

US repo rate surge

What a scarcity of reserves means for US monetary policy



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Key points

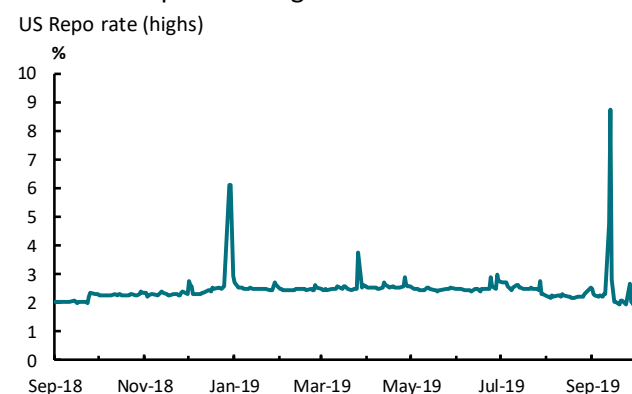
- Tensions in short-term funding markets in September suggest a fundamental scarcity of reserves.
- Federal Reserve (Fed) Chair Jerome Powell said the Fed would resume a balance sheet expansion soon – in line with our expectations for an October announcement – to provide a long-term solution to this scarcity.
- When the Fed adjusts balance sheet policy to deal with these liquidity issues, it will operationally be equivalent to additional quantitative easing (QE).
- The liquidity issues suggest that the Fed has tightened policy more quickly than it intended, which may add to the dynamic of policy loosening now.
- Treasury yields should fall in the immediate aftermath of October's decision, but could begin to recover by year-end as markets consider the impact of further loosening.
- The US dollar may also soften, although further developments in trade are likely to overtake dollar movements, beyond this modest change in the balance sheet.

The great repo disruption of September 2019

The general collateral (GC) repo rate - the rate on government debt collateralised swap transactions – spiked to its highest level in more than a decade on 17 September. It touched 8% (Exhibit 1) – its highest since 2008 – and closed the day at

3.50%, 125 basis points (bps) above the Fed Funds Rate (FFR). With the exception of 31 Dec 2018 (362bps above the FFR), this was its largest end-day spread since July 1998. The pressure in GC repo spilled over into other funding markets – significantly for the Fed, the effective Fed Funds overnight rate (EFFR) rose to 2.30%, above the upper range of the Fed's target policy range.

Exhibit 1: Repo rate surges on reserve tensions



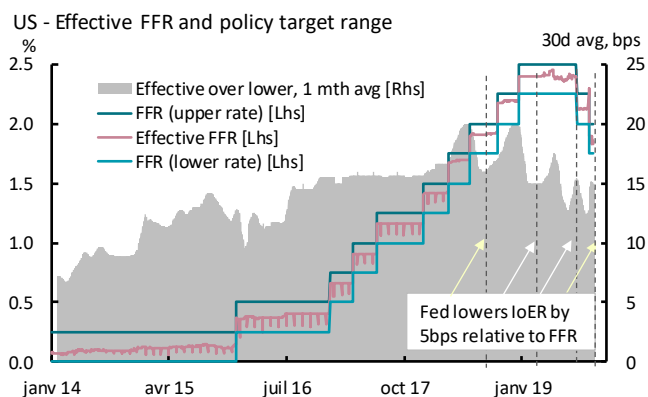
Source: Bloomberg and AXA IM Macro Research, as of 8 Oct. 2019

The proximate cause of this spike in short-term rates was a lack of liquidity in money markets. 17 September was the mid-month corporate tax day, where around \$100bn of reserves were drained from banking reserves to make corporate tax payments to the US government. At the same time, there was a similar scale of increase in the Treasury cash balance, while coupon settlements and net positive Treasury bill supply exacerbated the liquidity problem.

So far, so technical. However, the fact that these – albeit somewhat large – variations in liquidity led to some of the

largest price movements in recent years likely reflects a much more fundamental issue in US markets. In March, we published a note¹ explaining how we believed that the Fed’s process of quantitative tightening (QT) – balance sheet shrinkage through maturing assets – was moving the level of reserves in the system close to the critical level where reserves moved from being “abundant” to “scarce”. In March 2019 the Fed announced its intention to run a monetary operational framework based on a floor – or abundant reserves system – as opposed to the corridor, or scarce reserves system, that it had carried out pre-financial crisis². It also adjusted its balance sheet policy to attempt to approach this unobservable limit of reserves at a slower pace, to better judge when it was reached. We suggest that on 17 September the Fed reached “scarce reserves”.

