



## Will the Fed's Reverse Repo Facility Work?

Brian Pellegrini, CFA, 15 December 2015

### Key Takeaways

1. The Fed can raise rates by lifting the demand curve by the seat of its pants. This means switching from a market-determined policy rate to an *administered* rate.
2. The ON RRP facility will *not* be releasing duration into the market. Duration risk remains with the Fed because under both GAAP and IFRS treatment repo activity is treated as a collateralized loan rather than a true sale. As a result, counterparties to the Fed are simply swapping cash for a cash-like instrument.
3. We believe the evidence indicates that the ON RRP facility will work as planned and will likely provide some secondary beneficial effects. Much more important for readers to consider is the macro effects of an increase in interest rates.

The Overnight Reverse Repo facility (ON RRP) has been extensively scrutinized by the market, but much confusion remains about the structure and efficacy of the facility. In this note we will highlight important aspects of the facility and discuss the wider implications of its implications in a concise manner. We begin with a discussion on why the facility is necessary in the first place.

### Once and Future Monetary Policy

Diagram 1 below provides us with a stylized view of the Fed's method for managing the policy rate – the *effective* fed funds rate – prior to the crisis. The diagram uses the standard supply-demand framework that assumes a given supply of reserves determined by the central bank and a downward sloping demand curve. The curve is horizontal at the discount rate because (unless it is denied access) no bank would be willing to pay a market rate for funding greater than the rate available at the Fed's discount window<sup>1</sup>. Similarly, with the advent of interest on excess reserves (IEOR), no bank would be willing to lend excess reserves at a rate below the rate available on deposits at the Fed.

Diagram 2 shows a stylized display of the current situation. The massive expansion of the Fed's balance sheet has created a supply of reserves greater than banks are able to find productive uses for. As a result, the supply and demand curves intersect beyond the point where the demand curve flattens out. The gap between the point where the demand curve goes horizontal and the supply curve represents excess reserves.

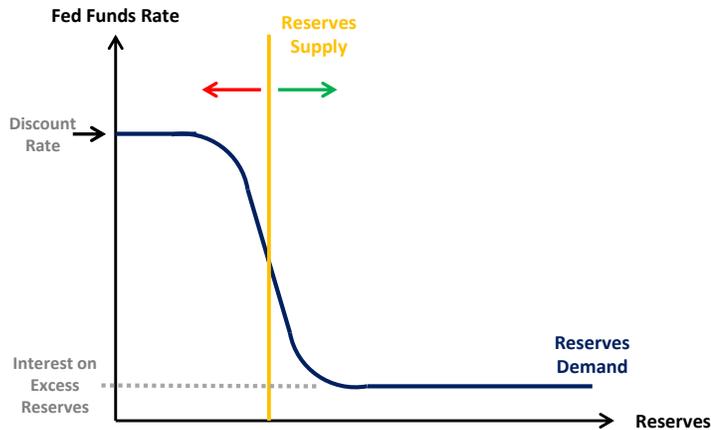
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<sup>1</sup> It can be argued that the discount window carries a stigma with it that could incentivize a bank to pay a rate higher than the discount rate for reserves. However, in our view the two views are two sides of the same coin. It is important to remember that there is no single fed funds "rate". Rather, the effective fed funds rate is the median value of a distribution of rates charged for brokered transactions. For a bank to be in bad enough condition to be charged a fed funds rate higher than the discount window, its financial condition would likely be so bad that use of the discount window might not come as much of a surprise to the market.



