The patterns of prime money market funds' flows on a percentage basis during the COVID-19 and global financial crises had common aspects. During both crises, institutional prime money market funds saw significant percentage outflows (Figure 3.8, top panel). Outflows during the worst week for each crisis (shown on the horizontal axis as week 0) hit 15 percent of assets (\$192 billion) in the global financial crisis and were even greater, at 20 percent of assets (\$66 billion), in the COVID-19 crisis. In both cases, in the following week (labeled week 1) outflows on a percentage basis were sizable, though somewhat smaller. During the global financial crisis, outflows persisted, but diminished in size, for the next few weeks. During March 2020, outflows ceased, and inflows resumed two weeks after the shock.

Similarities also can be seen in the flow patterns of retail prime money market funds during the two crises (Figure 3.8, bottom panel). During both crises, retail prime money market funds saw modest outflows for a few weeks, but these never amounted to more than 3 to 5 percent of assets in any week.

In both crises, outflows from retail prime money market funds were modest, both in dollar terms and relative to outflows from institutional prime money market funds. Most observers agree that this is because retail money market investors have different objectives—such as saving over the long term—than institutional investors that use money market funds primarily as transaction accounts. This difference between retail and institutional shareholder behavior in, and use of, money market funds led the SEC in 2014 to prohibit institutional investors from investing in retail prime money market funds.

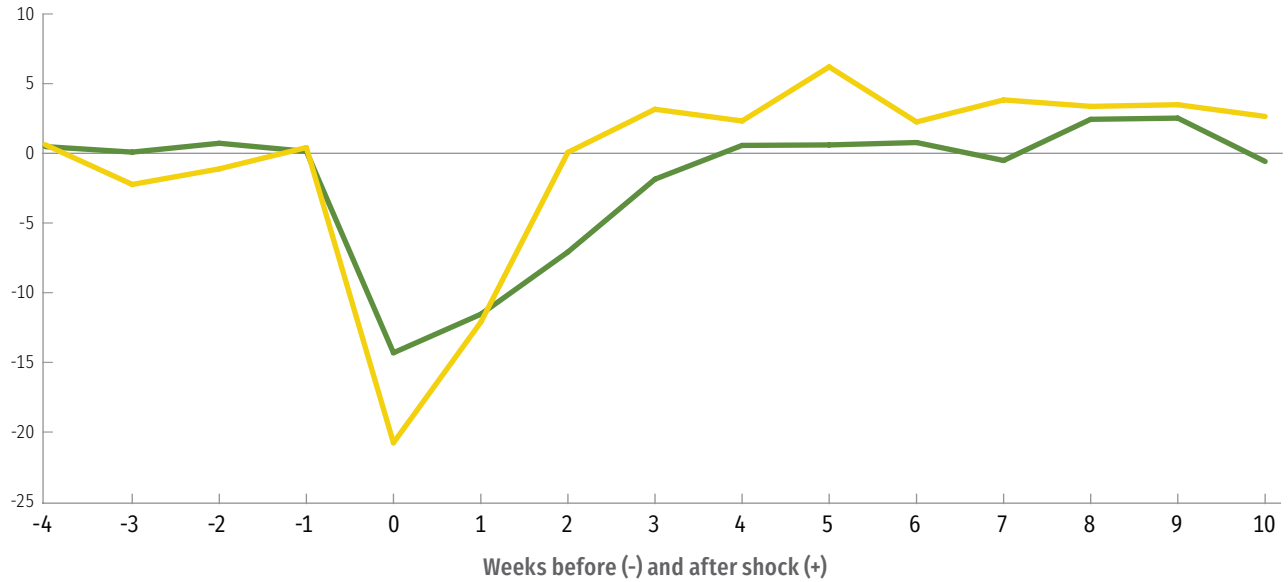
FIGURE 3.8

Flows of Prime Money Market Funds During COVID-19 and Global Financial Crises

Percent change in assets, weekly

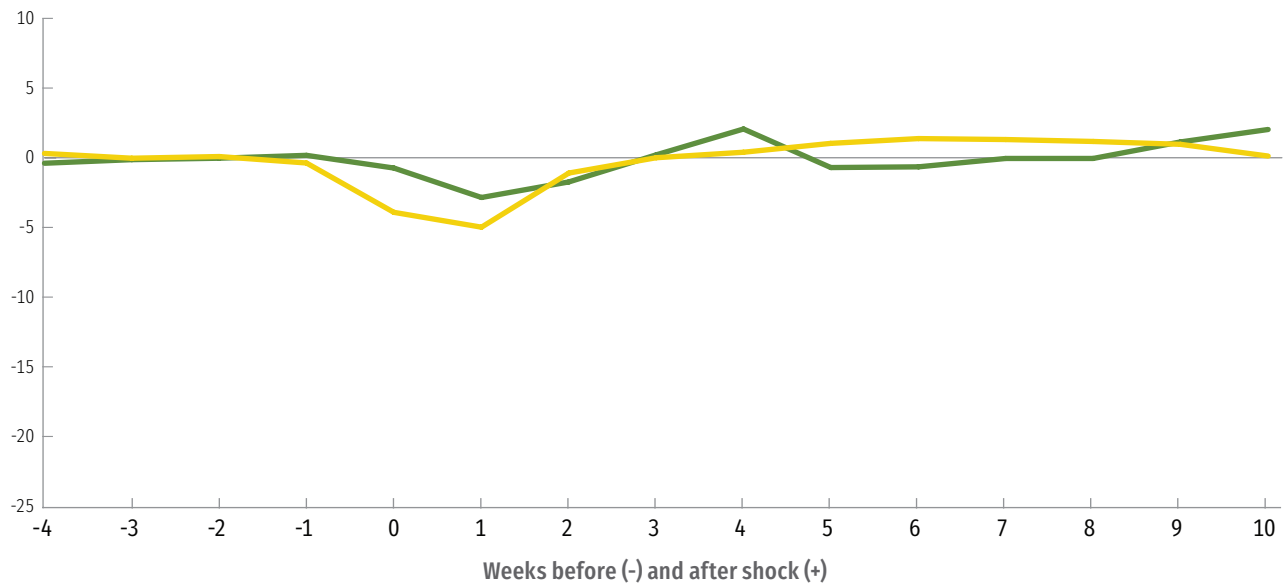
Institutional prime

- Global financial crisis
- COVID-19 crisis



Retail prime

- Global financial crisis
- COVID-19 crisis



Note: In the figure, the global financial crisis covers the period from August 14 to November 26, 2008, with week 0 representing the week ending September 17, 2008; the COVID-19 crisis covers the period from February 13 to May 27, 2020, with week 0 representing the week ending March 18, 2020.

Source: Investment Company Institute

Impaired short-term credit markets: In both crises, institutional prime money market funds faced challenges selling securities, notably commercial paper and CDs, to accommodate investors' redemptions. The reasons for these challenges, however, were different in the global financial crisis than in March 2020.

In ordinary times, investors, including money market funds, hold commercial paper or CDs until they mature and then, depending on their cash and investing needs, roll all or a portion of the maturing proceeds into newly issued commercial paper or CDs. If a prime money market fund wants to reduce its holdings of commercial paper or CDs, most of which is issued by banks, it typically asks the issuing bank to repurchase the paper.

During the global financial crisis, the commercial paper market unraveled when Lehman Brothers filed for bankruptcy on September 15, 2008, putting its outstanding commercial paper into default.⁵¹ Given the failure of Lehman Brothers, investors immediately began to question the creditworthiness of many other financial institutions and banks, limiting the ability of issuers to roll over maturing commercial paper, and straining the issuers' funding sources. Actual and potential defaults raised the possibility that prime money market funds would be unable to sell or hold to maturity their commercial paper holdings at par, and thus might be forced to pass losses on to investors. Institutional investors, concerned about the possibility of incurring losses, redeemed heavily from institutional prime money market funds.

Events in March 2020 were quite different. The immediate creditworthiness of commercial paper and CD issuers was not a concern. In contrast with the global financial crisis, banks were well-capitalized in March; their strength, creditworthiness, and viability were unquestioned. And, as Figure 3.9 underscores, prime money market funds hold commercial paper that is largely issued by banks.

FIGURE 3.9

Non-US Banks Are Important Issuers of Commercial Paper

Issuers of commercial paper held by prime money market funds, billions of dollars, February 28, 2020

Issuer	Amount
Royal Bank of Canada	\$18.7
Toronto-Dominion Bank	10.8
Bank of Nova Scotia	9.9
J.P. Morgan Chase & Company	9.2
Groupe BPCE SA	9.0
Canadian Imperial Bank of Commerce	7.9
National Australia Bank	7.1
Depfa Bank	6.8
Australia & New Zealand Banking Group Ltd	5.8
Barclays PLC	5.7
ING Groep NV	5.6
BNP Paribas SA	5.4
HSBC Holdings PLC	5.2
Toyota Motor Corporation	5.1
Credit Suisse	5.0
All other issuers	120.3

Source: ICI calculations using SEC Form N-MFP data

Instead, the normal course of business in the commercial paper market broke down in March for two reasons. First, ironically, the stringent regulatory capital requirements under which banks must now operate (such as the supplementary leverage ratio [SLR]⁵² and liquidity coverage ratio [LCR])⁵³ make it more costly for bank holding companies (BHCs), and thus their dealer subsidiaries, to take securities into their inventories.⁵⁴ As a result, dealers had less flexibility in intermediating fixed-income trades, including in commercial paper, in any reasonable size irrespective of credit quality.

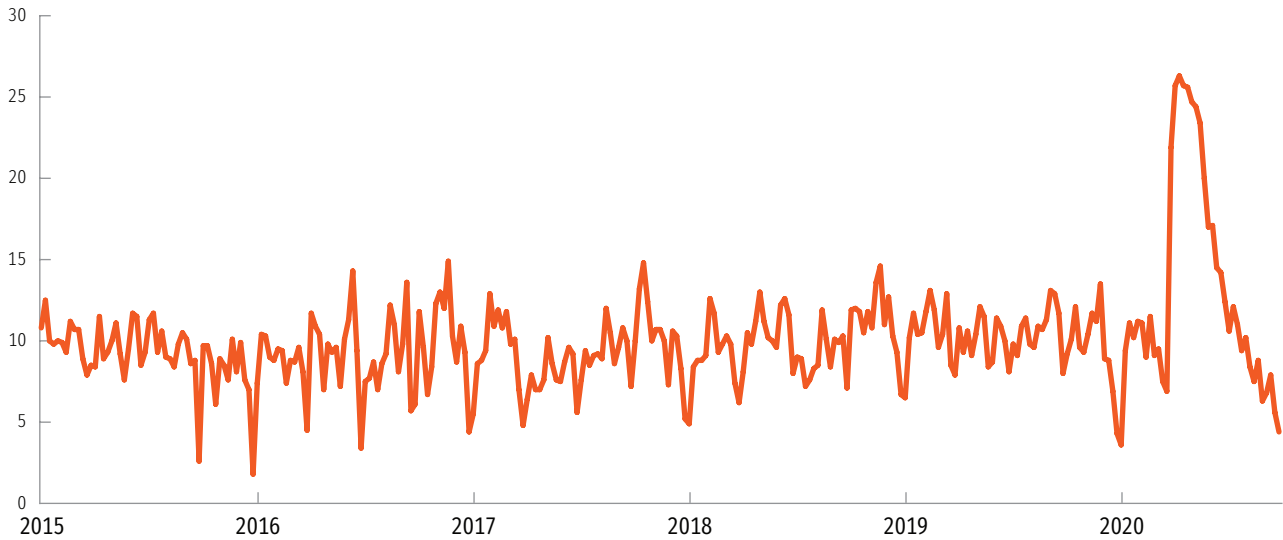
The commercial paper holdings of primary dealers provide some evidence of this (Figure 3.10). Over the past several years leading up to the COVID-19 crisis, primary dealers' inventories of commercial paper averaged about \$10 billion (top panel). It was not until the week ending March 25—the week the Federal Reserve began operations of the MMLF, which included regulatory relief on bank capital requirements as part of its terms—that primary dealers' holdings of commercial paper increased from \$6.9 billion to \$21.9 billion (bottom panel).⁵⁵ These observations are consistent with the views expressed by others, including US Treasury Department officials, that regulatory capital requirements may have constrained the ability of dealers to help intermediate transactions in the short-term credit markets.⁵⁶

