

Excess Reserves and the New Challenges for Monetary Policy

By Huberto M. Ennis and Alexander L. Wolman

Interest on reserves allows the Federal Reserve to pursue an appropriate monetary policy even with a high level of excess reserves. However, a banking system flush with excess reserves can raise the risk of monetary policy getting behind the curve.

In recent months, the level of total reserves held by depository institutions (DIs) in the United States has been consistently above \$1 trillion. Of this, required reserves have been less than 7 percent. In the five years prior to September 2008, total reserves fluctuated between \$38 billion and \$56 billion, and required reserves fluctuated between 80 percent and 99 percent of total reserves. Hence, the recent level of reserves represents a dramatic change from previous experience. There has been much debate about the implications of high levels of reserves for the economy and how monetary policy is conducted. In this *Economic Brief*, we bring attention to the consequences of these large reserve balances for the Federal Reserve's ability to adjust its policy stance in a timely manner.

Several factors help to explain why today the level of reserves is so high by historical standards. In September and October 2008, riskless market interest rates fell at all maturities. Since these lower interest rates also represented a lower opportunity cost of holding reserves, DIs moved to holding higher levels of reserves. In addition, the weakened condition of many DIs and the financial system as a whole caused an increase in demand for the most liquid assets, such as reserves. The Fed accommodated this by increasing the supply in an effort to maintain its interest rate target. While demand-related factors played a role in the initial buildup of reserves (approximately \$140 billion), the lion's share of the increase resulted from an unprecedented expansion of the Fed's balance sheet and the ability to pay interest on reserves (IOR). Beginning in the fall of 2008, the Fed began paying IOR at a rate approximately equal to the overnight interbank interest rate. By paying interest on reserves – including excess reserves – the Fed essentially eliminated the opportunity cost of holding excess reserves.

At the high levels of excess reserves that have prevailed since then, banks are on an almost perfectly elastic portion of their demand curves – meaning that quantities demanded are highly sensitive to changes in the interest rate. Thus the Fed can make the quantity of reserves as large as it wishes with little or no effect on market interest rates.¹ During the financial turmoil of 2008 and 2009, the Fed's pursuit of lending programs and securities purchase programs (as described by Federal Reserve Board Chairman Ben Bernanke²) resulted in the

creation of a massive quantity of reserves.³ Several interesting policy issues are raised by the large quantity of reserves:

- The “mismatch” between assets and liabilities on the Fed’s balance sheet implies volatility in its earnings that may have economic, and perhaps more likely political implications.
- The asset side of the Fed’s balance sheet shows the Fed to have taken large positions in particular sectors (housing) and institutions (AIG), which is unprecedented and may carry with it additional political risks.
- In contrast to the predictions of simple theories, the IOR rate has not acted as a floor on the federal funds rate. It is now well-understood why certain institutional features of the fed funds market and the IOR program should prevent the IOR rate from acting as a floor, but the precise determination of the fed funds rate in this environment remains poorly understood.

These are complex issues that have received careful attention in policy circles. Our concern is instead an issue that has received much less attention but that we think is important for policymakers to keep in mind. Because monetary theory often describes bank reserves as the “raw material” by which new money and, eventually, inflation is created, it is tempting to worry that the large quantity of reserves *inherently* represents inflationary pressure. As many writers have explained, this is not the case.⁴ The ability to pay interest on reserves means that the Fed can pursue an appropriate (non-inflationary) interest rate policy while maintaining a large quantity of reserves in the banking system. On the other hand, our view is that the large quantity of reserves does represent an increased danger for policymakers of getting behind the curve. That is, while the large quantity of reserves does not prevent the Fed from conducting appropriate policy, it does raise the risk that an inattentive policymaker will be too slow to respond to changing economic circumstances. Furthermore, policymakers may need to look at different indicators than in the past in order to avoid falling behind the curve.

