The Fed Exit Monitor V.2

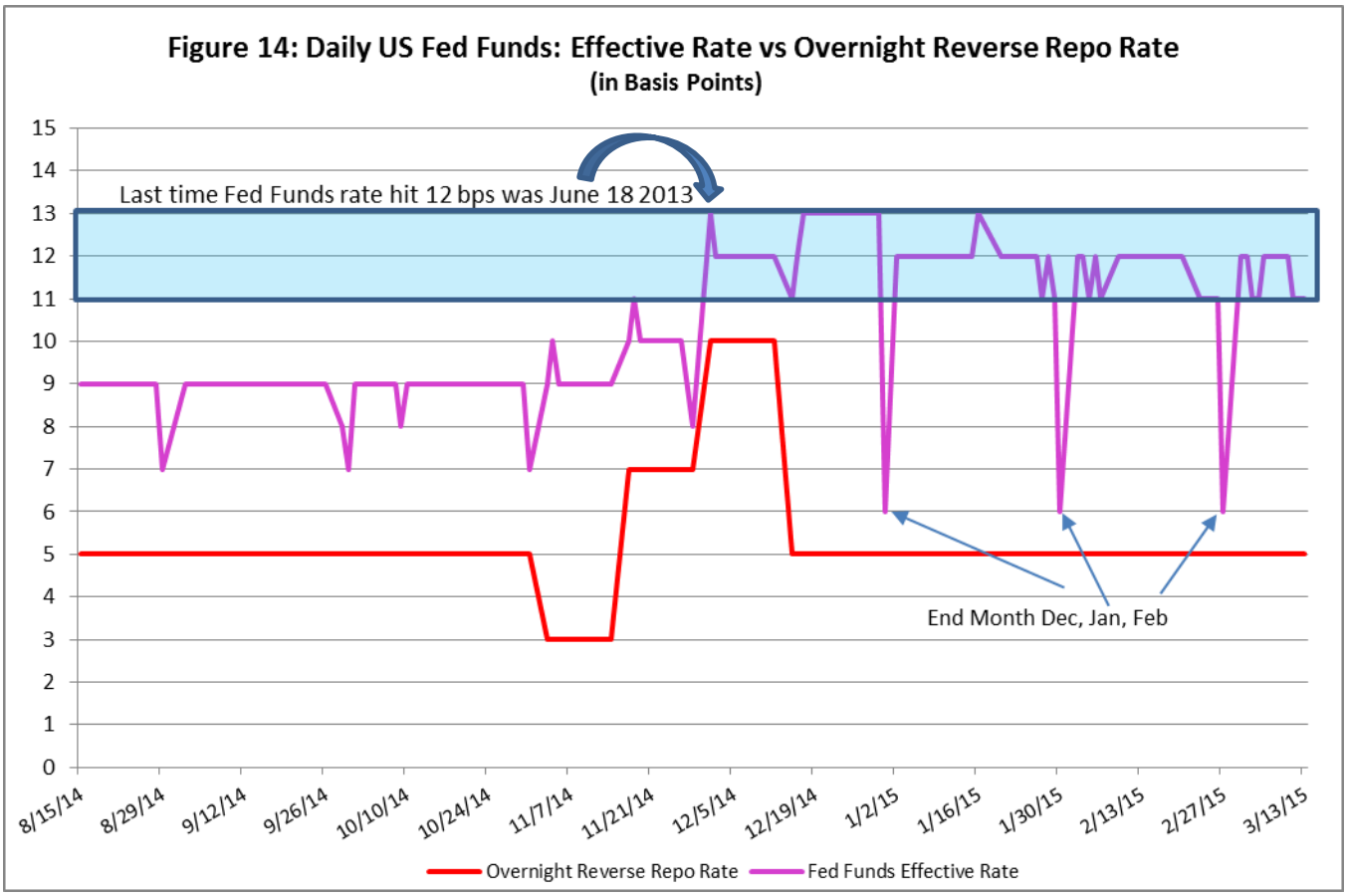
March 17, 2015

The January FOMC and Federal Reserve Board meetings[1] authorized the continuation of the experimental monetary operations discussed in V.1 of the Exit Monitor[2].

The aim of these experiments is to enable the Fed to gather experience with its new monetary instruments—instruments that will be critical to ensure a smooth implementation of the exit strategy.

As noted in the first edition of the Monitor, the Fed first intentionally raised the fed funds rate on December 1, 2014. Since that time, apart from end-month trading days, the Fed has managed to keep the fed funds rate within a rather narrow band whose ceiling and floor are 13 and 11 bps respectively.

