

## **Simon M Potter: Interest rate control during normalization**

Remarks by Mr Simon M Potter, Executive Vice President of the Markets Group of the Federal Reserve Bank of New York, at the SIFMA Conference on Securities Financing Transactions, New York City, 7 October 2014.

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Thank you, Rob. I appreciate the opportunity to participate in this important event. Securities financing markets are essential to the efficient functioning of the global financial system, and to the implementation of monetary policy in the United States and abroad.

As you know, the Federal Open Market Committee (FOMC) recently published a statement on its policy normalization principles and plans. Today I would like to talk about these principles, and more specifically, about how the Committee plans to raise and control short-term interest rates when it becomes appropriate to do so. Obviously, these plans are of interest to the Open Market Trading Desk (the Desk) as we must implement the directives issued by the FOMC after each meeting, and I am responsible for reporting to the FOMC on the transactions made to meet its operating target. I'll also review the overnight reverse repurchase agreement (ON RRP) operations that the Federal Reserve has been testing for the past year, and explain recent changes the Committee made to these operations. Of course, the principles and continued testing are part of prudent planning, and do not imply that normalization will necessarily begin soon. As always, the views I express are mine alone and do not necessarily reflect those of the Federal Reserve Bank of New York or the Federal Reserve System.

### **The Committee's normalization principles and plans**

Let me start by briefly reviewing the statement on normalization principles and plans that the FOMC published following its September meeting.

Importantly, this statement is intended to provide the public with information about the eventual normalization process and does not signal a change in the current or future stance of policy. As the Committee indicated in its September post-meeting policy statement, it continues to anticipate that it likely will be appropriate to maintain the current target range for the federal funds rate for a considerable time after the asset purchase program ends, especially if projected inflation continues to run below the Committee's 2 percent longer-run goal, and provided that longer-term inflation expectations remain well anchored.

Many elements of the normalization principles and plans are similar to the principles adopted by the Committee in June 2011, while others have been revised in light of the changes since then in the size and composition of the System Open Market Account (SOMA), the Fed's securities portfolio, as well as enhancements in the tools the Committee will have available to implement policy during normalization.

As was the case before the crisis and indicated in the June 2011 principles, the Committee intends to adjust the policy stance during normalization primarily through actions that directly influence the level of the fed funds rate and other short-term interest rates rather than through active management of the size or composition of the Fed's securities holdings. Specifically, when economic conditions and the economic outlook warrant a less accommodative stance of monetary policy, the Committee will raise its target range for the fed funds rate. During normalization, the Committee intends to move the fed funds rate into the target range primarily by adjusting the rate of interest on excess reserve balances (IOER) that it pays. We expect changes in the IOER rate to have a significant influence on the fed

funds rate and other short-term interest rates. However, to help control the fed funds rate, the Committee also intends to use an ON RRP facility and other supplementary tools, as needed. The Committee will use an ON RRP facility only to the extent necessary, and will phase it out when it is no longer needed to help control the funds rate.

With regard to the Fed's balance sheet, the Committee intends to reduce securities holdings in a gradual and predictable manner, primarily by ceasing to reinvest repayments of principal on securities held in the SOMA. The Committee expects to cease or commence phasing out reinvestments after it begins increasing the target range for the fed funds rate; the timing will depend on how economic and financial conditions and the economic outlook evolve. The Committee currently does not anticipate selling agency mortgage-backed securities as part of the normalization process, although limited sales might be warranted in the longer run to reduce or eliminate residual holdings. In the longer run, the Committee intends to hold no more securities than it will need to implement monetary policy efficiently and effectively, and that the SOMA will consist primarily of Treasury securities.

Given the \$1.6 trillion in large-scale asset purchases (LSAPs) conducted since September 2012, the level of reserve balances in the system will be significantly higher during normalization than was envisioned when the 2011 principles were adopted. In light of this, as I just outlined, the FOMC has judged it appropriate to operate with a framework for interest rate control that is based primarily on administered rates rather than reserve draining tools. Given the unprecedented nature of this framework, the Committee has made clear that it is prepared to adjust the details of its approach in light of economic and financial developments. The FOMC has consistently adapted its policies as needed in recent years and will no doubt continue to do so as necessary throughout the normalization process in order to foster conditions consistent with its dual mandate.

