Reservations over Reserves Scarcity

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Since the turn of the year, the **U.S. federal funds market has encountered recurrent tightening pressure**. Relative to the demand for these overnight loans, the supply of funds appears less abundant than before. For example, the usual sharp fall in the effective fed funds rate (EFFR) at month-end stopped happening after February and, subsequently, the EFFR started trending up within its 25-bp range (*Chart 1*). Indeed, approaching the June FOMC meeting, the EFFR was trading 7.5 bps above the midpoint of the range, meaningfully more than last year's 3.5-bp norm and hitting multiyear extremes. This meant that the EFFR was only 5 bps, instead of 9 bps, below the interest on excess reserves (IOER), which was positioned at the top of the range.[1]

The fed funds rate is still the primary policy interest rate and is expected to trade close to the midpoint. Therefore, on June 13, the FOMC responded to this pressure and lifted the IOER by only 20 bps, as it raised the fed funds target range by 25 bps. Given the 5-bp IOER-EFFR spread, this left the EFFR initially trading 2.5 bps above the midpoint and it eventually settled at 3.5 bps. However, by mid-August, the EFFR again drifted up, revisiting 7.5 bps above the midpoint by late October, where the IOER is now positioned. This is setting up **another mixed rate move on December 19 (fed funds target range +25 bps, IOER +20 bps)**, with the current zero IOER-EFFR spread likely leaving the EFFR 2.5 bps above the midpoint again. We'll see how long it lasts this time.[2]

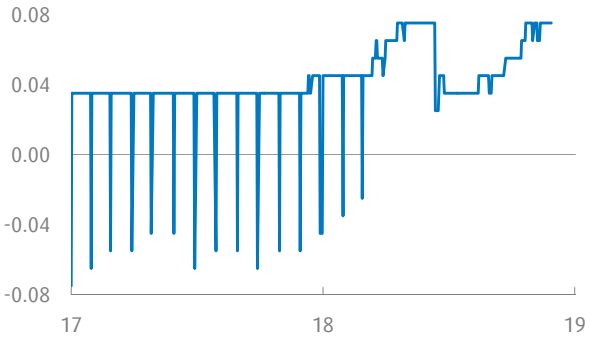
Some analysts argue that the pressure in the fed funds market might be an early indication of "reserves scarcity"—banks' deposits at the Fed (a.k.a. reserves) becoming more constrained as the Fed reduces its balance sheet. While system-wide reserves could become relatively scarce for a day, owing to, say, calendar or seasonal considerations, it seems improbable that this could occur on a more sustained basis with reserves currently just under $1.8 trillion. Indeed, apart from technical issues, such as Treasury issuance and corporate profit repatriation (discussed below), **we judge the pressure in the fed funds market is more a reflection of the pricing of reserves rather than a paucity of reserves, along with post-crisis structural change in the fed funds market**.

At month end, the one-day decrease in the demand for fed funds, motivated mostly by "window dressing", still occurs. But, since the turn of the year, institutions seeking overnight investments no longer have to settle for these temporary lower returns because **higher returns have emerged in other segments of the overnight market. This reflects the increasing issuance of Treasury securities to finance a**

Chart 1
Fed Funds Market Tightens Up

United States (ppts : as of November 29, 2018)

Effective Fed Funds Rate less Target Range Midpoint

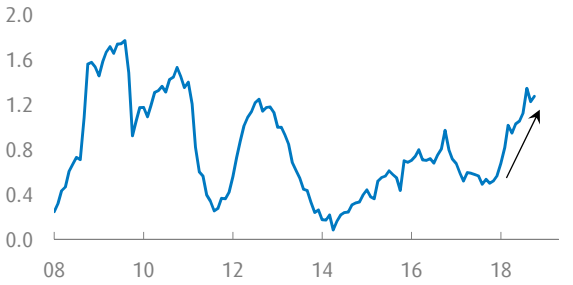


Sources: BMO Economics, Haver Analytics

Chart 2
Uncle Sam's Issuance Ramps Up

United States (US$ trlns : y/y chng)

Privately-held Marketable Treasury Securities Outstanding[1]



[1] publicly held less Fed holdings
Sources: BMO Economics, Haver Analytics

[1] Banks' deposits at the Fed are also known as "reserves". They are held to help satisfy reserve requirements, facilitate payments and settlements, and act as a store of liquidity. Since reserve requirements are largely satisfied via vault cash, mostly all reserves are "excess reserves".