**Pre-Crisis Monetary Policy Implementation**

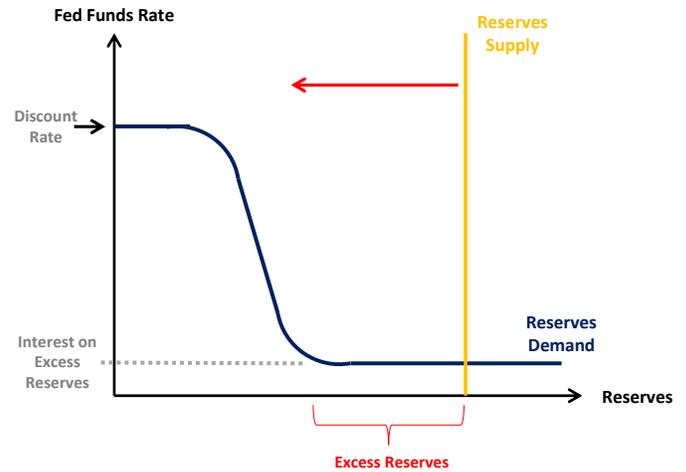
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Source: Connolly Insight

**Current Situation**

2



Source: Connolly Insight

Of course, the current situation in the market for reserves is not *mechanically* different from the historical norm. The only difference currently is that the supply of reserves is significantly larger than at any point since 1950 - the earliest data available. In the trivial case the Fed could simply begin selling assets and thus extinguishing reserves, or “draining liquidity” as it is popularly described. However, there are three main obstacles associated with this option.

First, as we shall discuss below, the Fed’s large scale asset purchases (LSAPs) have done a number on liquidity in the U.S. Treasury market. As a result, assets sales – particularly at the long end of the curve – could cause an outsized move in long-term yields and potentially destabilizing effects on mark-to-market bondholders.

Second, unlike in the past, the Fed is carrying a significant amount of duration on its balance sheet. The Fed currently owns almost no securities with a maturity of less than one year. That means that any asset sales would add duration to the market – risk that market participants might not be willing or able to absorb. It would also mean that the Fed faced significant risk of realized losses. The Fed does not mark to market so it is insulated from losses on its portfolio of bonds; however, it does book profits and losses at the time of sales. Selling Treasuries at a loss could put the Fed under additional political scrutiny at exactly the wrong time.

Third, asset sales would fully extinguish an equivalent amount of reserves. In the event of a slowdown or financial dislocation the only way to add liquidity to the market would be to repurchase those assets. That would seriously hurt Fed credibility and likely would trigger an intense debate within the FOMC as to whether re-initiating purchases was appropriate or even effective. In contrast, if the Fed feels the banking sector needs access to liquidity it can simply increase the spread between IEOR and ON RRP<sup>2</sup> by reducing the ON RRP rate. The effect will be that the arbitrage between IEOR and ON RRP will become more attractive. Banks will bid for funds at ON RRP and deposit them at the Fed to receive IEOR.

<sup>2</sup> This is based on the argument put forward by Fed research that the ON RRP rate should be kept below the IEOR rate.



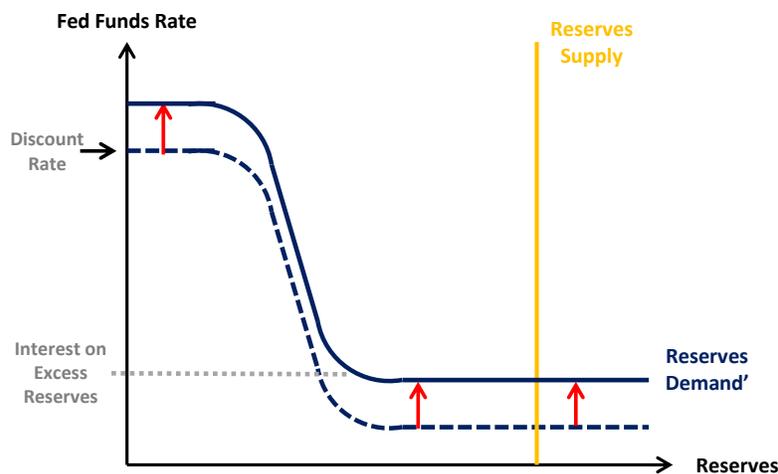
The Fed's method of managing the scarcity of reserves was once very effective, but will not provide a viable option for implementing monetary policy until the money supply has fallen far enough to return the intersection of supply and demand to the downward sloping section of the demand curve. Given that the Fed has stated it plans to run down its balance sheet via amortization rather than asset sales, it will be some time before the primary monetary policy tool of the past becomes effective again.