The exit is underway



Source: Stella (2015), *Exiting Well.*

[1] The FR Board (a "subset" of the FOMC) is responsible for term deposit auctions and paying interest on bank reserves. The NY Fed conducts open market operations including reverse repos under the direction of the FOMC.
[2] http://stellarconsultllc.com/blog/wp-content/uploads/2014/12/The-Fed-Exit-Monitor-V1.pdf

The Fed continues to experiment with two of its new instruments—term deposits and reverse repos in an effort to reestablish control over its operational target, the fed funds effective rate. Apart from the evident problems witnessed at end-month trading days, the Fed has managed to bring the fed funds rate within a narrow corridor roughly in the midpoint of its current 0 – 25 bps target range.

The Fed has announced its intention to begin the process of raising rates with a target band, hence a 25 bps increase in its target would represent a move to a corridor with 25 bps as the floor and 50 bps as the ceiling. From an operational standpoint, the Fed would presumably then aim to keep the fed funds rate within a narrower band of 35 – 38 bps. A simple extrapolation of the current experiments suggests that the Fed would raise the rate paid on interest on overnight deposits (IOR) from 25 to 50 bps, the rate paid on term deposits from 28 bps to 53 bps, and the rate offered on overnight reverse repos with Treasury securities as collateral to 30 bps.

The Fed announced on September 4, 2014 that it would conduct a series of 4 7-day TD auctions beginning in October 2014. The results of the auctions are shown below.

Term Deposit Experiment # 1

in USD billions

Settlement date	Maturity Date	Amount	Rate	Participants
13-Nov-14	20-Nov-14	307.8	27	80
20-Nov-14	26-Nov-14	316.0	28	85
26-Nov-14	4-Dec-14	334.7	29	90
4-Dec-14	11-Dec-14	402.1	30	97

Term Deposits 12 November 2014	262.1	26	

As the Fed gradually increased the offer rate on the 7-day deposit above the 25 bps IOR rate, an increasing number of banks participated, placing an increasing amount of funds. In a very operational sense, the Fed was estimating the “demand curve” for term deposits.

On February 2, 2015 the Fed Board announced a series of 3 21-day TD auctions.

In contrast with the 2014 experiment, the interest rate offered on these deposits was said to be “floating”, i.e. the rate was to be the “…interest rate on excess reserves plus a fixed spread of 3 bps”.

The terminology “floating” was curious in that the base rate, the IOR rate, had been fixed at 25 bps since December 2008 and the FOMC’s retention of the term “patient” regarding interest rate increases at the conclusion of its January 2015 meeting was widely understood to mean that there was virtually zero likelihood that the IOR rate would move before the end of this round of experimentation. In the end, the last 21-day deposit matured on March 12 2015 yielding 28 bps, i.e. the 25 bps IOR rate plus 3 bps.

The outcome of the second round of experiments is shown below.