[2] The Minutes from the November 7-8 FOMC meeting showed that the Fed was prepared to adjust the IOER intra-meeting if need be.

ballooning budget deficit, along with maturities previously held by the Fed (*Chart 2*). Specifically, the corresponding increased demand for repo financing raised the level of repo rates relative to the EFFR, thus diverting some investment flows from the fed funds market and pressuring the EFFR. With trillion-dollar deficits persisting indefinitely (FY2019 boasts the largest annual deterioration, at $177 billion, according to the CBO), and Fed redemptions continuing (peaking above $270 billion next year), this pressure is going to persist.

Another factor that kicked in this year was the **repatriation of corporate profits** (owing to tax reform). This reduces the demand for the money market instruments that these offshore funds were previously invested in, and applies upward pressure on money market rates among the myriad of instruments and tenors (and it didn't help that T-bill issuance was also ramping up). While some firms were quick to act, others have been waiting for the accounting rules (the 249-page proposed rulebook came out in August and the final rules are expected by mid-2019), but this is likely becoming a fading factor.

Before the financial crisis, from 1984 until late 2008, reserves almost always ran under $50 billion. Reserves earned zero interest, so each institution kept their deposits at the Fed to a minimum. The Fed adjusted aggregate reverses via open market operations to steer the fed funds rate (which it did with some degree of precision), with domestic banks dominating fed funds borrowing and lending.

Then along came the crisis, with three rounds of large-scale asset purchases "paid for" by creating reserves. **By the end of QE3 (October 2014), reserves had reached $2.8 trillion** and the fed funds rate was in a 0.00%-to-0.25% target range (*Chart 3*). To prevent fed funds and other overnight interest rates from falling below the range, an overnight reverse repo facility was established, with the rate set (eventually) at the bottom of the 25-bp range. And, to assist further, the Fed began paying interest on excess reserves (IOER), with the rate set (until this June) at the top of the range. **Domestic banks essentially stopped participating in the fed funds market**. With the EFFR settling in under the IOER, lending in this space no longer made sense. Why give up a higher-yielding risk-free deposit at the Fed for a lower-yielding unsecured loan to another bank? And, flush with liquidity, most banks had no need to borrow fed funds.[3]

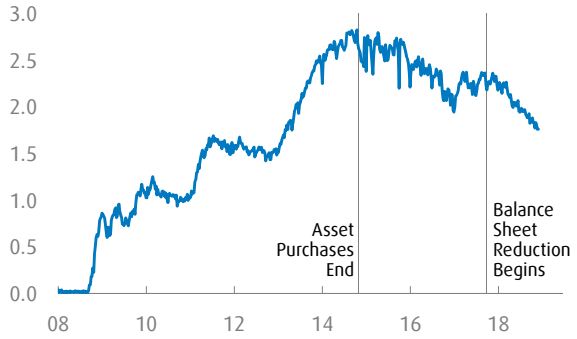
The Fed kept its balance sheet essentially unchanged after ending QE; but, by the time it began reducing assets in October 2017, reserves had already declined by more than $640 billion. Increases in other Fed liabilities drained reserves (*Chart 4*). This reflected continued growth in Federal Reserve notes (currency), greater foreign central bank participation in the Fed's repo program (after the rules were relaxed),

Chart 3

Plenty of Reserves in Reserve

United States (US$ trlns : as of November 28, 2018)

Reserves (Banks' Deposits at the Fed)



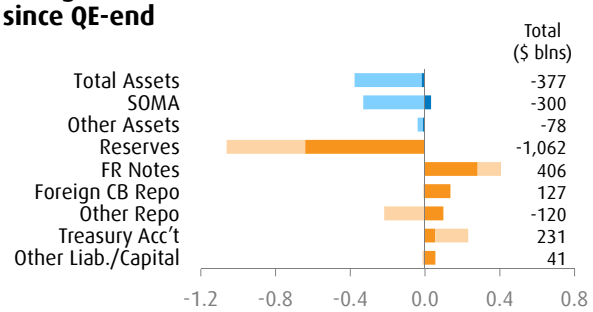
Sources: BMO Economics, Haver Analytics

Chart 4

Wielding a Big Balance Sheet

United States ($ trlns : as of November 28, 2018)