### Monetary Policy with Excess Reserves

Since the option of moving the reserves supply curve is no longer available, the Fed has only one remaining option available – adjusting the demand curve. Moving the curve left or right seems to be beyond the central bank's control as this is related to the structure of the real economy. However, the Fed can raise rates by lifting the demand curve by the seat of its pants. This means switching from a market-determined policy rate to an *administered* rate. Diagram 3 below provides a stylized example of an administered rate-based policy.

Post-Crisis Monetary Policy Implementation

3



Source: Connolly Insight

From a conceptual point of view implementing an administered rate is quite simple. By paying interest on reserves the central bank should theoretically create a floor under the policy rate. In other words, no bank would be willing to lend reserves for less than can be received for parking them at the Fed. However, as the Fed discovered quite quickly after implementing IEOR, the floor is a soft one. This happens for two reasons. First, a significant volume of excess reserves held at the Fed belongs to the GSEs rather than the banks. The 2008 law authorizing payment of interest on reserves specifically exempted the GSEs from the right to receive interest payments. In addition, money markets and other types of asset managers with significant volumes of cash on hand are not eligible to make deposits at the Fed. As a result, a significant number of lenders in the money market were left to get what returns they were able in the open market. Indeed, the effective fed funds rate has generally traded below IEOR since 2009.

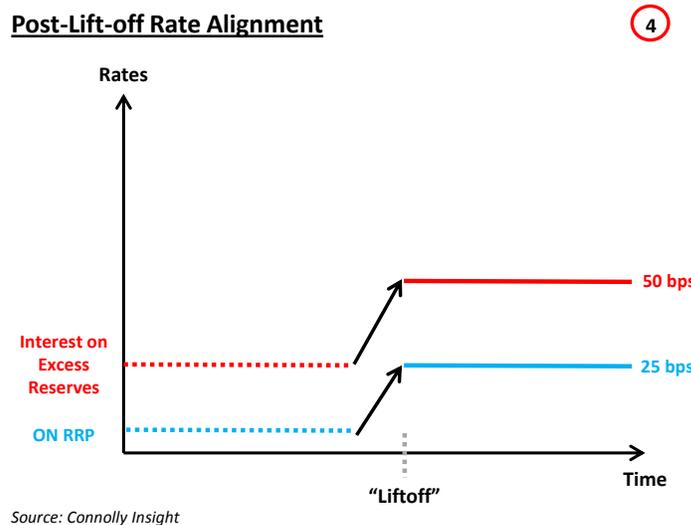
Even with some lenders excluded from eligibility to receive IEOR one would expect that, in the absence of frictions, arbitrage activity would bring fed funds towards IEOR. However, in the real world frictions that



prevent the two rates being brought into alignment do exist. First, banks must pay an insurance fee to the FDIC that is based on asset size. The fee is based on a sliding scale, but Fed research has estimated the aggregate rate to be in the range of 10-15 bps. In addition, as a result of Basel III, banks must back deposits – even those held at the Fed – with high quality liquid assets (HQLA). This creates a problem in an environment where liquid assets are in short supply - ironically because of Fed policy.

As a consequence of these frictions the Fed has been forced to find a way to pay interest on excess cash to counterparties not legally eligible for IEOR. The ON RRP facility solves this problem because it is separate from IEOR and has been made available to a broad array of counterparties that includes GSEs and major non-bank players in the money market. Thus, the ON RRP is meant to serve as a floor for excess liquidity in the money market that drips down from the soft floor of the IEOR.

