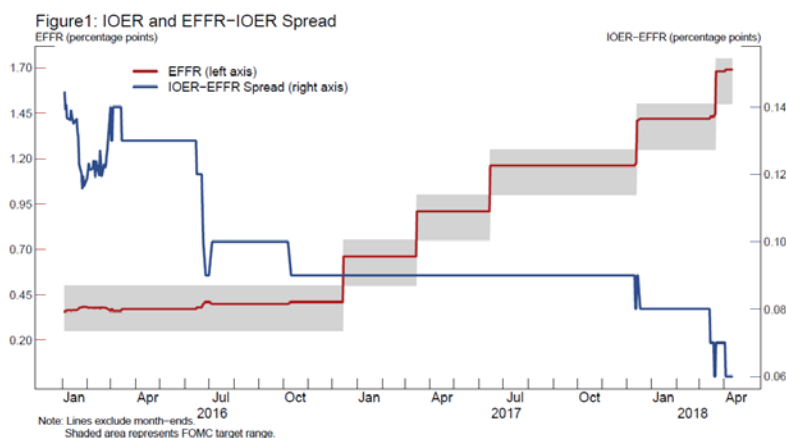


April 20, 2018

The Effective Federal Funds Rate and the Target Range¹

The Effective Federal Funds Rate (EFFR) has ticked up within the 25 basis point target range since the beginning of 2016, with the spread between the EFFR and the Interest on Excess Reserves (IOER) rate averaging 7 basis points and printing as narrow as 6 basis points in recent weeks (see Figure 1). The expectation is that the EFFR will remain below the IOER rate in the near term although there is likely to be continued tightening in the spread from a variety of factors. In particular, market commentary is pointing to the possibility that the spread will narrow a few more basis points over the remainder of 2018; a couple of dealers expect the EFFR to reach the IOER rate by early 2019 as a result of declines in reserves and, to a lesser extent, the removal of a 4½ basis points FDIC surcharge for large domestic banks.²

This memo analyzes the factors contributing to the recent and potential increases in the EFFR relative to the IOER rate. Then the discussion turns to actions policymakers could consider to reduce the risk that the EFFR would move above the top of the target range while balance sheet normalization proceeds. Specifically, the memo discusses the possibility of lowering the interest rates on both excess and required reserves (so called, IOR rates) by 5 basis points relative to the top of the target rate.



¹ Board of Governors: Matteo Crosignani, Jeff Huther, Jane Ihrig, Joshua Louri; Federal Reserve Bank of New York: Julie Remache, Will Riordan, Joseph Wang, Jacqueline Yen

² The Desk's May Survey of Primary Dealers and Survey of Market Participants will be asking for forecasts for the IOER-EFFR spread and for respondents to rate various factors influencing the change in the spread.

Federal funds market developments

Since liftoff in December 2015, the EFFR has risen from the middle of the FOMC's target range, closer to the IOER rate, and hence closer to the top of the range under the current configuration of administered rates. While it is difficult to empirically identify the underlying motivation for borrowing federal funds, and banks may have multiple motivations for borrowing, some simple analysis based on categorization of individual trades can help assess the recent rate increases. Desk analysis based on this methodology indicates that trading activity in the federal funds market has been dominated in recent years by IOER arbitrage activity. However, non-arbitrage related activity, which potentially occurs at higher rates, has been rising.³ The increase in the EFFR to date is attributed to an increase in interest rates for both types of borrowers and a small shift in the share of volume toward non-arbitrage borrowers.

Higher rates on Treasury bills are one factor that may have contributed to rising rates in the federal funds market recently. High net Treasury bill issuance in February and March, of over \$300 billion, drove both Treasury bill yields and repo rates higher. In turn, this development may have driven interest rates higher and volumes somewhat lower across unsecured markets, contributing to the upward pressure on the EFFR.⁴ Higher rates on other investments may push up the EFFR by providing an outside option for federal funds lenders.

On the other hand, the reduction in reserves since the start of balance sheet normalization of approximately \$200 billion has not been widely cited by market participants as putting upward pressure on the EFFR. But, going forward, as discussed in

³ Banks that borrow federal funds to manage core business needs such as day-to-day funding or late day payment shocks tend to be less sensitive to the spread between the EFFR and the IOER rate because of the relatively high cost of being short reserves. Also, a couple banks have reported using fed funds to manage their liquidity coverage ratios (LCR). Funds borrowed from a GSE (such as a FHLB) receive a 40 percent outflow rate, so a bank's LCR increases from borrowing from a GSE if the proceeds are invested in HQLA. If a bank borrows from another financial institution the outflow rate is 100 percent unless the borrowing has a longer maturity. For more information, see the MarketSOURCE piece, "The Impact of the LCR on U.S. Monetary Policy Implementation and Financial Markets," <https://marketsource.ny.frb.org/publish/view/mrtdelwr110414.pdf>

⁴ For additional discussion on the effects of higher Treasury bill issuance on broader money market rates see the Tealbook box, "Recent Pressures in Money Markets."

the next section, the continued decline in Fed's securities holdings is expected to contribute to upward pressure on the EFFR relative to the IOR rates.