Change in Select Fed Balance Sheet Items since QE-end



Sources: BMO Economics, Haver Analytics

[3] Meanwhile, new FDIC insurance fees, which were now based on assets (including cash) instead of deposits, made arbitraging fed funds and IOER prohibitive for retail-deposit-taking institutions. The Federal Home Loan Banks (FHLBs), because they are ineligible to earn IOER on their deposits at the Fed, have an incentive to lend funds in the overnight market at rates below IOER. While some domestic banks still borrow fed funds when they have to, the borrowing has recently been dominated by foreign banks with accounts at the Fed (earning IOER) but not covered by the FDIC (because they don't have retail deposits). These institutions were able to arbitrage fed funds and IOER.

and more cash being held by the U.S. Treasury in its account at the Fed (partly for prudential reasons). Since October 2017, reserves have fallen a further $420 billion. However, securities in the System Open Market Account (SOMA) decreased about $330 billion, as currency and Treasury deposits continued to increase. Looking ahead, it's important to keep in mind that **reserves will decrease because Fed assets are falling and/or other Fed liabilities are rising** (*Table 1*).

Reserves have already dropped more than $1 trillion from their peak. At some point, reserves will reach their longer-run equilibrium level and scarcity could become a factor. Importantly, fed funds market pressure, per se, given its post-crisis structural change and the current potential to ease said pressure (at least temporarily) by adjusting the IOER, is not the best barometer of reserves scarcity. Better barometers include: when large Fed balance sheet movements, which will be reflected in reserves swings, have a demonstrable impact on the overnight interest rate complex; relatively high volumes of above-IOER overnight borrowing (in both the fed funds and Eurodollar markets); and, more frequent use of daylight overdrafts (intra-day "borrowing" from the Fed to cover payments and settlements) *[Potter, 2018(b)]*.

Although the longer-run demand for reserves is uncertain, it will be well above the pre-crisis norm.[4] We can garner some insight from the NY Fed's Survey of Primary Dealers. The median projection (from June 2018) for the average level of reserves during 2025 was $660 billion, with the middle half of respondents falling into the $550 billion-to-$1 trillion range. For the $660 billion median, it's unclear whether this is projected to be a constant level or a constant share of GDP. If it is the latter, and given interim nominal economic growth, this would peg the underlying "normal" level at $530 billion for next year (conveniently close to the 25th percentile projection). The key is that, regardless of what's static, we could reach the longer-run equilibrium during 2021 H1. This assertion assumes the SOMA moves down according to script and the above-GDP growth pace for currency steadily converges with the economy.[5]

As such, **we could begin to see the barometers indicating rising reserves pressure as early as the end of 2020**. Interestingly, this coincides with when the FOMC is expected to have already lifted the fed funds target range to 3.25%-to-3.50% (according to their latest median projections), which is slightly above the longer-run

Table 1
Fed's Balance Sheet: By the Numbers

($ blns : as of November 28, 2018)[1]

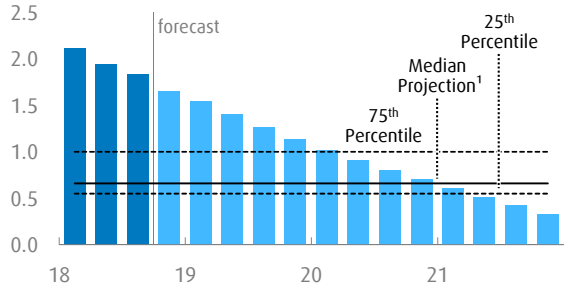
Total assets	**4,097**	**Total liabilities and capital**	**4,097**
Securities held outright	**3,909**	**Federal Reserve notes**	**1,659**
Treasuries	2,253	**Reverse repos**	**227**
MBS	1,653	Foreign official & int'l accounts	226
Agencies	2	Other (incl. ON RPP program)	2
All other assets	**188**	**Deposits**	**2,167**
		Depository institutions (reserves)	1,759
		Treasury	332
		Other	76
		All other liabilities (incl. capital)	**44**

[1] figures might not add up due to rounding
Sources: BMO Economics, Haver Analytics

Chart 5
Normalization Road

United States (US$ trlns)

Reserves (Banks' Deposits at the Fed)



[1] FRB New York, Survey of Primary Dealers (June 2018), average level of reserves in 2025
Sources: FRB New York; forecasts by BMO Economics

[4] The demand for reserves is now being driven by a crowd of new factors including "the Liquidity Coverage Ratio (LCR), banks' internal stress tests of their liquidity adequacy, supervisory expectations related to banks' ability to monetize their liquidity portfolios during periods of financial stress, and the incorporation of liquidity into resolution planning. Other important factors include increased bank aversion to incurring intraday overdrafts, higher bank investor and creditor expectations for liquidity, and a lower opportunity cost of holding reserves relative to before the crisis" *[Potter, 2018 (a)]*. Of course, many of these factors reflect an increased demand for liquidity, but reserves are the most liquid asset; they don't have to be sold or financed (potentially during a period of financial market stress).

