

Primer: Money Market Funds and the Repo Market

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This primer discusses the use of repurchase agreements (repos) by money market funds (MMFs) and provides a quantitative view of key repo metrics using data from the U.S. Securities and Exchange Commission (SEC) and the Federal Reserve. The metrics cover historical trends in repo assets and liabilities, repo holdings by MMFs, counterparty types, settlement arrangements, collateral securities, and margining practices.

Repurchase agreements

Repos allow one firm to sell a security to another firm with a simultaneous promise to buy the security back at a later date, often the next day, at a specified price. The difference between the sale and repurchase price of the security reflects the implied interest rate.

The economic effect of this transaction is similar to that of a collateralized loan. The cash investor in a repo receives securities as collateral to protect her against the risk that the counterparty is unable to repurchase the securities at the agreed date. The market value of collateral typically exceeds the amount of cash invested in a repo by an agreed-upon margin.

The repo market size and importance

The repo market plays a key role in facilitating the flow of cash and securities in the financial system. It allows market participants to access low cost secured financing to purchase securities, supports dealers' market-making activities, and enables leveraged investors such as hedge funds to finance their trading strategies, contributing to price discovery and more efficient allocation of capital.² The repo market also offers institutional investors such as asset managers, MMFs, and corporations with undeployed cash balances an option to invest cash on a secured basis.

Additionally, repos and reverse repos are often carried out by the Federal Reserve in order to temporarily provide liquidity to (or remove liquidity from) the financial system to support implementation of monetary policy and to promote financial stability. However, some argue that use of repos can lead to over-reliance of financial firms on short-term funding.³ In addition, the Financial Stability Oversight Council (FSOC) has highlighted various risks associated with the repo market, and recommended measures to improve the structure and transparency of the repo market and limit potential spillovers from repo-related asset fire sales.⁴

¹ This is an article by the staff of the Division of Investment Management's Analytics Office of the U.S. Securities and Exchange Commission (Commission). The Commission, as a matter of policy, disclaims responsibility for any private publication or statement of any of its employees. The views expressed herein are those of the authors and do not necessarily reflect the views of the Commission or other members of the Commission staff.

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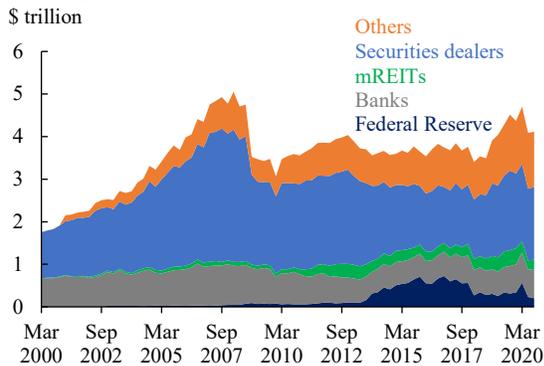
² For a more detailed discussion of the role and significance of the repo market, see the report of the Bank for International Settlements' Committee on the Global Financial System, "[Repo Market Functioning](#)" (April 2017).

³ See Baklanova, Viktoria, Adam Copeland, and Rebecca McCaughrin, "[Reference Guide to U.S. Repo and Securities Lending Markets](#)," Office of Financial Research working paper (September 2015).

⁴ See, [FSOC annual reports](#) for 2011 - 2018.

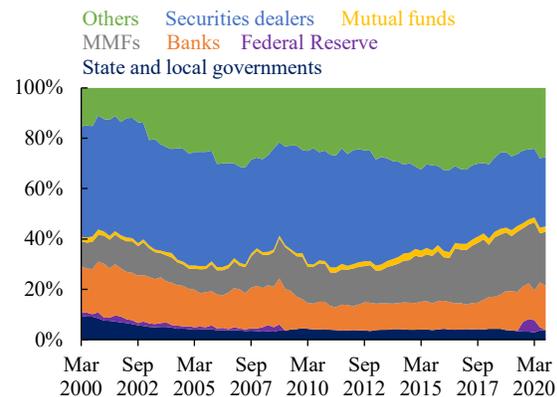
The Federal Reserve estimates the total repo liabilities (or repo borrowings) at around \$4.1 trillion as of September 30, 2020 (Figure 1). Repo liabilities reached the all-time high at close to \$5.1 trillion in March 2008 and declined sharply during the 2008-2009 financial crisis. Historically, securities dealers have had the largest share of repo liabilities at over 53% of the total, on average. Over the last decade, the share of the total repo liabilities attributed to securities dealers has declined to 42% as of September 2020. The share of repo liabilities attributed to the other types of firms, including hedge funds, was at 31% of the total in September 2020, significantly higher than the historical average of around 16%, pointing out increased diversification among repo borrowers. The remaining 27% of repo liabilities can be attributed to banks, mREITs, and to the Federal Reserve’s reverse repo programs.

