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Bank Asset/Liability Management

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Some Consequences of Paying Interest on Excess Reserves

Under the Financial Services Regulatory Act of 2006 and the Emergency Economic Stabilization Act of 2008, the Federal Reserve was authorized to pay interest on reserves. Paying interest on reserves, both required and excess, began in October 2008 and continues to this day.

The rationale for paying interest on required reserves was to ensure that the opportunity cost of reserves was neutral, thereby reducing the need for banks to sell funds. However in the early stages of the financial crisis of 2008-09 the Fed was flooding the market with reserves through the Quantitative Easing program that was officially initiated in December 2008. In order to keep the federal funds rate (FFR) from dropping below zero during the period, the Fed accelerated the program to not just cover required reserves but excess reserves as well. This may have been a response in part to the recognition that the overnight markets were experiencing a lot of volatility. But, under such circumstances, without paying interest on reserves, the FFR would likely have fallen below zero, something the Federal Reserve wanted to (and did) avoid.

Prior to the Act the Fed was using the *corridor* system which is familiar to treasurers of depository institutions. Upper and lower targets were set by the Federal Open Market Committee (FOMC) and the Fed added to or subtracted from the available supply of reserves through open market operations. This was initiated mostly through Repos and Reverse Repos with primary brokers, directly injecting or removing cash to influence the overnight rate. As indicated in Figure 1, this system was extraordinarily successful in maintaining the FFR near the adopted policy target. As shown in the right panel, since October 2008 interest has been paid on reserves while the Fed lost no control over the FFR.

After October 2008, with interest on both required and excess reserves being paid, the FOMC continued to set targets for the FFR. However, they achieved their goal through a completely different operational procedure known as a *floor* system. As indicated in the right panel in Figure 1, from the perspective of the observed FFR, there has been no loss of control over the FFR.

In This Issue:

- Some Consequences of Paying Interest on Excess Reserves 1
- It's a Wonderful (MMT) World! 5
- Fed Rate Cuts Now May Not Lower Cost of Funds Like Many Bankers Assume 7

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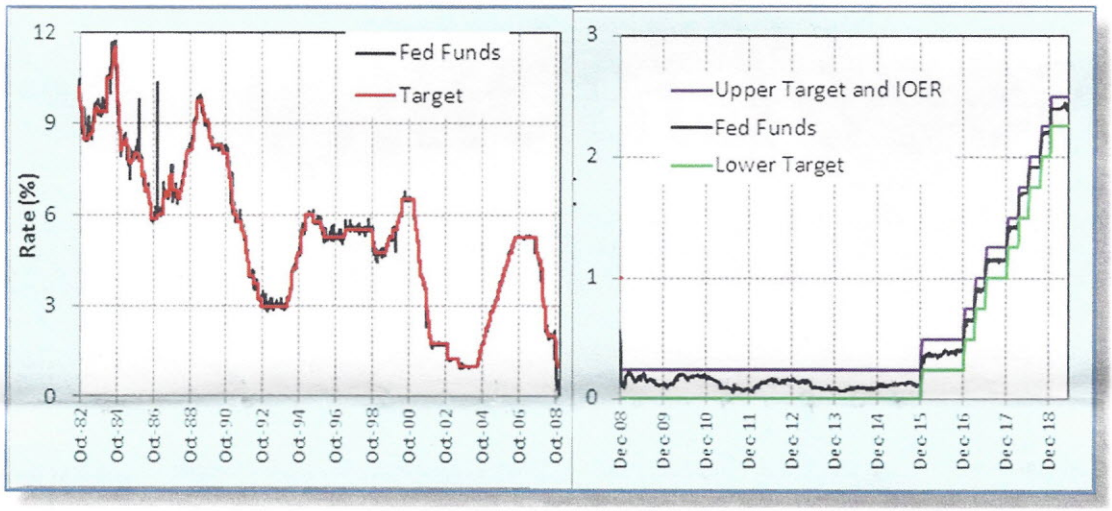
Figure 1. Federal Funds Rate and Targets Before and After Adoption of the Floor System



Note: IOER = "interest on excess reserves." For a few days at the beginning of the program interest on required reserves was higher than IOER. They have been the same since Nov. 6, 2008. Prior to October 2008, the Fed employed a single target.

