

Chapter 17 – Money Supply and the Financial Crisis

The central bank supplies aggregate reserves, but banks supply money. Chapter 17 explains this useful adage: Bank behavior determines the *deposit expansion multiplier* – the increase in money from an extra dollar of reserves; but only the central bank can create or destroy reserves.

The financial crisis of 2007-09 highlighted the role of bank behavior in U.S. money supply. When the crisis peaked in September 2008, the deposit expansion multiplier plummeted. Why?

The standard process of deposit expansion assumes that banks do not wish to hold on to an extra dollar of reserves supplied by the Fed. In normal times, they prefer to earn a return on this extra dollar by lending most of it (aside from required reserves) to others. Multiple deposit expansion occurs as the banking system repeatedly lends the extra asset until the excess reserves are used up.

In September 2008, following the collapse of Lehman Brothers, bank behavior changed in a way that sharply depressed the deposit expansion multiplier. Banks preferred to hold many more excess reserves, short-circuiting the deposit expansion process.

What raised banks' demand for excess reserves? As we have seen in earlier modules, during a crisis, liquidity is a matter of survival (Chapter 2 module: Liquidity). When depositors wish to convert their claims into cash, a bank that cannot accommodate them fails.

The decline of market liquidity following the Lehman collapse made it difficult for banks to sell assets to meet unexpected withdrawals. At the same time, the loss of funding liquidity meant that banks might be compelled to sell assets just to survive. The natural response of banks was to seek the most liquid assets as a precaution against uncertain needs. The extra returns that a bank could make by lending out its excess reserves were far too small to make it willing to accept a heightened risk of failure.

Reserves that banks hold at the Federal Reserve are the most liquid assets in the U.S. financial system. A bank's excess reserves can be used at any time to satisfy claims. They can be transferred or converted into cash almost immediately. Fear of failure in the crisis led to an astronomical increase in banks' demand for excess reserves at the Fed. Over the five months from August 2008, the Fed added \$813 billion to reserves – an increase by a factor of 19 – to meet this heightened demand. While the Fed flooded the banking system with reserves in an unprecedented fashion, most of

the increase flowed into excess reserves, because banks had little interest in lending these reserves to others.¹

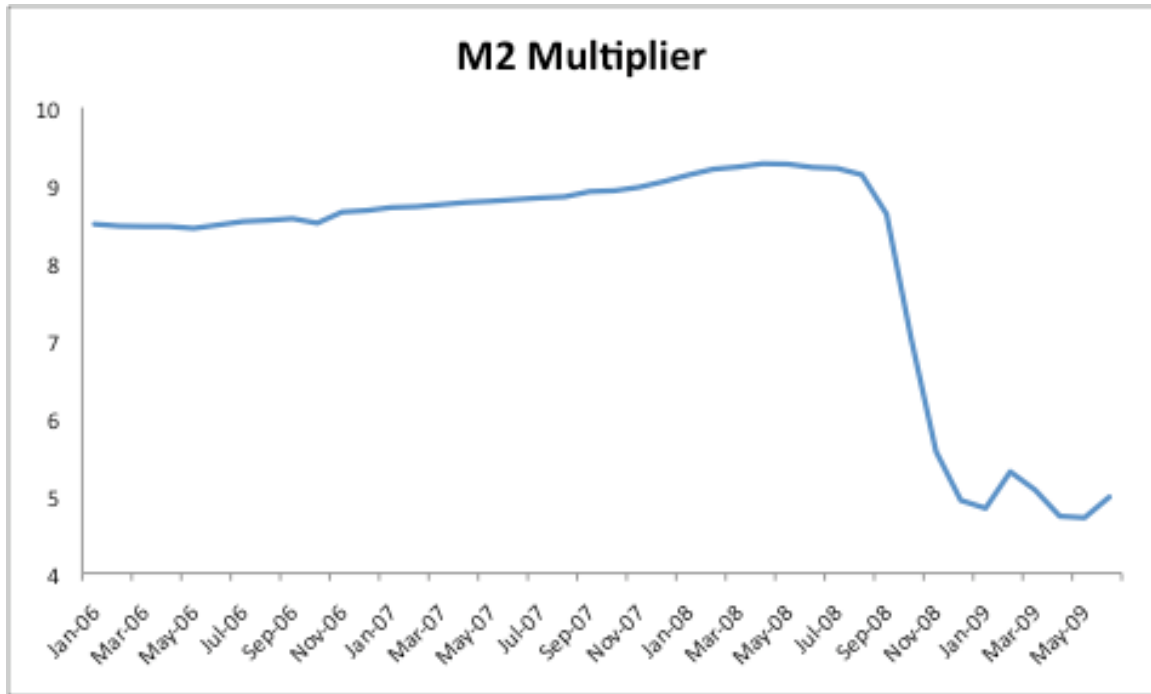
The extent of bank caution is visible in the evolution of M2 – the monetary aggregate that includes currency, demand deposits and small-denomination time deposits. Over the five months from August 2008, the absolute increase of M2 – \$538 billion – was smaller than the Fed’s addition to reserves! Instead of the normal multiple deposit expansion, the crisis led to a fractional expansion. The collapse of the usual demand expansion process can be seen in the unprecedented halving of the M2 money multiplier, which measures the ratio of M2 to the Fed’s monetary base – currency plus reserves (see Figure 1).

What would have happened if the Federal Reserve had not radically increased the level of the monetary base? Most likely, M2 would have collapsed as banks desperate for liquid assets cut back loans to healthy borrowers. The Fed’s behavior in the 2007-09 crisis contrasts sharply with its actions during the Great Depression. In that earlier episode, the increase in the Fed’s monetary base was insufficient to prevent a collapse of M2 (see Chapter 17 “Applying the Concept: Monetary Policy in the 1930s”).

The Fed learned a key lesson from its 1930s failure that it was determined not to repeat: In a crisis, the variability of the deposit multiplier makes the monetary base a poor indicator of the quantity of money. Avoiding a collapse in the money supply may require a huge increase in the monetary base, at least until the crisis recedes and bank demand for excess reserves abates.

¹ In October, 2008, the Federal Reserve began paying interest on reserves (see the Chapter 18 module: Paying Interest on Reserves), further reducing the incentive for banks to lend out their reserves. This shift helps explain why excess reserve demand has not returned to pre-crisis levels despite improving liquidity conditions in 2009.

Figure 1. M2 Multiplier: The Ratio of M2 to the Monetary Base



Source: Federal Reserve Board and authors' calculations.