As is standard in the literature on the monetary transmission mechanism, we take the view that one symptom of excessively loose monetary policy will be an unwarranted increase in the quantity of bank loans, and thus an increase in the quantity of deposits, or “inside money.” If the quantity of excess reserves in the banking system were small – say, zero – it would, of course, still be possible for monetary policy to be too loose. Suppose the banking system as a whole wanted to increase lending. At first it would be thwarted by the lack of excess reserves: Increasing loans means creating deposits, and deposits require reserves. To increase reserves, an individual bank has several options; it can sell assets, raise deposits, borrow in the interbank market, or issue securities. Although

other avenues might fund some of the expansion, it seems likely that banks would want to finance long-term commercial and industrial loans in large part through deposits. But increasing deposits takes time. The bank has to offer better rates and investors only turn to deposits gradually. Thus, the policymaker has some time to pick up the signals indicating that the economy is improving.

Furthermore, among those signals is the increase in reserves that occurs because the central bank must perform open market purchases in order to prevent short-term interest rates from rising.⁵ Ultimately, the entire banking system would have the ability to increase loans because the Fed would have created additional reserves. And at some point in the process, appropriate monetary policy would require adjusting the short-term interest rate target. Absent that adjustment, monetary policy would fall behind the curve.⁶

In the current situation, the above story is altered slightly but in an important way. If individual banks want to increase lending, they can do so without having to sell assets, raise deposits, or issue securities. And for the banking system as a whole to increase lending, no accommodation from the Fed is necessary. The high level of excess reserves means that banks in aggregate do not need to increase their reserves before creating loans (and deposits); they can simply draw down their excess reserves.

The fact that the banking system can create large quantities of loans and deposits without the Fed’s involvement has two important implications. First, monetary expansion has the potential to occur more quickly when the level of excess reserves is high. Second, the Fed will not get its usual signals that such an expansion is underway.

One might conclude that it would be “better” if the quantity of reserves were lower. There is indeed a risk associated with high levels of reserves, but that risk would need to be weighed against other known benefits in evaluating whether high levels of reserves are desirable. A primary benefit of high levels of reserves involves the efficiency with which the payments system operates. As indicated above, the difference between overnight market interest rates and the interest rate on reserves represents the opportunity cost to DIs of holding excess reserves. In accord with a well-known argument by Milton Friedman, because excess reserves are essentially costless for society to create (the Fed creates them as electronic accounting entries), it is optimal for DIs to face a zero cost of holding reserves. Thus, interest on reserves enhances payments system efficiency.⁷ In addition, to a large extent, reserves are the counterpart of the Fed’s lending and securities purchase programs mentioned above. While those programs are controversial, they do have many supporters and those programs have effectively been funded

by high levels of reserves.

Taking as given the level of reserves, an implication of our argument is that the Fed ought to be particularly attuned to the division of reserves between “required” and “excess” (which is available at a two-week frequency). If policymakers observe rapid conversion of excess reserves into required reserves, it could indicate a bank-induced monetary expansion that warrants at least the consideration of an interest-rate target increase. Under the Fed’s previous operating procedures, which involved a very low level of excess reserves, the division of reserves between required and excess was largely ignored. In present circumstances it should become one of the standard indicators for policymakers to watch.

In the same way, bank lending becomes a more important indicator. Inflationary pressures might have shown up in bank lending in the past as well. However, in the absence of high excess reserves, as lending picked up, the Fed would be forced to create new reserves in order to maintain its interest rate target. This is no longer true with high levels of excess reserves. For this reason, the Fed would have to rely more heavily on bank lending as an indicator. Additionally, as we argued before, bank lending could respond more quickly to changes in economic conditions and it thus seems especially important that it be closely monitored.

One factor that may limit the risk associated with high levels of reserves is the capital position of banks. Regulatory capital requirements require banks to hold capital against loans. Holding reserves instead of loans raises banks’ capital ratios. Even though excess reserves can be turned into loans and deposits (and the corresponding required reserves) potentially very quickly, binding capital requirements would independently restrict the ability of banks to make new loans.⁸ While the loans may eventually be created, raising capital takes time, delaying the process and allowing the policymaker to gather relevant information to design an appropriate response.