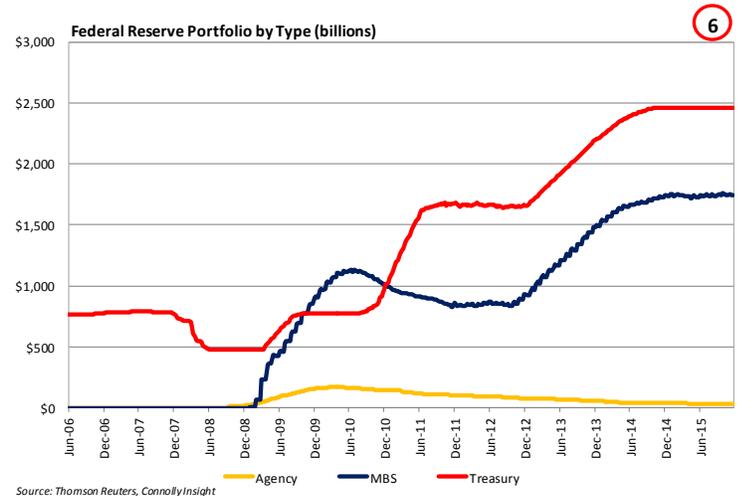
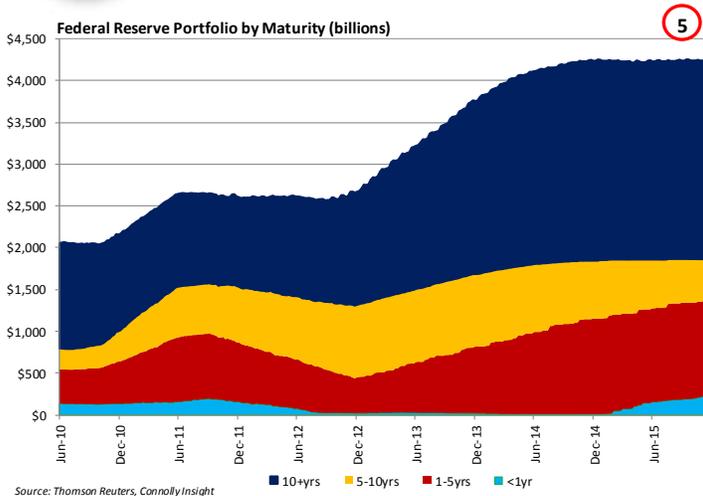
With the RRP providing a supplementary floor, the fed is faced with determining the optimal spread between the two rates. The spread must be large enough to prevent all non-bank deposits moving to RRP and small enough that some reserves leave the banking system. Fed research has indicated that the optimal spread is about 20 bps. As a result we expect the corridor will remain at 25 bps with IEOR at the top and RRP at the bottom. Diagram 4 below provides a stylized example.



### Implications of the Fed’s Portfolio Structure

The structural considerations discussed above indicate that the combination of IEOR and ON RRP will be effective at achieving money market rates within the Fed’s target range. However, the structure of the facility does not tell us much about the secondary effects of the facility on the bond market. To do that, we must first consider the composition of the balance sheet that the Fed is working with.

Charts 5 and 6 below show the makeup of the Fed's balance sheet broken down by maturity and security type, respectively. As we can see, the portfolio is dominated by long-term bonds and is approximately xx% agency MBS bonds. The bucket consisting of bonds with maturities greater than 10 years is composed of about 75% agency MBS with the remaining (\$638 billion) composed of Treasuries.



The buy-and-hold nature of the Agency MBS market has meant that the Fed's activity in that market has left less of a liquidity footprint. In contrast, the Fed's purchases of Treasury bonds combined with regulatory changes have resulted in a significant decline in Treasury market liquidity. As we can see in Chart 7 below, market participants have increasingly had difficulty finding required Treasury bonds since early 2012. In addition, regulatory changes have made holding inventory much less attractive to primary dealers. The result has been a decline in market-making activity by the dealers; as we can see in Chart 8 below the effects are clearly being seen in Treasury auctions. Thus, the Fed's offering of high quality collateral to the market will be most important for the Treasury market.

