Money Market Funds in the Treasury Market

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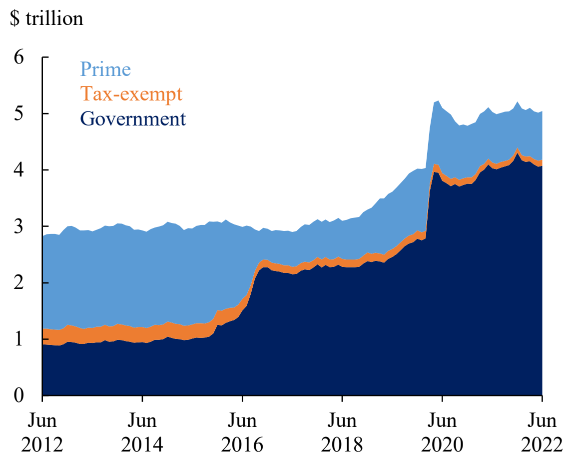
This study analyzes portfolio holdings data filed by money market funds (MMFs) on Form N-MFP to gain insights about these funds' activity in the Treasury market. Since March 2020 the MMF industry, including both government and prime MMFs, increased investments in Treasury securities and Treasury repurchase agreements supporting Treasury auctions and repo market functioning. MMFs are also the main investors in the Federal Reserve's reverse repo facility supporting monetary policy implementation.

MMFs' investments in the Treasury market have grown in recent years

MMF investments in the Treasury market have increased substantially in recent years. One reason for this development is the growth of assets under management in government MMFs, which are required to invest at least 99.5% of their total assets in cash, U.S. government securities, or fully collateralized repurchase agreements (repos).[2] Assets in government MMFs more than doubled in 2016 following implementation of the 2014 MMF reforms and increased considerably once again in the first half of 2020, when demand for government assets surged amidst the COVID-19 pandemic (Figure 1).

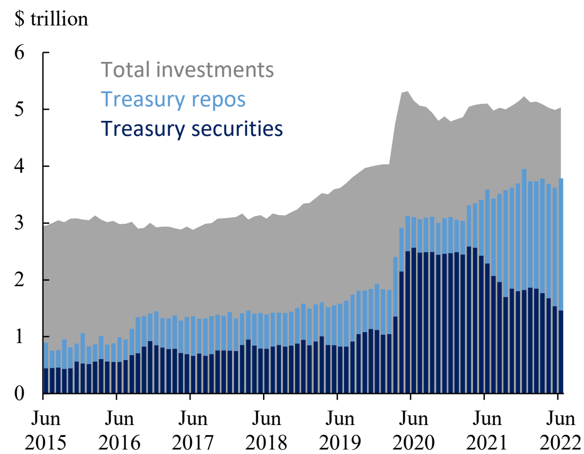
In addition, prime MMFs, which can invest in a broad range of short-term, high quality assets, have increased their holdings of U.S. government securities, mostly Treasuries. As of June 30, 2022, the MMF industry allocated $3,783 billion, or 75% of total investments to Treasury securities and Treasury repos (Figure 2).

Figure 1: Government MMF net assets grew considerably in 2016 and at the onset of the pandemic



Source: Form N-MFP

Figure 2: Treasury securities and repos accounted for 75% of MMF total investments in June 2022



Source: Form N-MFP

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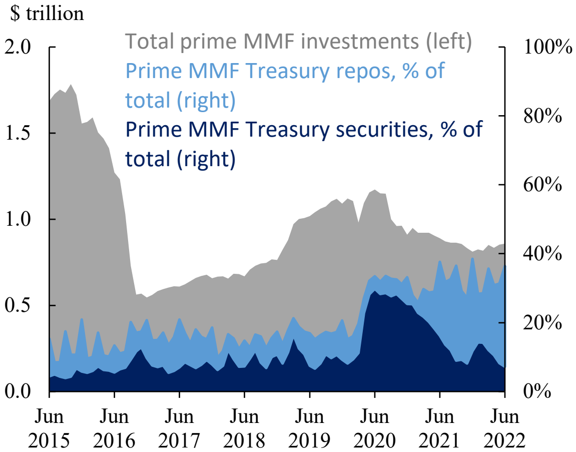
[2] *See* rule 2a-7(a)(14).

