Orchestrating the Exit

Chairman Bernanke mentioned at his June 2013 press conference that the Federal Reserve has been reviewing the exit strategy and that "We expect those discussions to continue and intend to provide further information at an appropriate time." The exit strategy from unconventional policies was first outlined to Congress in February 2010 and broadly agreed exit strategy principles were contained in the minutes of the June 2011 FOMC meeting. The current exit strategy aims to return the Federal Reserve to a smaller balance sheet, (approximately the pre-crisis size), and to revert to using a short term interest rate target—the fed funds rate—to signal the FOMC's policy stance.

More interesting than the ultimate aim or destination is the anticipated journey or sequencing of the exit. The first step in the strategy would appear to be to curtail and then eliminate the large scale asset purchases (LSAPs) that continue to add reserves to the banking system. Then overnight bank deposits at the Federal Reserve, "fed funds", would be *reduced* in overall magnitude by (1) ceasing to roll over maturing securities in the Fed's portfolio; (2) an increase in the program of term deposit auctions; and (3) an increase in reverse repurchase agreements or "reverse repos". The latter two tools would essentially convert bank overnight deposits (fed funds) into longer term deposits in the first case and collateralized loans to the Federal Reserve in the second. Ceasing to roll over Treasury and government sponsored agency (GSE) debt would drain reserves by requiring the Treasury or GSE to issue more debt to the public than otherwise would be the case and to use the proceeds obtained to redeem their debt held by the Fed. Thus bank reserves used by the public to purchase the additional securities from the Treasury or GSE would be cancelled from the Fed balance sheet (on the liability side) once they are provided by the issuer to redeem their debt held by the Fed (thus Fed assets would fall by an identical amount). Once the FOMC becomes comfortable that a manageable commercial bank excess reserve position has been reestablished, instructions would be given to the System Open Market Account manager to engineer an increase in the fed funds rate. A supportive floor for the fed funds rate would be established through pari passu changes in the interest rate paid on bank reserves (IOR).

Although it is not possible to predict precisely what the level of reserves will be when serious reserve draining is initiated, the magnitude of the operations could be very large. At this writing, reserves of depository institutions are $2.099 trillion (and rising), almost $1 trillion more than reserves at the time in February 2010[1] when Chairman Bernanke made the following statement before Congress:

"…by developing the capacity to conduct such transactions in the triparty repo market, the Federal Reserve has enhanced its ability to use reverse repos to absorb ***very large*** *quantities of reserves….As a second means of draining reserves, the Federal Reserve is also developing plans to offer to depository institutions term deposits, which are roughly analogous to certificates of deposit that the institutions offer to their customers. The Federal Reserve would likely auction* ***large blocks*** *of such deposits, thus*

[1] Reserves were $1.164 trillion on February 15, 2010.

converting a portion of depository institutions' reserve balances into deposits that could not be used to meet their very short-term liquidity needs and ***could not be counted as reserves****."* [Emphasis added][2].

Since that time the Fed has successfully experimented with small auctions of term deposits and reverse repo operations[3]. Evidently there were no system problems with the execution of the transactions so that the challenge will be more the magnitude of the task rather than the mechanics. In preparation for large scale reverse repos the Federal Reserve has extended its approved counterparties beyond the traditional primary dealers to include, inter alia, the GSEs.

As Chairman Bernanke noted, reserve draining operations will precede an increase in the fed funds rate:

"As the time for the removal of policy accommodation draws near, those [reserve draining] *operations could be scaled up to drain more significant volumes of reserve balances to provide tighter control over short-term interest rates.* ***The actual firming of policy would then be implemented through an increase in the interest rate paid on reserves****."*[4] (page 9) [emphasis added].

The early 2010 outline is very similar to the key "Exit Strategy Principles" spelled out in the following excerpt from the June 21-22, 2011 FOMC meeting minutes:

- *To begin the process of policy normalization, the Committee will likely first cease reinvesting some or all payments of principal on the securities holdings in the SOMA.*

- *At the same time or sometime thereafter, the Committee will modify its forward guidance on the path of the federal funds rate and will initiate temporary reserve-draining operations aimed at supporting the implementation of increases in the federal funds rate when appropriate.*

- *When economic conditions warrant, the Committee's next step in the process of policy normalization will be to* ***begin raising its target for the federal funds rate, and from that point on, changing the level or range of the federal funds rate target will be the primary means of adjusting the stance of monetary policy****. During the normalization process,* ***adjustments to the interest rate on excess reserves and to the level of reserves in the banking system will be used to bring the funds rate toward its target****.* [emphasis added]

There are two related problems with this scenario. The first is rather technical and not too difficult to resolve. That is, the interest rate on bank reserves has not effectively set a floor on the fed funds rate since it was introduced in the middle of December 2008. In fact, between December 15, 2008 and July 30, 2013 there were 1,161 days during which fed funds were traded and on 1,159 of these days the daily

[2] Excerpts from a Statement by Chairman Bernanke prepared for the US House of Representatives Committee on Financial Services delivered February 10, 2010 (pages 7-8).