FIGURE 3.10

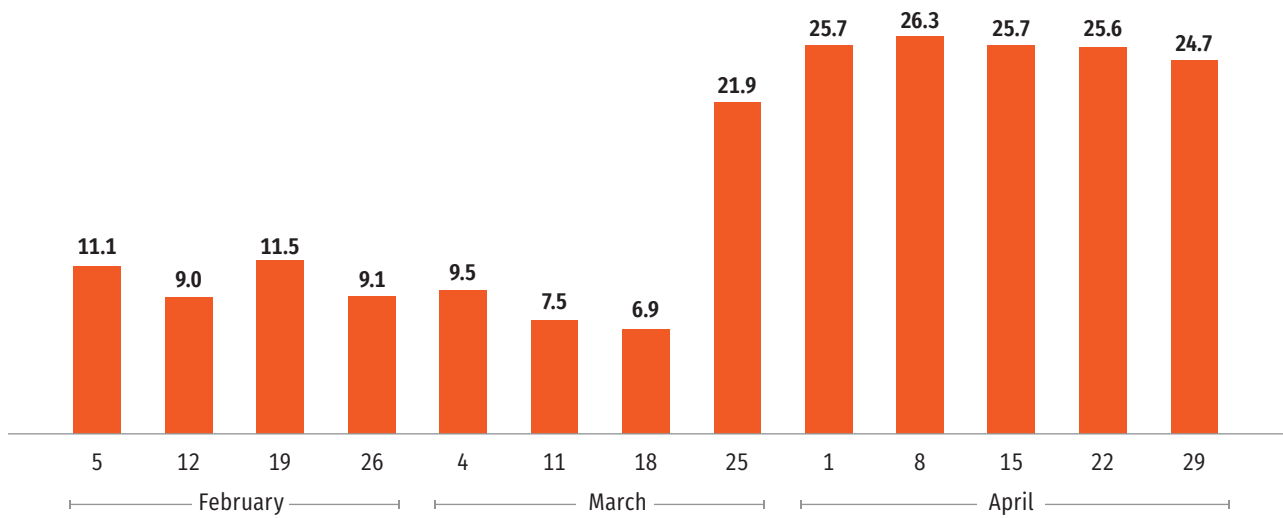
Dealers' Holdings of Commercial Paper Rose After Federal Reserve Established the MMLF

Billions of dollars, weekly

January 7, 2015–September 23, 2020



February 5, 2020–April 29, 2020



Source: Federal Reserve Bank of New York

Second, banks had large contractual obligations that took first priority—such as meeting customers’ draws on their credit lines (which spiked in March) and purchasing certain kinds of securities (such as VRDNs) from sellers.⁵⁷ As a result, BHCs and their affiliated banks and dealers carefully managed and allocated their capital and available liquidity. To this end, ICI members report being unable to resell commercial paper and CDs to the issuing banks in March, a highly unusual event.

Federal intervention: During both the global financial crisis and the COVID-19 crisis, outflows from institutional prime money market funds ceased, or diminished sharply, once the federal government intervened. These interventions included a range of actions to support the US economy and financial markets. For example, during the global financial crisis, the Federal Reserve established a facility to lend to money market funds (the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, or AMLF), and the US Treasury Department established a guarantee program for money market funds.⁵⁸ During the COVID-19 crisis, the Federal Reserve established a range of facilities to lend to virtually every sector of the economy, including to money market funds through the MMLF. In addition, Congress, through the Coronavirus Aid, Relief, and Economic Security (CARES) Act, gave the US Treasury authority to create a similar guarantee for money market funds, but to date, the Treasury has not used this new authority.

Modest outflows from retail funds: Following both the global financial crisis and the COVID-19 crisis, outflows both in dollar terms and as a percentage of assets from retail prime money market funds were relatively modest. As noted earlier, this is consistent with the general view that retail money market investors have reasons for using money market funds, such as saving over the long term, that are different from institutional investors’ reasons for using money market funds.

Differences

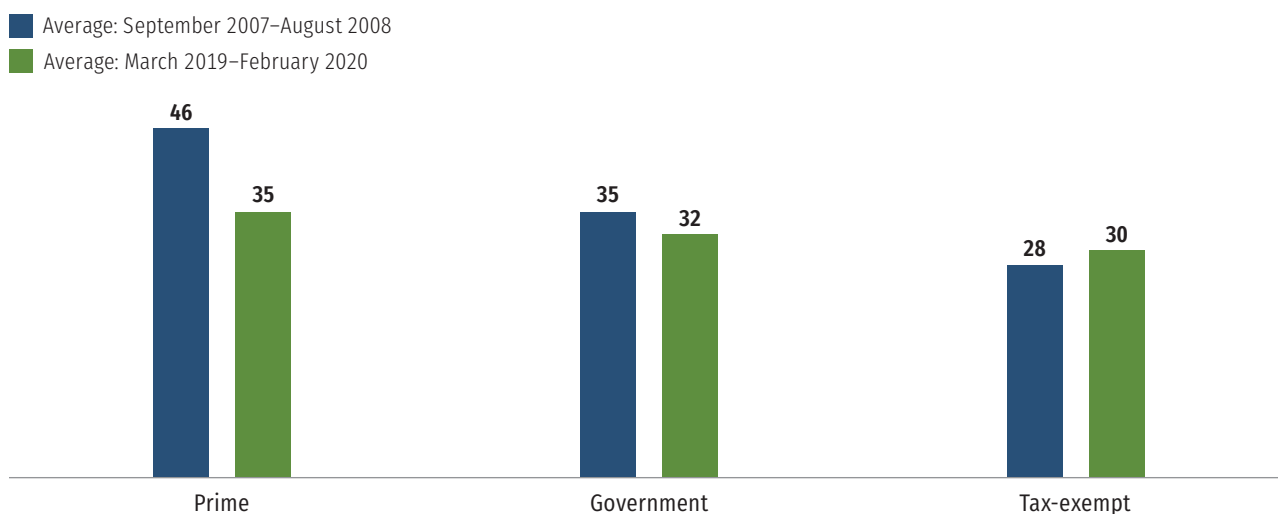
Although the COVID-19 and global financial crises shared some characteristics, it is important to understand the differences so that future policy recommendations are appropriate for the current environment, rather than the one that prevailed in 2008. Indeed, the dissimilarities in money market funds’ experiences during the two crises were significant, indicating that the two episodes arguably had many more differences than commonalities. Some of the major differences between the two periods were average maturity and liquidity, dollar outflows, composition of money market fund flows, use of Federal Reserve liquidity facilities, and changes in portfolio holdings.

Average maturity and liquidity: Today’s money market funds are dramatically different from those of 2008, due to the SEC’s post-global financial crisis reforms. To make money market funds more resilient to interest rate shocks, in 2010 the SEC required money market funds to shorten their weighted average maturities (WAMs) to 60 days or less. Consequently, fund WAMs are shorter now than before the global financial crisis. For the 12-month period leading up to September 2008, prime money market fund WAMs averaged 46 days (Figure 3.11). In contrast, during the 12-month period leading up to March 2020, they averaged 35 days, nearly 25 percent lower than during the period before the global financial crisis. WAMs for government funds also were a bit lower leading up to March 2020, while WAMs for tax-exempt funds rose by two days—averaging 30 days.

FIGURE 3.11

Weighted Average Maturities of Money Market Funds Have Declined

Days



Source: ICI calculations of iMoneyNet data

In addition, money market funds are more liquid now than during the global financial crisis. To help ensure that money market funds have adequate liquidity to meet redemptions, in 2010 the SEC adopted several reforms, one of which required money market funds to hold at least 30 percent of their assets in securities that could be liquidated (or that mature) within five business days. These assets are called weekly liquid assets.

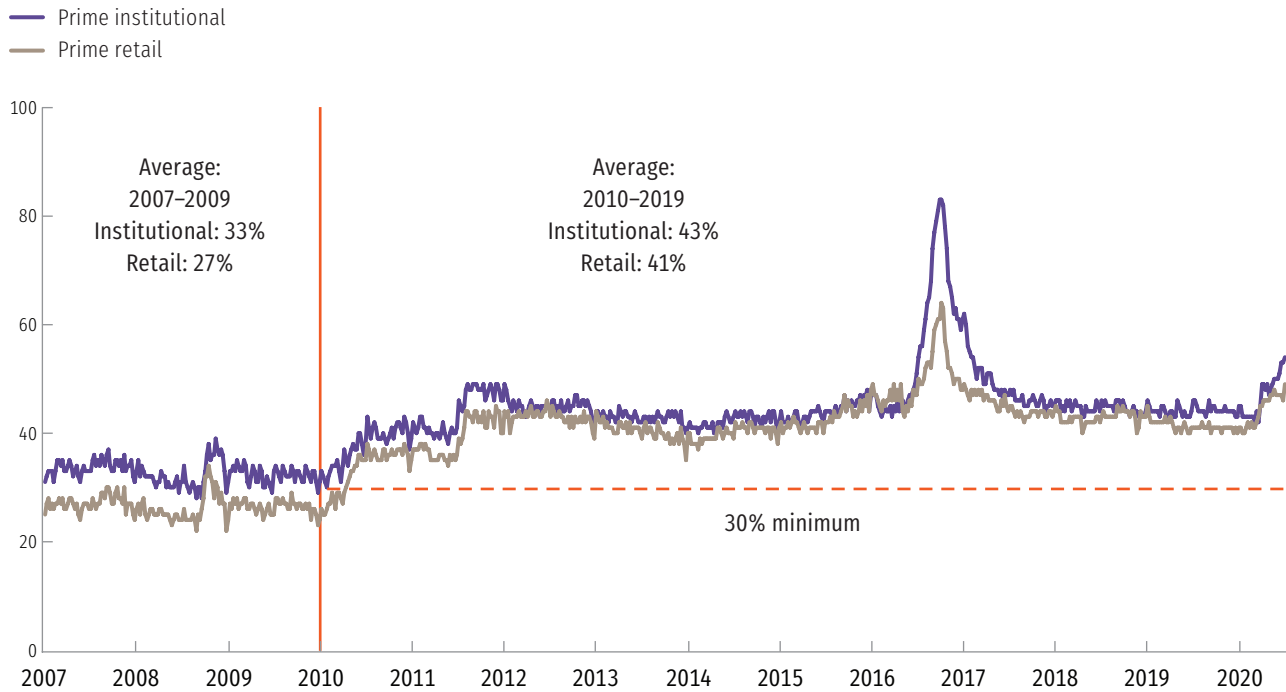
As a result of these reforms, prime money market funds' weekly liquid assets rose substantially as a share of their assets (Figure 3.12). From 2007 to 2009, 33 percent of the assets of institutional prime money market funds were in weekly liquid assets. In contrast, from 2010 to June 2020, institutional prime money market funds on average held 43 percent of their assets in weekly liquid securities. For retail prime funds, the increase in the proportion of their assets in weekly liquid assets was even more substantial, rising from an average of 27 percent from 2007 to 2009 to 41 percent from 2010 to June 2020.

Since 2010, prime money market funds' weekly liquid assets (as a percentage of their portfolios) have exceeded the 30 percent minimum by a significant margin—on average by 12 to 15 percentage points—illustrating that these funds operate conservatively. Likely reflecting a response to the SEC's 2014 reforms permitting funds to impose fees or gates if their weekly liquid assets fall below the 30 percent minimum, the weekly liquid asset levels for institutional prime and retail prime money market funds averaged slightly higher from 2014 to 2019 than from 2010 to 2013.⁵⁹

FIGURE 3.12

Prime Money Market Funds Are More Liquid After the Global Financial Crisis

Average weekly liquid assets of prime money market funds, percentage of fund assets, weekly, January 2, 2007–June 30, 2020



Note: The large spike in weekly liquid assets from roughly June 2016 to May 2017 reflects prime funds transitioning their portfolios ahead of the SEC's October 2016 deadline for institutional prime money market funds to use floating NAVs. Prime money market funds, especially institutional funds, expected to (and did) see large outflows as investors shifted to government money market funds. Averages for 2010–2019 exclude observations from June 2016 to May 2017.