However, implementing monetary policy is never consequence free. Consider the following list of potential issues, to be discussed in more detail below:

- The Fed's balance sheet is no longer constrained by concerns about overstimulating the economy.
- Relationships between the FFR and short term Treasury and Libor rates have been changed by the floor system. Spreads between these rates are now a function of FOMC policy, rather than the demand and supply in the federal funds market.
- Reserves now earn a competitive interest rate, from a return and regulatory liquidity perspective and the shift away from selling Fed Funds has lowered the industry's loan to deposit ratio.
- Changes in the demand for reserves no longer provide signals to the Fed regarding underlying economic activity.
- The usefulness of market indicators previously derived from monitoring of bank purchasers of federal funds by bank sellers of federal funds has been diminished.
- Fed *remittances* (revenues minus expenses) to the U.S. Treasury have declined significantly since it began paying interest on reserves, providing a measure of the implicit taxpayer subsidy earned principally by the largest banks with large deposit balances and subject to the highest reserve requirements.
- *The Fed's Balance Sheet is No Longer Constrained by Concerns about Controlling Inflation.*

Since lower FFRs stimulate aggregate demand and economic growth, under the corridor system the size of the Fed's balance sheet is constrained by concerns about overstimulating economic growth and generating a higher rate of inflation than the stated target.

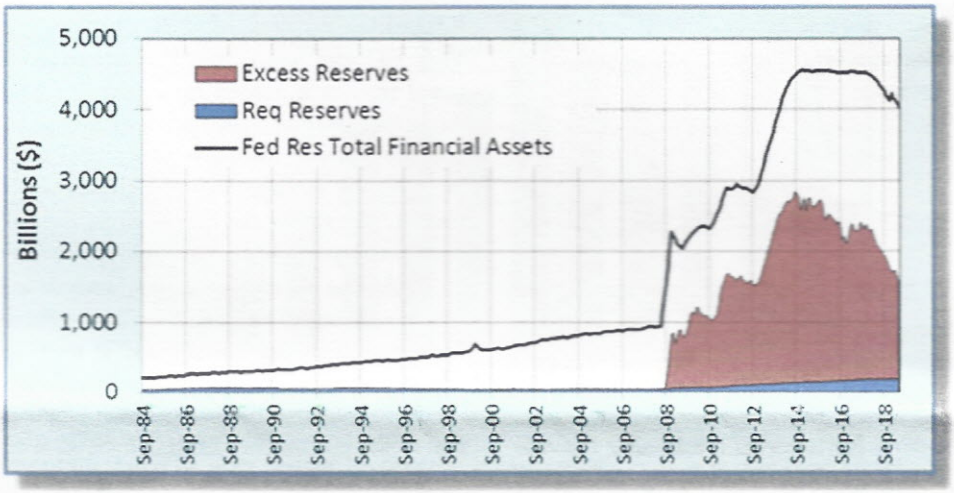
Under the floor system, no such constraint exists, because the Fed can grow its balance sheet without lowering the overnight rate paid on reserves. This is because the size of the Fed's balance sheet and short term interest rates are no longer linked. In addition, the floor system potentially leads to a floor on the size of the Fed's balance sheet: if reserves become sufficiently scarce, banks would sell funds in the Fed funds market, weakening the Fed's control over the FFR.

So, what does constrain the Fed's purchases of U.S. Treasury debt?

The answer is currently political because there is no economic limit in place. As the U.S. Treasury continues to seek funding of its ever-growing debt, the Fed has the ability to buy it all, without worrying about its impact on economic growth and inflation.

Currently, and consistent with its most recent announcements, the Fed has reduced its holdings of Treasury and MBS securities, leading to the reduction in outstanding reserves from the peaks in July 2014. These data are displayed in Figure 2. As indicated, the total financial assets of the Federal Reserve were dramatically increased by the Quantitative Easing program. As also indicated, outstanding reserves track these purchases.