[3] As of July 25, 2013, depository institutions' time deposits at the Fed amounted to $11.9 billion compared with ordinary deposits (reserves) of $2.099 trillion. On April 3, 2013 the FRBNY undertook a 1 day reverse repo operation against Treasury, Agency and MBS collateral amounting to $260 million; on April 5, 2013 a 3 day reverse repo operation against Treasury collateral amounting to $1.19 billion; and on April 10, 2013 a 5 day reverse repo operation against Treasury, Agency, and MBS collateral amounting to $2.75 billion.

[4] Chairman Bernanke, US House of Representatives statement, op. cit., page 9

effective fed funds rate settled below the 25 basis points IOR "floor". On the two exceptional days, June 18-19, 2009, the rate was exactly 25 basis points.

How is this possible? That is, if banks are able to obtain 25 basis points by simply placing their funds at the Federal Reserve why would anyone be willing to lend another bank fed funds (deposits at the Fed) unsecured at less than 25 bps? The answer is actually very simple. The GSEs, consisting primarily of Fannie Mae and Freddie Mac, maintain accounts at the Federal Reserve but do not receive interest on their balances since they are not depository institutions[5]. So Fannie Mae and Freddie Mac are the primary *suppliers* of funds to the banks at rates below the "floor". Since their return on idle reserves is zero, they are willing to lend to banks at less than 25 bps while the banks are more than willing to pick up a margin on their intermediation of GSE "loans" to the Fed.

There are several possible solutions to this technical glitch, but before we go there it is important to state why this will be a key issue going forward. At present, the target for the fed funds rate is a band—from 0 to 25 bps, so the FOMC target is being met even though it seems illogical that the rate trades below 25 bps. And the discrepancy is rather important. For example, the fed funds effective rate on July 29, 2013 was 9 bps, quite far from the likely first step in tightening rates—a move to a point target of solely 25 bps. Compare this deviation of 16 bps with the daily average absolute deviation of the fed funds effective rate from the FOMC target during 2006 of 3 bps[6].

Perhaps the most straightforward solution to this glitch is also the most illustrative of the general point I wish to make in this note. The Federal Reserve could offer the GSEs overnight reverse repos in order to effectively extract them from the market. A reverse repo consists of a sale of securities from the borrower of funds to the supplier of funds with an agreement to reverse the transaction at some point in the future. So the Fed would essentially sell the GSEs securities with an associated promise to buy them back the following day at a slightly higher price. The difference in the two prices comprises the "interest" paid by the borrower of cash (seller of securities), i.e. the Fed, to the lender of cash (buyer of securities), i.e. the GSEs. The Fed has historically employed this technique to effectively pay interest on the balances of foreign central banks who maintain deposits at the Federal Reserve Bank of New York for their external reserve management purposes[7]. Presumably, once the GSEs are extracted from the market in this way, the effective fed funds rate would revert to a more logical trading pattern constrained by the floor set by the interest rate paid on overnight deposits.

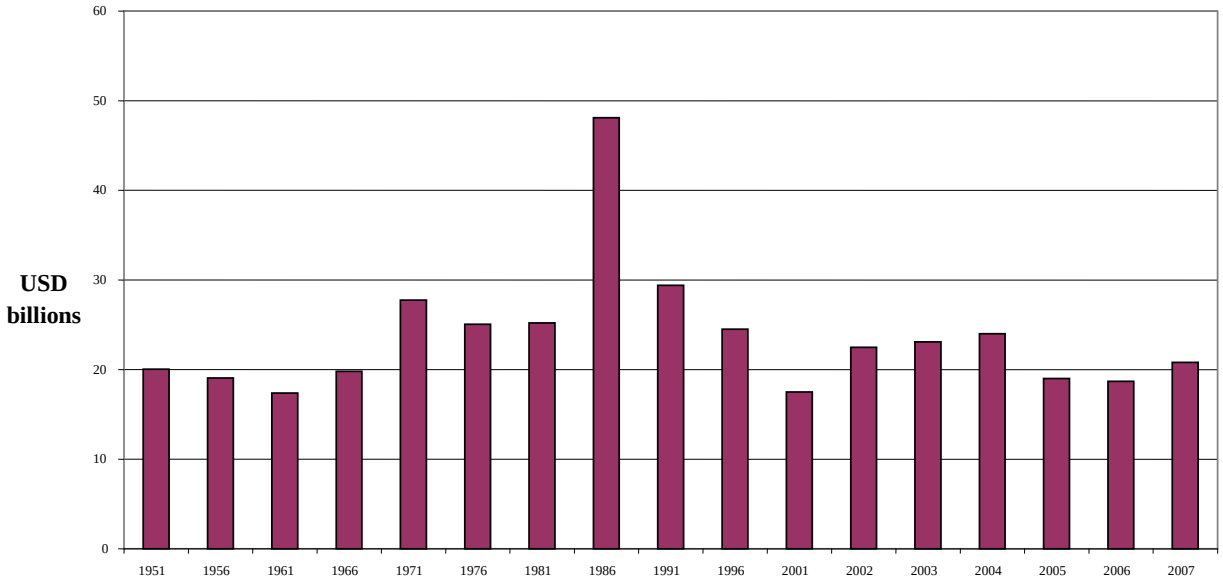
Before moving on to discuss why it is very important that the Federal Reserve use reverse repos as the workhorse of the exit strategy rather than IOR, it will be useful to have some idea of the role of bank reserves in the financial system.