Exhibit 2: Overnight rate exceeds Fed’s upper range



Source: Federal Reserve Bank (FRB), Bloomberg and AXA IM Macro Research, as of 8 Oct. 2019

We have sympathy with the Fed for not being able to identify this limit in advance, but expected it to react to signals suggesting the emergence of scarcity. The Fed has long suggested that it believed it impossible to identify the level of scarce reserves in advance. It appeared to place much weight on the Survey of Professional Forecasters’ estimate of this limit at around \$1tn in reserves. However, in a previously published paper³, the Fed had already recognised that not only the *level* of reserves but also the distribution of those reserves was important. More recently, it has become obvious that a behavioural feature reflecting the propensity of redistribution of reserves was also a factor determining the appropriate level of reserves in the system. The Fed was not alone in underestimating the level of reserves that would produce scarcity.

Fed to replace Band-Aid with cure

In response to the liquidity shortage, the Fed responded with a number of measures. It provided a number of short-term liquidity operations, including overnight and term liquidity injections to quickly add around \$278bn of liquidity between 17 and 20 September. Only the third of the 14-day liquidity injections was undersubscribed, suggesting this had begun to satiate the need.

In the Fed’s subsequent policy meeting two days after the price spike, it made its fourth relative reduction of the interest on excess reserves (IoER) rate – reducing both it and the reverse repo rate by 30bps, as it cut the Fed Funds policy rate by 25bps. As well as a short-term liquidity injection, this adjustment in rates provided additional headroom for the EFR before it breached the upper range of the Fed’s policy target range (Exhibit 2).

These short-term measures served to alleviate the symptoms of the liquidity issue, but the underlying cause remains. The Fed’s QT appears to have drained too many reserves from the system, leaving it vulnerable to falling back to scarce reserves in large – but not uncommon – swings in liquidity, with a consequent impact on short-term rates.

Fed Chair Powell’s recent comments at the National Association of Business Economists event confirm our expectations that the Fed will take permanent steps to address this issue at its 30 October meeting. Powell stated that the Fed “will soon announce measures to add to the supply of reserves over time”, adding that “increasing the supply of reserves or even maintaining a given level over time requires us to increase the size of our balance sheet”⁴.

To address the shortage of liquidity we expect the Fed to announce a return to “organic” balance sheet growth. This means gentle growth of the balance sheet in line with the Fed’s key liabilities – notes and coins in the economy and a proportion of overall commercial bank lending, its minimum reserve requirement. This was the passive balance sheet policy in place before the financial crisis and quantitative easing, which Fed Chair Powell referred to at the September Federal Open Market Committee (FOMC) meeting. It is also known as permanent open market operations (POMOs).

What’s more, the Fed is likely to want to rebuild a “buffer” of reserves. With the underlying level of scarce reserves uncertain – and with relatively large variation in those reserves – the Fed is likely to maintain reserves at a level

¹ Page, D., “[The Fed: Cutting through the BS](#)”, AXA IM Macro Research, 29 March 2019

² We argued that the principle reason for this decision was that a corridor system was inconsistent with quantitative easing, a mode of easing that we and the Fed expected to be necessary in the future. Hence to avoid

repeatedly switching between monetary operational framework regimes, the Fed would have to settle on a floor system.

³ Afonso, G., Armenter, R. and Lester, B., “[A model of the Fed Funds market: yesterday, today and tomorrow](#)”, FRBP, February 2018.

⁴ Powell, J., “[Data-Dependent Monetary Policy in an Evolving Economy](#)”, Federal Reserve, 8 October 2019.

above the point it judges will create large price swings in funding markets. Powell hinted that this rebuild could be done through Treasury Bill (T-bill) purchases.

As such, independent of any monetary policy decisions the Fed makes, we expect it to address the short-term funding pressures with a permanent increase in liquidity. We anticipate this will be achieved by reintroducing organic balance sheet expansion and a one-off re-build of liquidity of around \$200-300bn.