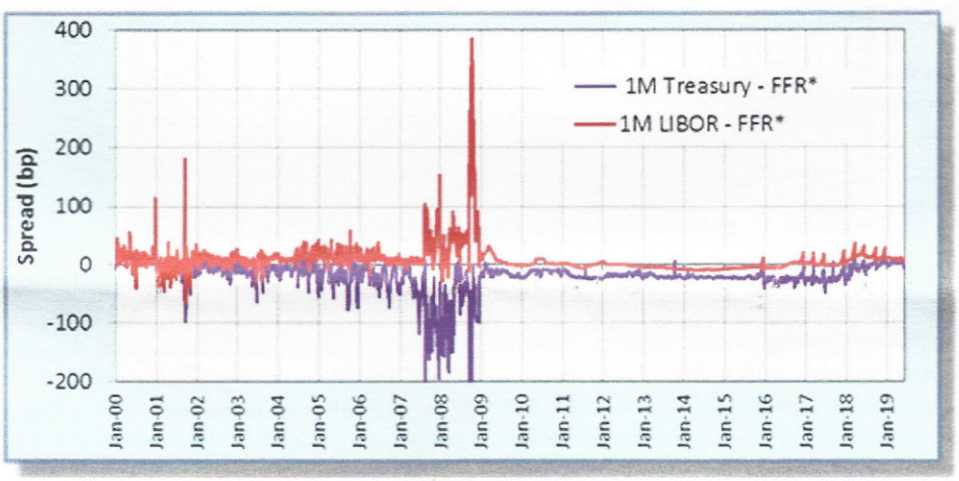
Figure 2. Federal Reserve Total Assets, Required and Excess Reserves



While the graph above is consistent with the view that the current members of the FOMC intend to reduce the Fed's holdings of securities and, therefore, the level of reserves, there is no explicit legislation that would prevent them from reversing recent policies. For example, if longer term rates begin to rise more than desired by the committee, the FOMC could easily slow or reverse the rate at which current securities are maturing and for MBS amortizing. Or, for example, if economic growth slows and the Fed elects to restart the quantitative easing program it could do so by increasing reserves.

The Floor System Has Changed Relationships between the FFR and Short-Term Treasury and Libor Rates. In Figure 3 we graph the spread of the one month Libor and Treasury rates to the FFR, replacing the FFR with the IOER in October 2008. As indicated these relationships changed dramatically after initiation of the floor system.

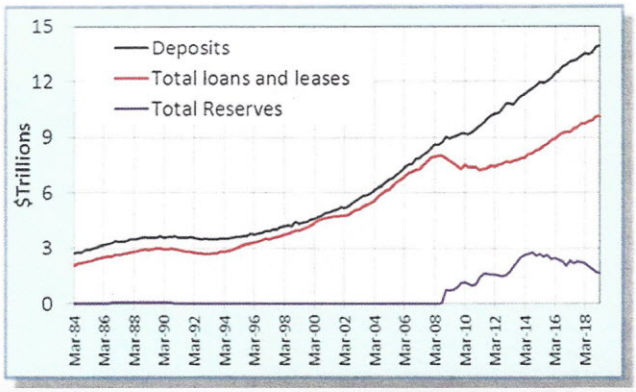
Figure 3. One Month Treasury and Libor Spreads to the Fed Funds Rate



- Note: The IOER was used after October 2008 in place of the reported Effective FFR. Also, the one month Treasury rate was not available until July 31, 2001.

Reserves are an Interest Paying Risk Free Investment. Reserves are considered to be completely liquid, including in regulations, and have zero credit risk. As such, paying interest on reserves provides a floor under the risk-free rate of return banks earn on reserves, and improves banks' liquidity measures relative to other investments. We offer one perspective on this consequence, based on FDIC Call reports on loans, leases and deposits. In Figure 4 we graph these two time series. While it is too early to know how long recent trends will prevail, the floor system has altered the relationship between deposit balances and lending activity in the banking system in ways that have yet to be fully analyzed.