Term Deposit Experiment # 2

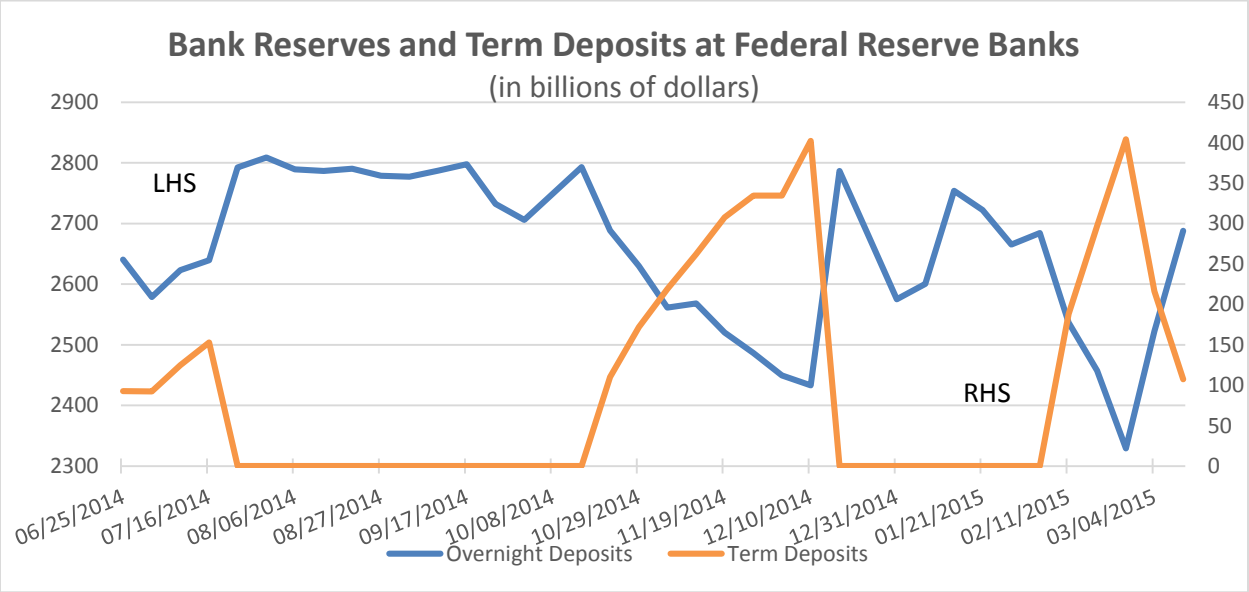
in USD billions

Settlement date	Maturity Date	Amount	Rate	Participants
5-Feb-15	26-Feb-15	188.1	28	87
12-Feb-15	5-Mar-15	108.8	28	47
19-Feb-15	12-Mar-15	107.2	28	52

Term Deposits Outstanding (2/19 - 2/26)	404.2
Term Deposits as of 4 February 2015	0

The point of offering a "floating" rate TD at this moment is not apparent. However, looking forward, the Fed intends eventually to keep a significant volume of TDs continuously on the balance sheet implying that banks would hold them throughout FOMC meeting weeks and therefore be subject to interest rate risk if they were fixed rate instruments. The floating rate tied to the o/n deposit rate ensures banks holding term deposits a rate of return in excess of the IOR rate regardless of the outcome of FOMC meetings vis-à-vis the o/n rate. This pricing scheme should lead to a consistent steady demand for TDs.

From the standpoint of the Fed balance sheet, the aim of issuing TDs is to "drain" or reduce the volume of excess reserves held by banks and thereby reduce the supply/demand imbalance in the overnight fed funds market. The inverse relationship between TD balances and reserves is shown below.



Source: FRB St. Louis FRED database. (The last observation is 3/11/15 and the last TD matured 3/12/15).

In both of the TD experiments, the maximum amount attained was close to $ 400 billion suggesting the Fed may aim to carry that volume forward—at a minimum—once it begins to raise rates.

Reverse Repo Experimentation

The FRBNY has also experimented with changes in the reverse repo rate and with term reverse repos. The primary purpose of the RRP instrument is to set a floor on the fed funds rate. The IOR rate is not serving that purpose primarily owing to the fact that not all deposit holders at the FRBs (Freddie, Fannie, GNMA, and the Federal Home Loan Banks) receive interest on their deposits. Consequently they are willing to lend to banks at less than the IOR rate. The introduction of the RRP program was designed to establish a floor on the unsecured overnight rate for those non-depository institutions, aka nonbanks[3].

The results of the 2014 experiments with overnight and term reverse repos are shown below:

Overnight Reverse Repo Experiment

in USD billions

Settlement dates		Max Amount	Rate	Amount
30-Oct-14	31-Oct-14	300	5	117
3-Nov-14	14-Nov-14	300	3	106<->153
17-Nov-14	28-Nov-14	300	7	121<->154
1-Dec-14	12-Dec-14	300	10	86<->166
December 15 and after		300	5	35<-->41

Term Reverse Repo Experiment # 1

in USD billions

Settlement date	Maturity Date	Bid/Offer Amount	Rate	Duration
8-Dec-14	5-Jan-15	101.9/50	8	4 weeks
15-Dec-14	5-Jan-15	75.1/50	7	3 weeks
22-Dec-14	5-Jan-15	100	(max) 10	2 weeks
29-Dec-14	5-Jan-15	100	(max) 10	1 week
Target total amount maturing 5 January 2015			300	

Essentially the Fed raised the overnight RRP rate to 10 bps for the first two weeks of December at the same time promising to lower the rate to 5 bps subsequently. That set up an interesting decision for money managers…whether to accept 10 bps overnight for a limited period of time and then 5 bps or to bid for a longer term RRP at a rate somewhere in the middle. As can be seen in the first table, the amount being placed in overnight RRP declined significantly once the rate was reduced to 5 bps.

A closer look at the overnight RRP auctions during Term RRP Experiment # 1 is provided below:

[3] Stella (2015), *Exiting Well*, discusses in detail the inefficiencies associated with the segmented and fragmented US money markets associated with LSAPs and how the US Treasury and Fed could cooperate to resolve them.

Overnight Reverse Repo Operations
between December 1-16 2014

	Amount	Participants	Rate
1-Dec-14	154.6	58	10
2-Dec-14	153.5	64	10
3-Dec-14	166.3	59	10
4-Dec-14	142.6	49	10
5-Dec-14	145.5	56	10
8-Dec-14	104.2	56	10
9-Dec-14	94.4	49	10
10-Dec-14	105.3	46	10
11-Dec-14	99.8	44	10
12-Dec-14	86.4	39	10
15-Dec-14	34.6	26	5
16-Dec-14	40.7	29	5

Source: FRB NY website

The FRBNY has kept the overnight reverse repo rate at 5 bps since December 15 2014 and the cap on the total volume of o/n RRP offered at $ 300 billion.

