



US FISCAL CASH MANAGEMENT AND MONETARY POLICY IMPLEMENTATION

In early 2021 the Treasury announced a draw down of its cash balances deposited with the Federal Reserve. This action added a significant amount of liquidity in a system with already high liquidity balances. Regulatory constraints, limited T-Bill issuance and the Federal Reserve's continued asset purchases further led to a redistribution of the additional excess liquidity away from deposit institutions and towards Money Market Funds (MMFs). Ultimately, the additional liquidity was recycled back to the Federal Reserve's balance sheet, with the uptake in the Federal Reserve's Reverse Repo (RRP) facility reaching unprecedented levels. Short-term money market rates anchored at the RRP rate, and, for a short period in some segments, entered negative territory. Further adjustments to the RRP parameters by the Federal Reserve strengthened the floor for money market rates in positive territory.

Against this background, this special feature discusses the interplay of fiscal cash management practices and monetary policy implementation. It describes the impact of fiscal cash management policies on the balance sheet of the Federal Reserve, and consequently on the liquidity conditions in money markets and focuses on 2021 draw-down of the TGA balances and their impact on money markets. While the Federal Reserve demonstrated the ability to control money market rates via the RRP facility, the growing role of MMFs in the smooth functioning of money markets and the adjustment mechanisms of banks to regulation merit further consideration. Looking forward, with rate hikes approaching and balance discussions imminent, monetary policy should consider lessons from the 2021 TGA event when discussing the optimal level of the balance sheet.

FISCAL CASH MANAGEMENT, THE FEDERAL RESERVE'S BALANCE SHEET, AND IMPLICATIONS FOR RESERVE BALANCES

Treasury cash management affects the Federal Reserve's balance sheet and overall liquidity conditions.

- A practical way to view the Federal Reserve's balance sheet to consider the factors that add and absorb reserve balances from the system. An increase in the asset side of the Federal Reserve balance sheet adds reserves to the system, and an increase in (non-reserve) liabilities (for given size of liabilities) drains reserves. In 2021, the Federal Reserve's assets were mainly Treasury securities (and agency MBS) held outright. The most prominent non-reserve liabilities were currency in circulation (cash), reverse repo agreements and the US Treasury General Account or "TGA", which is the checking account of the US Government with the Federal Reserve¹ (*Chart 1*).
- As an accounting rule, an increase (decrease) in the non-reserve liabilities, such as the TGA, drains (adds) reserves from the system, all else equal. For example, increased government borrowing (new debt issuance) in anticipation of a fiscal stimulus drains reserves from the banking system, because cash is moved from bank deposits into the TGA account as a payment. Therefore, the TGA account rises and bank balances with the Federal Reserve shrink one to one. On the contrary, a TGA decline, due to pay outs of economic stimulus or redemptions of maturing bills for cash in anticipation of a debt ceiling constraint, increases reserve balances as cash leaves the TGA accounts to be deposited with the banking sector as payment.

Offsetting factors can diminish the effect of the TGA moves on overall liquidity conditions. For example, a decline in reserve balances (due to an increase in the TGA account) can be offset by policy actions leading to a bigger balance sheet overall. In that vein, an increase in the Federal Reserve's assets, via additional asset purchases could make up for the liquidity drained by the TGA. Similarly, a decline in the TGA account can be offset by an increase in

¹ This is where the U.S. Treasury deposits most of its revenues and draws to fund its outlays as necessary.

other Federal Reserve liabilities, for example via increased take-up in the RRP facility². In this way, a liability decline is counteracted by another liability increase.

EVOLUTION OF TREASURY CASH BALANCES

Historically the Treasury Department has deposited cash both with the Federal Reserve and the private sector. Albeit predictable, Treasury cash balances may fluctuate frequently and by large amounts. Treasury cash balances are inherently volatile, due to different seasonal cycles in borrowing, tax receipts and payments made³. Before the GFC, the Treasury held most of its cash with private sector banks, and, with few exceptions, had only a minimum of cash held with the Federal Reserve (around \$5billion). During those periods, TGA balances were low and easily predictable. Post GFC, however, TGA balances grew considerably and have been particularly volatile, as both monetary policy and the cash management of the Treasury changed in response to the crisis⁴.

