

CHAPTER 2

THE FEDERAL RESERVE AND ITS POWERS

CHAPTER OBJECTIVES

1. This chapter describes the background and structure of the Federal Reserve System, perhaps the most powerful component of the financial system. The Fed has broad responsibilities for regulating the financial system, controlling the money supply, and influencing interest rates. Its design was influenced by inadequacies of the 19th-century banking system, which remain useful lessons about the consequences of neglecting or mismanaging financial systems.
2. The chapter explains the components of the Fed's balance sheet and relates them to the money supply and financial system, thus introducing the concept of the "monetary base". Understanding the main components of the monetary base is important before moving on to Chapter 3.
3. The chapter introduces the "tools of monetary policy"—open market operations, the discount rate, and reserve requirements. The tools differ concretely and significantly from each other, and have changed in relative importance as the financial system has evolved. The ability to compare and contrast them—and to understand why open market operations are the only fully viable tool of monetary policy—is also crucial before moving on to Chapter 3.
4. The chapter discusses what powers the Fed gained and how the Fed's balance sheet changed during the financial crisis. Students should understand how the Fed was able to expand its balance sheet and change its structure and what it has accomplished by doing so.

CHANGES FROM THE LAST EDITION

1. Tables, exhibits, and data have been updated. Old Exhibit 2.4 has been deleted. The second "People and Events" insert has been revised.
2. "Learning by Doing" (LBD) inserts are the new feature for this edition. These inserts show in detail how to do certain numerical problems. In this chapter, there are two LBD inserts: one on p.62 and another on pp.69-70.
3. "Do You Understand?" questions: (1) two questions have been deleted and one added in the only question set in the chapter.
4. There are 11 new end-of-chapter questions (Qs. 11-21).
5. The chapter has a number of new subsections:
 - "The Federal Reserve Bank of New York" (in Section 2.2, "The Current Structure of the Fed") – to emphasize the importance of FRB of New York;
 - "The Financial Crisis and Expanded Powers" and "New Regulatory Powers" (in Section 2.4, "The Fed's Regulatory Powers"); the latter subsection discusses such issues as managing systemic risk and *too big to fail*.
 - "The Financial System Bailout" (in Section 2.6, "The Fed's Balance Sheet");
 - "Paying Interest on Reserves" (in Section 2.8, "Federal Reserve Tools of Monetary Policy").

CHAPTER KEY POINTS

1. The Fed has centralized as the U.S. has evolved from a confederation of regional economies to a truly

national economy. The 12 Federal Reserve Banks, once largely autonomous in their respective regional districts, remain operationally important but have lost their authority to set monetary policy. They are a minority (5 votes out of 12) on the FOMC, which sets U.S. monetary policy under ultimate control of the Board of Governors. The Federal Reserve Bank of New York, however, has a special status and a permanent spot on the FOMC. It is located in the heart of the Manhattan financial district and is charged with executing open market operations for the Fed.

2. The Fed's powers have expanded substantially since its creation. In addition to its original central bank functions, the Fed has gained many regulatory powers, summarized in Exhibit 2.4. Today the Fed directly influences the behavior of practically every U.S. financial institution. During the 2007-2009 financial crisis, the Fed gained even more regulatory powers. Throughout its existence, the Fed's power and credibility have been based in large part on its considerable independence within the federal government. Students should understand how and why this independence endures, and grasp the ultimate limits on it.

3. The Fed's balance sheet (Exhibit 2.6) is the mechanism through which the tools of monetary policy influence the money supply. A central bank is unique among financial institutions in that it can issue liabilities and acquire assets at will. The Fed's most useful technique for doing so is open market operations—buying and selling securities on the open market. These transactions change the monetary base directly, immediately, and dollar-for-dollar as the Fed credits new reserves to pay for open market purchases and retires existing reserves to collect for open market sales. Historically, it has been U.S. government debt and more recently federal agency debt, but in response to the financial crisis and recession of 2007-2009 the Fed implemented several programs that acquired other assets such as mortgage-backed securities.