### **The framework for interest rate control during normalization**

Now I'd like to talk in more detail about the plans and tools for influencing short-term interest rates that the FOMC will use when it becomes appropriate to raise rates.

#### ***A target range for the fed funds rate***

As I noted, during normalization the Committee will continue to communicate the stance of policy through a target for the federal funds rate. The fed funds rate is an overnight, unsecured interest rate in the market for reserves – the rate at which banks and certain other eligible entities borrow or lend balances held at the Fed.<sup>1</sup>

The Committee also agreed that it would continue to set a target range for the federal funds rate during normalization. When the FOMC begins to remove accommodation, the level of reserves in the banking system will be very high and the Federal Reserve will be employing new tools to implement policy. Against this backdrop, the Committee has chosen to establish a target range, rather than a point target, in order to provide an appropriate degree of flexibility in policy implementation.

A key advantage to targeting the fed funds rate is that the Committee has done so successfully for many decades. As a result, it's a familiar rate for the public in judging the stance of monetary policy, and its continued use simplifies the Fed's communications.

While the Committee has targeted the fed funds rate for many decades, activity in the fed funds market has changed considerably in recent years. Prior to the crisis, many banks typically borrowed fed funds in order to satisfy reserve requirements or obtain short-term

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<sup>1</sup> The effective fed funds rate is a measure of the prevailing rate in the market each day. This is calculated as a volume-weighted average of rates on trades arranged by major brokers, and is published by the New York Fed. See <http://www.newyorkfed.org/markets/omo/dmm/fedfundsdata.cfm>.

financing. In recent years, however, the Fed's LSAPs have led to very high levels of reserve balances, and thus reduced the need for banks to borrow fed funds to meet reserve requirements and clear payments.<sup>2</sup> As a result, trading activity in the fed funds market today is smaller and the nature of that activity is different than it was prior to the crisis.<sup>3</sup>

Nevertheless, a new Federal Reserve data collection that captures both brokered and bilateral transactions shows that trading activity in fed funds remains significant.<sup>4</sup> These data indicate that daily trading volumes are about \$60 billion and are relatively stable. Moreover, longer-term correlations between the fed funds rate and other money market rates remain robust. As a result, the fed funds rate continues to be a suitable measure of the marginal cost of funding for banks, and remains connected over medium-term horizons to other short-term interest rates that also matter for the transmission of monetary policy.

### ***Moving the fed funds rate into the target range***

During normalization, the Fed intends to move the fed funds rate into the target range established by the FOMC primarily by adjusting the IOER rate.

A key development in the conduct of monetary policy in recent years was the introduction of the Fed's ability to pay interest on reserve balances held by depository institutions. In the environment of elevated reserve balances that resulted from the Fed's asset purchases, the payment of IOER – currently at a rate of ¼ percent – has helped to keep the fed funds rate within its target range.<sup>5</sup>

The IOER rate is the rate of return on a riskless overnight deposit held at the Fed. As such, it may be thought of as the opportunity cost of making an alternative investment, such as a loan or the purchase of a security. Accordingly, if all money market participants were eligible to earn interest on reserves, money market rates would likely be at least as high as the IOER rate; no institution would want to lend to a private entity at a lower rate. Even without universal access to IOER, in the absence of frictions, competition would be expected to lift money market rates up to the level of the IOER rate, since banks would make an arbitrage profit on any funds they borrow at a lower rate and deposit at the Fed. Because the investment with the Fed is riskless, little or no economic capital would be needed to support such arbitrage by banks. In this way, the IOER rate should theoretically form a “floor” beneath short-term interest rates, allowing the Fed to achieve its target for the fed funds rate even with a very high level of reserve balances.