Following the pandemic, TGA balances reached unprecedented levels. The Treasury ramped up its borrowing to support a large fiscal expansion and fund pandemic related relief. From March to June, T-bills outstanding increased by approximately \$2.4tr. This led to a rise of around \$1.5tr in the TGA, reaching an unprecedented peak of \$1.8 trillion by October 2020, as the cash was stashed with the Federal Reserve (the stimulus packages only started to trickle out to the economy later, towards the end of 2020). All else equal, this development would have drained considerable reserves from the system, at a time where further accommodation was deemed necessary. However, the Federal Reserve more than offset the reserve drain from the TGA increase with its additional asset purchases and liquidity facilities. The Federal Reserve increased its assets by almost \$3tr, double the TGA increase, in order to support the smooth functioning of financial markets and maintain vital flows of credit to households and businesses (see NY Federal Reserve [speech](#)).

In 2021 the situation reversed, and additional liquidity flooded the markets as the TGS was drastically drawn-down. In February the Treasury [announced](#) that it aimed to draw down the TGA to fund further stimulus and to normalize its cash balances to \$500bn by the end of June. This would bring the TGA slightly above pre-pandemic levels. The target was reached by August 2021, but unresolved political discussions around the rise of the debt limit led to a further decline of T-Bill issuance. As a result, the TGA declined further to a low point of \$100bn in October. This reversal increased tremendously the liquidity supplied to the markets. The liquidity surge from the TGA account added to the approximately \$3tr of reserves balances outstanding in February 2021 and was further boosted by continuing asset purchases (*Chart 2*). The TGA hovered at very low levels, due to debt ceiling constraints until mid-December, when the new debt ceiling bill was signed.

IMPACT OF TREASURY CASH BALANCES DRAW-DOWN AND MARKET REACTIONS

The February Treasury announcement was received cautiously by market analysts, who foresaw a significant impact on money markets. Markets expected that the TGA drawdown would place downward pressure on short-term rates towards the zero-lower bound, on the back on continued asset purchases. However, they also considered that the RRP facility would be able to absorb back a large part of it, buffering risks of interest rates going negative. Market participants speculated at the time that this would require changes in the RRP parameters.

² The RRP facility is primarily a monetary policy tool. It was established by the Fed in 2013 to place a floor on short-term money market rates, by acting as an alternative investment for a broad base of money market investors (Money Market Funds and Government Sponsored Enterprises) without access to the Interest on Reserve Balances that is paid by the Fed to depository institutions. Primary dealers and banks are also eligible counterparties. The facility allows the Fed to borrow cash from counterparties secured by collateral from the Fed's securities portfolio. The firmness of the floor depends on the parameters of the facility, which is conducted as a fixed rate auction at full allotment but has a cap on individual and overall participation. The higher the participation, the firmer the floor, but also, the stronger the disintermediation in private repo markets.

³ For instance, employers withhold tax payments on bi-weekly basis; corporate and non-withheld taxes are paid on a roughly quarterly basis; in contrast, the Treasury's largest expenditures (Social Security and Medicaid/Medicare) follow monthly schedules. As a result, fiscal balances are subject to large swings that vary on weekly, monthly, and quarterly basis.

⁴ The shift of the TGA balances into the Fed following the crisis was cost efficient for the taxpayer. Following the crisis, money market rates were reduced drastically, also reducing the Treasury's remuneration on the deposits kept with the banking sector. At the same time, reserve balances of banks were remunerated at the higher IOER rate. In this setting, maintaining the Treasury cash balances with private banks would further increase bank reserves and reduce Fed remittances to the Treasury by more than the Treasury would earn from its private sector deposits (see relevant Fed [note](#)).

Market expectations broadly materialized. The increased levels of liquidity ultimately recycled back to the Federal Reserve's balance sheet, with limited price impact, in the following manner.

- Commercial banks grew increasingly reluctant to absorb the additional liquidity through deposit growth, as this would increase their capital costs. With the Supplementary Leverage Ratio (SLR) re-instated on March 31, 2021, following a temporary lift after March 2020, additional reserves translated into binding SLR constraints and increasing capital costs, even for big banks. As a result, banks began to favor shifting some deposits (primarily non-operational ones) to avoid/mitigate related capital increases, a trend that precipitated in March and peaked in June.
- MMFs (notably government ones) picked up the excess liquidity, buffering the increase in bank reserves. From March to July, total net Assets under Management in Government MMFs increased by about \$200bn⁵ (Chart 3). The cash inflow into the MMF sector also increased the demand for safe investments. The shrinking T-Bill supply offered fewer alternatives for such investments, and money market holdings further shifted from Treasuries to repo. Finally, with dealer balance sheets reportedly also constrained by the SLR ratio, the increased liquidity was absorbed by the RRP facility, rather than dealers in the Tri-party repo market (Charts 5 and 6). Further boosted by debt-ceiling dynamics, the RRP facility take-up rose from zero take-up at the beginning of March to \$1.5tr in October 2021, far beyond previous historical heights⁶.

