

## Interest on Reserves and the Current High Level of Excess Reserves

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- Banks are holding substantially more excess reserves than in August 2008.
- The Federal Reserve began paying interest on reserves in October 2008 and currently is paying an interest rate on reserves similar to rates on short-term Treasury securities.
- Payment of interest on reserves accounts for much, though probably not all, of the increase in excess reserves.

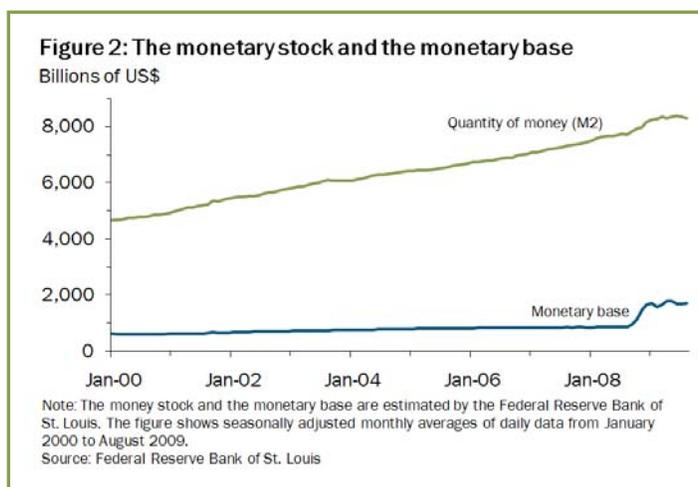
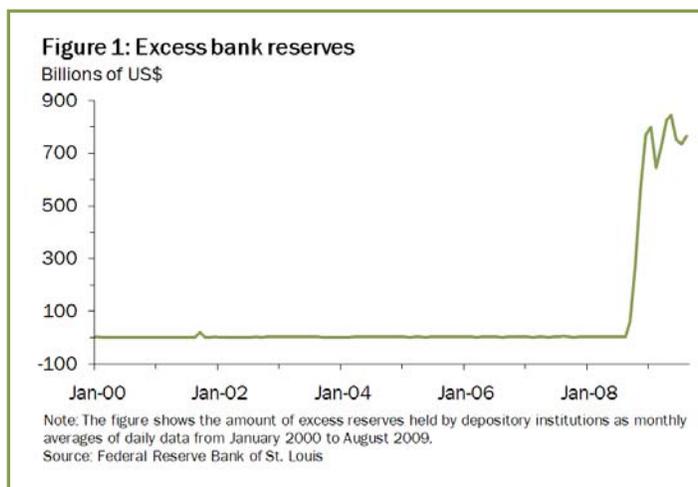
Excess reserves held by banks have skyrocketed in the past year—from about \$2 billion in August 2008 to \$765 billion in August 2009. Figure 1 shows the increase since the financial crisis in September 2008, which is extraordinary relative to earlier behavior since 2000. In fact, it is quite extraordinary compared to all the years since World War II.

### Reserves raise money supply

This rise in excess reserves has important implications for monetary aggregates such as the quantity of money in the economy. The increase in excess reserves is reflected in an increase in banks' total reserves, which are part of the monetary base. The monetary base—currency plus total bank reserves—clearly has jumped since August 2008 (see Figure 2). Furthermore, there is a reasonably close relationship between the monetary base and the quantity of money, which is itself related to the level of prices. The long-run positive relationship between the quantity of money and the level of prices is one of the most established propositions in economics.

Figure 2 also shows some evidence of an upward bump in the quantity of money (M2) in the United States since August 2008. This upward bump is not remotely as large as the increase in excess reserves or the monetary base over the same period.

Two important events since August 2008 clearly have affected banks' excess reserves.



The financial crisis in September 2008 is one. Second, the Federal Reserve began paying interest on reserves held by banks in October 2008. Instead of receiving no interest on excess reserves, banks now receive interest at the same rate as the upper end of the range of the Federal Reserve’s intended federal funds rate.

### Money in the bank

Excess reserves can be viewed as similar to any other precautionary balance, giving banks flexibility in the event of untoward developments. The financial crisis probably has created concerns about the future, which increase banks’ demand for excess reserves. In addition, after the events of last September, banks also are likely to be less interested in making loans to other banks on the federal funds market. This reluctance to lend to other banks means that borrowing banks are likely to have more difficulty raising funds and it is prudent for banks to hold more reserves. There is no real evidence on the importance of these factors, but they cannot be completely ignored.

The Federal Reserve currently is paying interest on excess reserves at 25 basis points. The Fed initially set interest rates for reserves at the average federal funds rate minus 10 basis points for required reserves and at the lowest fed funds rate minus 75 basis points for excess reserves. After a couple of intermediate adjustments, the rates on both required and excess reserves are now set to equal the upper end of the range of the intended fed funds rate announced by the Federal Open Market Committee.

### A whole new ball game

This payment of interest changes everything. Now a bank has the choice of lending reserves to another bank at the federal funds rate or just holding the reserves at the Federal Reserve and receiving the intended federal funds rate. At any fed funds rate up to the intended rate, a bank has no monetary incentive to lend reserves to other banks. The fed funds rate is unlikely to exceed the intended rate, at least for long, because the Federal Reserve supplies additional reserves to prevent the fed funds rate from being above the intended rate. Because banks have no incentive to lend at actual federal funds rates, borrowing is small or nonexistent, and banks hold excess reserves rather than count on borrowing reserves from other banks. The net result is little or no borrowing between banks and a greater demand for excess reserves than previously.

Furthermore, because short-term rates on government securities are little different than the fed funds rate, excess reserves are a convenient way for banks to hold short-term funds, even substantial amounts of them. Figure 3 shows the interest rates on Treasury bills, fed funds, and reserves. The income forgone by holding reserves is determined by the difference between the interest rates on risk-free assets and reserves. While the interest rate on three-month Treasury bills in Figure 3 is not literally risk-free, it is close to a risk-free interest rate.

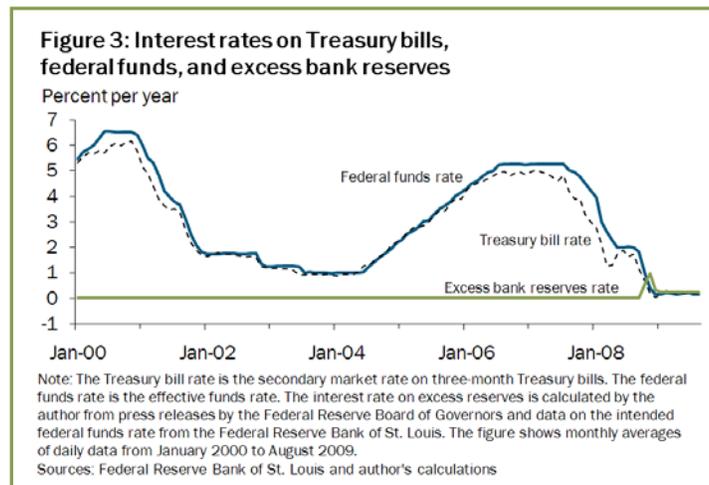


Figure 3 shows that the difference between the three-month Treasury bill rate and the interest rate on reserves has declined significantly. Currently, banks receive a higher interest rate from holding excess reserves than from holding three-month Treasury bills. As long as the interest rates on reserves and risk-free assets are similar and banks' demand for risk-free assets does not decline, there is no obvious reason why excess reserves will decline.

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