Source: ICI calculations of iMoneyNet data

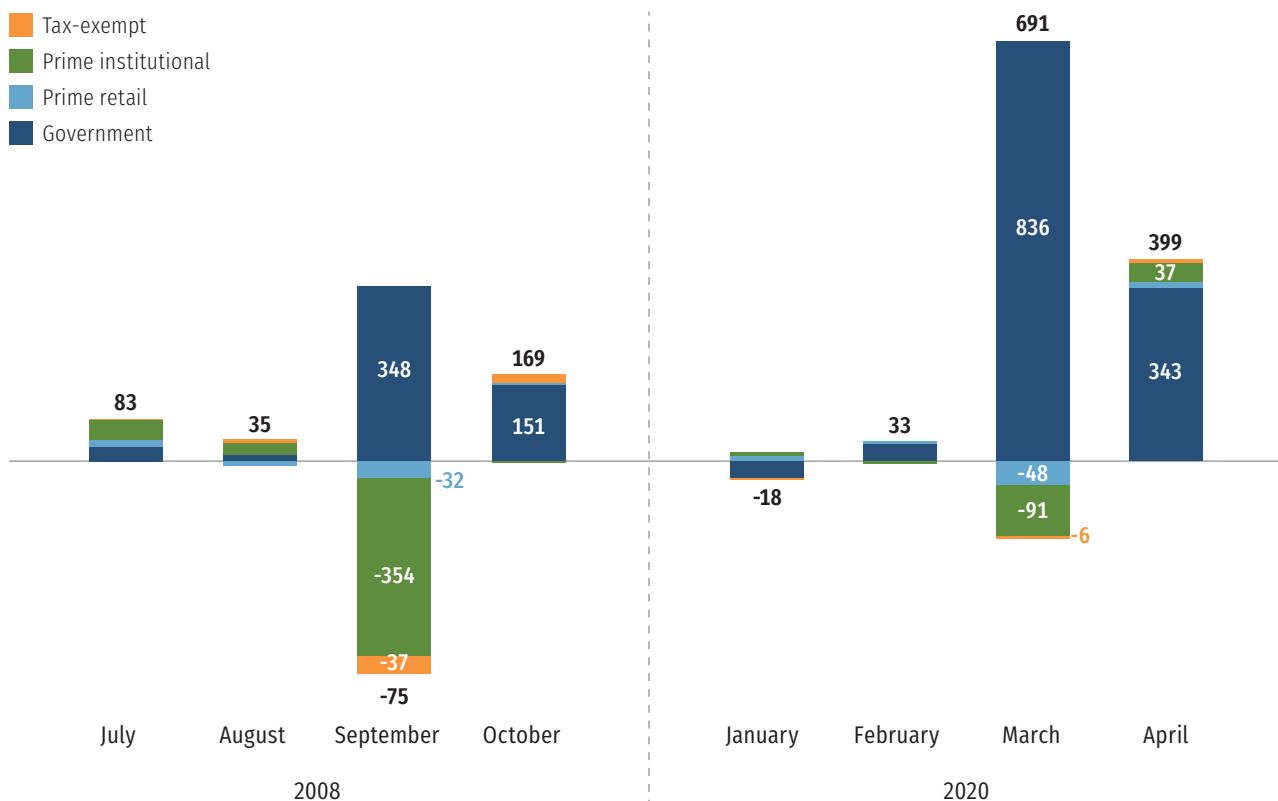
Dollar outflows: Although outflows from prime money market funds when measured on a percentage basis were similar between the two crises, outflows when measured in dollar terms were much smaller during the COVID-19 crisis than during the global financial crisis. During March 2020, prime money market funds saw outflows of \$139 billion. Of this, \$91 billion (65 percent) was attributable to institutional prime money market funds, and \$48 billion (35 percent) to retail prime money market funds (Figure 3.13). In comparison, outflows from prime funds in September 2008 (the month with the highest outflows during the global financial crisis), were nearly three times larger, totaling \$386 billion (left panel), of which institutional prime funds accounted for 92 percent (\$354 billion) of the outflow.

Composition of money market fund flows: In March 2020, outflows from prime money market funds were much smaller than inflows to government money market funds. In contrast, in September 2008, outflows from prime money market funds were almost identically offset by inflows to government money market funds. This suggests that government money market funds were a liquidity vehicle of choice for a wide range of investors during the COVID-19 crisis, but served mainly as a repository for outflows from prime money market funds during the global financial crisis.

FIGURE 3.13

Dollar Flows of Money Market Funds During March 2020 Were Very Different from September 2008

Billions of dollars, monthly, July–October 2008 and January–April 2020



Source: Investment Company Institute

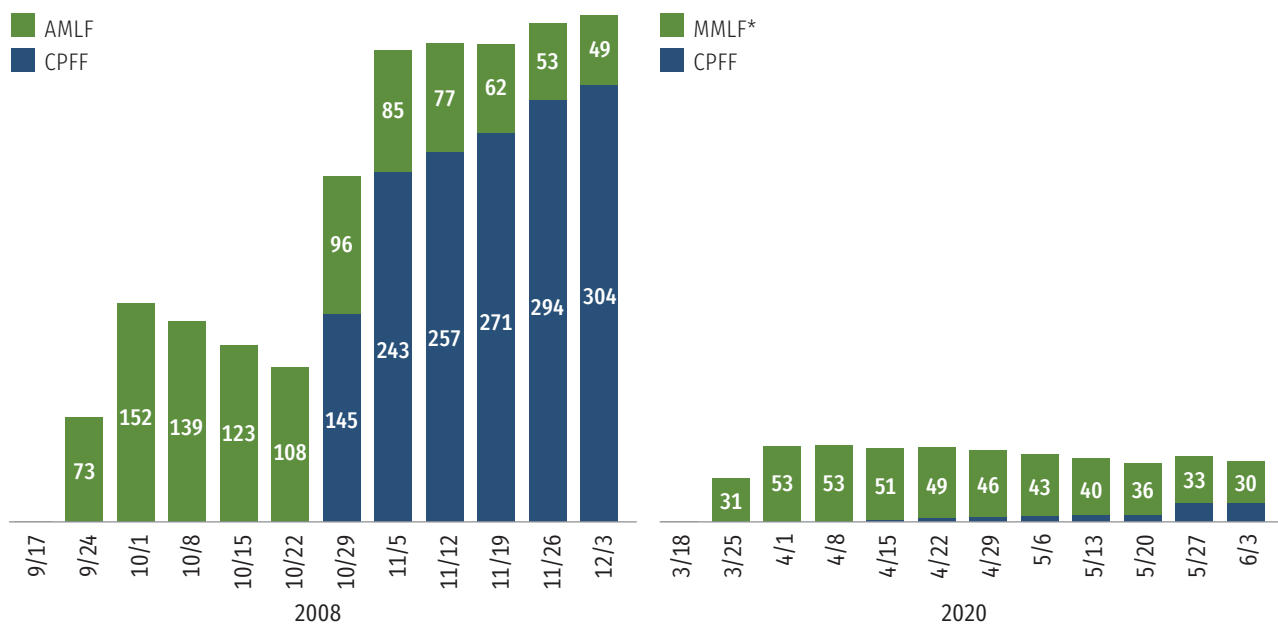
Use of Federal Reserve liquidity facilities: Beginning in March 2020, the Federal Reserve introduced a broad range of facilities intended to restore liquidity and the flow of credit to the financial markets, including the Commercial Paper Funding Facility (CPFF) and the MMLF.⁶⁰ Loans outstanding in these two facilities peaked at \$53 billion during the week ending April 8 (Figure 3.14, right panel). Eleven weeks after inception—the week ending June 3, 2020—loans outstanding fell to \$42.7 billion.

These amounts are far smaller than amounts the Federal Reserve lent during the global financial crisis under two similar facilities, the AMLF and the original version of the CPFF. Loans through the AMLF peaked on October 1, 2008, at \$152 billion (Figure 3.14, left panel), almost three times the peak amount of \$53 billion the Federal Reserve lent through the MMLF in 2020. Moreover, during the global financial crisis, the combined amount of loans outstanding through the AMLF and CPFF continued to rise for many weeks and totaled more than \$350 billion 11 weeks after the Federal Reserve opened those programs. The peak use of the money market fund facilities in dollar terms was lower during the COVID-19 crisis (\$53 billion) than during the global financial crisis (\$152 billion); however, when use is scaled by outflows from prime money market funds in March 2020 and September 2008, the percentages are similar—38 percent (\$53 billion in use relative to \$139 billion in outflows from prime funds) in March 2020 and 39 percent (\$152 billion in use relative to \$386 billion in outflows from prime funds) in September 2008.

FIGURE 3.14

Prime Money Market Funds' Use of Federal Reserve Liquidity Facilities: COVID-19 Crisis vs. Global Financial Crisis

Billions of dollars, weekly, September 17–December 3, 2008, and March 18–June 3, 2020



*Tax-exempt money market funds also are eligible to access the MMLF.

Source: Federal Reserve Board

Changes in portfolio holdings: Because publicly available data are lacking on money market funds' intra-month purchases and sales of various kinds of assets, it is uncertain precisely which assets prime money market funds sold to meet redemptions during the global financial and COVID-19 crises. That said, data on prime money market funds' month-end holdings suggest that the use of repos figured more prominently during the COVID-19 crisis than the global financial crisis.

In September 2008, prime money market funds' assets fell by \$386 billion (Figure 3.15). The great majority (86 percent) reflected reductions in funds' holdings of private credit instruments such as commercial paper (\$166 billion), bank CDs (\$82 billion), and other assets.⁶¹ A small portion (\$34 billion) reflected prime money market funds' unwinding of repos.

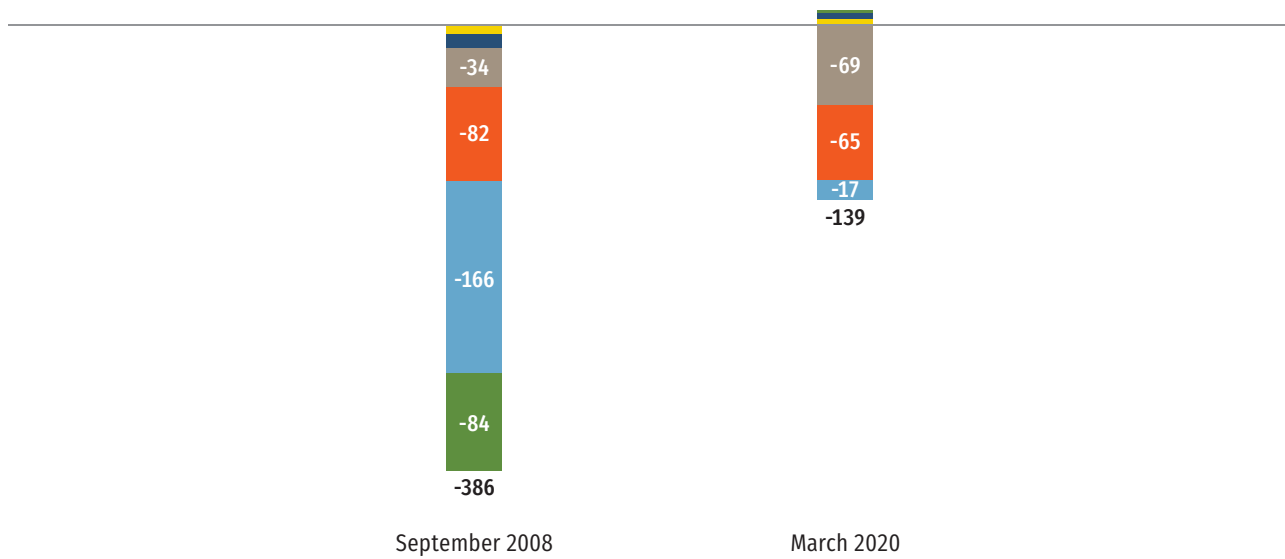
In March 2020, prime money market funds' assets fell by \$139 billion (Figure 3.15). According to data collected from the SEC's Form N-MFP, about half of the \$139 billion reflected small increases (\$12 billion) in holdings of Treasury and agency debt, offset by declines in holdings of private credit instruments, such as commercial paper (\$17 billion) and bank CDs (\$65 billion). The remainder of the \$139 billion drop reflected prime money market funds' unwinding of repos (\$69 billion).

FIGURE 3.15

Prime Money Market Funds' Portfolio Sales: COVID-19 Crisis vs. Global Financial Crisis

Changes in assets of prime money market funds by security type, billions of dollars

- Other
- Commercial paper
- Bank CDs
- Repurchase agreements
- Agency debt
- Treasury debt



Note: For consistency with September 2008 data, March 2020 data exclude changes in the holdings of master funds and central cash funds.

Sources: Investment Company Institute (September 2008) and SEC Form N-MFP (March 2020)

Prime money market funds' greater reliance on repos during March 2020 is striking. Repos, which typically mature overnight or within seven days, are an important part of a fund's weekly liquid assets. And, as noted earlier, prime money market funds' weekly liquid assets increased substantially following the SEC's 2010 amendments to Rule 2a-7. Thus, in March, prime money market funds had considerably more highly liquid assets to sell to meet redemptions in comparison with September 2008.

Nevertheless, institutional prime money market funds faced challenges accessing even more of that weekly liquidity because investors treated the 30 percent minimum as a floor (see pages 30–37). In short, these funds had plentiful weekly liquid assets with which to meet next week's redemptions, but the 30 percent minimum, in combination with the *option* to impose fees and gates, in effect may have created a trip wire that investors sought to avoid, rather than a robust source of liquidity.

Effects of the SEC's 2014 Reforms on Money Market Funds' Experiences During COVID-19

To a great extent, similarities and differences between money market funds' experiences during the COVID-19 crisis and the global financial crisis reflect institutional behavior and aspects of the SEC's post-global financial crisis reforms to Rule 2a-7. As described earlier, the goal of the reforms was to make money market funds more resilient to financial market shocks. As this section discusses, the reforms in some respects achieved that goal, but in other aspects may have made institutional prime money market funds less resilient.