Figure 1: Repo liabilities declined in Q2 2020 after reaching the post-crisis high at \$4.7 trillion in March



Note: data for banks prior to 2012 include federal funds borrowings, "mREITs" - mortgage Real Estate Investment Trusts, "Others" includes entity types with smaller or not specifically reported repo liabilities.
Source: Financial Accounts of the United States as of Sep 2020

Figure 2: Securities dealers are the largest investors in the repo market investing their own and clients' cash



Note: "Others" include financials, nonfinancials, pensions, insurance, hedge funds, and government sponsored enterprises.
Source: Financial Accounts of the United States as of Sep 2020

The Federal Reserve estimates the total repo assets (or investments in repos) at around \$4.6 trillion as of September 30, 2020.⁵ Securities dealers are also the largest investors in the repo market, accounting for close to 28% of the total repo assets as of September 30, 2020, below the 20-year average of nearly 40%. Securities dealers’ function as market intermediaries may explain their large shares of both repo assets and repo liabilities. Dealers exchange cash and securities in the repo market on behalf of their clients and to support their own market activity.

Money market funds’ role in the repo market

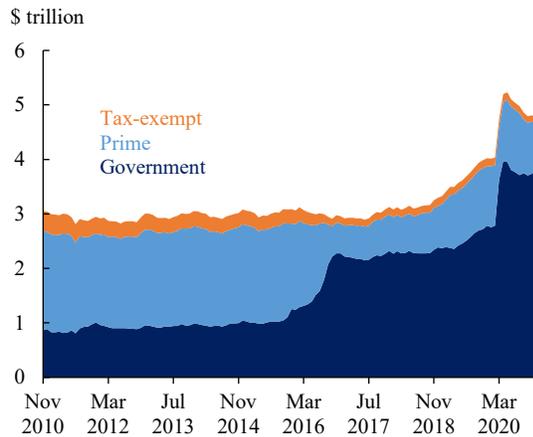
Money market funds (MMFs) participate in the repo market by investing cash in repos alongside other types of firms (Figure 2). As of September 30, 2020, the Financial Accounts of the United States show that MMFs accounted for close to 22% of the total repo assets. MMFs do not incur repo liabilities.

The role of MMFs as cash investors in repos has increased over the last 20 years. One reason for the increase is the growth of assets under management in government MMFs, which are required to invest at least 99.5% of their assets in cash, U.S. government securities, or repos collateralized by cash and government securities. Given the investment restrictions, government MMFs usually invest a somewhat

⁵ The discrepancy between the size of repo assets and liabilities is around \$500 billion. The discrepancy is not easily explained, but may be a result of data gaps about the repo market. See Federal Reserve, “[Financial Accounts of the United States - L.207 Federal Funds and Security Repurchase Agreements](#)” (September 2020).

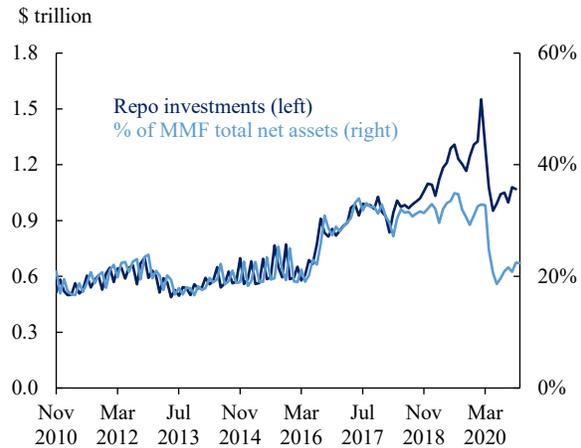
larger share of their assets in repos than prime MMFs.⁶ For example, as of December 31, 2020, government MMFs allocated over 23% of their assets to repos, while prime MMFs allocated close to 21% of their assets to repos.

Figure 3: Government MMF net assets grew considerably in 2016 and in the first half of 2020



Source: Form N-MFP

Figure 4: Total MMF investments in repos have grown over time and increased sharply in the first half of 2020



Source: Form N-MFP

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. In March 2020, net assets of government MMFs increased by \$838 billion to \$3.6 trillion, or up 30% from the end of February. Government MMFs' net assets reached nearly \$4.0 trillion at the end of April (Figure 3). MMFs' investments in repos reached an all-time high of nearly \$1.6 trillion at the end of March, when inflows into government MMFs accelerated (Figure 4).