Federal funds market outlook

The evolution of the EFFR is likely to be influenced by a variety of factors that are briefly described in this section. While these factors are likely put further upward pressure, the market's expectation is generally for the EFFR to remain below the IOER rate this year. The risk is that the EFFR could exceed the IOER rate, and therefore the top of the target range, if the factors create more upward pressure than expected either individually or collectively, or if other pressures materialize.

- **Reduction in reserves.** Board staff projects that reserve balances will decline by approximately \$400 billion in the final three quarters of 2018 and another \$600 billion in 2019, with the level of reserves standing at \$1.1 trillion at end-2019 (see Figure 2).⁵ This level was last observed in February 2011, and at that time the level of the EFFR was also close to the IOER rate and the top of the target range. Of course, regulations and the constellation of money market rates were different than the current environment. So, substantial uncertainty exists over how further declines in reserves will affect money market rates. In general, as reserves decline, staff expects further upward pressure on the EFFR relative to the IOER rate.
- **Treasury debt issuance.** Treasury coupon and bill issuance is expected to put continued upward pressure on broad money market rates, despite a moderation in the pace of increases of new Treasury bill issuance. Though some of the pressure may be temporary as markets absorb the increases in supply of Treasury debt, there may be a more permanent impact on rates from the higher stock of outstanding Treasury debt (Figure 3).
- **FDIC assessment fees.** By the end of the year, the FDIC will remove a 4½ basis points assessment surcharge imposed on large domestic banks, which will reduce

⁵ The expected decline in the level of reserves is greater than the expected decline in the total size of the Federal Reserve's balance sheet because of the impact of increases in other liabilities such as Federal Reserve notes.

their balance sheet costs and therefore increase the scope for domestic banks to engage in IOER arbitrage activity.⁶ Although the reduction in balance sheet costs is unlikely to result in domestic banks engaging in significant trading for IOER arbitrage, their potential borrowing capacity could put upward pressure on the EFFR by reducing foreign banks' bargaining power.

- **Potential regulatory changes.** Changes to the calculation of the Basel III leverage ratio in other countries may impact the EFFR, but the sign of the impact is unclear. In most countries, the leverage ratio is currently calculated based on month-end or quarter-end holdings that allow banks to take on additional leverage on non-reporting dates. If the leverage ratio were instead calculated as a daily average – as is currently the case in the United States – IOER arbitrage demand for federal funds may decline. This could boost the EFFR as the remaining activity would be non-arbitrage, as higher rate trades now dominate the volume of that activity. Alternatively, the EFFR could decrease if lower demand for federal funds would also give the remaining borrowers greater bargaining power. It is also possible that the U.S. enhanced supplementary leverage ratio (eSLR) will be lowered for the largest domestic banks, with the impact expected to be largest for the custodial banks.⁷ The impact this would have on federal funds demand is unclear.⁸

⁶ Under a final rule issued in March 2016, the FDIC will collect a 4½ basis points surcharge from insured depository institutions with assets of at least \$10 billion until the quarter in which the Deposit Insurance Fund Reserve Ratio reaches 1.35 percent, but no later than December 31 2018. See https://www.fdic.gov/news/board/2016/2016-03-15_notice_dis_b_fr.pdf

⁷ A proposal to tailor the U.S. eSLR requirements for U.S. global systemically important banking organizations (GSIBs) was released by the Federal Reserve Board and the Office of the Comptroller of the Currency on April 11, 2018. Bank of New York Mellon and State Street are among the U.S. GSIBs subject to eSLR. See <https://www.federalreserve.gov/newsevents/pressreleases/bcreg20180411a.htm>

⁸ It is also possible that the U.S. SLR calculation may be modified for custodial banks to exclude central bank deposits from the denominator. A draft amendment of the bill “The Economic Growth, Regulatory Relief, and Consumer Protection Act” would revise the SLR for “custodial banks,” defined to include only BNYM, State Street, and Northern Trust (not a GSIB). Exempting reserves could potentially increase demand for reserves relative to other forms of liquidity. See <https://www.congress.gov/bill/115th-congress/senate-bill/2155>. Another possible source of regulatory change effects on the federal funds market comes from the Federal Housing Finance Authority (FHFA) which has notified the Desk that they plan to implement revised liquidity regulations for the FHLBs. These revisions are expected to increase the size of FHLB liquidity buffers, possibly including additional federal funds.

