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US Money Markets
Adjusting the RRP rate

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As reserve balances grow and the fed funds rate falls closer to zero, the Fed may need to nudge its interest rate floor, the RRP rate, higher. This technical adjustment would help to keep overnight rates from slipping into negative territory.

- Reserve balances have increased by $1trn in the past three weeks. The fed funds rate has quickly fallen to 5bp and appears set to fall further.
- Downward rate pressure has been particularly acute in the repo market. Roughly $120bn/d in SOFR activity occurs at -1bp or less.
- Similarly, tri-party repo rates have been pinned at 0% since March 20 and the SOFR rate distribution has become squeezed.
- As rates approach zero, the Fed has a few "automatic reserve stabilizers" – such as the RRP that drain balances and keep rates from falling further.
- Nonetheless, as reserve balances grow, the Fed may need to strengthen these stabilizers.
- The Treasury's cash deposit at the Fed is one such stabilizer. However, we do not expect the Treasury to sharply increase the balance to drain bank reserves.
- Instead, we expect the Fed will increase the RRP rate to 5bp with a parallel increase in IOER – perhaps as early as this week.
- Outside of Fed policy, massive extra bill issuance may eventually pull repo rates – and by extension the funds rate – higher and further from negative territory.

Expanding reserves and falling rates

As the level of bank reserves has climbed, overnight interest rates have fallen. In the past three weeks as the level of bank reserves has increased by $1trn, the effective fed funds rate has slipped to 5bp (Figure 1). During QE, the funds rate traded above 5bp. But with reserve balances set to grow further – and past peak QE balances – it seems likely the rate will soon test 0bp and the bottom of the Fed's target band.

The expansion in bank reserves has had a bigger – and somewhat quicker – effect on overnight repo rates for two reasons. First, the expansion in reserves increases the amount of cash circulating through financing markets relative to the supply of collateral. Second, the Fed's asset purchases are absorbing a sizeable amount of the available supply of Treasury collateral in the market. With more cash and less collateral, the overnight SOFR rate has fallen to 1bp. The overnight tri-party rate – typically the rate earned by money funds on their Treasury repo holdings has been at 0% since March 20. Futures markets expect the fed funds and SOFR rates to converge at around 6bp in 3m. While the convergence in these two rates would be consistent with their historical behavior, our sense is that it is more likely that fed funds will move closer to SOFR than SOFR will rise to fed funds.[1]

Rate distribution

Recall that both fed funds and SOFR are volume-weighted median rates. The fed funds rate has a narrow – very bunched – rate distribution. Indeed, the spread between the 25th and 75th volume percentiles has been about 1-2bp since the financial crisis. This reflects the structure of the market for bank reserves. With the exception of last fall when bank reserves unexpectedly became scarce, there has been only one lender and relatively few borrowers in this market. Recently, the spread between the 25th and 75th percentiles has widened to 3bp, but our sense is that this may point to further downward pressure on the fed funds rate – especially given the level (and distribution) of repo rates.

About $120bn of SOFR volume is trading at -1bp

By contrast, there is a wider distribution of activity in the SOFR market. The spread between the 25th and 75th volumes percentiles is about 8bp. However, recently it has narrowed to just 2bp as the distribution of SOFR trades has been compressed. This compression likely reflects the inherent difficulty for rates to trade below the Fed's interest rate floor – the RRP rate – which is currently set at 0%.[2] In addition, balances in the program have risen sharply in the past week. Still, roughly 1% of daily SOFR activity – that is, about $12bn – is occurring at rates of -1bp or less.

However, SOFR activity measures general collateral trading. In the specific issue market, where investors exchange and finance particular CUSIPs, a far larger share of activity is occurring at sub-zero rates. We estimate that approximately 40% of specific coupon repo trading is occurring at rates below zero – at an average of -8bp. Ironically, despite the Treasury's substantial increase in issuance, most of the trading in bill repo is occurring at rates more than 10bp below GC – that is, as negative interest rates. Historically, higher activity and deeper spreads in the specials market have tended to pull general collateral rates as there are fewer issues that trade without a borrowing premium.