In practice, however, many lenders in the U.S. money markets are not banks and so cannot earn IOER. Moreover, from the perspective of a potential lender to a bank, the arbitrage

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<sup>2</sup> In the five years prior to the crisis, total reserve balances averaged \$20 billion and excess reserves – balances in excess of those required to satisfy reserve balance requirements – averaged about \$1.5 billion. Currently, total reserve balances are about \$2.8 trillion, nearly all of which are excess reserves.

<sup>3</sup> For discussion of changes in recent years to activity in the fed funds market, see the *Liberty Street Economics* blog posts, “Who’s Lending in the Fed Funds Market” and “Who’s Borrowing in the Fed Funds Market,” at <http://libertystreeteconomics.newyorkfed.org/>.

<sup>4</sup> The FR 2420 is a transaction-based report that collects daily data on federal funds transactions, Eurodollar transactions, and certificates of deposits from domestically chartered commercial banks and thrifts that have \$26 billion or more in total assets and from U.S. branches and agencies of foreign banks with total third-party assets of \$900 million or more. The FR 2420 data is used to support the implementation of monetary policy and the analysis of money market conditions.

<sup>5</sup> The Board of Governors of the Federal Reserve System is responsible for setting the rate of interest on reserves. Since December 16, 2008, the interest rates on required reserve balances and excess reserve balances have both been ¼ percent, but the rates need not be the same. More information can be found in Regulation D. See <http://federalreserve.gov/bankinforeg/reglisting.htm#D>.

transaction I just described is not riskless. As a result, many lenders limit their risk exposure to any individual bank, reducing the force of competition in the market for funds.<sup>6</sup>

In addition, while banks do not need economic capital to conduct this arbitrage, they do face regulatory balance sheet costs from expanding their assets, even in the form of excess reserves, that is, cash. Some of these costs are direct, such as the FDIC fees paid by domestic banks on their liabilities less capital and transactions costs in brokered markets, while others relate to the costs associated with regulatory requirements on capital and liquidity ratios. Even if the market for funds were perfectly competitive, these costs should drive a wedge between IOER and other money market rates. As a result, the IOER rate does not directly establish a firm floor under money market rates, but instead can be thought of as a magnet, with the strength of its pull determined by these balance sheet and competitive frictions. While these frictions may vary over time, they should generally do so only slowly.<sup>7</sup>

The pull of IOER should also be affected by the quantity of reserves in the system. An increase in bank reserves that increases bank assets makes regulatory leverage ratios more binding, raising the shadow marginal cost of bank balance sheets. It also accentuates the competitive frictions I described above, and reduces individual bank demand for additional reserves.<sup>8</sup> As a result, as the level of reserves declines during normalization, marginal balance sheet costs should fall, competitive frictions should lessen, and the demand for additional reserves from individual banks should increase. These factors should strengthen the magnetic attraction of IOER and pull the fed funds rate and other market rates up toward – and at some point equal to or above – the IOER rate. However, excess reserves will remain plentiful for some time, and while that's the case the FOMC intends to use an ON RRP facility and other tools as needed to complement IOER in controlling the fed funds rate.<sup>9</sup>

When the Desk conducts ON RRP, as in its current testing program, it sells Treasury securities held in the SOMA with an agreement to buy them back the next business day at a pre-determined price. This leaves the size of the SOMA portfolio unchanged, but shifts some of the liabilities on the Fed's balance sheet from bank reserves to reverse repos. Similar to IOER for banks, ON RRP provides a risk-free overnight investment directly to a broad range of bank and non-bank counterparties. By reaching financial institutions that are ineligible to earn IOER, an ON RRP facility widens the universe of counterparties that should generally be unwilling to lend at rates below those available from the Fed. Such a facility could also enhance competition in money markets by offering an alternative safe investment and thus

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<sup>6</sup> Moreover, competition may be imperfect in some money markets currently, allowing spreads to persist longer than they would if markets were more competitive. For example, much money market activity is over-the-counter, potentially leading to search frictions and bargaining. Anecdotal evidence suggests that lenders typically interact directly with a relatively small number of counterparties, perhaps because a portion of the activity is derived from costly relationship lending. Finally, to limit counterparty credit risk, lenders sometimes seek to diversify their lending and apply concentration limits, which are often binding.