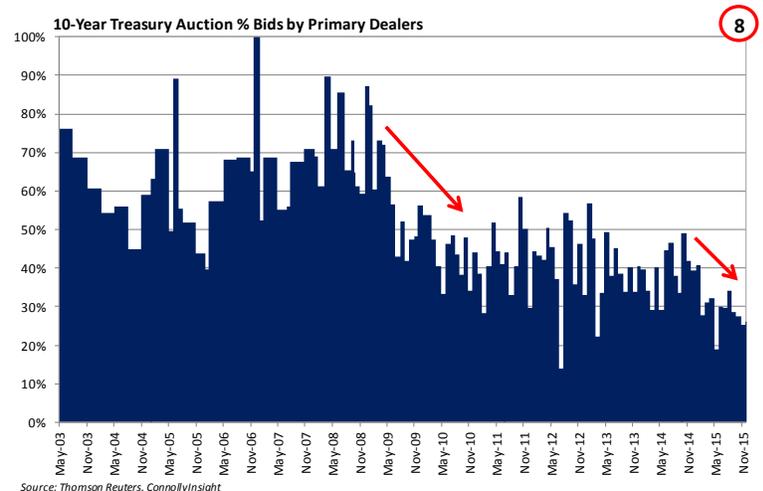
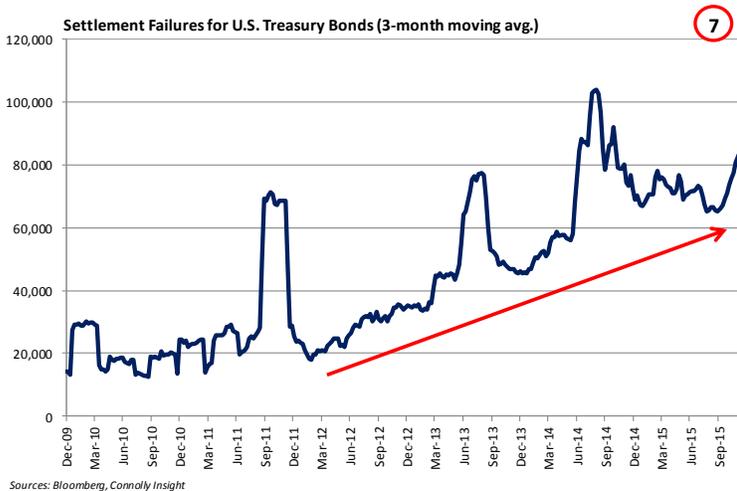
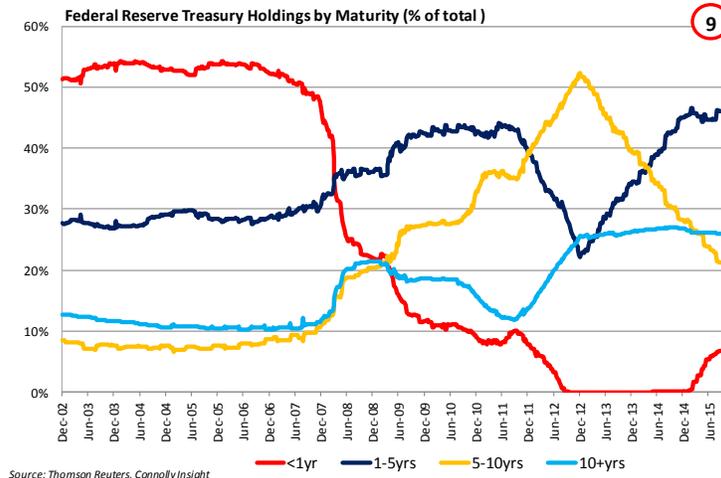


Chart 9 below provides a breakdown of the maturity composition of the Fed's Treasury holdings. It is interesting to note that the Fed has been steadily winding down its exposure in the 5-10 year range and ramping up holdings in the 1-5 year range. In addition, we can see that holdings with maturities below one year have started rising. Clearly the open market desk is edging the portfolio towards a shorter average maturity, which will have the result of withholding less duration from the market and which can be wound down faster if/when the Fed decides to begin reducing the size of its balance sheet. However, while the



duration of the Fed's portfolio is lower than it was in the *recent* past, the fact still remains that the balance sheet differs from the nearly duration-free portfolio that existed pre-crisis.