Automatic stabilizers

As rates approach zero, the Fed has a few "automatic reserve stabilizers" that drain reserve balances and keep rates from falling further. Among these stabilizers are the RRPs and the deposit balances from the Treasury, GSEs, and significantly important financial market utilities.

[1] That is, in the absence of any change in the Fed's administered rates: RRP and IOER.
[2] See *Zero repo*, March 26, 2020

There are two RRP programs – one for domestic institutions such as money funds and the GSEs, and a separate program meant for foreign official institutions. Both programs now pay the same rate – which since March 15 has been 0%. Each works the same – the Fed effectively "borrows" cash from its counterparty in return for Treasury collateral. The RRP rate is the economy's interest rate floor – no one should be able to borrow cash at a rate lower than the Fed (with a monopoly on money creation) and collateralized with Treasuries. Of course, as the specials, and recently bill markets illustrate, it is possible for market rates to trade below the RRP.

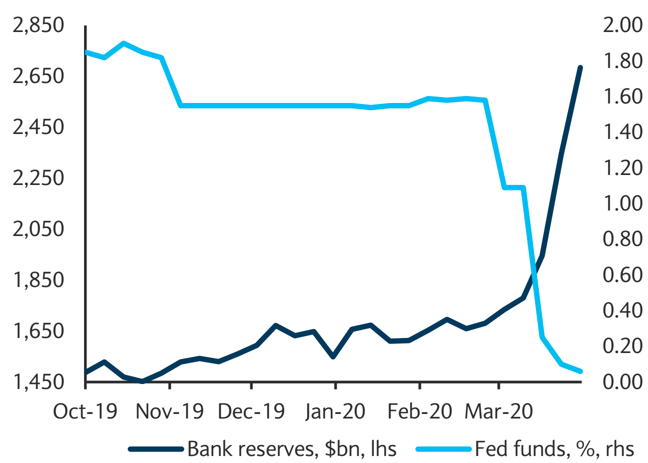
Since the domestic program was introduced in September 2013, the Fed has maintained an explicit counterparty size limit of $30bn. In the case of money funds, the size limit applies to the fund rather than the overall complex. The counterparty could start to play a more important role if money continues to pile up in government-only money funds and these funds have few investment options outside the Fed's program. Gov-only money fund balances have risen by over $500bn since March 4. Treasury funds – whose investment options are limited to Treasuries, and in some cases Treasury repo – have experienced inflows of nearly $400bn or about 40% in the past month. Unsurprisingly, as reserve balances have risen and market rates approach zero, RRP balances have grown. In the past three weeks, RRP balances have risen approximately $250bn – temporarily offsetting a similar amount of reserves.[3]

The Fed maintains deposit accounts for the Treasury and other depositors. Like commercial banks, deposits are liabilities for the central bank. As the Treasury gears up to launch the CARES Act and send payments to households, it has amped up its bill issuance and deposited the extra cash in its account at the Fed. In just the first nine days of April, net bill issuance has topped $315bn – more than the Treasury has typically issued annually in recent years. The Treasury's cash balance has reached $615bn (Figure 2), but these enormous balances will be drawn down quickly as the Treasury sends out its payments.

Could the Treasury increase its cash deposit?