<sup>7</sup> As I'll explain, high-frequency variation in balance sheet costs could induce high-frequency changes in the pull of IOER and, in turn, the spread between the IOER and money market rates. We see this transitory dynamic around financial statement reporting dates. On these dates, balance sheet costs for some banks increase, and the fed funds rate and other money market rates fall relative to the IOER rate.

<sup>8</sup> While actions that increase bank reserves do not necessarily increase bank assets, evidence suggests that for LSAPs conducted through 2012:Q3, assets were ultimately sourced primarily from non-banks – households (including hedge funds), broker-dealers, and insurance companies. All else equal, this would imply that the purchases increased bank assets. See Carpenter, Demiralp, Ihrig, and Klee (2013). Even if bank assets do not increase, an increase in reserves could create distortions that raise balance sheet costs. This could happen if banks shift the composition of their assets to accommodate the increase in reserves, and in doing so are pushed away from their optimal balance sheet composition.

<sup>9</sup> These other tools include the Term Deposit Facility, term RRP, and asset sales, each of which would have the effect of reducing the amount of reserves held by banks. Money market rates would rise as reserves were made scarcer through the use of these tools. See Martin, McAndrews, Palida, and Skeie (2013) for a theoretical exploration.

strengthening the bargaining position of non-bank lenders. Moreover, by reducing the amount of reserves held by banks, ON RRP may directly reduce the level of bank assets and thus balance sheet costs.<sup>10</sup>

If ON RRPs are offered at a fixed rate below the level of market rates that would be produced by IOER alone given prevailing frictions, the ON RRPs should not be an attractive investment option in normal times. As a result, their availability should have little effect on market rates. If, however, ON RRPs are offered above the level of money market rates that would be produced by IOER alone given prevailing frictions, ON RRPs should become attractive and help to form a floor for money market rates, either directly through increased take-up that reduces reserves or indirectly through the competitive pressure I described. Since money funds – the majority of the Fed’s ON RRP counterparties – don’t face the same balance sheets costs as banks, the floor formed by ON RRPs should be relatively firm.

While ON RRPs are a potentially useful tool for monetary policy control with large amounts of excess reserves, FOMC and market participants have noted the potential for very large regular usage to alter patterns of financial intermediation. Further, a fixed-rate structure with no usage limits could exacerbate liquidity pressures during times of stress.<sup>11</sup> The FOMC recently authorized testing of a cap on the total daily usage of the ON RRPs that could help mitigate these risks. I’ll return to these risks and some ways that they may be mitigated in a bit.

In sum, arbitrage activities by banks, complemented as needed by ON RRP operations, should cause a higher IOER rate to lead to higher levels of market rates. However, if the pressure on market rates from the Fed’s administered rates turns out to be insufficient, the Committee has a range of other tools – including term deposits, term RRPs, and asset sales – that could be used to help tighten the stance of policy. Given the array of tools at our disposal, I am confident that the FOMC can adjust and control short-term interest rates as needed to foster its objectives of maximum employment and price stability.

### **The configuration of rates during normalization**

The Committee’s normalization principles and plans do not detail the manner in which IOER as a primary tool would be combined with supplementary tools such as ON RRPs to move the fed funds rate into the target range. However, as reflected in the minutes to the July FOMC meeting, most Committee participants anticipate that, at least initially, the IOER rate could be set at the top of the target range for the funds rate, and the ON RRP rate could be set at the bottom of that range. This is also consistent with the views of many market participants as reflected in surveys conducted by the Desk.<sup>12</sup> I’d like to take a moment to explain why I believe such a regime would be a sensible way to implement policy during the first stages of normalization, when reserve balances will be in such ample supply.