Against this background, money market rates, which already stood at very low levels just prior to the pandemic, reached new record low levels. Following the TGA draw-down and with the supply of T-bills concurrently falling, further downward pressure was exerted in repo rates. The benchmark Secured Overnight Financing Rate (SOFR) reached 1bps, while negative repo rates were observed mainly in the bilateral repo market. Unsecured rates decline to a lesser extent and have been somewhat stickier, with the Effective Federal Funds Rate (EFFR) hovering around 6bps (Charts 7 and 8).

THE FEDERAL RESERVE'S REACTION

The Federal Reserve facilitated market functioning and steered rates at positive territory by tweaking the RRP parameters several times in 2021.

- Faced with (anticipated) record demand for RRP uptake, the Federal Reserve increased per-counterparty limits of the ON RRP facility in March 2021 (to \$80bn) and again in September (to \$160bn). The decision was taken with a view to ensure that the RRP continues to play its stabilizing role in market functioning, by offering a viable alternative to MMFs and steering secured rates towards the RRP rate⁷. The decision was anticipated and welcomed by market participants. According to market feedback, the increased caps were successful at putting a stronger floor in short-term secured markets.
- Moreover, in June the Federal Reserve increased the RRP rate to 5bps, a "modest technical adjustment", to maintain the EFFR well within the target range. Secured rates tagged along and settled (with few outliers) into positive territory, a testament to the effectiveness of the RRP facility as a lower bound for the policy rate. The SOFR stabilized at the new RRP offer rate (5bps) and the EFFR hovered a bit higher (Chart 7).

Looking forward, some reversal in liquidity conditions is again expected in the short-term, but the overall impact on money market rates will depend on the pace and form of monetary policy normalization. Following the resolution of the debt ceiling in mid-December, Treasury Bill issuance is expected to recover and TGA balances are expected to soon rise back to around \$650 bn. At the same time, the Federal reserve tapering will slow down the growth of reserves in the system (at least \$250bn of additional reserves to be added from December to February according to the latest Federal Reserve tapering guidance). On net, market participants expect peak liquidity to pass

⁵ While MMFs are not subject to the SLR, in an environment of short-term interest rates hovering around zero the risk that MMFs could close to new investors or even offer negative yields was, however, increasing.

⁶ According to market accounts, debt ceiling dynamics exacerbated the recourse to the RRP at the margin in late September, as T-bill supply declined further, and investors reportedly avoided exposures to T-bills that would be at risk for delayed payments.

⁷ The RRP facility can increase the bargaining power of eligible MMFs vis-à-vis the dealers and thus help to guide the rates in the private repo market towards the RRP rates. This effectively secures a floor for the secured market rates (like SOFR). To this end, an increase of the RRP per-counterparty limits (cap) enhances the floor.

by early 2022, but the RRP levels to remain elevated as liquidity will remain well in excess. Beyond that, the Federal Reserve's balance sheet run-off and pace of lift-off will determine the level and the volatility of money market rates.

IMPLICATIONS FOR POLICY

The draw-down of the TGA account draws attention to issues related to (a) financial regulation and market structure, (b) financial stability and (c) monetary policy:

- (a) The impact of the SRL on money markets:** The SLR rule reportedly interacted with fiscal cash management affecting money markets also in the September 2019 repo market turmoil (see GMM special feature of Oct 2019). Market participants argue that the SLR can result in a more rigid financial system in the face of shocks, at a time of significant reserves in the system and rising fiscal needs. The policy debate on potential reforms to the SLR is ongoing, while further work on building the resilience of Treasury market structures should help to further enhance the intermediation function of market intermediaries.

The increasing role of the MMFs, notably government ones, in the smooth functioning of the money markets. At the end of October MMFs accounted for almost 90% of the Federal Reserve's RRP. On the way forward, government MMFs are expected to remain sizeable and to play an important role in the rate control during the lift-off. This calls for close monitoring of the numerous factors that may affect the size and functioning of MMFs on the way forward, including the ongoing regulatory reform of MMFs, the adjustment of their profit structures during lift-off, and developments in the universe of available investment alternatives.

- (b) The role of Federal Reserve in money markets:** Originally, a main concern favoring caps in the RRP uptake was that increased use of the RRP may accentuate liquidity runs away from dealers and into the Federal Reserve in a stressed market environment. In the case of a positive liquidity shock, such as the TGA draw-down, this outcome is less likely. More broadly, experience from the RRP suggests that such concerns have not significantly materialized⁸.