Around 70% of MMF repos by volume are either overnight or have open terms and can be terminated at any time. Around 24% of MMF repos have maturities longer than one day but less than seven days, and the remaining 6% of MMF repos feature various other maturity terms.

Most MMF repo investments are executed through a third party that provides settlement and collateral management services and are often referred to as triparty repos. In contrast, in a bilateral repo, each counterparty is responsible for the clearing and settlement of the trade, which makes the repo trading more operationally demanding.

MMF repo counterparties

As of December 31, 2020, MMFs' total investments in repos were close to \$1.1 trillion. MMFs conduct the great majority of their repo investments with securities dealers, and [primary dealers](#) in particular. Non-dealer counterparties include insurance companies, educational institutions, government-sponsored enterprises (GSEs), and the Federal Reserve. Some MMF repos are centrally cleared and novated to the

⁶ Tax-exempt MMFs invest little in repos to avoid incurring taxable income. For example, as of December 2020, tax-exempt MMFs held under \$70 million in repo investments, or 0.06% of \$113.8 billion in these funds' total net assets. Prime MMFs can invest in a broad range of short-term, high quality assets such as U.S. Treasury bills, federal agency notes, certificates of deposit, corporate commercial paper, repurchase agreements, and obligations of states, cities, or other types of municipal agencies.

Fixed Income Clearing Corporation (FICC). We review MMF repo investments with each of these counterparty types.

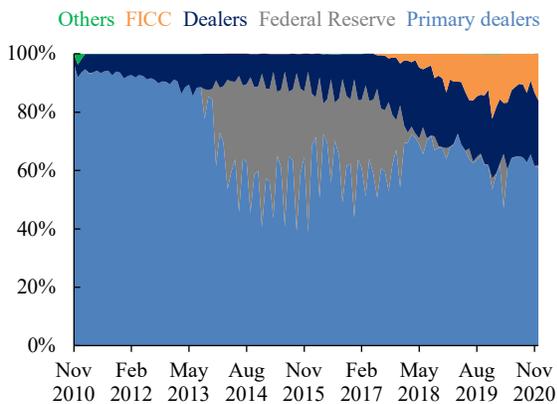
Securities dealers

Securities dealers are by far the largest repo counterparties for MMFs. Access to MMFs in the repo market facilitates a range of dealer’s financing and market making strategies, indirectly connecting MMFs to a broader set of activity in the financial system. As of December 31, MMFs held \$877 billion of repo investments, or 82% of the total, with securities dealers. Of that amount, \$642 billion repo investments were with primary dealers (Figure 5). Historically, primary dealers have been by far the largest MMF repo counterparties. Over time, the role of primary dealers has declined and left room for other types of firms to enter repo trading with MMFs.

Insurance companies and educational institutions

Investment portfolios of insurance companies and endowments established by educational institutions often hold securities that can be used as collateral to obtain cash in the repo market. Cash can be reinvested to deliver incremental return on a portfolio of securities. Beginning in 2015, a small number of insurance companies and educational institutions established direct repo trading, bypassing dealers. These so-called “direct repo” trades could offer some advantages, including more flexible terms and potentially better pricing for both sides in the absence of an intermediary. However, this type of repo is often less operationally efficient, which limited its growth. On average, direct repo only accounts for around 0.1% of the total MMF repo investments.

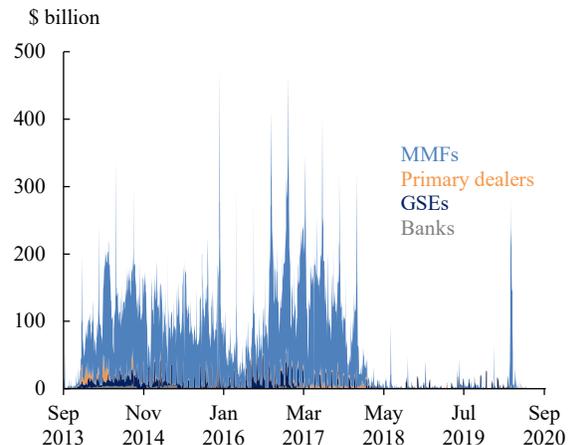
Figure 5: Primary dealers are the largest MMF repo counterparties although their market share declined



Note: "Others" include insurance companies, educational institutions, and GSEs.

