



Are Bank Reserves and Bank Lending Connected?

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Depository financial institutions (DFIs)—commercial banks, savings banks, saving and loan institutions, and credit unions—in the United States are required to hold a certain amount of their assets in the form of vault cash or deposits with Federal Reserve Banks. For most DFIs, their vault cash (including cash in automated teller machines), held to service customers' day-to-day business needs, meets or exceeds the required reserves. Larger banks typically satisfy their requirement with deposits at the Federal Reserve Banks, in addition to their vault cash. In "normal" times for monetary policy, a DFI's lending is constrained by its need to satisfy reserve requirements because each dollar loaned tends to reduce its deposits at the Fed by a dollar. Unless the bank can attract additional deposits, this depletion of its Fed deposits limits its lending. "Excess reserves" typically are defined as the amount of deposits held at Reserve Banks above and beyond the amount necessary to satisfy the statutory reserve requirements.¹

Since the summer of 2008 the financial climate for DFIs has been anything but "normal." During this period, the level of deposits held by DFIs at Reserve Banks increased roughly by a factor of 50—from \$20.4 billion at the end of August 2008 to more than \$1 trillion at the end of December 2010. This expansion, in the aggregate, is entirely due to a single factor beyond the control of the DFIs, either individually or in the aggregate—the aggressive expansion of the Fed's balance sheet.

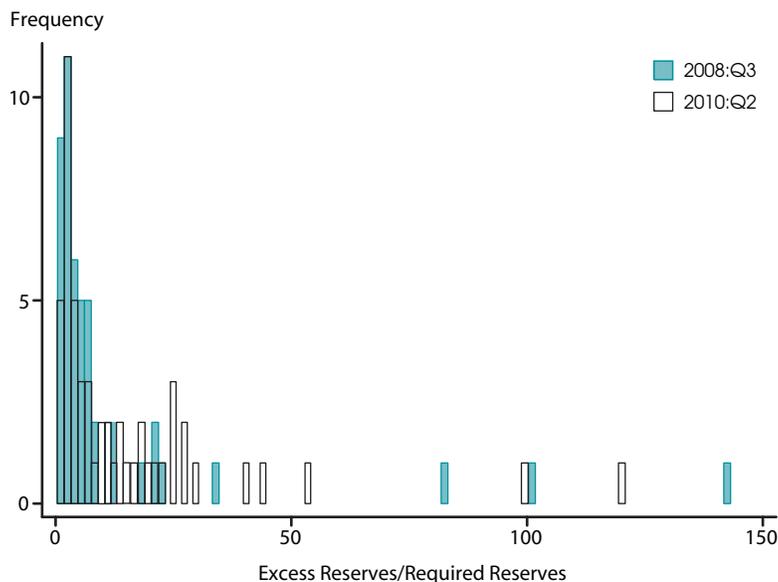
The Fed's balance sheet expansion has had two goals: reducing interest rates on longer-term assets and increasing bank lending. The former has been explored in issues of *Monetary Trends*.² Here, I explore the latter goal, focusing on the large degree of heterogeneity among banks in reserves accumulation. The distribution is of interest because smaller banks tend to lend to small businesses, while larger banks tend to lend to larger firms. During 2009-10, larger firms experienced receptive bond and capital markets—

CFO magazine recently characterized large-firm debt and equity finance as "dirt cheap."³ Smaller firms, however, still cite tighter bank lending terms as constraints to increased borrowing.

As long as the strength of the recovery remains uncertain, there are few other investment opportunities, after adjusting for risk and taxes, with anticipated returns greater than the near-zero interest the Federal Reserve pays on deposits.

For simplicity, I focus on the ratio of banks' excess reserves to required reserves. Unfortunately, the required and excess reserves for individual banks are not published

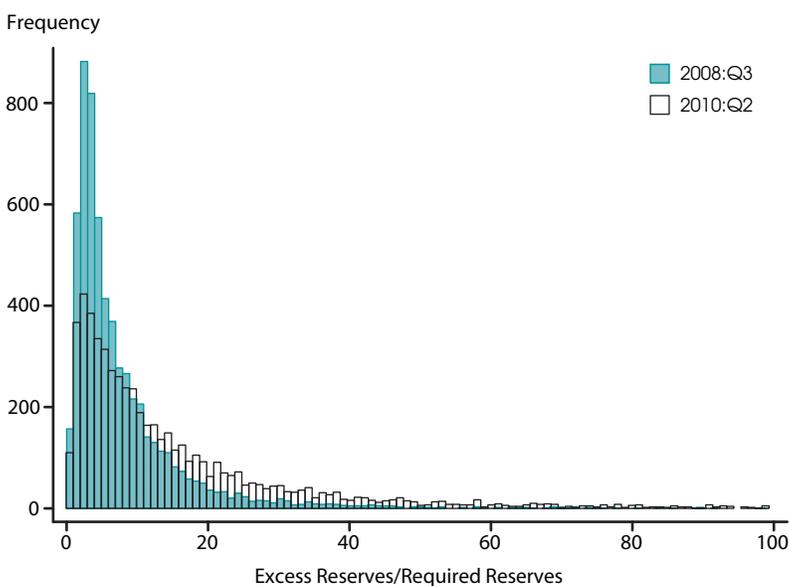
Figure 1
100 Largest Banks (by bank assets)



by bank regulators. As a substitute, for each quarter between 2008:Q3 and 2010:Q2, I use publicly available bank-level data to compute measures of required and excess reserves using rules as similar as feasible to the ones used by the Federal Reserve.⁴ Over the 2008:Q3–2010:Q2 period, the distribution of the excess-to-required reserves ratio has become more dispersed (less peaked and with a fatter tail), indicating that more banks have accumulated larger amounts of excess reserves. Figure 1 shows the 100 largest banks. Figure 2 shows all other banks.

Large increases in excess reserves have prompted some analysts to argue that depository institutions are “hoarding cash,” thereby impeding the growth of lending and slowing the recovery from the 2007–09 recession. Analysis of the cross-sectional data suggests that some banks may be maintaining such large reserve positions as a precautionary hedge in an uncertain environment. Many banks, especially smaller ones, likely recall the autumn of 2008 when repurchase agreement (repo) markets closed and, absent Federal Reserve actions, liquidity was unavailable at any price. As long as the strength of the recovery remains uncertain, there are few other investment opportunities, after adjusting for risk and taxes, with anticipated returns greater than the near-zero interest (currently 0.25 percent) the Federal Reserve pays on deposits. ■

Figure 2
All Banks Excluding 100 Largest (by bank assets)



¹ See Board of Governors of the Federal Reserve System. “Reserve Requirements.” October 26, 2010; www.federalreserve.gov/monetarypolicy/reservereq.htm.

² See Anderson, Richard G. “Is More QE in Sight?” Federal Reserve Bank of St. Louis *Monetary Trends*, November 2010; <http://research.stlouisfed.org/publications/mt/20101101/cover.pdf>.

³ Ryan, Vincent. “Multiple Choice.” *CFO*, December 1, 2010; www.cfo.com/article.cfm/14540065.

⁴ For an analysis of more accurate measures, see Anderson, Richard G. and Rasche, Robert R. “Retail Sweep Programs and Bank Reserves, 1994–1999” *Federal Reserve Bank of St. Louis Review*, January/February 2001, 83(1), pp. 51–72; <http://research.stlouisfed.org/publications/review/01/0101ra.pdf>.