Reasonable estimates of the Fed’s liability growth – broadly in line with nominal GDP growth – suggest a monthly balance sheet expansion of around \$12bn a month on an ongoing basis. If the Fed chooses to rebuild its liquidity buffer, for example over six months, this would total a further balance sheet increase of \$35bn a month for six months. Over the next 12 months the balance sheet would thus likely need to expand by \$350bn. Moreover, with the Fed still attempting to run down its mortgage-backed securities (MBS) holdings in exchange for US Treasuries (UST), this could add a further \$15bn a month⁵. This suggests the Fed is likely to have to undertake a US Treasury security purchase programme of close to \$500bn in 2020 – though it is likely to finance the reserve buffer programme with T-bills. This follows net UST maturities of \$240bn in the four quarters to Q3 2019.

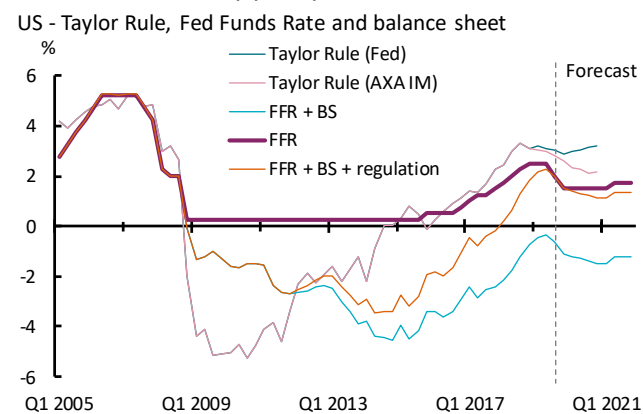
Walks like a duck and quacks like a duck

We are clear that the Fed will be undertaking this expected change to its balance sheet policy to address the liquidity shortage in short-term funding markets. Fed Chair Powell was also unequivocal in stating that “growth of our balance sheet for reserve management purposes should in no way be confused with the large-scale asset purchase programs that we deployed after the financial crisis”. However, the expansion of the balance sheet through the purchase of Treasury securities to achieve an increase in central bank-created ‘excess reserves’ is the process that has previously been described as quantitative easing (QE). Indeed, this is also consistent with our description of this as a reversal of QT, which we argue has reduced reserves too far.

Operationally, it will be almost indistinguishable from the European Central Bank (ECB)’s own open-ended QE operation of €20bn a month, which we think will struggle to last for much more than 12 months without a more fundamental adjustment to its modalities. Admittedly, the Fed will argue that the intent of this policy is different from

QE, a statement with which we concur. We expect it to also argue that the scale is different from QE – again, this is true relative to previous regimes of easing⁶, but a distinction that has been blurred by the ECB’s own recent smaller operation. Moreover, the additional creation of an “excess reserves” buffer looks set to be delivered through the purchase of T-bills, rather than across the Treasury curve as it has delivered QE and reinvestments. Meanwhile the likely purchase across the curve to raise the balance sheet in line with nominal liabilities will not create additional excess reserves, but should prevent further shrinkage. However, it will be a communications challenge for the Fed to argue that this shift in balance sheet policy should not be considered as additional quantitative easing, one that Fed Chair Powell has now begun.

Exhibit 3: Monetary policy and balance sheet shifts



Source: FRB and AXA IM Macro Research, as of 9 Oct. 2019

This also suggests that the Fed has tightened policy more aggressively than it intended. If the level of reserves consistent with an abundant regime is larger than the Fed estimated and the limit of “scarce” reserves has been reached sooner, it implies that the amount of QE stimulus in the economy has been reduced to zero⁷. This was not what the Fed intended. Exhibit 3 provides an illustration of this tightening. It shows our preferred Taylor Rule model as a guide to where policy “should” be. It then compares this with the FFR policy rate; a policy rate plus a measure of QE as defined by excess reserves – the difference between total balance sheet assets and currency and reserve requirements; and an effective excess reserves – excess reserves plus an illustrative profile for increased commercial bank demand for reserves⁸. We translate this QE stock into a shadow FFR rate based on previous Fed research⁹.

⁵ Average pace of MBS maturities Apr 18 – Feb 19.

⁶ QE I (\$300bn UST, \$175bn Agency debt, \$1,250bn MBS); QE II (\$600bn UST), QE III (\$1,855bn UST)

⁷ QE is considered to be a function of the stock, not flow of excess reserves in the system.

⁸ As discussed, the true increase in commercial bank demand for reserves is unobservable – illustratively we assume a steady increase from 2012 to end-2018 to reduce excess reserves to zero by Q3 2019).

⁹ Fed research by Engen, Laubach and Reifschneider (2015) suggested that the total QE effect resulted in 600bps of FFR equivalence; New York Fed President John Williams estimated a 75-100bps impact of \$600bn of long-term securities asset purchases. We average the two measures to derive an 18bps FFR equivalence for each \$100bn of QE.