Most importantly, it’s a regime in which the Desk should achieve the target for the fed funds rate set by the FOMC. As IOER is raised, its magnetic force will pull the fed funds rate higher. At the same time, the high level of reserve balances in the system should lead the effective rate to print below the IOER rate, at least initially during normalization. As described

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<sup>10</sup> In addition to improving competition in money markets, by conducting a daily operation with a known, fixed rate, the Fed can reduce uncertainty and absorb day-to-day variations in the supply of and demand for funds and collateral. An eligible lender that cannot earn the IOER rate and that has an unexpectedly large amount of funds to invest would be able to place the funds in the ON RRP facility rather than sell them in the market at an unusually low rate. This should reduce downward pressure on money market rates.

<sup>11</sup> See the discussion in the minutes to the June and July FOMC meetings, <http://www.federalreserve.gov/monetarypolicy/fomcminutes20140618.htm> and <http://federalreserve.gov/monetarypolicy/fomcminutes20140730.htm>.

<sup>12</sup> See the Survey of Primary Dealers and the Survey of Market Participants.

earlier, if the magnetic pull of IOER alone is insufficient, ON RRP should help to form a floor on rates by providing a risk-free, overnight asset to a broad range of non-bank investors. As a result of these forces, the effective funds rate should generally print within the target range.

That said, as the Chair noted during her September press conference, the Committee expects that the effective fed funds rate may vary within the target range and could even move outside of it on occasion. For example, the effective rate could move outside the target for a day or two around key financial reporting dates, such as quarter-ends, when some banks' marginal balance sheet costs are particularly high. However, such transitory movements should have no material effect on financial conditions or the broader economy. What matters for policy transmission is the predictability that on most days money market rates will be close to the target range set by the FOMC.<sup>13</sup> Of course, if rates were to move substantially outside the target range and those changes were expected to persist, the Fed would take appropriate action to assure that its intended stance of policy is achieved.

In addition, as highlighted in minutes to the Committee's recent policy meetings, an operating regime with a reasonably large positive spread between the IOER and ON RRP rates would support active trading in the funds market like we see today, and would likely prevent the Fed's involvement in the repo market from growing too large. This would, in turn, lessen the possibility that patterns of financial intermediation could be altered in unanticipated and potentially undesirable ways by the Fed's actions.

### **Recent changes to the overnight RRP test exercise**

Now I'd like to return to the ON RRP testing that the Fed has been conducting over the past year, and discuss the changes to the testing exercise that were introduced following the September FOMC meeting.

You'll recall that we began testing ON RRPs in September 2013, when the Committee instructed the Desk to examine how a potential ON RRP facility might work and how it might affect short-term interest rates.

The results of the testing over the first year suggest that the operations have been successful working with IOER to establish a floor for the level of money market rates. Our analysis has found that, offered at a spread of 20 basis points to the IOER rate, ON RRPs have kept overnight repo rates above where they would otherwise have been, in part by influencing the bargaining power of our counterparties. All of the Desk's eligible RRP counterparty types participate in the operations, with money funds accounting for the largest share of take-up. Take-up generally increases when the spread between market rates and the ON RRP offered rate narrows. Take-up also rises substantially around quarter- and year-end financial reporting dates, when some money market participants' access to other overnight investments is more limited.

To further examine how ON RRPs might best be structured to supplement IOER in controlling the fed funds rate while limiting the potential for unintended effects in financial markets, the FOMC recently directed the Desk to make several changes to the design of its ON RRP operations. In particular, as of September 22, the maximum bid limit per counterparty was raised from \$10 billion to \$30 billion, an overall size limit of \$300 billion per operation was imposed, and an auction process was introduced to determine the interest

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<sup>13</sup> Indeed, even prior to 2008, the range of fed funds trading on a given day could be quite wide, and the effective rate deviated significantly at times from the target rate for a day or two. This did not have any apparent effect on financial conditions or the economy.

rate on the operation and allocate take-up when the sum of bids exceeds the new \$300 billion limit.<sup>14</sup>

The \$30 billion individual bid limit was informed by evidence on the desired investments of counterparties that had bid at the previous maximum of \$10 billion, and it took into account the size of assets under management of our counterparties. For almost all counterparties, the \$30 billion limit is unlikely to be binding in any circumstances. The \$300 billion overall limit was above total demand observed over the first year of testing, with the exception of the operation conducted at the end of the second quarter of this year.