Effects of Requiring Institutional Prime Money Market Funds to Use Floating NAVs

Perhaps the single most significant change of the SEC's 2014 reforms to Rule 2a-7 was requiring institutional prime money market funds to use floating NAVs. This caused institutional investors that preferred investing in a fund with a stable \$1.00 NAV to migrate to government money market funds, which are still allowed to maintain a stable \$1.00 NAV using amortized cost valuation and/or penny rounding after the 2014 SEC reforms.

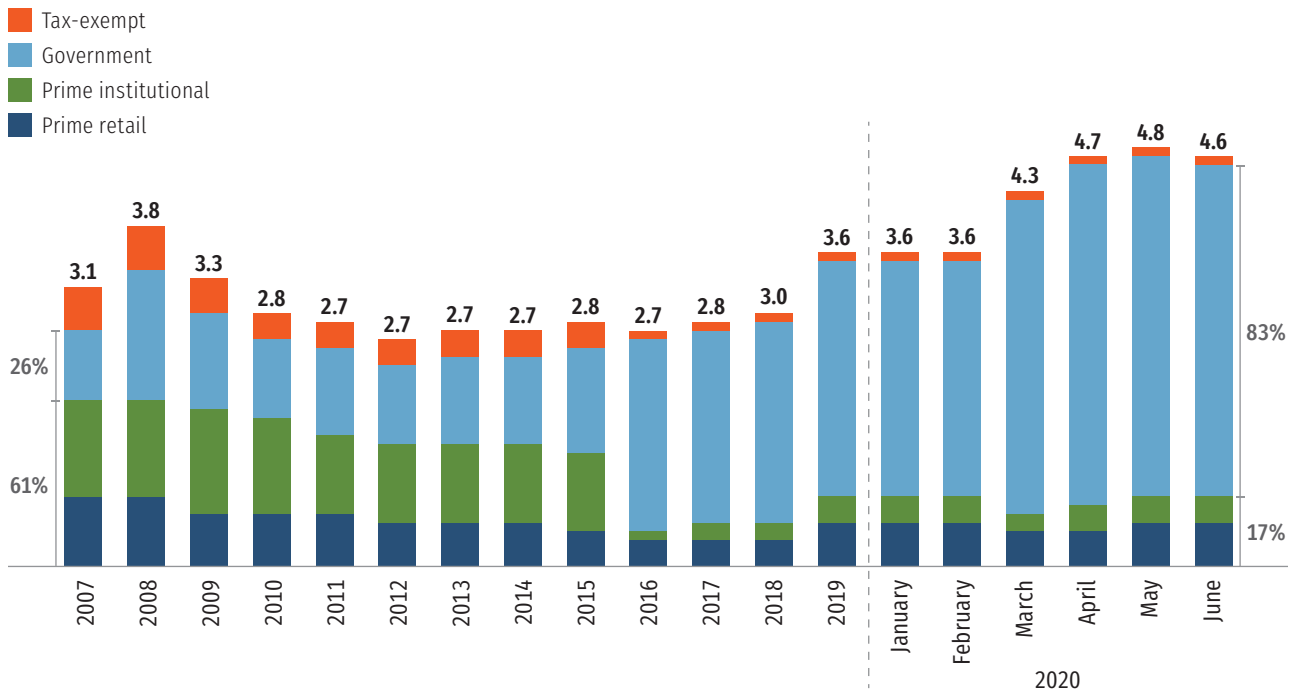
Vast Shift in Assets from Institutional Prime to Government Money Market Funds

The SEC's 2014 reforms took effect on October 14, 2016. In the run-up to the October 14 deadline, \$740 billion left institutional prime money market funds and \$157 billion left retail prime money market funds with a nearly one-for-one increase in the assets of government money market funds (Figure 3.16). As a result of this asset shift, when the COVID-19 crisis hit, money market fund assets were far more concentrated in government money market funds, and money market fund investors were far less exposed to corporate credits (e.g., commercial paper and bank CDs), than during the global financial crisis.

FIGURE 3.16

Money Market Fund Assets Are Concentrated in Government Funds

Trillions of dollars, year-end, 2007–2019; monthly, January–June 2020



Source: Investment Company Institute

The shift from prime to government money market funds in 2016 also explains why dollar outflows from prime money market funds were smaller during COVID-19 than during the global financial crisis. Simply put, there were substantially fewer dollars in prime money market funds to flow out. In this respect, the SEC’s 2014 reforms did indeed make prime money market funds more resilient to financial market shocks.

Money market funds’ lower exposure to corporate credits also helps explain why the Federal Reserve’s MMLF was used less than the AMLF in 2008. Although, as noted earlier, outflows from institutional prime money market funds were sizable in percentage terms, they were much smaller in dollar terms than during September 2008, and therefore relatively easier to accommodate with less reliance on the Federal Reserve’s liquidity facilities.

In addition, institutional prime money market funds’ limited use of the MMLF owed importantly to the Federal Reserve’s indications throughout March that it would do whatever it could to mitigate the COVID-19 crisis.⁶² The Federal Reserve’s clear intentions to provide plentiful liquidity helped calm short-term markets and restore more normal market functioning.⁶³ Indeed, outflows from institutional prime money market funds receded quickly once the Federal Reserve announced the MMLF (March 18) and as the MMLF began operations (March 23).

Possibility of Liquidity Fees and Gates Increased Uncertainty

The SEC's 2010 reforms made money market funds more resilient by adding minimum liquidity levels. Four years later, the SEC's 2014 reforms permitted funds to impose fees or gates if their weekly liquid assets dropped below the 30 percent regulatory minimum. Contrary to the SEC's belief that this reform would further strengthen money market funds, it made money market funds more susceptible to financial market stress and would do so again in future periods of stress.

After the SEC's 2014 reforms, industry participants expressed concern that investors would interpret permitting funds the *option* of imposing fees and gates if their weekly liquid assets fell below 30 percent of a fund's assets as a *requirement* that they do so. If true, as a fund's weekly liquid assets approached the 30 percent mark, investors might begin redeeming heavily.

In essence, industry participants were concerned that the 2014 reforms had swapped one kind of redemption trigger event for another. That is, by requiring that institutional prime money market funds float their NAVs, the SEC eliminated the possibility that fears of breaking the buck would trigger outflows from these funds. On the other hand, by adding the possibility of a liquidity fee or gate to the weekly liquid asset threshold, the SEC created a possible new trigger event, perhaps causing investors to redeem heavily when a fund approaches the 30 percent level.

Some ICI member firms reported receiving calls during March 2020 from institutional prime money market fund investors that demonstrated their confusion about the weekly liquid asset requirement. For example, some institutional investors asked: "At what level of weekly liquid assets are funds required to impose fees or gates?" Other institutional investors reportedly asked: "Will institutional prime money market funds break the buck if weekly liquid assets drop below 30 percent?"

Some member firms also noted that online trading platforms—which institutional investors use to purchase and sell money market funds—monitor and publish the weekly liquid assets of money market funds. These platforms often automatically send investors electronic notices when a fund's weekly liquid assets drop below a certain amount (e.g., 35 percent). Most significantly, some ICI member firms reported that outflows accelerated in institutional prime money market funds whose weekly liquid assets fell below 35 percent, and in some cases accelerated when weekly liquid assets fell below 40 percent.

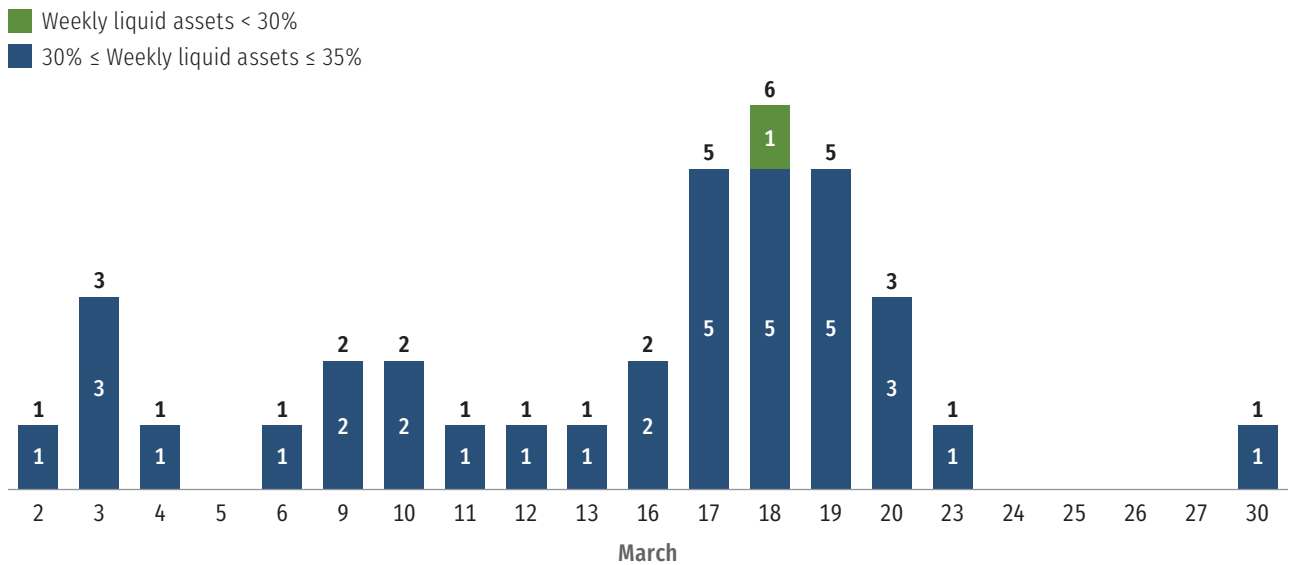
By mid-March, some ICI member firms reported that the potential imposition of fees or gates as some institutional prime money market funds approached the 30 percent weekly liquid asset threshold created uncertainty and increased pressure for institutional investors to redeem.⁶⁴ Given that investors could not predict how a fund board might act if the fund reached this threshold, the 30 percent weekly liquid assets requirement in effect became a liquidity "floor" rather than a liquidity cushion.⁶⁵

Indeed, to avoid the uncertainty associated with dropping below the 30 percent weekly liquidity asset threshold, two fund sponsors purchased securities from three of their respective affiliated institutional prime money market funds (pursuant to Rule 17a-9) in order to ensure that the funds' weekly liquid assets remained above 30 percent.⁶⁶

Reports that outflows accelerated among institutional prime money market funds that saw their weekly liquid assets drop below 35 percent are confirmed by the data. Before March 17, only a few institutional prime money market funds had weekly liquid assets of 35 percent or less and no fund had weekly liquid assets below 30 percent (Figure 3.17). As the crisis worsened in mid-March, many institutional prime money market funds saw redemptions, which they met, in part, with weekly liquid assets. As a result, the number of institutional prime money market funds with weekly liquid assets in the 30 to 35 percent range increased to a peak of five funds out of a total of 41 institutional prime money market funds. Despite this redemption pressure, only one institutional prime money market fund had weekly liquid assets of less than 30 percent, and even then, by a small margin (at 27.4 percent).

FIGURE 3.17
Number of Institutional Prime Money Market Funds with Weekly Liquid Assets Below 35 Percent

Daily, March 2–March 30, 2020



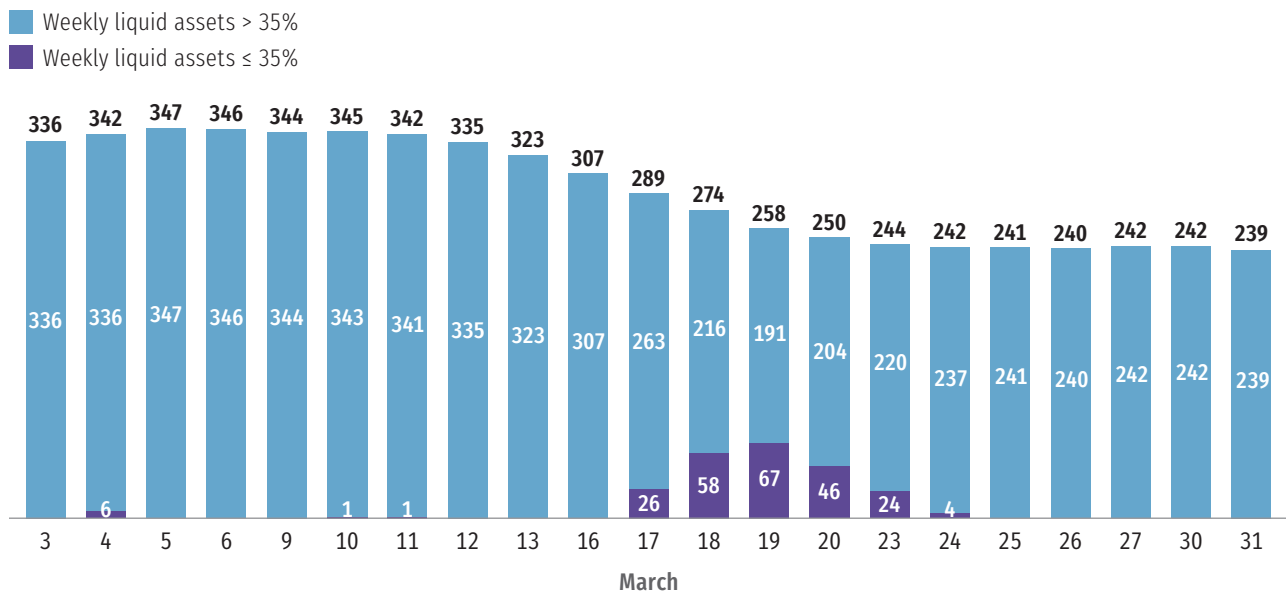
Source: ICI calculations of Crane data

As redemption pressure increased in mid-March and more institutional prime money market funds had weekly liquid assets below 35 percent, the share of institutional prime money market fund assets in funds with weekly liquid assets below 35 percent, in turn, increased. Figure 3.18 shows that before March 17, there were very few assets in funds with weekly liquid assets at 35 percent or below. That changed over the next several days as more institutional prime funds saw their weekly liquid assets move below 35 percent—assets in such funds peaked at \$67 billion on March 19. Nevertheless, these funds (those with 35 percent or less in weekly liquid assets) still had plentiful liquidity—an average of 33 percent in weekly liquid assets, totaling nearly \$23 billion.