Nevertheless, the increased use of the RRP, as well as the need for additional facilities (like the recent Standing Repo Facility) is indicative of the increasing need for Federal Reserve intermediation in money markets. While necessary for monetary policy reasons in an environment of excess liquidity, the structure of the financial system may also adapt to allow more reliance on the Federal Reserve.

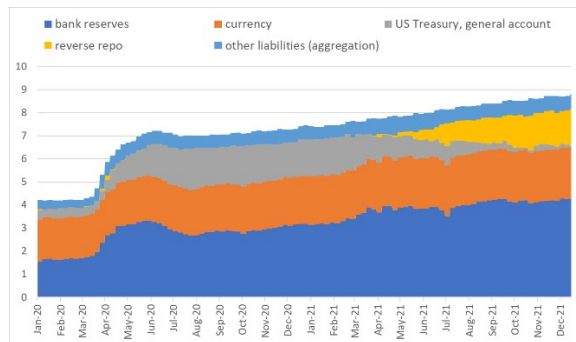
- (c) The role of the TGA in monetary policy.** The incident has shown that changes in the TGA balances can have notable effects on money market rates and therefore affect monetary policy implementation. Experience pre-GFC, has shown that larger the TGA balances, relative to the Fed balance can challenge monetary policy implementation (leading to higher volatility on money market rates and more frequent market interventions (see [here](#)). With the Federal Reserve balance sheet currently at \$8tr, such concerns are less binding. However, lessons from the TGA draw down could feature in the upcoming discussions around the optimal size of the Federal Reserve's balance sheet.

⁸ See recent comments from NY Fed officials. In addition, Fed research has shown that the RRP facility has not significantly disrupted relationship structures in repo market, which largely remain in place and protect funding mechanisms.

Fiscal Cash Management (via the TGA account) and its impact on money markets

The Federal Reserve's liabilities include the General Treasury Account (TGA)

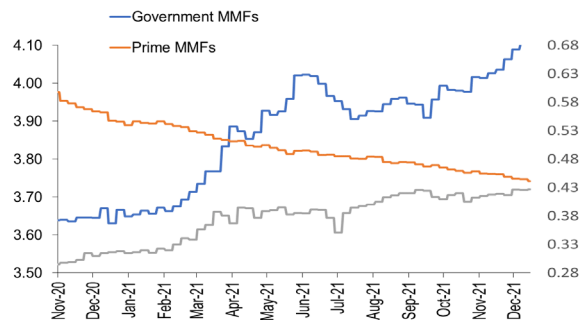
1. Federal Reserve Balance Sheet Liabilities (USD trillions)



- Increases in TGA account ease pressure on reserve growth
- Together with currency in circulation and RRP they drain amounts from bank reserves

The draw-down of the TGA account in 2021 put upward pressures on reserves, which were relieved by Government MMFs.

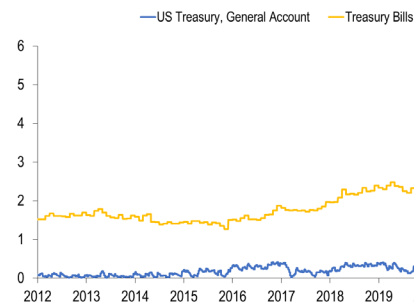
3. Total Net assets of Government and Prime Funds, and Bank Reserve Balances (USD trillions)



- As the TGA account began to decline in March 2021, banks were reluctant to absorb the additional liquidity
- Instead, an increase in Government MMF assets helped to buffer the increase in bank reserves

The TGA account has been particularly high and volatile since 2020

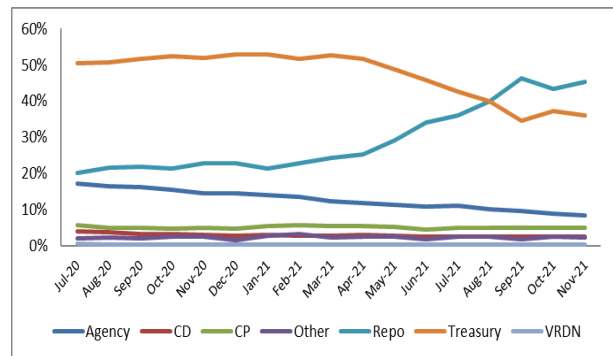
2. Evolution of TGA account and T-Bill outstanding (USD trillions)



- The TGA account increased drastically in 2020, on the back of increased Treasury issuance (notably T-bills)
- It reversed in 2021, on the back of increased fiscal spending and debt ceiling considerations