Bank reserves, or deposits at the central bank, have a singular role, to facilitate management of the payments system. They are used to settle transactions among banks and never leave the possession of

[5] Congress has allowed the Federal Reserve to pay interest only on balances held by depository institutions.
[6] See *Domestic Open Market Operations 2006*, Federal Reserve Bank of New York, page 27.
[7] Reverse repos on the FR consolidated balance sheet amounted to $85.6 billion on July 24, 2013 and $28.5 billion on July 26, 2006.

the banking system. Indeed, in most systems, deposits at the central bank can only be held by banks, thus they are never lent "out" of the banking system. Consequently the notion that the quantity of bank reserves somehow constrains lending in a fiat money world is completely erroneous. Even in systems where legal reserve requirements are imposed on certain bank liabilities, all modern central banks allow the quantity of reserves to be demand driven in normal times. Consequently, monetary policy actually has little to do with money. It is more accurately thought of as the control of precisely the interest rate at which the central bank provides the reserves (over which it has a monopoly of creation) that are demanded by banks. A corollary of this fact is that the money "multiplier" is nothing of the sort. Bank reserves are not "multiplied" by the banking system nor is such a multiplication necessary for the expansion of bank credit and monetary liabilities. If there is a single fact that illustrates this point it is that total commercial bank deposits at the Federal Reserve in 1951 ($20 billion) were larger—in nominal terms—than at end 2006 ($19 billion) while total US credit market assets rose by over 10,000 percent in nominal terms during the same time period[8].

Figure 1: US Commercial Bank Deposits at all FRBs



The remarkable constancy of the nominal value of commercial bank reserves held at the Federal Reserve is the result of extraordinary advances in payments system technology and the associated provision of daylight overdrafts to participants in Fedwire, the main US real time gross settlement system. For example, "The average aggregate reserves of depository institutions in the United States during 2005 was $46 billion. Banks use these reserves to settle payments to other banks (and other participants in the financial markets) during the day. In 2005, the average daily value of Fedwire fund transfers—the

[8] Stella (2009) *The Federal Reserve System Balance Sheet—What Happened and Why it Matters* IMF WP 09/120.

primary means by which banks transfer funds to one another—was approximately $2 trillion; this is, nearly 50 times the quantity of reserves." [9]

The takeaway from this discussion is that neither the Federal Reserve nor any other advanced central bank apart, perhaps, from the Bank of Japan, has any target for bank reserves nor uses the quantity of bank reserves as a tool. In fact, they cannot risk doing so without potentially damaging the intraday payments system and introducing high volatility in their operational interest rate target[10].

The point of credit easing policies and LSAPs is to reduce longer term interest rates plain and simple. The expansion of bank reserves is merely a technological artifact of modern payments systems combined with how all central banks pay for the assets they acquire—by crediting the reserve account of the bank where the seller maintains their settlement account. This is one of the unintended consequences of LSAPs. Banks accumulate large unwanted balances at the Federal Reserve even if they themselves do not participate in selling securities to the Fed! By definition they cannot pass these deposits at the Federal Reserve to anyone who is not eligible to hold those deposits so they are locked into a closed system among themselves. Naturally they could request Federal Reserve banknotes from their district FRB in exchange for deposits but that would not make sense unless the central bank began to tax reserve holdings (or imposed a negative interest rate on balances). But some economists and journalists seem to believe that taxing reserve balances would lead to more lending, presumably under the mistaken impression that banks lend "out" reserves. As stated before, the only way for reserves to be removed from the banking system (apart from being provided to the central bank and extinguished) is that physical notes be demanded. I have seen banking systems reduced by central bank and/or government taxation to settling interbank payments in physical US dollar notes, from Argentina to Liberia, and it is basically setting them back to a 15th century conceptual framework equipped with armored cars and high powered rifles. How anyone can think this leads to an increase, rather than a decrease in financial intermediation activity is truly baffling.