FIGURE 3.18

Assets of Institutional Prime Money Market Funds with Weekly Liquid Assets Above and Below 35 Percent

Billions of dollars, daily, March 3–March 31, 2020



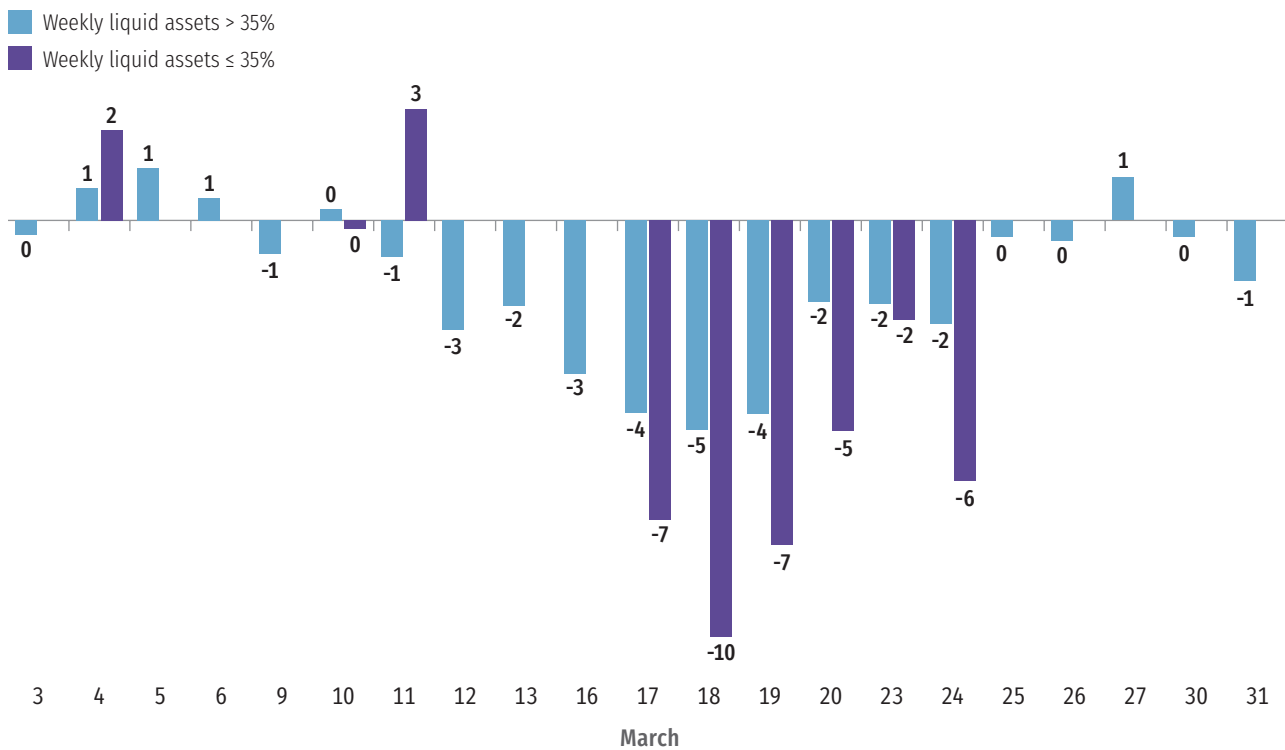
Source: ICI calculations of Crane data

Consistent with industry concerns regarding the likely impact of potential liquidity fees and gates on investor behavior, some institutional investors seemed laser-focused on the funds with weekly liquid assets approaching the 30 percent level. Although funds individually had a range of experiences, with some members reporting significant outflows even for funds with weekly liquid assets substantially above 35 percent, this laser focus appears to have caused much stronger outflows on average from institutional prime money market funds with weekly liquid assets below 35 percent. Figure 3.19 plots for each day in March the average of the flows as a percentage of the previous day's assets for institutional prime money market funds with weekly liquid assets greater than 35 percent (blue bars), and the average percentage of flows for institutional prime money market funds with weekly assets of 35 percent or less (purple bars). From March 17 to March 24, average outflows were much stronger from institutional prime money market funds with weekly liquid assets at or below 35 percent, despite the fact that these funds held liquid assets above the regulatory minimum.

FIGURE 3.19

As Weekly Liquid Assets Dropped Below 35 Percent, Institutional Prime Money Market Funds Had Larger Outflows

Average percent change in assets of institutional prime funds, daily, March 3–March 31, 2020



Source: ICI calculations of Crane data

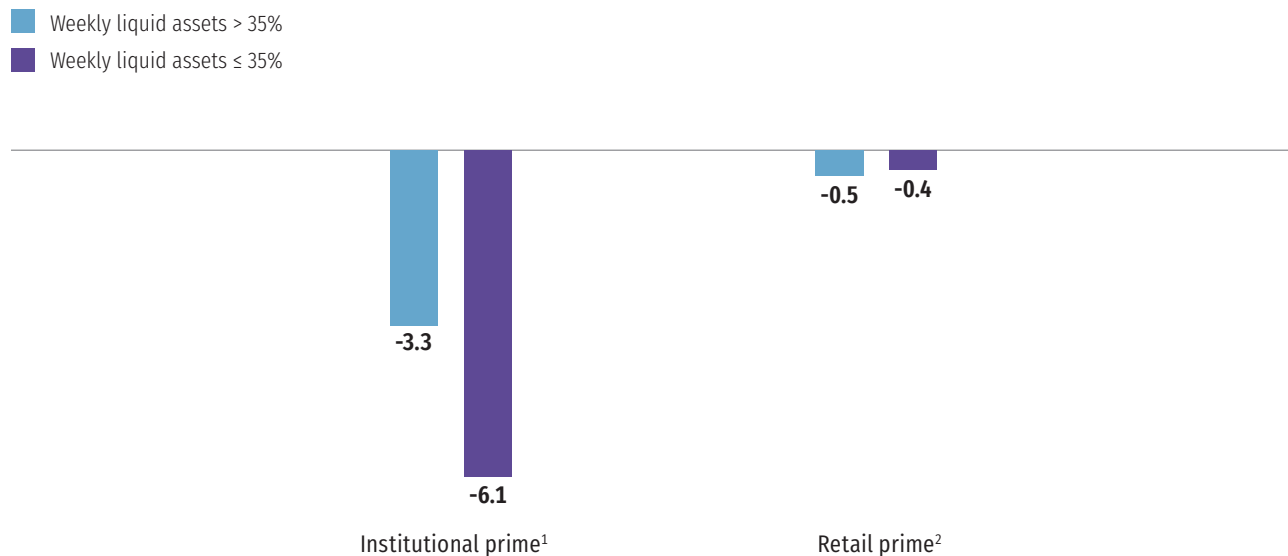
The larger average outflows from institutional prime money market funds with weekly liquid assets at or below 35 percent are both statistically and economically significant. As shown in the left panel of Figure 3.20, institutional prime funds with weekly liquid assets above 35 percent had, on average, daily outflows of 3.3 percent of their assets from March 17 to March 24, while funds with weekly liquid assets at or below 35 percent had average daily outflows of 6.1 percent of their assets. The difference, 2.8 percentage points, is statistically significant. This result indicates that institutional prime money market funds whose weekly liquid assets had fallen below 35 percent saw substantially stronger outflows (on any day when their weekly liquid assets were below 35 percent) compared to institutional prime money market funds whose weekly liquid assets (on any given day) were above 35 percent.

The contrast is striking when applying this same analysis to retail prime money market funds (shown in the right panel). Like institutional prime money market funds, these funds have the option of imposing fees or gates if weekly liquid assets fall below 30 percent. Nevertheless, retail prime money market funds with weekly liquid assets above 35 percent had average daily outflows of 0.5 percent—little different from the average daily outflows of retail prime money market funds with weekly liquid assets at or below 35 percent. This difference is small and statistically insignificant.

FIGURE 3.20

Option to Impose Fees or Gates May Have Created a Trip Wire for Institutional Prime Money Market Funds

Average daily percent change in assets of institutional and retail prime money market funds, March 17–March 24, 2020



¹The difference between the average daily percent change in assets for institutional prime funds with weekly liquid assets greater than 35 percent and institutional prime funds with weekly liquid assets of 35 percent or less is significantly different from zero at the 5 percent level.

²The difference between the average daily percent change in assets for retail prime funds with weekly liquid assets greater than 35 percent and retail prime funds with weekly liquid assets of 35 percent or less is not significantly different from zero at standard levels of significance.

Source: ICI calculations of Crane data

One might ask whether a 2.8 percentage point difference in daily flows is economically meaningful, given that institutional prime money market funds were experiencing substantial outflows irrespective of their weekly liquid asset positions. This paper addresses this question with a simulation that uses inputs consistent with the results shown in Figure 3.20.⁶⁷

Figure 3.21 shows simulated total assets and weekly liquid assets of a hypothetical institutional prime money market fund under two scenarios. One scenario assumes, consistent with Rule 2a-7 after the SEC's 2014 amendments, that an institutional prime money market fund has the option of imposing redemption restrictions (fees or gates) if the fund's weekly liquid assets fall below 30 percent. The other scenario assumes, consistent with Rule 2a-7 *before* the SEC's 2014 amendments, that an institutional prime money market fund does not have the option of imposing redemption restrictions whatever its level of weekly liquid assets (no fees or gates).

Not surprisingly, assets fall more quickly under the "fees or gates" scenario once the institutional prime money market fund's weekly liquid assets fall below 35 percent, because investors, concerned that the fund may impose fees or gates once the 30 percent level is breached, redeem more heavily (top panel). To meet these heavier redemptions, the fund burns through its weekly liquid assets at a much quicker pace, a rate that indicates the fund's weekly liquid assets are nearly depleted within two weeks (bottom panel).⁶⁸ Under the alternative scenario (no fees or gates), the institutional prime money market fund's weekly liquid assets fall gradually, and three weeks after the fund starts seeing redemptions, its weekly liquid assets are still substantial at nearly 30 percent.