Figure 4. Loans and Leases vs. Deposits in Commercial Banks



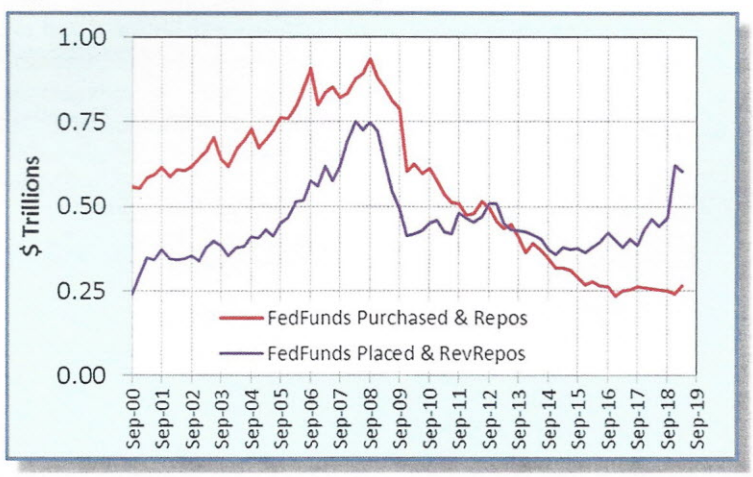
Source: FDIC

Changes in the Demand for Reserves No Longer Provide Signals to the Fed Regarding Underlying Economic Activity. Prior to the financial panic, excess reserves were miniscule. For example, they were $1.9B in August 2008. By contrast, they were over $59B one month later, as the financial panic ensued. Under the corridor system, changes in the demand for reserves typically provided near real-time information on deposits in the banking system. The New York Fed staff was required to determine how many additional reserves it needed to provide or withdraw in order to move the observed FFR by the desired amount. Monitoring and analyses were necessary along with updated information in order to manage the FFR under such circumstances. Indeed, that's how the Fed knew in the fall of 2008 that it couldn't keep the FFR above zero under the corridor system.

Under the floor system, such analysis is both unavailable and unnecessary. The FFR is set by the interest rate on excess reserves (IOER) and the amount of reserves is largely determined by Fed policies, divorced from interest rates and market conditions. The fed funds market no longer provides information to the Fed staff or FOMC on the state of the economy.

Under the floor system, there is not an interbank market of any size. As indicated in Figure 5, Fed Funds purchases and repurchase agreement volumes have declined almost 75 percent since the summer of 2008 based on FDIC Call report data.

Figure 5. Loans and Leases vs. Deposits in Commercial Banks

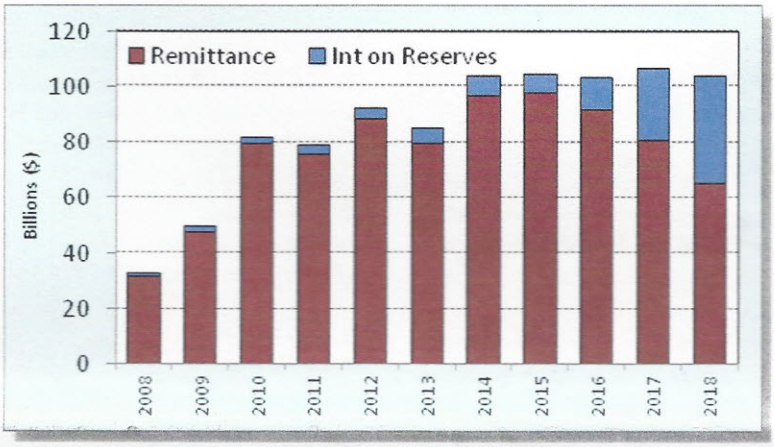


Bank Monitoring of Other Banks is Greatly Diminished. Fed funds are unsecured. As such, the risk of default is a relevant consideration to banks that are lending funds to other banks. Under the corridor system, lending banks have incentives to monitor those counterparties and to determine which banks it chooses not to lend to. The result was that any bank that found itself at greater risk of default was likely to be unable to borrow in the Fed Funds market. Under this dynamic, the market provides signals to the regulators about individual banks' health. The incentive to make the relevant credit judgments and the pricing responses are no longer available as the market for Fed Funds has declined.