The problem with excess reserves from the central bank point of view has absolutely nothing to do with a need to reduce the monetary base to avoid inflation, high inflation, or hyperinflation[11]. It has everything to do with the need to bring the overnight deposit market into a demand/supply balance if the central bank intends to continue to use the overnight interest rate as an operational target. As noted above, this is going to be a tall order. But to a large extent it can be accomplished with what might be called smoke and mirrors. While a one-day reverse repo transaction will technically reduce the amount of overnight "deposits" available at the Federal Reserve, from the standpoint of bank liquidity

[9] *Interest on Reserves and Daylight Credit* by Humberto M. Ennis and John A. Weinberg, Federal Reserve Bank of Richmond Economic Quarterly, Volume 93, Number 2, Spring 2007.

[10] Before the crisis, virtually all monetary operations managers did was to fine tune the amount of reserves on a daily or hourly basis to adjust to expected and unexpected inflows and outflows to bank reserves caused primarily by government cash management operations or, in countries where there are active forex operations, to changes in reserves caused by foreign exchange market intervention. These operations are known in the trade as "defensive" operations, as opposed to the comparatively rare operations taken to facilitate the movement of the market rate in line with changes in the policy target rate.

[11] I was with the IMF in Argentina during May 1989 when the monthly inflation rate was 198.5 percent. At about 500,000 percent on an annualized basis, that is hyperinflation…

management there is hardly a difference between the two apart from the added attraction of obtaining collateral that could be rehypothicated, i.e. reused as collateral to obtain nonbank funding. Nor should committed "inflationistas", or at least those who bother to scratch beneath the surface of the numbers, be consoled by $1 trillion of deposits being "locked up" at the Fed for 28 days in a term deposit rather than "locked up" for 28 consecutive days as overnight deposits. Whether they are locked up or not, those deposits are about as likely to go anywhere outside the Fed overnight as a vampire or bat are to take a stroll or fly about in the midday sun. It simply does not happen.

So the Fed essentially needs to bring the overnight deposit market back into a semblance of equilibrium if it wishes to control the overnight interest rate. That would mean bringing the level of overnight deposits back into a range somewhere around $50 to $100 billion. This could be accomplished with a balance sheet of $10 trillion in assets or $1 trillion in assets. **Indeed, there is no technical reason why the Fed could not raise the overnight fed funds rate while continuing to expand its balance sheet**. Continued purchases of UST 10 years could be financed by a corresponding amount of 14 day reverse repos leaving the overall need to drain reserves unchanged. In light of all the recent fuss about "tapering" it might not be a bad idea for the Federal Reserve, at least at a technical level at the New York Federal Reserve, to toss this idea out to the market.

Another way to solve the puzzle of reestablishing control over a short term interest rate is simply to change the FOMC target to something the Fed established directly[12]. In his February 10, 2010 testimony to Congress, Chairman Bernanke described the FOMC's awareness of this point:

"*As a result of the very large volume of reserves in the banking system, the level of activity and liquidity in the federal funds market has declined considerably, raising the possibility that the federal funds rate could for a time become a less reliable indicator than usual of conditions in short-term money markets. Accordingly,* ***the Federal Reserve is considering the utility, during the transition to a more normal policy configuration, of communicating the stance of policy in terms of another operating target, such as an alternative short-term interest rate. In particular, it is possible that the Federal Reserve could for a time use the interest rate paid on reserves, in combination with targets for reserve quantities, as a guide to its policy stance****….The Federal Reserve anticipates that it will eventually return to an operating framework with much lower reserve balances than at present and with the federal funds rate as the operating target for policy*." (page 10) [emphasis added].

The point is that monetary policy is about setting the risk free yield curve anchored on current and expected future policy rates. Obviously the market believes the Federal Reserve will eventually regain its grip on a short term policy rate, whether the "old" fed funds rate, the IOR rate, a reverse repo rate or some other alternative. This grip can be established in the context of an overall balance sheet that is growing, shrinking or residing in a steady-state. But there are alternative technical ways to reestablish the grip and orchestrate the exit. There is an important difference between relying on the IOR rate as the workhorse tool and relying on reverse repos. The IOR/Term Deposit option continues to leave a sizeable portion of the financial sector balance sheet locked into useless reserves. The reverse repo

[12] For example, the central bank of Norway, the Norges Bank, uses its overnight deposit rate as the policy rate. So there is no need to conduct any monetary operations to fix the policy rate beyond posting a new deposit rate.

option effectively provides the market with highly liquid collateral “in exchange” for its deposits. That collateral would not only relieve the current collateral and safe asset constraints being confronted in today’s markets, it could also be used by banks to obtain low cost finance from the nonbank sector. I will discuss this at greater length in a future post.

Peter Stella
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