The path followed by the illustrative effective excess reserves (the green line in Exhibit 3) shows a materially steeper tightening in policy in recent years, though the current level does not appear inappropriate as judged by our Taylor Rule. Moreover, we must not overstate the scale of this inadvertent tightening. Assuming the Fed underestimated the minimum level of reserves by \$200-300bn, this suggests overtightening to an order of magnitude of 35-55bps of FFR.

The regulatory rise in commercial bank demand for reserves may have dampened the impact of subsequent rounds of QE. Academic papers have consistently suggested that the first round of QE was more impactful than later rounds. This has been attributed to the additional impact the first tranche of QE had on resolving dislocation in markets, in the first round and a signalling effect it had in reinforcing the Fed's forward guidance on rates in the immediate aftermath of the 2008 recession. Bank regulation started to be implemented soon after the financial crisis. This could plausibly have coincided with the increase in commercial banks' regulatory demand for reserves during the balance sheet operations QE II (2010-11), Operation Twist (2011-12) and QE III (2012-14). That being the case, the \$1.7tn of 'excess reserves' created by QE II through QE III may have been somewhat offset by this regulatory demand. Effective excess reserves would not have increased by the amount suggested by the asset purchases, lessening the economic impact. This observation leaves us with the consoling takeaway that QE may be more effective than recent performance suggests, as long as it occurs in the absence of further regulatory tightening.

Market implications of balance sheet policy shift

We argue that an increase in the Fed's balance sheet should be seen as an easing in monetary policy. This may reduce the perceived need for FFR reductions – as suggested by the path relative to the Taylor Rule. That said, with a sharper slowdown in US economic activity than previously considered signalled in US survey data, we doubt the Fed will be in a mood to take chances. We bring forward our expectation of a December rate cut to October, despite considering the Fed likely to adjust its balance sheet policy this month too. We now expect that, on balance, the Fed will need to cut rates one final time again by year-end, reducing the FFR to 1.25-1.50%. For now, we think that the Fed has probably provided sufficient easing and we forecast the FFR to remain

unchanged at this level through 2020. However, further deterioration in survey conditions – or an associated tightening in financial conditions – could see the Fed need to ease further in 2020.

The impact on US Treasuries is the most ambiguous. At the margin, the Fed becomes a net buyer of around \$500bn US Treasury securities, with around \$250bn likely in bonds across the curve. This suggests that Treasury yields should fall. However, the term premium – at least as shown by the New York Fed's ACM model – has shown little impact from the years of QT. Moreover, yields have fallen back sharply in recent months as markets have grown increasingly concerned about the scale of slowdown in the US economy and the prospects of a far more substantive policy easing to ward off recession. If the shift in the Fed's balance sheet policy, combined with the four cuts we now envisage, reduces the perceived likelihood of a more pernicious slowdown then expectations of future rates and inflation may begin to rise – lifting longer-term Treasury yields. Indeed, this was the experience of previous episodes of QE, where after an initial announcement effect, yields tended to rise over time. For now, we consider the likelihood that yields will be lower in the aftermath of the Fed's October decision, but argue that a reappraisal of recession risks should leave yields higher by year-end.

We also believe there will be a currency impact. Our preferred model for the euro/dollar exchange rate includes both interest rate and balance sheet differential components. Considering just the impact from the Fed's expected balance sheet shift, we would expect a minimal boost to the euro versus the dollar (EURUSD) over the evolution of the policy. However, we must also consider the broader context. This could yet see further easing in FFR, compared with a euro deposit rate that looks set to remain relatively stable at the current -0.5%. This should boost EURUSD further. It could also include the impact of tariffs. The US decision on 2 October to increase tariffs on \$7.5bn of EU exports in retaliation for Airbus subsidies was the latest example of the dollar gaining on the back of increased protectionism, with gains of 0.25% against a basket of currencies on the announcement¹⁰. We expect further tariff increases across Q4, which are likely to offset the more modest impact of easier Fed policy expected over the quarter.

¹⁰ This reaction is predicted by basic economic theory, with a Mundell-Fleming model suggesting that a rise in the exchange rate of the aggressor nation is required to offset the additional boost from net trade against a

stable global interest rate assumption. However, more intuitively it conforms to the risk negative nature of the US dollar, compared with a euro more exposed to weakness in global trade.

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