In summary, when the level of excess reserves is high, the banking system has the ability to create large quantities of new loans and deposits without putting pressure on deposit rates and without the Fed creating additional reserves through open market operations. High excess reserves do not represent inherent inflationary pressure, because the Fed can raise the interest rate on excess reserves to limit any inflationary increase in loans and deposits. Nonetheless, a large quantity of excess reserves does represent potential inflationary risks to which the policymaker must be attentive. The greater the level of excess reserves, the greater is the banking system’s ability to expand quickly and the greater is the risk of monetary policy falling behind the curve. With a very high level of excess reserves, it is incumbent upon the policymaker to move with

alacrity in raising interest rates as the economy strengthens, and to carefully monitor bank lending and the behavior of required and excess reserves.

Before closing, we should emphasize that we are not advocating any immediate policy change. In particular, we are not advocating an abrupt policy action of the sort that occurred in 1936–1937, when the Fed raised reserve requirements partly in order to soak up a large quantity of excess reserves. It has long been argued that the increase in reserve requirements resulted in a substantial policy tightening.⁹ Instead we are pointing out that today, as in 1936, the potential for the banking system to create inflationary pressures without Fed intervention is greater than it would be with a small quantity of excess reserves. In 1936 the Fed may have erred on the side of excessive tightness. Our concern is that the Fed should not make the opposite mistake in the coming years. ■

Huberto M. Ennis and Alexander L. Wolman are senior economists at the Federal Reserve Bank of Richmond.

ENDNOTES

¹ Goodfriend was one of the first to make this point. See Marvin S. Goodfriend, “Interest on Reserves and Monetary Policy,” Federal Reserve Bank of New York *Economic Policy Review*, May 2002, vol. 8, no. 1, pp. 13–29. See also John R. Walter and Renee Courtois, “The Effect of Interest on Reserves on Monetary Policy,” Federal Reserve Bank of Richmond *Economic Brief* 09–12, December 2009.

² Ben S. Bernanke, “The Federal Reserve’s Balance Sheet: An Update,” Speech to the Federal Reserve Board Conference on Key Developments in Monetary Policy, Washington, D.C., October 8, 2009.

³ On the role of the Fed’s policy initiatives in the recent buildup in reserves, see Todd Keister and James J. McAndrews, “Why are Banks Holding so Many Excess Reserves?” Federal Reserve Bank of New York *Current Issues in Economics and Finance*, December 2009, vol. 15, no. 8.

⁴ See for example, Susan Woodward and Robert Hall, “The Fed Needs to Make a Policy Statement,” <http://woodwardhall.wordpress.com/2009/04/13/the-fed-needs-to-make-a-policy-statement/>, April 13, 2009.

⁵ As banks seek to raise deposits, their required reserves will tend to rise, causing banks to bid up the fed funds rate (the price of overnight loans of reserve balances). To maintain its target for the fed funds rate, the Fed would conduct open market purchases, increasing the quantity of reserves.

⁶ Concern about falling behind the curve is common among monetary policymakers. For example, as Federal Reserve Bank of Philadelphia President Charles Plosser noted in a speech, “Since monetary policy works with a lag, policymakers must also anticipate and be forward-looking in their actions. Failing to do so would mean that policy would always be behind the curve -- playing catch-up so to speak. The result would be greater instability in the economy and a failure to achieve our policy objectives.” See Charles I. Plosser, “Monetary Policy and the Wisdom of Wayne Gretzky,” Speech to the 31st Annual Economic Seminar, Rochester, N.Y., December 1, 2009.

⁷ For a detailed exposition of this point in the context of an explicit model, see Jeffrey M. Lacker, “Clearing, Settlement and Monetary Policy,” *Journal of Monetary Economics*, October 1997, vol. 40, no. 2, pp. 347–381.

⁸ See Van den Heuvel and the references therein: Skander J. Van den Heuvel, “Does Bank Capital Matter for Monetary Transmission?” Federal Reserve Bank of New York *Economic Policy Review*, May 2002, vol. 8, no. 1, pp. 259–265.

⁹ Milton Friedman and Anna J. Schwartz, *A Monetary History of the United States, 1867–1960*, Princeton: Princeton University Press, 1963, pp. 520–532.

The views expressed in this article are those of the authors and not necessarily those of the Federal Reserve Bank of Richmond or the Federal Reserve System. The authors would like to thank Todd Keister and John Weinberg for helpful comments.



THE FEDERAL RESERVE BANK OF RICHMOND
RICHMOND ■ BALTIMORE ■ CHARLOTTE