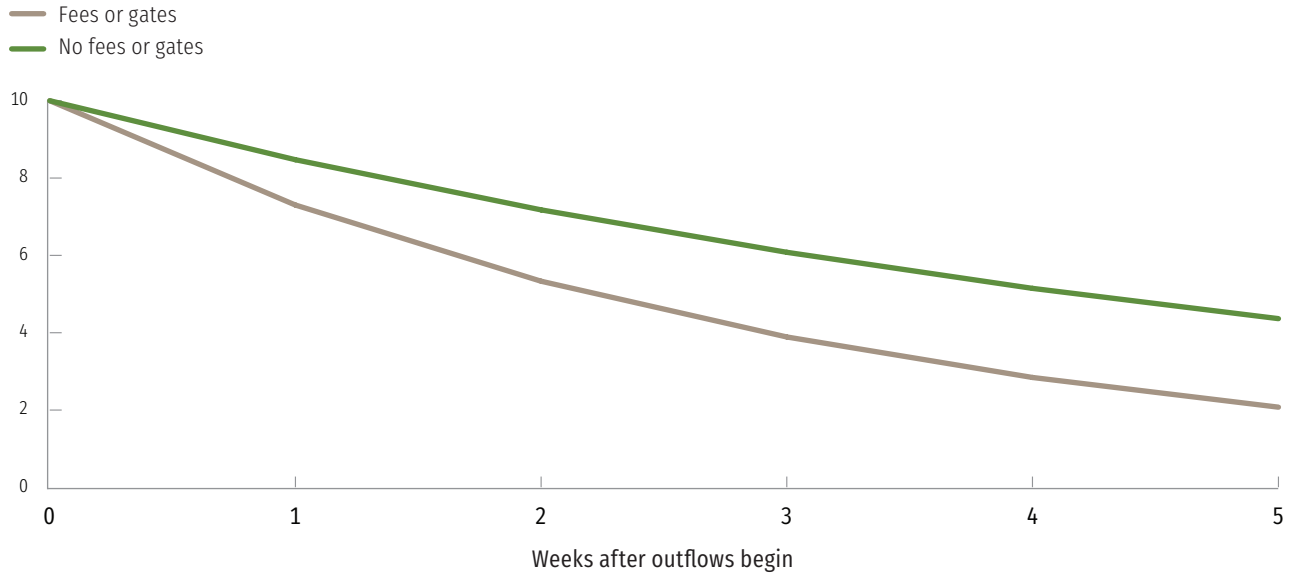
What the simulation suggests is that the SEC's 2014 amendments giving funds the *option* of imposing fees or gates if the fund's weekly liquid assets fall below 30 percent may have effectively established destabilizing feedback between institutional investor redemptions and fund liquidity, making it more difficult for a fund to manage redemptions.

FIGURE 3.21

Option of Imposing Fees or Gates May Have Caused Destabilizing Feedback in Prime Money Market Funds

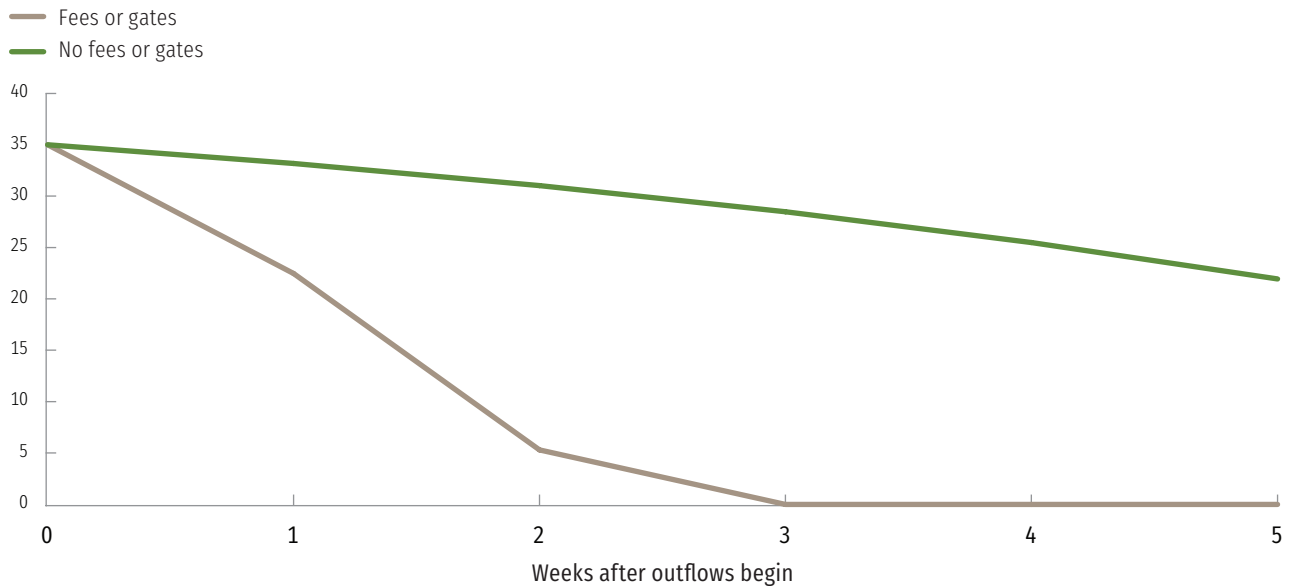
Investors redeem more heavily and fund assets fall faster with option to impose fees or gates...

Simulated total assets, billions of dollars



...Causing the fund to use its weekly liquid assets more quickly

Weekly liquid assets as a percentage of total assets



Note: Simulations assume that the fund starts with \$10 billion in assets. The case of “fees or gates” assumes, as under the SEC’s 2014 amendments, that the fund has the option of imposing fees or gates if its weekly liquid assets fall below 30 percent. The case of “no fees or gates” assumes that the fund does not have the option of imposing either fees or gates at any level of weekly liquid assets, consistent with Rule 2a-7 before the SEC’s 2014 amendments. For detailed information about the simulation assumptions and calculations, see note 67.

Source: Investment Company Institute

These outcomes are contrary to the SEC’s rationale for adding liquidity requirements to Rule 2a7 in 2010—to ensure money market funds had a minimum percentage of their assets in highly liquid securities that can be readily converted to cash to pay redeeming shareholders. “[A] fund should be able to use those assets to pay redeeming shareholders even in market conditions (such as those that occurred in September and October 2008) in which money market funds cannot rely on a secondary or dealer market to provide immediate liquidity.”⁶⁹

By coupling the option to impose liquidity fees or gates with the 30 percent weekly liquid asset requirement, the SEC’s 2014 reforms may have negatively affected the benefits of this substantial liquidity buffer.⁷⁰ It is important to reiterate that the 30 percent weekly liquid asset buffer became a floor that accelerated shareholder redemptions due to uncertainty about the imposition of liquidity fees or gates. To be a true buffer, it should be an extra source of liquidity in times of stress. As noted previously, however, two fund sponsors felt it necessary to purchase securities from their institutional prime funds to help ensure that the funds’ weekly liquid asset buckets remained above 30 percent. The fact that any fund sponsor felt the need to shore up their weekly liquid assets when funds had liquidity north of 30 percent seems at odds with the intent of the 2014 reforms.

Federal Reserve’s Liquidity Facilities Were Effective

Beginning on March 3, 2020, the Federal Reserve began taking a number of increasingly strong measures to restore liquidity and the flow of credit to the economy.⁷¹ These included cutting interest rates, making vast purchases of US Treasury and US agency securities, sharply increasing its limits on the Federal Reserve’s overnight and term repo operations, lending nearly \$450 billion dollars to foreign central banks through the Federal Reserve’s foreign currency swap agreement programs, supporting lending by banks to businesses under loan programs established by Congress through the CARES Act, and establishing a range of facilities to provide liquidity to market participants.

Figure 3.22 shows the extent to which these various actions and programs added to the Federal Reserve’s balance sheet for two selected periods during the COVID-19 crisis. The first period runs from the week before the Federal Reserve began intervening in the markets because of COVID-19 (February 26) to the week assets in the MMLF peaked (April 8). The second period begins February 26 and ends June 10, the week the Federal Reserve’s assets peaked. The vast majority of the Federal Reserve’s support was to the Treasury and agency bond markets, and to foreign central banks through currency swaps. Assets attributable to the MMLF topped out at \$53 billion in the week ending April 8 and have declined since.

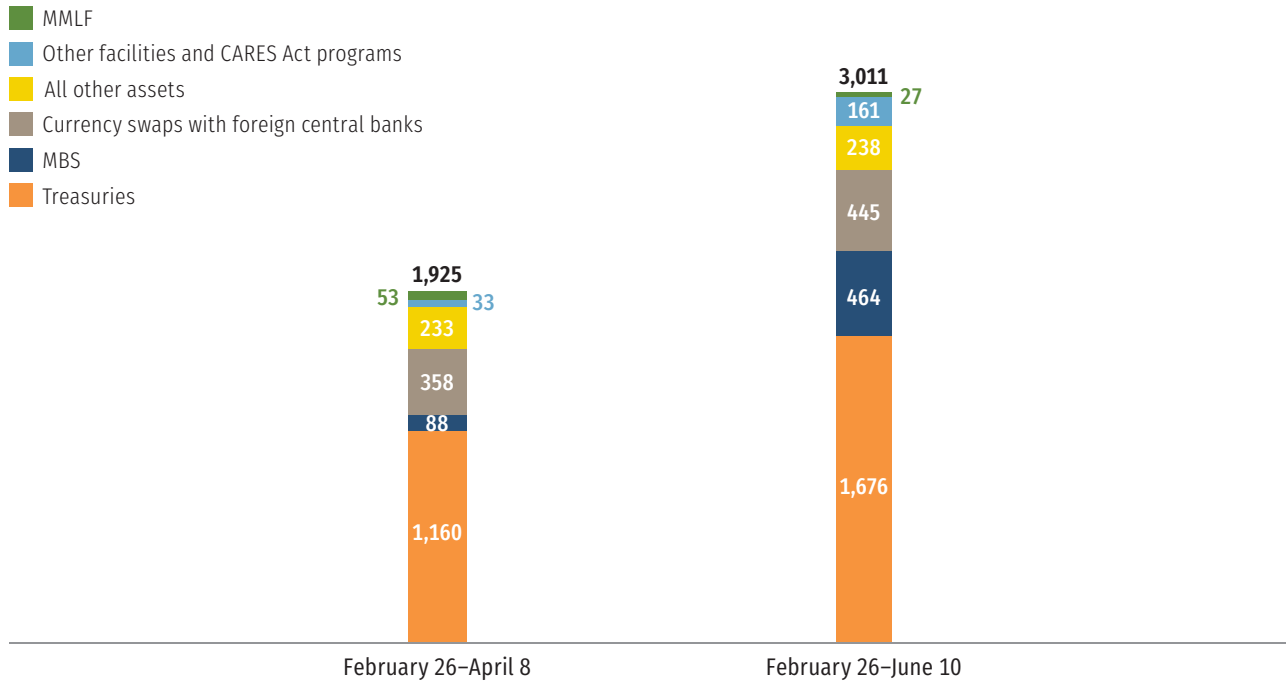
Although \$53 billion is by no means small, the rise in the Federal Reserve’s assets attributable to the MMLF were relatively limited in comparison to the amounts other actions added to the Federal Reserve’s balance sheet. Moreover, the take-up rate of the MMLF by institutional prime money market funds was much more limited in 2020 than their use of a similar facility (the AMLF) in 2008.

Institutional prime money market funds’ relatively limited use of the MMLF likely reflects their much smaller level of assets compared to 2008. It also likely reflects the Federal Reserve’s strong verbal indications that it would pull out all stops to restore liquidity and the flow of credit to the financial markets.⁷²

FIGURE 3.22

Growth in Federal Reserve's Balance Sheet Reflected a Range of Actions and Facilities

Change in Federal Reserve's assets, billions of dollars, selected periods in 2020



Source: Federal Reserve Board

In any case, the Federal Reserve's establishment of the MMLF on March 18, its enhancements to the terms of the facility between March 19 to March 23, and the start of the facility's operations on March 23 helped restore liquidity and the flow of credit to the short-term credit markets.⁷³

Figure 3.23 (top panel) shows the difference between the yield on 90-day nonfinancial commercial paper and on overnight nonfinancial commercial paper. This spread stabilized within a few days after the MMLF began operations on March 23, although it remained rather elevated. On April 6, the spread fell sharply and continued to decline in fits and starts through the end of April.

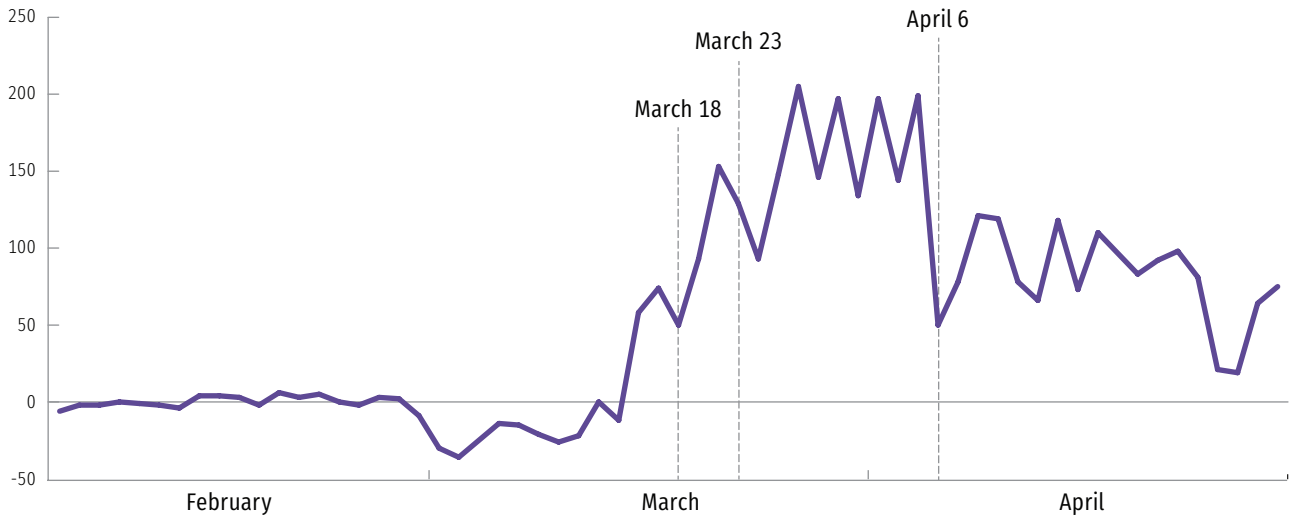
Flows from institutional prime money market funds responded even more quickly (Figure 3.23, bottom panel). For example, within two days of the Federal Reserve's announcement of the MMLF (and even before the facility began operations), outflows from institutional prime money market funds began shrinking sharply. Thus, the mere announcement of the program seems to have assuaged institutional investors' fears about these funds' liquidity (and the potential that they might impose fees or gates), in turn helping to staunch outflows.