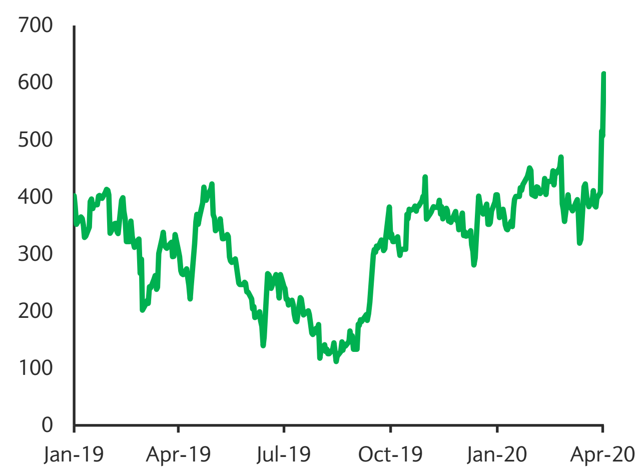
There has been some speculation that to help reduce the pressure expanding bank reserves are creating in overnight markets, the Treasury might agree to maintain a much higher Fed deposit – perhaps more than $750bn-1trn. One way to accomplish this would be to bring back the Treasury's supplemental financing bills. During the early stages of QE, the Treasury used the cash raised from these bills to keep on deposit at the Fed, in order to drain an equal amount of reserves until the bill matured (or was rolled over). We estimate the

FIGURE 1
Bank reserves and fed funds ($bn, %)



Source: Federal Reserve, Barclays Research

FIGURE 2
Treasury cash balance ($bn)



Source: US Treasury, Barclays Research

3 Temporary because the domestic RRP has an overnight tenor. We do not know if the foreign program offers term maturities.

Treasury will need to issue over $800bn in bills this quarter to finish the CARES Act *without* pushing its precautionary cash deposit at the Fed much over $400bn. Adding in an additional $250-500bn in extra bill supply to boost the cash deposit by a similar amount – and, importantly, not spending it but keeping it idle at the Fed – seems impractical and politically unrealistic.

The Fed also maintains deposit accounts for the GSEs. These balances are unremunerated. It also accepts deposits from systemically important financial market utilities such as the CME. Balances in these accounts are paid IOER, which makes them comparatively attractive relative to the alternatives that financial market utilities are required to use for customer margin. Not surprisingly, other deposits (which include the GSEs' unremunerated balances) have risen about $130bn in the past three weeks.

Time for more?

The Fed faces a choice as short-term interest rates move to zero and increasingly large segments of the repo market trade at negative interest rates. It can slow or stop its asset purchases to reduce the accumulation of bank reserves. Nonetheless, while it has tapered its daily Treasury purchases to $50bn/day and has moved to reduce the SLR burden these are creating, we think it may be a while before it stops altogether. Moreover, most of its credit programs – such as the CPFF, TALF, and the primary and secondary corporate credit program – have not started yet. Even if program use is somewhat tepid as has been the case with the liquidity programs – they will still push bank reserves above their QE record.[4]

We expect the Fed will lift the RRP rate to 5bp

Alternatively, the Fed could raise its interest rate floor further from zero by increasing the RRP rate to 5bp. We think this would be enough to push general collateral rates to 5 or 6bp with a smaller portion of the specials market trading below zero. The Fed would likely increase the IOER rate by the same amount – to 15bp in order to maintain its current 10bp spread. In the current environment with large amounts of surplus bank reserves, we think RRP – as an interest rate floor – rather than IOER – as a magnet – has a bigger effect on market rates. The RRP was introduced at the tail end of the Fed's QE balance sheet expansion. Despite some early experimentation, the program rate was set at 5bp during most of the pre-rate hike period. The fed funds rate traded a few basis points above this threshold. Thus, we do not think the Fed needs to keep the rate at zero for market rates to effectively trade at zero.

While adjusting the RRP rate up by 5bp would help prevent the fed funds rate from falling to zero and a bigger portion of the repo market trading below zero, it is likely to get additional support from the wave of bill issuance this quarter. Net issuance so far this month has risen by more than what is typically seen annually and bills have already cheapened by about 10bp. As bills and repo are close substitutes, the uplift in bill yields should pull repo rates higher, stiffening the higher RRP rate as an interest rate floor. In turn, we expect this would keep the effective fed funds rate from trading within 5bp of the bottom of the Fed's target.

[4] See *Liquidity programs: slow start*, April 3, 2020

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