Source: Thomson Reuters, Connolly Insight

The portfolio composition is important because it gives us information about which sections of the market the RRP will affect most. The facility is being implemented as a tri-party repo with JP Morgan and BNY Mellon acting as custodians. The use of tri-party repo is important from a market perspective because it means the custodians will be able to make use of the high-quality collateral provided by the Fed. These securities can then be rehypothecated for use as collateral in other transactions. One important non-standard feature of the ON RRP is that rehypothecation of the collateral is restricted to being used with ON RRP participants. As a result, the market will benefit from the additional availability of high-quality collateral, but the footprint will be limited by the counterparty restrictions. We view this as a well-considered feature.

It is also important to remember that the ON RRP facility will *not* be releasing duration into the market. The reason why duration risk remains with the Fed is that under both GAAP and IFRS treatment repo activity is treated as a collateralized loan rather than a true sale. As a result, counterparties to the Fed are simply swapping cash for a cash-like instrument.

Unfortunately no information has been made available as to what categories of bonds will be used as collateral so we cannot determine specifically where the effect will be felt most. However, given the composition of the balance sheet, it seems safe to assume that the 1-5 year and 30-year markets will experience the largest improvement in liquidity. This could have the effect of removing any liquidity premium built into the prices of bonds in these maturity ranges.

### Bank Runs and “Draining” Liquidity

One concern voiced by market commentators has been that the ON RRP will facilitate a run on bank deposits in an environment of financial stress, the logic being that money market participants will flee the banking system at the first sign of trouble and park their money at the Fed. However, this view does not take into account two important factors.



First, the usage of the term “liquidity drain” is a misconception under current conditions. The Fed’s repo facility will not extinguish any reserves; rather it will move them from the excess reserves pile to the repo facility. If banks need additional reserves they can always bid for them in the Fed funds market in order to attract them from money market participants. Thus, instead of reducing liquidity, the Fed is effectively saying to the banking sector “You can have as much liquidity as you desire, but now you have to bid against the open market desk.” Thus, concerns about a reduction of liquidity seem overblown. Banks had to pay for liquidity in the past and we see no reason why they would not be able to do so now.

Another feature that may be used to prevent a run is the cap on facility use *at the individual counterparty* level. Currently the facility has an *aggregate* cap of \$300 billion and an *individual participant* level of \$30 billion. Simon Potter indicated in a recent speech on the facility that the \$30 billion number was decided on after observing market data and consulting with participants. The idea behind the individual cap is that sufficient capacity is available for parking funds in normal times, but the cap is low enough that the facility will not provide shelter in a storm.

The topic of aggregate and individual caps has also raised questions among market commentators about what size the facility will need to be in order to influence the fed funds rate. In our opinion visions of a massive facility are misguided. The facility does not need to provide an alternative for the entire money market. Instead, the facility only needs to provide a credible walkaway. Borrowers will know that *their marginal transaction* will not be executed unless they pay a rate above the ON RRP. Thus, we expect the facility will work without growing to a massive size because it affects decisions *at the margin*.

A more extensive discussion of the technical features and implications of the facility are beyond the scope of this note. However, we encourage readers to read the piece by Zoltan Pozsar cited in the references below for a very in-depth discussion on the topic.

## **Conclusion**

In conclusion, it is our opinion that market participants would be wise to remember that the Fed’s open market desk is *very good* at its job and has had plenty of time to prepare for lift-off. We believe the evidence indicates that the ON RRP facility will work as planned and will likely provide some secondary beneficial effects. Much more important for readers to consider is the macro effects of an increase in interest rates. We refer readers to Bernard’s many notes on the topic for further discussion.



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