So what are the benefits of moving from a structure with individual caps alone to one with an aggregate cap as well? One benefit is that, in limiting the overall take-up but not individual take-up, an aggregate cap should produce a more efficient allocation of usage among counterparties than would a system of individual caps. Further, an aggregate cap should better balance efficient control of money market rates under normal conditions with the risk of a destabilizing surge in use of the facility in times of stress. The reduced risk of a surge in use in a system with an aggregate cap comes from the fact that take-up across counterparties is not perfectly correlated. As a result, an aggregate cap that binds at some frequency can be set below the sum of individual caps that would bind for at least one of the counterparties at the same frequency. The aggregate cap also raises the individual bargaining power of counterparties relative to a system of lower individual caps, since in normal times counterparties can be relatively certain that larger bids at the ON RRP facility will be filled. However, the possibility that the aggregate cap could bind even in only limited circumstances may undermine this effect on bargaining power.

The Federal Reserve has been closely analyzing the results of the ON RRP operations conducted under these new testing parameters in order to further its understanding of how an ON RRP facility should be structured during the normalization process. As many market participants anticipated the aggregate cap did bind on quarter end. The auction procedure went smoothly and while rates did trade soft on the quarter end, this was only a temporary phenomenon and there was no evidence of market disruption from the unfilled bids at the auction.

As part of its prudent planning the Committee continues to consider additional design features that may help address the potential risks associated with an ON RRP facility while preserving its ability to support the effective implementation of monetary policy during the normalization period.<sup>15</sup>

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<sup>14</sup> If the total amount of bids received in an operation is less than or equal to the \$300 billion size limit, awards will be made at the fixed offering rate. However, if the total amount of bids received exceeds the overall operation size limit, the \$300 billion in ON RRPs will be allocated through a single-price auction using interest rates that counterparties submit with their bids. Awards are made at a “stopout rate” – the rate at which the overall size limit is achieved – with all bids below this rate awarded in full and all bids at this rate awarded on a pro rata basis. The stopout rate is determined by evaluating all bids in ascending order by submitted rate up to the point at which the total quantity of offers equals the overall size limit. For more details about ON RRP operations, please see the FAQs on the New York Fed’s website.

<sup>15</sup> In addition, the Federal Reserve Board has been testing a facility through which it offers term deposits to credentialed depository institutions. Term Deposit Facility (TDF) transactions could be used to temporarily immobilize reserve balances. An eight-week series of tests this summer explored how demand for term deposits responds to variations in the maximum individual award limits and rates. Higher offered rates relative to IOER attracted greater use, both in the number of participants and the total dollar volumes. The next round of TDF testing, which gets underway in October, will incorporate an early-withdrawal feature, as well as gradual increases in the maximum individual award amount and rate. For details see <http://www.federalreserve.gov/newsevents/press/monetary/20140904a.htm>.

## **Conclusion**

In conclusion, during normalization the FOMC will continue to communicate the stance of policy through a target for the fed funds rate, and will move the fed funds rate into the target range primarily by adjusting the IOER rate. ON RRP and other supplementary tools will be used as needed to control the fed funds rate. The Committee will continue to test features of the ON RRP to determine how a facility might best be structured to supplement IOER in the control of the funds rate while limiting the potential for unintended effects in financial markets. Given the range of available tools, I am confident in our ability to raise short-term interest rates from the zero lower bound when the time to do so arrives. Nevertheless, the FOMC is prepared to adjust the details of its approach to policy normalization in light of economic and financial developments and the Desk stands ready to innovate in order to efficiently and effectively implement policy consistent with the Committee's directive.

Thank you.