- Corporate profit repatriation.** Changes to the tax code last December eliminated incentives for U.S. firms to retain earnings abroad.⁹ Market participants believe that U.S. firms that repatriate their foreign earnings will likely use the funds for share buybacks or mergers and acquisitions activity resulting in lower holdings of money market instruments, which may put upward pressure on money market rates through reduced lending.¹⁰ There is a high degree of uncertainty about both the timing and size of these flows.

Figure 2: Reserve Balances

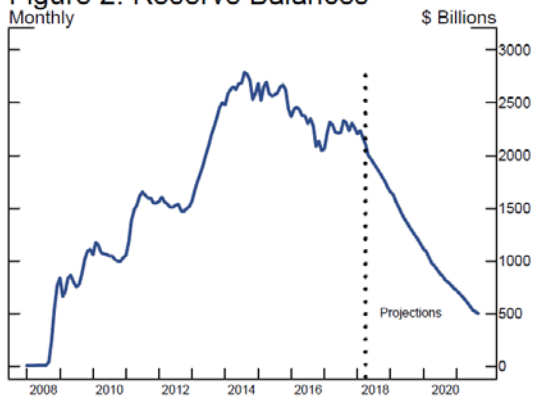
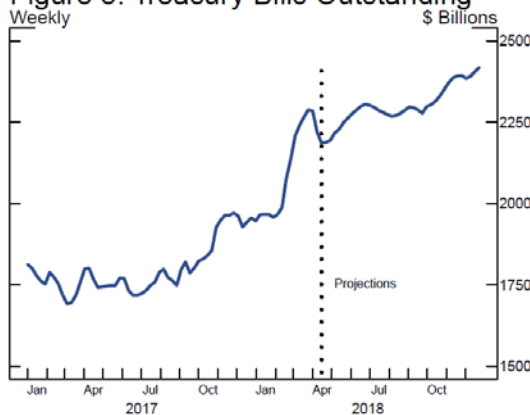


Figure 3: Treasury Bills Outstanding



Policy Considerations

The discussion above highlights a range of factors that could influence activity in the market for federal funds. While there is considerable uncertainty as to how these developments may proceed, staff expects an overall gradual upward trend in the level of the EFFR relative to the IOER rate stemming in part from ongoing balance sheet normalization. Given this upward bias and potential additional upward pressure from other factors, policymakers may wish to consider what action they may want to take if this scenario unfolds.

As a reference point, in January 2015, some policymakers noted that adjustments to the IOER and ON RRP rates relative to the target rate range might be “helpful for

⁹ These tax code changes were part of the Tax Cuts and Job Act of 2017: <https://www.congress.gov/bill/115th-congress/house-bill/1/text>

¹⁰ Please see the MarketSOURCE Piece “Impact of Foreign Earnings Repatriation on U.S. Corporate Behavior and Money Markets” for further discussion: <https://market-source.ny.frb.org/Pages/20180316092342.aspx>

improving control of the federal funds rate.”¹¹ In particular, lowering the IOR rates relative to the top of the target range for federal funds, would, all else equal, move the EFFR lower in the target range. For example, policymakers could lower the IOR rates to be 5 basis points below the top of the federal funds target range. This adjustment could be taken at an FOMC meeting when there is no change in the target range, in which case the IOR rates would be *reduced* by 5 basis points. Or, this adjustment could be made in conjunction with an increase in the target rate range, in which case the IOR rates would be *increased* by a *smaller increment* than the upward adjustment in the target range. For example, if the Committee were to implement a 25-basis-point policy firming, such that the target range is increased by 25 basis points, it could increase the IOR rates by 20 basis points.

Lowering the IOR rates at a non-tightening meeting could send the signal that the adjustment is solely technical, aimed at realigning market rates within the target range to reduce the risk that the EFFR would move outside the target range. However, as this adjustment is expected to lower the EFFR by about 5 basis points, policymakers might not like the optics of taking an action that deliberately lowers the policy rate during a tightening cycle. If this outcome is a concern, policymakers could wait until the next increase in the target range for the federal funds rate to make the adjustment. This approach could still be communicated as a technical adjustment and would have the advantage of moving all rates in a direction consistent with a firmer stance of policy.

Policymakers can communicate their anticipated action well in advance of any adjustment through a mention of the issue in the minutes. It can be noted that policymakers may consider a downward technical adjustment to the IOR rates relative to the target range if the EFFR continuously printed within a few basis points of the top of the target range, or alternatively, if it appeared to be approaching the top of the target range. This discussion could point to the minutes of the January 2015 meeting to reinforce the point that such adjustments were, in fact, contemplated at the outset.