MMF increased their repo activity and reduced their Treasury holdings

4. Total MMF holdings by type of asset (percent)

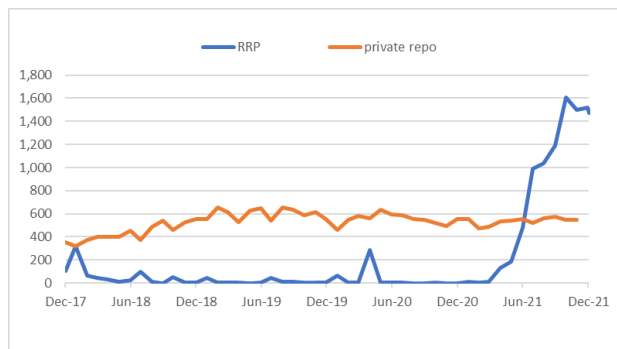


- The growth in MMF size was accompanied by increased repo holdings
- At the same time, Treasury holdings were also partly substituted for Treasury repo

Sources: Bloomberg, Federal Reserve, Office of Financial Research

In the back of fewer investment alternatives, the main counterpart for the MMF's repo activity was the Federal Reserve

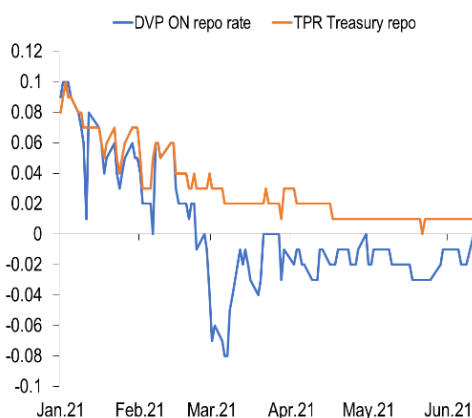
5. Private repo volumes and RRP volumes in the Tri-Party Repo (TPR) Market (USD millions)



- Private repo volumes (i.e. repos with dealers) remained bradly unchanged in the TPR market
- Instead, the Federal Reserve's RRP facility absorbed the increased demand for repos by MMFs

In the period from March to June 2021, certain repo rates reached negative levels

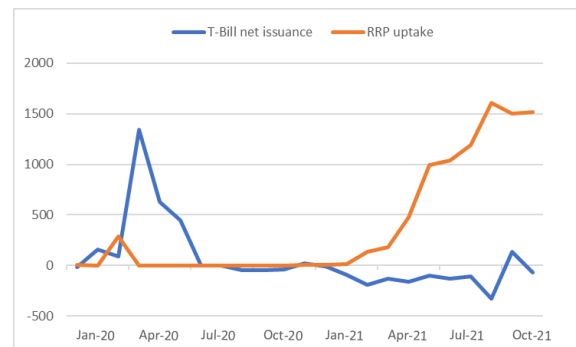
7. Repo rates (average rate, %)



- Prior to the Federal Reserve adjustment to the RRP rate, repo rates in the Delivery vs Payment (DVP) segments were trading on average in negative rates.
- TPR rates were anchored at the RRP rate (note that MMFs operate in the TPR market).
- Following the technical adjustment of the RRP rate in June 2021, DVP repo rates shifted upwards, into positive territory

Sources: Bloomberg, Federal Reserve, Office of Financial Research

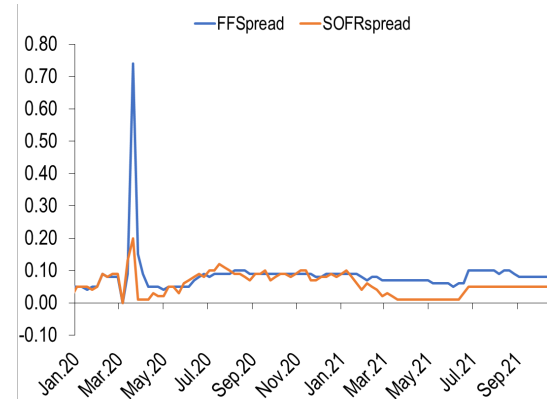
6. RRP uptake and T-Bill issuance (USD millions)



- MMFs drastically increased their RRP uptake also on the back of negative net T-Bill issuance
- MMFs accounted for about 90% of the RRP uptake, which reached unprecedented levels

Reference money market rates remained anchored at the RRP rate

8. FFR and SOFR (%)



- Secured repo rates dropped more than unsecured ones in the period from March to June 2021
- Overall, the RRP provided a strong floor for money market rates