On January 28, 2015, the FOMC directed the NY Fed to conduct a second and third series of term reverse repo experiments. In the second experiment, consisting of 4 7-day RRP auctions, the NY Fed was directed to set a maximum offered interest rate not to exceed the o/n RRP rate obtaining on the day of the term auction plus 5 basis points. The maximum offer rate set for the first three auctions was the o/n RRP rate plus 5 bps, the maximum for the last auction was the o/n RRP rate plus 3 bps. In the event, the auction determined rate at all term auctions was 6 bps. Details are provided below.

Term Reverse Repo Experiment # 2
in USD billions

Settlement date	Maturity Date	Bid/Offer Amount	Rate	Duration
12-Feb-15	19-Feb-15	69.4/10	6	1 week
19-Feb-15	26-Feb-15	73.6/30	6	1 week
26-Feb-15	5-Mar-15	87.7/50	6	1 week
5-Mar-15	12-Mar-15	74.1/50	6	1 week

Source: FRB NY website

The third series of experimental reverse repos is designed to strengthen the floor under the fed funds rate at quarter-end. The FOMC directed FRB NY to offer term RRPs during the period March 19-30 2015 with no maturity later than April 9 2015. The operations will be subject to a limit on the amount outstanding of $ 200 billion and a maximum offer rate equal to the o/n RRP rate on the day of the term auction plus 5 bps. The limit on the amount of o/n RRP outstanding remains at $ 300 billion.

There remains considerable debate within the FOMC concerning the optimal size of RRPs. Unlike the Fed's other instruments, RRPs are available directly to nonbanks such as money market funds. Some FOMC members apparently believe this raises financial stability concerns. For instance, a loss in confidence in banks might lead nonbanks to withdraw commercial bank financing in exchange for "lending to the Fed" in the reverse repo format. While intuitively appealing, this argument does not stand up to scrutiny. Nonbanks can only withdraw funding from banks to the extent they have claims on banks. Since banks currently hold approximately $ 3 trillion in reserves at the Fed, nonbank withdrawals would need to reach staggering proportions to impact the banking system's ability to meet them. Indeed, at the moment, banks are actively trying to lose customer accounts[4] precisely because the costs associated with them exceed the interest they obtain on excess reserves[5]. Raising the limit on reverse repo outstanding to $ 1 trillion would seemingly pose no problem and would allow the Fed to provide a tighter and firmer floor to the fed funds rate.

Latest Fed Balance Sheet

Consolidated Balance Sheet of the Federal Reserve Banks

March 11, 2015

(in US$ billions)

Assets		Liabilities	
US Treasuries	2568	FR Notes Outstanding	1312
MBS and Federal Agencies	1855	Bank Deposits (Overnight)	2693
Net Other Assets	39	Bank Deposits (Term)	107
		Reverse Repos	265
		US Treasury Deposits	27
		Equity	58
Total Assets	4462	Total Liabilities	4462

Source: Federal Reserve Board Release H.4.1 and Author's calculations

Apart from the growth in TDs and RRPs, there has been little substantive change in the Fed balance sheet since LSAPs ended in October 2014. One item of note, however, is the behavior of Treasury deposits. With the suspension of the Federal debt ceiling in February 2014, the Treasury was able to temporarily build up deposits at the Fed by issuing debt in excess of what was needed to finance the fiscal deficit. Balances in the Treasury General Account at the NY Fed reached a peak of $ 223.5 billion on December 31, 2014. This increase in Treasury account balances resulted in a corresponding decrease

[4] JP Morgan announced on February 24 2015 plans to shed $ 100 billion in deposits during 2015.

[5] See Stella (2015), *Exiting Well*, for more on this topic. http://stellarconsultllc.com/blog/

in bank excess reserves, thereby reducing Fed interest costs and the costs to the US consolidated sovereign since the Treasury was able to issue 28 day bills in December 2014 at rates between 1 – 4 bps, substantially less than the 25 bps paid by the Fed on excess reserves.

Nevertheless, in anticipation of the expiration of the suspension of the debt ceiling on March 15, 2015, the Treasury had to rapidly reduce its balances at the Fed since the February 2014 legislation did not allow it to take advantage of the temporary suspension of the debt limit to increase its deposit balances.

Keeping an ear open for hints of more experimentation to come at tomorrow's press conference,

Peter Stella
March 17, 2015