Declining *Remittances* to the U.S. Treasury. The Federal Reserve earns interest on all of the securities it owns. The amount earned has been far greater than the central bank needs to fund its operations and so each year it remits excess funds to the U.S. Treasury. As indicated in Figure 6, remittances to the U.S Treasury would have been even larger if interest were not paid on reserves. Cumulatively, since the end of 2008 when interest earned on reserves began, the Fed has paid $108 billion in interest and reduced remittances accordingly.

Paying interest on excess reserves maintained by large banks and, thereby, reducing remittances to the U.S. Treasury raises a potentially significant political issue: Interest payments on excess reserves are concentrated among the very largest banks with the largest deposits and highest reserve ratio requirements which means there are significant transfers to the largest banks that are coming from U.S. taxpayers. There is risk that the political support for the floor system may diminish if the public interprets the interest payments to be subsidies of the largest banks in the country.

Figure 6. Remittances to the U.S. Treasury and Interest on Reserves



What To Pay Attention To. The floor system adopted by the Fed has not received widespread attention within the industry, or by the political establishment. Meanwhile it has led to changes in how bank treasurers manage their reserves. The system may endure. But it is at risk of being changed in fundamental ways due to growing concerns expressed in the academic literature that the costs of the program may outweigh its benefits. The outcome of the debate regarding the floor system and its transfers may be determined by the path of interest rates and the scale of transfer payments to the largest banks, something in a presidential election year that may become a political issue.

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It's a Wonderful (MMT) World!

Modern Monetary Theory (MMT) has received a good deal of attention recently. While only scratching the surface, this article seeks to identify the main ideas of MMT and to assess its credibility by exploring recent economic history. Of course, it makes sense to finish with suggested ALM responses if implementation becomes more widespread.

MMT aims to raise the real economy to primacy over the financial markets and to do so through the fiscal policy levers of spending and taxation. If the economy is operating below potential, as measured by employment slack and idle capacity, the Federal government would increase spending. Ideally, this spending would be directed towards infrastructure that enhances the productivity of the economy, but not necessarily so. It may take the form of a job guarantee which directly addresses employment. On the other hand, were the economy to overheat based on an acceleration of inflation beyond a set threshold, taxes would be raised to throttle back growth. It is precisely because the private economy needs government-issued money to pay its taxes that MMTers contend that money gains legitimacy. Since the government controls the issuance of money, it cannot default on its debts because it can issue whatever it needs to pay off borrowings. This is critical and separates countries like the United States which issues its own currency from countries that use a currency controlled by others. America is not Zimbabwe nor is it Venezuela. In this formulation, federal government deficits and traditional monetary policy become secondary. In fact, MMT proponents argue that there is little distinction between a deficit funded by debt and one funded by debt monetization. They further argue that the equilibrium *real* policy rate is zero, placing even more emphasis on inflation as the critical variable to control.

Prominent commentators have raised objections to MMT while others have suggested the environment since the Great Recession validates at least part of the theory. By looking at recent economic history, we may be able to see where it has been accurate along with why we may not want to buy in entirely.

Let's start with the idea that deficits cause inflation. In the United States, we have been running deficits of a substantial nature for as long as I can remember with only a few surpluses sprinkled in. And yet, inflation has been on a general downtrend for at least thirty years. Ditto for Japan, which has seen an even higher level of government deficits and debt coupled with even lower inflation and interest rates. Neither has the European Union been a paragon of fiscal probity. European fiscal deficits have been the norm, but inflation has not. Furthermore, interest rates are low or negative across the continent. In all of these cases, the central banks involved resorted to purchasing the debt issued by the governments. Many warned against quantitative easing (QE)