Once the groundwork has been laid, the Committee would need to decide how soon to make an adjustment.¹² In general, moving sooner would preemptively pull the

¹¹ Minutes to the January 2015 FOMC meeting.

<https://www.federalreserve.gov/monetarypolicy/files/fomcminutes20150128.pdf>

¹² The interest rates on required and excess reserves are determined by the Board.

EFFR toward the middle of the range and could provide comfort that the EFFR should remain in the target range. In addition, by making a move sooner, a small, 5-basis-point decline in the IOR rates could be thought of as a cautious, prudent step. It would also reinforce the notion that the IOER rate is not a ceiling for money market rates, and that policymakers would expect that at some point market rates could trade at or above the IOER rate, even when reserve levels may still seem quite abundant. Such a development may also be desirable to help dampen the criticism that the IOER rate being paid to banks is an above-market rate. Making the change somewhat soon would allow policymakers to see how market rates and volumes respond to such a change, and leaves open the possibility for another reduction later, if desired. Finally, moving before such a change is necessary allows the Committee to decide when it wants to make the change: at any FOMC meeting or only in conjunction with an increase in the target rate.

On the other hand, policymakers may not be comfortable making an adjustment soon. The outlook for short term market rates is uncertain, and since the Committee has not stated any preference for where the EFFR should be within the range, a relatively early adjustment of the IOR rates would require a clear explanation, potentially including clarification as to where the Committee wants the EFFR to be within the target range. Even though the ongoing balance sheet reduction and other anticipated factors are expected to put upward pressure on rates, the possibility that unexpected factors may push the EFFR down within the range cannot be ruled out.¹³ If this downward pressure happened after a change in the relative setting of the IOR rates to the upper limit of the range and policymakers were not comfortable with the EFFR in the lower part of the range, policymakers would need to consider whether they wanted to re-adjust the IOR rates back up to pull the EFFR up in the target range.

At the same time, waiting would increase the chances that the EFFR could move up to or above the top of the target range unexpectedly. In this case, it could raise questions about whether the Committee has sufficient interest rate control. In some circumstances policymakers could also be faced with considering an intermeeting move

¹³ Indeed, the forward rate agreement-OIS curve is suggestive that recent upward pressure in unsecured rates may wane in coming quarters.

to lower the IOR rates.¹⁴ This action would likely be confusing in the context of the current direction of policy towards removing accommodation. And, based on the current directive (which is discussed in more detail in the next section), EFFR printing above the top of the target range would also raise the question as to whether the Desk would need to conduct open market operations. Of course, in the event of a breach, the Committee could instead opt to wait until the next FOMC meeting to address the situation, but this would likely require some explanation as to policymakers' tolerance for deviations from the target range.

Overall, the timing of when the Committee may want to make an adjustment is uncertain. But, through the minutes of this meeting, policymakers may wish to send a signal to markets that there is some expectation that the federal funds rate will drift up over time relative to the IOER rate and, at some point, there may be a technical adjustment of the IOR rates to keep the EFFR toward the middle of the target range.

Other considerations

As noted above, if there is a breach of the EFFR from the target range, the directive could be read as directing the Desk to undertake open market operations to maintain the EFFR in the target range. However, in some circumstances, policymakers might conclude that it would be more appropriate to adjust administered rates to move the EFFR back into the target range rather than conduct open market operations. With this in mind, policymakers might wish to revisit the language in the directive to provide more clarity about when it would be appropriate for the Desk to conduct open market operations to keep the EFFR in the target range. If agreed, staff can work on alternative directive language to present to the Committee at an upcoming meeting.

Second, an adjustment to the IOR rates would likely also raise questions about whether the offering rate on the ON RRP facility would also be adjusted relative to the range. Recall that the spread between the IOER rate and ON RRP offering rate was set to preserve incentives for trading in the federal funds market and to keep ON RRP take-up at moderate levels. Further, the ON RRP offer rate has proved to be a floor on most

¹⁴ Since IOER and IORR are tools set by the Board of Governors, an intermeeting change of these rates would entail coordination between the Board of Governors and the FOMC.

money market rates. With additional experience and contained usage of the ON RRP facility since liftoff, the Committee may be comfortable maintaining the offering rate at the bottom of the range, and thereby modestly reducing the spread between the two administered rates.¹⁵

¹⁵ Some may ask if the ON RRP facility is needed given the very limited usage in recent months. Staff continues to see the facility as providing a floor to market rates, even with the low take-up.