ANSWERS TO END-OF-CHAPTER QUESTIONS

1. *Explain why the banking system was so unstable prior to establishment of the Fed in 1914.*

After termination of the Second Bank of the United States in 1836, the U.S. was without a central bank until passage of the Federal Reserve Act in late 1913. Thus there was no overall control of the size or quality of the money supply. Until the National Banking and Currency Acts (1862-64), banks were largely unregulated and free not only to engage in unsound lending practices, but to issue banknotes—IOUs against themselves—without restraint. Over-issue of this “private currency” prompted hoarding of gold and silver, causing the money supply to be “inelastic”—unevenly distributed and not easily adjustable. Frequent bank failures exacerbated downturns in the normal business cycle. The National Banking apparatus was a step forward, but the need for a central bank became more evident as the post-Civil War economy cycled through boom, bust, and financial panic.

2. *What is a call loan? How did call loans contribute to economic recessions?*

A call loan may be “called in”—declared due and payable—by the lender at any time. Call loans were once a common form of bank financing for agriculture and business. Until the Fed was created in 1913, there was no “lender of last resort” to keep banks liquid. After the federal government began taxing state banknotes in the 1860s, demand deposits—essentially “call loans” to banks from depositors—became highly popular. If too many depositors demanded their money back at once, banks would be forced to call in loans, usually causing borrowers to default, often causing their farms or businesses to fail, and not necessarily raising enough cash to pay off the depositors. The ensuing economic slowdown and financial uncertainty would provoke more depositors to try to withdraw funds from banks, forcing more banks to call in loans, triggering more defaults and business failures, dragging the economy into recession.

3. *What were the four goals of the legislation that established the Federal Reserve System? Have they been met today?*

The goals of the Federal Reserve Act of 1913 were to create:

- (1) a reliable mechanism for adjusting the money supply to the needs of the economy;
- (2) a lender of last resort that could furnish liquidity to banks in times of financial crisis;
- (3) an efficient payment system for clearing and collecting checks at face value throughout the country; and
- (4) a more vigorous bank supervision system to reduce the risk of bank failures.

Relatively low rates of inflation since the early 1980s are evidence of success with goal #1. The Fed was a true lender of last resort (goal #2) to financial institutions (including non-banks) and even some non-financial companies during the 2007-2009 financial crisis. The U.S. payment system—goal #3—operates so reliably as to be taken for granted. The financial services industry faced a major challenge during the 2007-2009 crisis, with numerous bank failures and near failures. The Fed worked hard to prevent failures of systemically important banks (goal #4) and other financial institutions and restore confidence in the financial markets..

4. *Explain why the Board of Governors of the Federal Reserve System is considered so powerful. What are its major powers and which is the most important?*

The 7 members of the Board make up a majority of the 12-member FOMC, which sets monetary policy (the Fed's most important power). The Board also promulgates all the financial system regulations listed in Exhibit 2.4, enacts the policies and procedures by which the Federal Reserve System is internally governed, and appoints 3 of the 9 directors of each Federal Reserve Bank. Governors, though appointed by the President and confirmed by the Senate, have a 14-year nonrenewable term of office and may thus discharge their duties with considerable political independence.

5. *Explain why the FOMC is the key policy group within the Fed.*

The Federal Open Market Committee, comprising the 7 Governors, the president of the New York Fed, and 4 of the remaining 11 presidents of Federal Reserve Banks, sets monetary policy for one of the world's largest and most powerful countries, affecting interest rates, exchange rates, and economic growth. The Chairman of the Board of Governors sets the FOMC's agenda, runs its meetings, and is the Fed's face and voice to the outside world. Consequently, the Chairman is one of the world's most powerful figures.