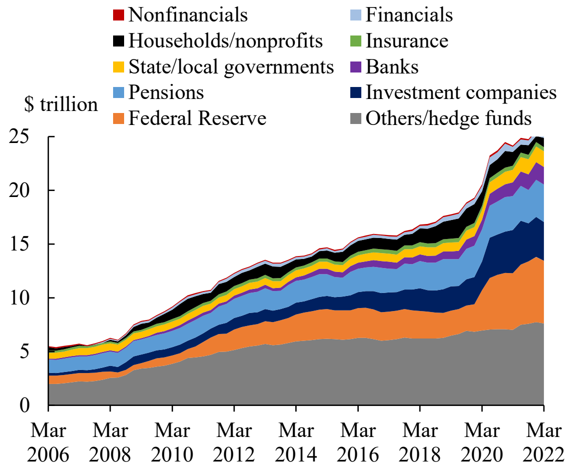
This includes prime MMFs that sharply increased their allocations to Treasury securities and Treasury repos since the onset of the pandemic in March 2020 (Figure 3).

Figure 3: Prime MMF investments in Treasury securities and Treasury repos increased in recent years



Source: Form N-MFP

Figure 4: Holdings of Treasury securities by investor type



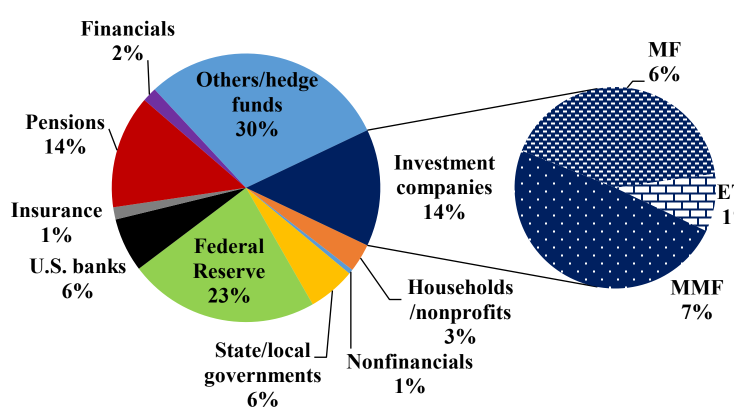
Source: Financial Accounts of the United States as of Mar 2022

MMFs are the largest investors in Treasury floating rate notes

MMFs participate in the Treasury market alongside other types of entities. The statistics about Treasury securities issuance and holdings collected by the Federal Reserve show that as of March 31, 2022, foreign and international investors, including hedge funds, were the largest holders of Treasury securities accounting for approximately 30% of $25.5 trillion in Treasury securities outstanding (Figure 4).[3] The second largest holder of Treasury securities was the Federal Reserve with around 23% of the total. The Federal Reserve's share grew markedly in 2020 when the central bank increased its holdings of Treasury securities to support the flow of credit to households and businesses during the pandemic, among other measures.

Investment companies (including MMFs) were the third largest investor in the Treasury market holding just under $3.6 trillion of Treasury securities and accounting for 14% of the total. MMFs account for around 7% of outstanding Treasury securities (Figure 5).

Figure 5: Investment companies are the third largest investor in the Treasury market



Source: Financial Accounts of the United States, Mar 2022

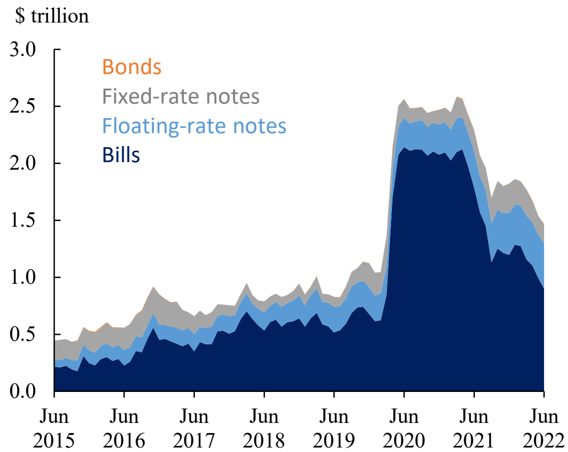
MMFs investments are limited to securities that have residual maturities of 397 days or less or government adjustable rate securities resetting within 397 days.[4] Because of these limitations, MMFs mainly invest in Treasury bills (Figure 6). MMFs have

[3] *See* Federal Reserve, Financial Accounts of the United States, Table L.210 Treasury Securities.
[4] *See* rule 2a-7(d)(1) and (i)(1).

also become dominant investors in Treasury floating rate notes (FRN) since the FRN program was established in January 2014. As of June 30, 2022, MMFs held 60% of outstanding Treasury FRN and accounted for over 30% of outstanding Treasury bills (Figure 7).