FIGURE 3.23

Federal Reserve's Actions Calmed Markets

Difference between yields on 90-day and overnight nonfinancial commercial paper

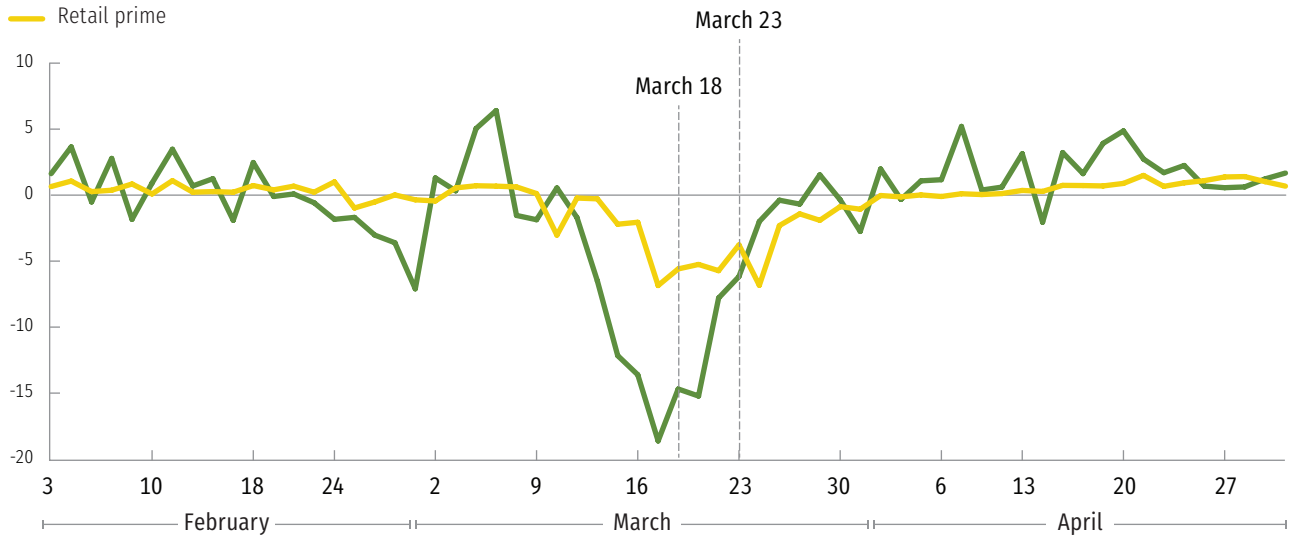
Basis points, daily, February 3–April 30, 2020



Flows to prime money market funds

Billions of dollars, daily, February 3–April 30, 2020

- Institutional prime
- Retail prime



Sources: Federal Reserve Board and iMoneyNet

ICI believes that the Federal Reserve's actions to establish a range of liquidity and lending facilities to assist the markets were timely, flexible, appropriate, and necessary:

- » timely because the Federal Reserve established these programs very quickly, in some cases within just a few days;
- » flexible because the Federal Reserve sought and responded to feedback from market participants on how to enhance the effectiveness of the facilities;
- » appropriate because the turmoil in the financial markets was the fallout of a pandemic, which market participants did not cause and could not have avoided; and
- » necessary because the turmoil in short-term credit markets in March was caused by a massive increased demand for liquidity in the face of uncertainty about the virus, set against the private sector's inability to supply that liquidity. Under those circumstances, the Federal Reserve (in its role as the lender of last resort) was the only entity that could supply the dollar liquidity necessary for the economy to continue functioning.

The MMLF was appropriate and necessary for two reasons. First, it allowed businesses, households, and other investors to get access to the liquidity that they otherwise would have had through prime money market funds but for the liquidity crisis arising from the COVID-19 crisis in March. Without the MMLF to provide liquidity to prime money market funds, these investors would have turned elsewhere to find it—most likely to their banks, drawing even more heavily on their business lines of credit, home equity lines, and perhaps even credit cards. To the extent that banks began to find themselves short of liquidity, they would have had to turn to the Federal Reserve to find it. Whether this would have been a preferable outcome is unclear.

Second, the MMLF allowed businesses and financial institutions to regain funding in short-term markets that had all but disappeared during the COVID-19 crisis in March. Without the MMLF, these entities would have found it even more difficult to roll over commercial paper and renew funding through CDs. These entities, most of which are banks, would have turned to the Federal Reserve (or, if foreign banks, they would have turned to the central banks in their home countries) to obtain liquidity. Whether this too would have been a preferable outcome is also unclear.

Summary

Prime money market funds did not precipitate the stresses in the financial markets in general or, more specifically, in short-term credit markets. Stresses in other markets were far advanced in early March before institutional prime money market funds began to see meaningful outflows.

Nonetheless, 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. Evidence suggests that these outflows might have been more limited had the SEC's 2014 reforms to Rule 2a-7 not given funds the *option* of imposing fees or gates if their weekly liquid assets fell below 30 percent. Because of this regulatory element, institutional investors may have treated the 30 percent weekly liquidity level as a trip wire to avoid, rather than as a plentiful buffer of liquidity.

In March, institutional prime money market funds faced challenges disposing of their holdings to meet redemptions. This was because the short-term credit markets became dislocated. These challenges might have been less severe had there been a reasonably liquid secondary market for commercial paper or had bank capital standards allowed dealers greater ability to make markets in commercial paper.

Throughout March, the Federal Reserve, supported by Congress and the Treasury Department, undertook a number of strong steps to provide liquidity to the economy and restore the flow of credit. One of these steps was the establishment of the MMLF, which helped institutional prime money market funds meet the demands from households and businesses for liquidity.

As regulators consider potential reforms to enhance the resiliency of financial markets to shocks, ICI urges them to take a holistic view of the developments during the COVID-19 crisis to better understand the experiences of different types of money market funds during March.

Notes

- ¹ All references to *money market funds* in this paper refer to US money market funds that are registered with the Securities and Exchange Commission (SEC) under the Investment Company Act of 1940 and that comply with applicable SEC rules, and, in particular Rule 2a-7. For an overview of the US money market, including the role and growth of money market funds within that market, see Investment Company Institute, *Report of the Money Market Working Group*, March 17, 2009, at Section 2 (2009 MMWG Report), available at www.ici.org/pdf/ppr_09_mmwg.pdf.
- ² For consistency in the analysis throughout the paper, data on money market fund assets and flows from all sources—Investment Company Institute, Crane data, iMoneyNet, and SEC Form N-MFP—exclude internal cash money market funds open only to other funds within the same fund complex.
- ³ For a discussion regarding how retail investors use money market funds, see 2009 MMWG Report, *supra* note 1, at Section 3.3.
- ⁴ For a discussion regarding how institutional investors use money market funds, see 2009 MMWG Report, *supra* note 1, at Section 3.4.
- ⁵ VRDNs are floating-rate municipal instruments, usually with long maturities (commonly 20 or 30 years), and carry a coupon that resets periodically. VRDNs typically have either a one- or seven-day put option that allows investors to put the security back to a financial intermediary (usually a bank) at par with a one- or seven-day notice, respectively. It is this put feature at par that allows these securities to be considered liquid investments and therefore eligible for purchase by US money market funds.
- ⁶ See Rule 2a-7(a)(21).
- ⁷ According to SEC rules, institutional investors may not invest in retail prime money market funds. In contrast, retail investors may invest in institutional prime money market funds.
- ⁸ For a history of Rule 2a-7, see 2009 MMWG Report, *supra* note 1, Appendix E.
- ⁹ Securities and Exchange Commission, “Money Market Fund Reform,” SEC Release No. IC-29132, February 23, 2010 (2010 MMF Reform Release), available at www.sec.gov/rules/final/2010/ic-29132.pdf. For a summary of the SEC’s 2010 reforms, see www.ici.org/mmfs/reforms/sec_reforms/statements/10_mmfs_2010sec; for a detailed analysis of their effectiveness, see generally S. Collins, E. Gallagher, J. Heinrichs, and C. Plantier, “Money Market Mutual Funds, Risk, and Financial Stability in the Wake of the 2010 Reforms,” *ICI Research Perspective*, January 2013, available at www.ici.org/pdf/per19-01.pdf.
- ¹⁰ Securities and Exchange Commission, “Money Market Fund Reform; Amendments to Form P-F,” SEC Release No. IC-31166, July 23, 2014 (2014 MMF Reform Release), available at www.sec.gov/rules/final/2014/33-9616.pdf.
- ¹¹ A chart summarizing the current money market fund regulatory requirements, incorporating both the SEC’s 2010 and 2014 reforms, is available at www.ici.org/mmfs/current/16_mmf_reg_summ.
- ¹² See Rule 2a-7(d)(4)(ii).
- ¹³ See Rule 2a-7(d)(4)(iii).
- ¹⁴ For a list of website disclosure requirements, see Rule 2a-7(h)(10).
- ¹⁵ See Rule 2a-7(a)(21).
- ¹⁶ 2014 MMF Reform Release, *supra* note 10, at 214.
- ¹⁷ See Rule 2a-7(a)(14).
- ¹⁸ See generally 2014 MMF Reform Release, *supra* note 10, at 31–32.
- ¹⁹ Securities and Exchange Commission, “SEC Adopts Money Market Fund Reform Rules,” press release, July 23, 2014 (2014 SEC Press Release), available at www.sec.gov/news/press-release/2014-143.
- ²⁰ 2014 MMF Reform Release, *supra* note 10, at 144.

- ²¹ 2014 SEC Press Release, *supra* note 19.
- ²² 2014 MMF Reform Release, *supra* note 10, at 147.
- ²³ *Id.* at 83 (“with a higher threshold for discretionary fees and gates and a lower threshold for default liquidity fees”).
- ²⁴ *Id.* at 82 (noting that the tiered threshold as adopted contrasts with the SEC’s initially proposed approach, which would have required funds to impose a liquidity fee and allowed them to impose redemption gates if the fund’s weekly liquid assets fell below 15 percent of its total assets).
- ²⁵ *Id.* at 43.
- ²⁶ *Id.* at 46.
- ²⁷ *Id.*
- ²⁸ *Id.* at 47.
- ²⁹ *Id.* at 83; see 2a-7(d)(4)(iii) (establishing a “minimum weekly liquidity requirement” for money market funds, which prohibits such a fund from acquiring “any security other than a weekly liquid asset if, immediately after the acquisition, the fund would have invested less than 30 percent of its total assets in weekly liquid assets”).
- ³⁰ 2014 MMF Reform Release, *supra* note 10, at 84.
- ³¹ *Id.* at 88. The SEC also considered that the flexibility provided through the tiered approach justified decreasing the default liquidity fee threshold from the proposed 15 percent to 10 percent, especially because fund boards could now impose liquidity fees or gates “at any time after a fund’s weekly liquid assets drop below 30 [percent]—i.e., before the default liquidity fee threshold is reached.” *Id.* at 85.
- ³² See Securities and Exchange Commission, “Revisions to Rules Regulating Money Market Funds,” SEC Release No. IC-21837, March 21, 1996, at 65–66, available at www.sec.gov/rules/final/21837.txt. Commenters (including ICI) opposed the adoption of the Rule 17a-9, “asserting that it would cause investors to expect a fund’s adviser to purchase the fund’s ineligible securities and “guarantee that the fund will maintain a stable [NAV].” *Id.* The SEC argued that “rules applicable to money funds already address[ed] such concerns by requiring money fund prospectuses and sales literature to disclose prominently that there is no assurance or guarantee that a fund” will maintain a stable NAV. *Id.* The SEC also deemed it “unlikely that the existence of an exemptive rule alone [would] create any investor expectations.” *Id.*
- ³³ See 2010 MMF Reform Release, *supra* note 9, at 96 (stating that the amendment “simply extend[ed] the existing rule to types of transactions that historically [had] been permitted through no-action assurances from the [SEC] staff” because the staff believed that they were in the best interest of the fund’s shareholders” and highlighting that “the alternative of funds obtaining no-action [relief], particularly during times of market stress, is time consuming and inefficient”).
- ³⁴ See *id.* at 95 (noting that the “claw back” requirement aims to eliminate incentives for “affiliated persons to buy securities from [the fund] for reasons other than protecting fund shareholders from potential future losses”).
- ³⁵ *Id.* at 96.
- ³⁶ See 2014 MMF Reform Release, *supra* note 10.
- ³⁷ Form N-CR Part C.
- ³⁸ See Securities and Exchange Commission, SEC Staff No-Action Letter to the Investment Company Institute, March 19, 2020, available at www.sec.gov/investment/investment-company-institute-031920-17a.
- ³⁹ Pursuant to Rule 17a-9, two fund sponsors purchased securities from four of their respective affiliated money market funds in March.