6. *Explain why Regulation Q caused difficulties for banks and other depository institutions, especially during periods of rising interest rates.*

Reg Q, one of many "lettered" Fed regulations, originally prohibited banks from paying interest on demand deposits, prohibited thrifts from offering demand deposits, and imposed interest rate ceilings on interest-bearing deposits. These provisions served to limit price competition for deposits in a period when stability was the primary objective. When market rates rose above Reg Q ceilings, deposit withdrawal (disintermediation) would drain liquidity from depository institutions. Ultimately, Reg Q was phased out by the Depository Institutions Deregulation and Monetary Control Act of 1980 (DIDMCA) and the Depository Institutions Act of 1982. Today, the Fed depends on market forces to allocate flow of funds.

7. *Explain the sense in which the Fed is independent of the federal government. How independent*

is the Fed in reality? What is your opinion about the importance of the Fed's independence for the U.S. economy?

There are no direct channels of bureaucratic, fiscal, or political pressure on the Fed. It is a creature of Congress, but not directly under its authority. The Board is appointed by but not answerable to the President. The Fed funds itself, thus Congress has no “power of the purse” over it. Ultimately, however, it may be more correct to say that the Fed is independent *within*, not *of* the government. What Congress creates, Congress can modify or destroy. Congress has from time to time established guidelines or objectives for the Fed (e.g., the Humphrey-Hawkins Act of 1978). The Fed remains independent because most politicians want it that way. They mostly agree that monetary policy is not a partisan issue. An independent Fed can also absorb blame if the economy falters, and take necessary but unpopular steps to combat various economic ills. Critics argue that the Fed's independence is elitist and undemocratic. Supporters argue that elected politicians cannot be fully trusted to handle the money supply. The underlying argument is as representative government itself: Should popular will decide public policy, or merely decide who decides? There is evidence (see Exhibit 2.5) that countries with more independent central banks have less inflation. However, there is no evidence that central bank independence correlates with employment or national income levels.

8. *A bank has \$20,000 in reserves, \$90,000 in bank loans, and \$150,000 of deposits. If the reserve requirement is 10%, what is the bank's reserve position? What is the maximum dollar amount of loans the bank could make? What would happen to the nation's money supply if the Fed lowered the reserve requirement to 6 percent? Demonstrate your results with a numerical example.*

Assuming reserve requirements apply to all the bank's deposits, its \$20,000 of reserves comprise required reserves of \$15,000 (10% of total deposits of \$150,000) and excess reserves of \$5,000 (total reserves of \$20,000 less required reserves of \$15,000):

Excess Reserves	\$ 5,000	This reserve position supports up to \$5,000 of new loans. In reality, reserve requirements do not apply to all deposits (see Exhibit 2.7).
Loans	90,000	
Required Reserves	15,000	
Deposits	\$150,000	

Excess Reserves	\$11,000	If the reserve requirement were 6% instead of 10%, excess reserves would be immensely and immediately greater. The excess reserves shown here for illustration far exceed, as percentage of assets, what any bank would leave idle.
Loans	90,000	
Required Reserves	9,000	
Deposits	\$150,000	

Excess Reserves	\$ 0	Banks would “lend up” excess reserves quickly, expanding loans and deposits until any reserves were again absorbed as required reserves: DEP = RR/k
Loans	313,333	
Required Reserves	20,000	
Deposits	\$333,333	

As this example suggests, reducing reserve requirements by 40%—something the Fed would never really do—would radically expand deposits and loans across the banking system. The Fed does not adjust reserve requirements very often, or by very much. Effects are too dramatic for the “fine tuning” it prefers.