Source: Form N-MFP

Figure 6: MMFs are by far the largest investors in the Federal Reserve's reverse repo facility



Source: Federal Reserve

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 an overnight reverse repo facility (RRP), a new monetary policy tool that was intended to improve control over short-term interest rates, and added MMFs as eligible counterparties.⁷ RRP provides an opportunity to invest cash on a collateralized basis at a rate set by the Federal Reserve. Currently, RRP operates using only Treasury

⁷ See Josh Frost et al, “[Overnight RRP Operations as a Monetary Policy Tool: Some Design Considerations](#),” Finance and Economics Discussion Series 2015-010 (2015).

securities collateral and offers a rate of 0.0%. Since the introduction, RRP has been actively utilized by MMFs, which accounted for more than 80% of the total RRP usage, on average (Figure 6). MMFs’ use of RRP has declined in recent years. In 2020, MMFs only sparsely used RRP amid the increased issuance of Treasury bills, which MMFs consider a comparable investment option.

Fixed Income Clearing Corporation

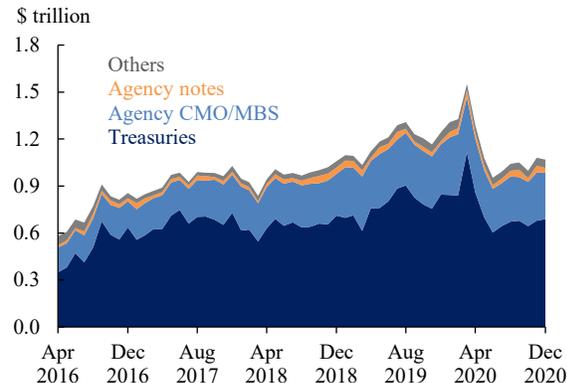
Some MMF investments in repos are centrally cleared, netted and novated by FICC. FICC [allows](#) some clearing members to sponsor their eligible clients such as registered investment companies, including MMFs. Netting of trades between FICC members reduces dealer exposures and can make trading less expensive, potentially providing cost benefits to MMFs as sponsored members. As of December 31, 2020, MMFs had \$169 billion in centrally cleared repo trades, or 16% of their total repo volume.

MMF repo collateral

MMFs accept a broad range of securities with varying maturities as repo collateral. Historically, government securities have accounted for the great majority of MMF repo collateral.⁸ As of December 31, 2020, around 64% of MMF repo investments were collateralized by Treasury securities and around 31% were collateralized by government agency securities, including mortgage-back securities (MBS) (Figure 7). Under 5% of MMF repos were collateralized by other types of securities, including corporate bonds, equities, and asset-backed securities. Among all MMF types, prime MMFs are the main investors in repos backed by nongovernment securities.

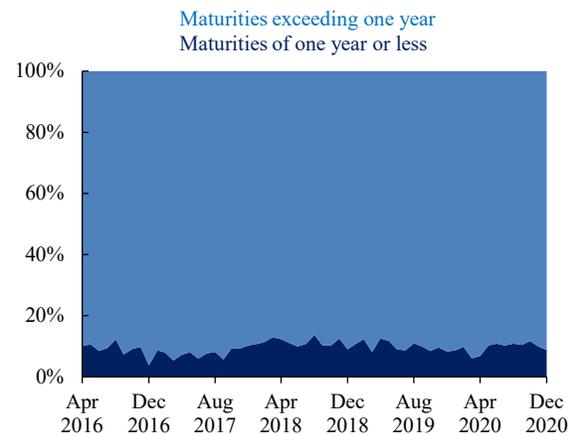
The great majority of MMF repo collateral securities have maturities exceeding one year (Figure 8). Historically, on average, only under 10% of collateral securities were maturing within a year.

Figure 7: Treasury and government agency securities account for the majority of MMF repo collateral



Note: CMO - collateralized mortgage obligations, MBS - mortgage-backed securities, "Others" include corporate debt, equities, private label MBS and asset-backed securities.
Source: Form N-MFP

Figure 8: The majority of MMF collateral securities have maturities longer than one year



Source: Form N-MFP

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. Historically, MMFs have required counterparties to provide a margin that depends mainly on the quality of the collateral. For example, the

⁸ Under SEC rules, MMFs can look through collateral comprised of cash or government securities for diversification purposes. *See* rule 2a-7(d)(3)(ii)(A).

required margin of Treasury securities collateral is typically 2% of the repo principal for a total collateral 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 appear to be tied closely to asset quality though they change little even during significant market dislocations such as in March 2020.