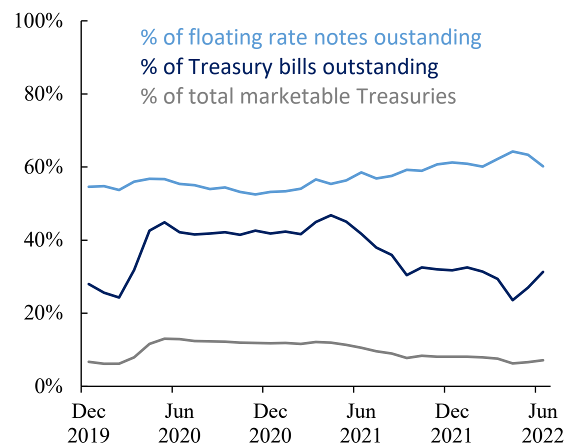
MMFs' share of total Treasury securities outstanding increased markedly at the onset of the pandemic. Government MMFs, which received inflows of $838 billion in March 2020 and $347 billion in April 2020, increased their market share in Treasury bills. MMF Treasury bill holdings, which were 24% of the total outstanding in February 2020, increased to 32% of total outstanding in March 2020 and further increased to 43% of total outstanding in April 2020, supporting government debt issuance during the time of crisis.

Figure 6: Treasury bills and floating-rates notes account for ~90% of MMFs' holdings of Treasuries



Source: Form N-MFP

Figure 7: MMFs hold over 30% of Treasury bills outstanding and 60% of floating rate notes

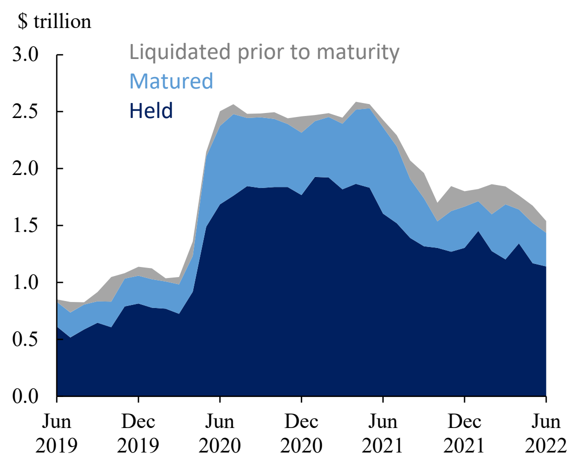


Source: Form N-MFP, SIFMA

MMFs mainly hold Treasury securities to maturity

Typically, MMFs purchase Treasury securities at auctions and hold to maturity. Portfolio holdings data filed by MMFs on Form N-MFP offer month-end snapshots, but doesn't provide complete visibility into asset turn-over. For example, if an MMF disposes of portfolio holdings intra month, the currently available data would not reflect this activity and could potentially underestimate the amount of asset liquidation. Given this limitation, estimates based on monthly filings of Form N-MFP suggest that, on average, MMFs hold around 70% of Treasury securities to the next month, while around 6% of such holdings are liquidated before maturity (Figure 8).[5] Around 23% of Treasury holdings mature during the month.

Figure 8: MMFs mainly hold Treasury securities to maturity



Source: Form N-MFP

[5] Estimates of asset liquidations are sensitive to assumptions and may result in a range of results. For additional discussion of data limitations related to asset sales by prime MMFs, *see* Baklanova, Kuznits, and Tatum "Prime MMFs' Asset Composition and Asset Sales" SEC Staff Analysis (June 2022).

Prime MMFs show even less Treasury securities turnover. Estimates based on monthly filings of Form N-MFP suggest that prime MMFs, on average, liquidate only 4% of their Treasury holdings before maturity.

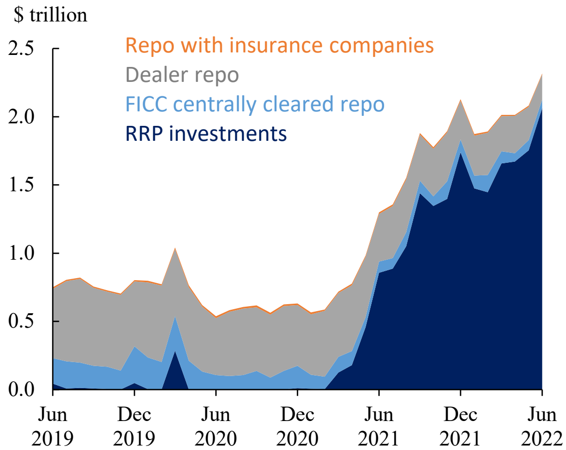
Holdings of Treasury securities enhance the liquidity parameters of MMF portfolios. These assets are considered daily liquid assets by MMF regulation.[6] In the first half of 2020, at the onset of the pandemic, MMFs sharply increased their holdings of Treasury bills, providing additional demand at the Treasury auctions and supporting market liquidity. For example, in April 2020, MMFs absorbed around 64% of the additional $1.3 trillion in Treasury bill issuance.[7]