9. *Why does the Fed not use the discount rate to conduct monetary policy? How does the Fed use the discount rate?*

In the early 20th century, long before modern money markets evolved, “discounting” was a common way to retrieve liquidity from financial instruments (e.g., factoring accounts receivable), and commercial banks did not have many “non-deposit” funding choices. When the Fed was formed, the discount rate was the primary tool of monetary policy because it was the cost of member banks’ main non-deposit source of funds—loans at the Discount Window. The Fed would discount (lend less than the face value of) loans and other financial instruments held by member banks, providing liquidity. Because the banking industry had few other funding choices but was the primary source of operating credit to farms and businesses, Fed discount policy was a reasonably effective direct control on the money supply. As money markets evolved, the Fed Funds market in particular developed, and the FOMC developed its processes, “discounting” in its foundational sense faded into history. Today changes in the discount rate merely signal policy intent; open market operations directly increase or reduce the money supply. Loans “at the Window” are still available, but depository institutions have many funding choices and are wary of “Window scrutiny”—questions regulators might have about early or regular trips to the Window. Discount Window loans outstanding are now just a tiny fraction of the Fed’s total assets.

10. *Explain how the Fed changes the money supply with an open-market purchase of Treasury securities.*

Every Fed transaction with the private sector clears through the “bank reserve account”. When the Fed buys securities, it pays for them in a way no other financial system participant can: It unilaterally creates new money by crediting new reserves in the amount of the purchase to the reserve account of the depository bank of the securities dealer. Thus, open market purchases increase total reserves in the banking system directly, immediately, and dollar-for-dollar. During the financial crisis of 2007-2009, the Fed expanded open market operations from using only Treasury securities to buying large amounts of federal agency debt and mortgage-backed securities. The importance of open market operations is illustrated in Exhibit 2.6: The Fed’s portfolios of these securities are by far its largest asset categories.

11. *Northwest National Bank received new demand deposits (DD) of \$1,650,000. The current reserve requirement is 6 percent. The bank has \$80,000 in vault cash and \$110,000 at the Federal Reserve that are not yet invested. How much in excess reserves does the bank have available to make new loans?*

Total reserves = \$80,000 + \$110,000 = \$190,000

Required reserves = \$1,650,000 * 0.06 = \$99,000

Excess reserves = \$190,000 - \$99,000 = \$91,000

12. *Currently a community bank has \$45,000 in reserves, demand deposits of \$200,000, and loans of \$145,000. It unexpectedly receives an inflow of deposits of \$50,000 into checking accounts and another \$25,000 into time deposits. Current reserve requirements on demand deposits and time deposits are 10 percent and 3 percent, respectively. What is the bank’s reserve position? What is the maximum dollar amount of loans the bank could make?*

Total reserves are \$45,000 plus the newly arrived cash of \$75,000, or \$120,000.

Required reserves = $0.1 \times (200,000 + 50,000) + 0.03 \times 25,000 = \$25,750$

Excess reserves = \$120,000 - \$25,750 = \$94,250.

The bank may immediately loan out the \$94,250 of excess reserves and still meet the reserve requirement.

13. Suppose the current reserve requirements set by the Federal Reserve are as follows:

Type of Liability	Requirement
	Percentage of liabilities
Transaction deposits \$0 to \$10.7 million	0
Transaction deposits more than \$10.7 million to \$55.2 million	3
Transaction deposits more than \$55.2 million	10
Non-personal time deposits	3
Eurocurrency liabilities	0

A bank has cash of \$2 million, reserve deposits at the Federal Reserve of \$25 million, transaction deposits of \$275 million, non-personal time deposits of \$100 million. Calculate the bank's required reserves, excess reserves, and total reserves.

Total reserves = \$2mln. + \$25mln. = \$27mln.

Required reserves = (\$55.2mln. - \$10.7mln.)*0.03 + (\$275mln. - \$55.2mln.)*0.1 + \$100mln.*0.03 = \$26.315mln.

Excess reserves = \$27mln. - \$26.315mln = \$0.685mln.

14. Refer to the table in Question 13. Now suppose the Federal Reserve raised the reserve requirement on transaction deposits between \$10.7 million and \$55.2 million to 5 percent and eliminated the reserve requirement on non-personal time deposits. Calculate the bank's required reserves, excess reserves, and total reserves under these conditions.

Total reserves = \$2mln. + \$25mln. = \$27mln.