- ⁴⁰ See generally “The Impact of COVID-19 on Economies and Financial Markets,” *Report of the COVID-19 Market Impact Working Group* (Washington, DC: Investment Company Institute, October 2020) (2020 COVID-19 Report), available at www.ici.org/pdf/20_rpt_covid1.pdf.
- ⁴¹ *Id.*
- ⁴² See, e.g., Bank for International Settlements, *Annual Economic Report*, June 2020, at 57, arguing that it would be appropriate to extend bank-like regulation to nonbanks because strains in the asset management sector “notably runs on money market funds, have played a first-order role in this [COVID-19] crisis, as they already had during the [global financial crisis]”), available at www.bis.org/publ/arpdf/ar2020e.pdf. One observer argued that “one of the first risks that came up in the current [COVID-19] crisis was a risk of a run in the money fund sector [which led to] Treasury and the Fed stepping up to guarantee the systems,” Michael Barr, remarks delivered at a webinar, “A Decade of Dodd-Frank,” Brookings Institution, June 30, 2020 (A Decade of Dodd-Frank), available at www.brookings.edu/events/a-decade-of-dodd-frank.
- ⁴³ See “Reaction of Money and Bond Markets” in the 2020 COVID-19 Report, *supra* note 40.
- ⁴⁴ See, e.g., E. Eren, A. Schrimpf, and V. Sushko, “US Dollar Funding Markets During the COVID-19 Crisis—The Money Market Fund Turmoil,” *BIS Bulletin*, Number 14, May 12, 2020, at 1, arguing that “[o]utflows from US prime MMFs...precipitated spikes in indicators of bank funding costs,” available at www.bis.org/publ/bisbull15.pdf.
- ⁴⁵ A US Treasury security is “on-the-run” when it is the most recently issued bond of a given maturity and is “off-the-run” when it is a bond of the same maturity but issued less recently. The two securities are identical in maturity, but differ in that, for example, the off-the-run bond was issued one month ago or even a few years ago and may have a different coupon. Because the two bonds have the same maturity, however, they should have similar yields.
- ⁴⁶ The FRA-OIS spread is the difference between 3-month LIBOR (the London Interbank Offered Rate) and the federal funds rate.
- ⁴⁷ Prime money market funds saw a cumulative *inflow* from March 2 to March 11, totaling \$7 billion, of which \$8 billion was an *inflow* to institutional prime funds and \$1 billion was an *outflow* from retail prime funds.
- ⁴⁸ The correlation between flows to prime money market funds and the FRA-OIS spread for daily observations running from March 2, 2020 (the first business day in March), to March 31, 2020, is -0.16, although that value is not statistically different from zero.
- ⁴⁹ With conditions in the Treasury and agency bond markets showing signs of dislocation, the Federal Reserve began injecting large amounts of liquidity into the system. It announced or took strong actions to support the Treasury and agency bond markets on March 9, 12, 13, and 16. See “Federal Government Took Steps to Restore Liquidity and Flow of Credit” in the 2020 COVID-19 Report, *supra* note 40.
- ⁵⁰ See, e.g., P. Kiernan, A. Akerman, D. Michaels, “Why the Fed Had to Backstop Money Market Funds Again,” *Wall Street Journal*, March 21, 2020, available at www.wsj.com/articles/why-the-fed-had-to-backstop-money-market-funds-again-11584788401; A. Mooney and S. Riding, “Mutual Funds Face Scrutiny over Systemic Importance,” *Financial Times*, March 19, 2020, available at www.ft.com/content/1ca898e1-1176-4b19-a408-4a494143b4d4.
- ⁵¹ For a discussion of September 2008 market events, see 2009 MMWG Report, *supra* note 1, at Section 6.4.
- ⁵² There are two types of bank capital requirements: risk-based capital and leverage capital. Risk-based capital, as the name suggests, sets capital requirements on a risk-adjusted basis. Leverage capital is inherently risk insensitive, meaning that capital requirements increase as assets increase, regardless of the risk of those assets. The SLR is a leverage capital requirement. Under the SLR, if a BHC (or an affiliated dealer) acquires a Treasury security, the BHC must hold additional capital—despite the fact that Treasury securities are considered to be risk free. Capital is costly, so the SLR creates a disincentive for a BHC’s affiliated dealer to add bonds to its inventory. As a result, dealers may charge more to intermediate Treasuries and other fixed-income securities, leading to a widening of bid-ask spreads.

- ⁵³ Under Basel III, the LCR requires banks to hold enough high-quality liquid assets to fund cash outflows for 30 days.
- ⁵⁴ Dealers, especially the largest ones, are typically subsidiaries of BHCs. BHCs are required to hold capital against their assets, including securities held by their dealer subsidiaries. See “Dealers Had Less Flexibility to Intermediate Trades in Other Credit Instruments” in the 2020 COVID-19 Report, *supra* note 40.
- ⁵⁵ See Federal Reserve Board, “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),” press release, March 18, 2020, available at www.federalreserve.gov/newsevents/pressreleases/monetary20200318a.htm.
- ⁵⁶ See US Department of the Treasury, “Remarks of Deputy Secretary Justin Muzinich at the 2020 US Treasury Market Conference,” press release, September 29, 2020, available at <https://home.treasury.gov/news/press-releases/sm1138>.
- ⁵⁷ See “Crisis Spread to Short-Term Credit Markets” in the 2020 COVID-19 Report, *supra* note 40.
- ⁵⁸ For background regarding the 2008 Treasury Department’s Temporary Guarantee Program for Money Market Funds, see 2009 MMWG Report, *supra* note 1, at Section 4.3.
- ⁵⁹ For example, from 2010 to 2013, weekly liquid assets for institutional prime funds averaged 42 percent of their assets. From 2014 to 2019 (excluding the period June 2016 to May 2017), weekly liquid assets for institutional prime funds averaged 44 percent of their assets. The comparable figures for retail prime money market funds were 39 percent from 2010 to 2013, and 42 percent from 2014 to 2019 (excluding the period from June 2016 to May 2017).
- ⁶⁰ For a discussion of these facilities, see “Federal Government Took Steps to Restore Liquidity and Flow of Credit” in the 2020 COVID-19 Report, *supra* note 40.
- ⁶¹ *Other assets* includes medium-term notes.
- ⁶² See “Federal Government Took Steps to Restore Liquidity and Flow of Credit” in the 2020 COVID-19 Report, *supra* note 40.
- ⁶³ In contrast, during the global financial crisis, the Federal Reserve’s signals to the market were arguably more mixed, first supporting an orderly wind-down of Bear Stearns in March 2008, but then choosing not to intervene to prevent the failure of Lehman Brothers on September 2008. See 2009 MMWG Report, *supra* note 1, at Section 6.
- ⁶⁴ This observation was echoed in an October 2020 report by the SEC’s Division of Economic and Risk Analysis, which noted that “some investors may have feared that if they were not the first to exit their fund, then in the event the fund breached the 30 [percent] WLA [weekly liquid asset] limit, there was a risk that they could be subject to restrictions on withdrawals known as ‘gates.’ This anticipatory, risk-mitigating perspective potentially further accelerated redemptions.” See SEC, Division of Economic and Risk Analysis, *US Credit Markets: Interconnectedness and the Effects of the COVID-19 Economic Shock*, October 2020, available at www.sec.gov/files/US-Credit-Markets_COVID-19_Report.pdf. Former Federal Reserve Board Chair Janet Yellen also expressed concern about the fees and gates requirement when she lamented that the SEC’s 2014 money market fund reforms “did something that almost all [economists], including most people in the Fed...are very unhappy about, they allowed funds or insisted that they impose gates and redemption fees once liquidity fell below a minimum. Most economists thought that the erection of the gates by one fund would cause outflows [and] contagion as people tried to avoid having that happen to them. I think that’s exactly what happened.” See *A Decade of Dodd-Frank*, *supra* note 42.

- ⁶⁵ Although Rule 2a-7 imposes specific minimum requirements on the amounts of daily and weekly liquid assets, it does not prohibit a fund from dipping below these requirements. Rather, it provides specific remedies for restoring liquidity in cases where these minimum levels are breached. In particular, whenever a fund's daily liquid assets account for less than 10 percent of its total assets, the fund is prohibited from acquiring any new asset other than a daily liquid asset. Similarly, if a fund's weekly liquid assets make up less than 30 percent of its total assets, the fund cannot acquire any new asset other than a weekly liquid asset. These conditional restrictions on fund management are designed to help rebuild a fund's daily and weekly liquidity levels whenever these levels become too low.
- ⁶⁶ Given the liquidity challenges in the underlying municipal market, one of these sponsors also made a capital contribution to one of its affiliated municipal retail money market funds, to reduce a deviation between the fund's NAV per share and its intended stable price per share (i.e., NAV of \$1.00). All four money market funds reported these actions to the SEC in their filings on Form N-CR.
- ⁶⁷ In this simulation, the fund starts with \$10 billion. Using data from Figure 3.20 for funds with weekly liquid assets greater than 35 percent, the fund experiences daily outflows of 3.3 percent of its assets or 15.4 percent $[(0.967)^5]$ at a weekly rate under the "no fees or gates" scenario. Using data from Figure 3.20 for funds with weekly liquid assets at 35 percent or less, the fund experiences daily outflows of 6.1 percent of its assets under the "fees or gates" scenario. In both cases, the fund starts with 35 percent in weekly liquid assets. Assets with a maturity of greater than weekly convert to weekly at a rate of 6.4 percent per week, which is roughly consistent with a fund that holds weekly liquid assets of 35 percent and an average maturity of 30 days (the average maturity of institutional prime money market funds at the end of February 2020). Funds meet redemptions with weekly liquid assets and portfolio sales. This paper assumes that the fund is able to sell 5 percent of its longer-maturing assets (i.e., non-weekly liquid assets) without any haircuts.
- ⁶⁸ Using a more sophisticated approach, which includes shifting to a daily simulation and incorporating the 10 percent daily liquidity requirement, and assuming substantial haircuts on sales of weekly liquid assets and prohibitive haircuts on non-weekly liquid assets portrays a largely similar pattern in the depletion of the fund's weekly liquid assets.
- ⁶⁹ 2010 MMF Reform Release at 57, *supra* note 9.
- ⁷⁰ As originally proposed, the liquidity fees and gates provisions would have been triggered if a fund's weekly liquid assets fell below 15 percent. Explaining why it had proposed this threshold, the SEC noted that 15 percent "would indicate distress in a fund, but also [be] one that few funds would cross in the ordinary course of business, allowing funds and their boards to avoid the costs of frequent unnecessary consideration of fees and gates." Securities and Exchange Commission, "Money Market Fund Reform; Amendments to Form PF," SEC Release No. IC-30551, June 5, 2013, at 176–177, available at www.sec.gov/rules/proposed/2013/33-9408.pdf. Indeed, the SEC's own analysis showed that if the triggering threshold was between 25 and 30 percent weekly liquid assets, funds would have crossed this threshold every month except one during the period March 2011 and October 2012. *Id.* at 177. "Using this information to inform our choice of the appropriate level for a weekly liquid asset threshold, we are proposing a 15 [percent] weekly liquid assets threshold to balance the desire to have such consideration triggered while the fund still had liquidity reserves to meet redemptions but also not set the trigger at a level that frequently would be tripped by normal fluctuations in liquidity levels that typically would not indicate a fund under stress." *Id.* at 178. Despite receiving general industry support for the threshold as proposed, the SEC set the threshold level for discretionary fees and gates at less than 30 percent weekly liquid assets when it adopted its reforms in 2014.
- ⁷¹ See "Federal Government Took Steps to Restore Liquidity and Flow of Credit" in the 2020 COVID-19 Report, *supra* note 40.
- ⁷² See *id.*
- ⁷³ For a more detailed discussion of developments relating to the establishment of the MMLF and the Federal Reserve's subsequent enhancement of the MMLF's terms, see *id.*



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