[5] We also assume that Treasury balances and foreign central bank repos remain unchanged at current levels and other repos remain unchanged at zero. All other assets, liabilities and capital are projected to keep pace with GDP.

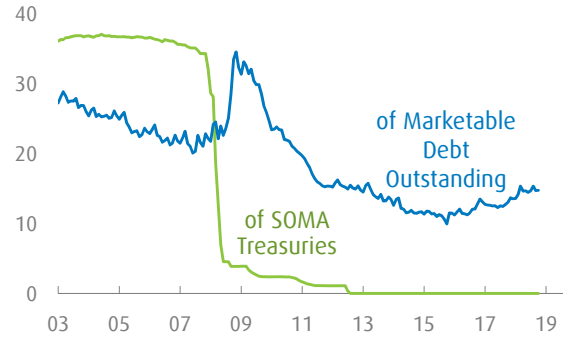
neutral level (3.00%). While quantitative easing was designed to work after policy rates reached their zero lower bound, the unwinding of QE is working in concert with rate hikes to normalize policy. Indeed, despite the uncertainty over the optimal timing of moves and their terminus, **the Fed likely garners some degree of confidence with respect to rate hikes because the size of the balance sheet is still contributing to financial conditions being more accommodative than they otherwise would be**.

However, this influence should be fading as the Fed has been "growing into" its balance sheet and as the SOMA shrinks. For example, since QE ended, the combination of (permanently) higher currency, Treasury balances and foreign central bank repos has "neutralized" more than $760 billion of the balance sheet, as the SOMA reduction has "negated" $300 billion of it. The neutralized and negated influence of the Fed's balance sheet on financial conditions is mirrored in the reduction in reserves. From this perspective, **should signs of reserves scarcity occur even earlier, this could make the Fed more cautious when raising rates**.

Chart 6
Got Bills?

United States (percent)

Treasury Bill Share



Sources: BMO Economics, Haver Analytics

As reserves converge down to their longer-run equilibrium level, **we anticipate additional relative adjustments to the IOER** (in addition to December). Deposits at the Fed beat unsecured lending in terms of risk, and secured lending in terms of liquidity, so IOER should eventually drift down below both fed funds and repo rates with spreads at levels that would make banks indifferent to these three places to park overnight cash. Interestingly, the role of the IOER was to act like puppet strings to help keep overnight rates from falling. At equilibrium, it might now act like horse reins to help keep overnight rates from rising.

Finally, once reserves hit their longer-run equilibrium level, the size of **the Fed's balance sheet will be normalized, at above $3.2 trillion or 14% of GDP, which is more than double the pre-crisis norm**. The Fed will then start growing it again, with the pace primarily set by the demand for currency and reserves. And, it will start buying Treasury securities, again, to facilitate this growth and also replace redeeming MBS (the FOMC's goal is to eventually hold only Treasuries), with a purchase focus probably solely on bills. Currently, the Fed owns none, when the SOMA used to hold an above-market weight (*Chart 6*). Moving to just a market weight would require more than $500 billion in initial bill purchases.

Bottom line: Despite tightening pressure in the fed funds market, reserves in the banking system are not scarce and should remain adequate for the next couple years. If scarcity started to materialize, the Fed would probably slow the pace of, or stop, balance sheet paring. And, if policy rates are still rising at that time, slow or stop this process too.

References:

[Potter, 2018(a)] Simon Potter, "Confidence in the Implementation of U.S. Monetary Policy Normalization", Federal Reserve Bank of New York, August 2018 https://www.newyorkfed.org/newsevents/speeches/2018/pot180803

[Potter, 2018(b)] Simon Potter, "U.S. Monetary Policy Normalization is Proceeding Smoothly", Federal Reserve Bank of New York, October 2018 https://www.newyorkfed.org/newsevents/speeches/2018/pot181026