Required reserves = (\$55.2mln. - \$10.7mln.)*0.05 + (\$275mln. - \$55.2mln.)*0.1 = \$24.205mln.

Excess reserves = \$27mln. - \$24.205mln = \$2.795mln.

15. The Fed decides to buy \$10,000 of government bonds from Goldman Sachs. Using T-accounts show the complete transaction. Did the money supply increase or decrease? Explain.

Goldman Sachs		The Fed	
-\$10,000 Gov. bonds		+\$10,000 Gov. bonds	+\$10,000 Reserve deposit of Goldman Sachs
+\$10,000 Reserves at FRB			

The money supply increased because the banking system as a whole now has \$10,000 more in reserves.

16. Why is the Federal Reserve Bank of New York granted special status? What is the special status?

The New York Fed's special status is in its responsibility to conduct open market operations for the Fed on a daily basis. The New York Fed Trading Desk buys and sells securities on the open market to carry out the decisions of FOMC. The New York Fed also houses the foreign exchange desk which trades currencies on behalf of the Fed and the U.S. Treasury. The president of the NY Fed has a permanent spot on FOMC, while the remaining eleven FRBs have four of their presidents on the committee on a rotating basis.

The reason for the special status of the New York Fed is its location in the heart of the financial district in Manhattan – the home to some of the largest commercial banks and other financial firms in the world. The ability of the New York Fed officials to stay in close contact with these key market players is very important, especially in times of crises.

17. *What were three important regulatory powers that the Fed gained from the passage of the Financial Regulatory Reform Act of 2010? Explain each briefly.*

The three regulatory powers the Fed gained are:

- 1) The power to intervene in the business activities of large nonbank firms to better control systemic risk across the economy. In extraordinary circumstances, it has the power to break up firms or require them to divest of certain assets.
- 2) Increased focus on strengthening firms considered “too big to fail”, i.e., posing systemic risks to the economy. The Fed may impose tougher capital, leverage, risk-taking, and other standards for such firms.
- 3) Focus on regulating larger financial firms: The Fed no longer oversees small bank-holding companies and state-chartered banks and will only regulate large financial institutions, banks, and thrift holding companies with total assets in excess of \$50 billion.

18. *With respect to the financial system, what is meant by “too big to fail”? Why is it an important issue?*

Failure of a large financial firm may cause irreparable damage to the economy, resulting in a banking panic, recession, or even depression. To prevent the possible catastrophic consequences, the federal government may step in to bail out such firms, as it did in the fall of 2008. While a bailout may be the lesser evil than letting such firms fail, moral hazard may lead to wealth transfers from taxpayers to owners of these firms. That is, if a financial institution believes it is too big to fail, it may take excessive risks and, if these risks do not pay off, fail and end up being bailed out by the government (i.e., taxpayers). Minimizing the likelihood of having to bail out large financial institutions that are “too big to fail” calls for more stringent controls of capital positions, leverage, and risks taken by such firms.

19. *What are the arguments that support having a strong and independent Federal Reserve Bank?*

The independence of the Fed relieves it from day-to-day political pressures and affords it to take unpopular measures beneficial for the economy in the long run. An example is contracting money supply to increase interest rates, which would likely dump inflation but cool of the economy in the short run.

20. *Why does the Fed want the ability to pay interest on reserve accounts?*

Paying interest on reserves allows the Fed to influence not only the supply of reserves (which it does by buying or selling securities via open market operations) but also the demand for reserves. Increasing the interest rate on reserves provides banks with an incentive to keep more excess reserves with the Fed rather than to lend to other banks or customers. Decreasing this rate or eliminating interest on reserves altogether would encourage banks to keep less excess reserves and lend more, all else equal.

21. *If the country went into a recession, would you expect banks to increase or decrease its holdings of excess reserves? Explain.*

Recessions are characterized by declines in economic activity. Demand for loans falls during such times while deposits levels tend to remain fairly stable. As a result, banks tend to make less loans and hold more excess reserves.