MMFs are important investors in Treasury repos

MMFs are also important investors in the Treasury repo market. As of June 30, 2022, MMF investments in Treasury repos were close to $2,317 billion, of which $2,063 billion were allocated to the Federal Reserve's reverse repo (RRP) facility. MMF investments accounted for over 70% of the Treasury repos settled on the triparty platform.[8]

At present, MMFs conduct most of their Treasury repos with the Federal Reserve, which has replaced securities dealers as the main MMF repo counterparty since mid-2021 (Figure 9). Before that, securities dealers had been the largest MMF repo counterparty. Dealer access to MMFs in the repo market facilitates settlement of the Treasury auctions and a range of dealers' market making strategies, indirectly connecting MMFs to a broader set of activity in the financial system.

Figure 9: The majority of MMF Treasury repos are with the Federal Reserve's reverse repo facility



Source: Form N-MFP

Federal Reserve

Historically, the Federal Reserve has used repo and reverse repo transactions with primary dealers as a tool for monetary policy implementation. In 2013, the Federal Reserve introduced the RRP, a new monetary policy tool that was intended to improve control over short-term interest rates, and added MMFs as eligible counterparties, among other counterparty types such as primary dealers, banks, and government-sponsored enterprises.[9] RRP provides an opportunity for eligible counterparties to invest cash on a collateralized basis at a rate set by the Federal Reserve. As of July 28, 2022, RRP operates on the overnight term using only Treasury securities collateral and offers a rate of 2.3%.

Since introduction, RRP has been actively utilized by MMFs. As of June 30, 2022, total RRP investments by all counterparties reached an all-time high of $2,330 billion with MMFs accounting for approximately 89% of the total. For MMFs, RRP investments represented close to 41% of industry investment assets. This was in contrast to 2020, when MMFs only sparsely used RRP amid the increased

[6] *See* rule 2a-7(a)(8).

[7] Source: SIFMA U.S. Treasury Securities Statistics.

[8] Source: Federal Reserve Bank of New York, Tri-Party/GCF Repo Volume. The triparty repo volume data are as of Jun 9, 2022. RRP utilization is included in the triparty repo volume statistics.

[9] *See* Josh Frost et al, "Overnight RRP Operations as a Monetary Policy Tool: Some Design Considerations," Finance and Economics Discussion Series 2015-010 (2015).

issuance of Treasury bills, which provided a yield advantage over the RRP offering rate of 0.0% at that time.

Fixed Income Clearing Corporation

Some MMF investments in repos are centrally cleared, netted and novated by the Fixed Income Clearing Corporation (FICC). FICC allows some clearing members to sponsor their eligible clients such as registered investment companies, including MMFs. Netting of trades between FICC members reduces dealer exposures and can make trading less expensive, potentially providing cost benefits to MMFs as sponsored members.[10] As of June 30, 2022, MMFs had close to $63 billion in centrally cleared Treasury repos, or 3% of their total Treasury repo volume. Most of these MMF sponsored repos were settled outside the triparty platform, although FICC has recently developed a triparty sponsored repo service.[11]

Lastly, non-dealer counterparties such as insurance companies account for a very small portion (under 1%) of MMF Treasury repo investments.

MMF Treasury repo collateral and margining

MMFs accept Treasury securities of varying maturities as collateral in Treasury repos. Most collateral securities have maturities exceeding one year and, therefore, may not be eligible as MMF holdings.

In a typical repo trade, the market value of the collateral exceeds the principal amount of the repo by a certain margin required by a cash investor. The overcollateralization is intended to protect the cash investor from the risk that the value of collateral may decline over the life of the transaction and become insufficient to recover the principal and interest should the counterparty default.

In line with market practice, MMFs normally require counterparties to provide a margin of 2% on Treasury securities collateral for a total value of 102% of the repo principal (with the exception of trades with the Federal Reserve's RRP, which are not overcollateralized). The margins required by MMFs are typically contractual and change little even during significant market dislocations such as in March 2020.

[10] Securities Exchange Act Release No. 85470 (Mar 29, 2019), 84 FR 13328 (Apr 4, 2019) (SR-FICC-2018-013).

[11] *See* The Depository Trust Clearing Corporation, Press Release "DTCC's FICC Launches New Sponsored General Collateral Service" (Sep 7, 2021)