

Chapter

16

The Federal Reserve and Monetary Policy

Suppose you have a checkbook that allows you to write as many checks as you wish for any amount you desire. There is no need to worry about the balance in your account, and the checks will always be cashed, no matter how much you spend. Of course, no person has an account like this, but the Federal Reserve, our nation's central bank, very nearly does.

Economics Journal

Skim recent newspapers for references to policies of the Federal Reserve. List terms you don't understand. Jot down their definitions as you read this chapter.



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FEDERAL RESERVE

The Federal Reserve System

Preview

Objectives

After studying this section you will be able to:

1. **Understand** banking history in the United States.
2. **Explain** why the Federal Reserve Act of 1913 led to further reform.
3. **Explain** the structure of the Federal Reserve System.

Section Focus

To stabilize the nation's banking system, Congress created the Federal Reserve System in 1913. The Federal Reserve is owned by individual member banks. It is overseen by a small but powerful Board of Governors. As a private institution serving a public function, the Federal Reserve is a central bank relatively free from government control.

Key Terms

Board of Governors
monetary policy
Federal Reserve Districts
Federal Advisory Council (FAC)
Federal Open Market Committee (FOMC)

The American banking system is a compromise between supporters and opponents of a central bank. As a symbol of this compromise, the Federal Reserve System is the privately owned, publicly controlled central bank of the United States.

Banking History

As you read in Chapter 10, the issue of a central bank has been debated hotly since 1790, when Federalists lined up in favor of a central bank. The first bank of the United States issued a single currency. It also reviewed banking practices and helped the federal government carry out its duties and powers. Partly because of the continued debate over state versus federal powers, however, the first bank lasted only until 1811. At that time, Congress refused to extend its charter.

Congress established the Second Bank of the United States in 1816 to restore order in the monetary system. However, many people feared that a central bank placed too much power in the hands of the federal government. Political opposition toppled the Second Bank in 1836 when its charter expired.

A period of confusion followed. States chartered some banks, while the federal

government chartered and regulated others. Reserve requirements—the amount of reserves that banks are required to keep on hand—were difficult to enforce, and the nation experienced a series of serious bank runs. The Panic of 1907 finally convinced Congress to act.

The nation's banking system needed to address two issues. First, consumers and businesses needed access to increased sources of funds to encourage business expansion. Second, banks needed a source of emergency cash to prevent depositor panics that resulted in bank runs.

Federal Reserve Act of 1913

Congress created the National Monetary Commission (NMC) in 1908 to propose solutions to the nation's banking problems. Based on the NMC's recommendations, Congress passed the Federal Reserve Act in 1913. The resulting Federal Reserve System, now often referred to simply as "the Fed," was composed of a group of twelve independent regional banks. This central group of banks could lend to other banks in times of need.



▲ The Federal Reserve System is headed by the Federal Reserve Board of Governors. The first Federal Reserve Board of Governors, here, was seated in 1914.

Continued Need for Reform

Although the Federal Reserve System helped to restore confidence in the banking system beginning in 1914, it has also learned through trial and error the best ways to fulfill its responsibilities. During the Great Depression, the financial crises of 1930–1933 were exactly the kinds of problems that the NMC had hoped to avoid by creating the Federal Reserve System. The system did not work well, however, because the twelve regional banks each acted independently. Their separate actions often canceled one another out. The Governor of the Federal Reserve Bank of New York (a bank with a close relationship to Wall Street and the investment community) believed that to counteract the growing recession, the government needed to pump money into investment and help Americans get back to work. Many of the other regional governors disagreed about

Board of Governors
the seven-member board that oversees the Federal Reserve System

what kinds of action to take. They were more concerned about maintaining gold reserves and with administrative issues than with helping the economy to recover from the widespread recession. By the time Congress forced the Fed to take strong action in 1932, it was too little, too late. The financial crisis had deepened to the point that recovery became long and difficult.

A Stronger Fed

In 1935, Congress adjusted the Federal Reserve's structure so that the system could respond more effectively to future crises. These reforms created the Federal Reserve System as we know it today. The new Fed enjoys more centralized power so that the regional banks can act consistently with one another while still representing their own districts' banking concerns.

Structure of the Federal Reserve

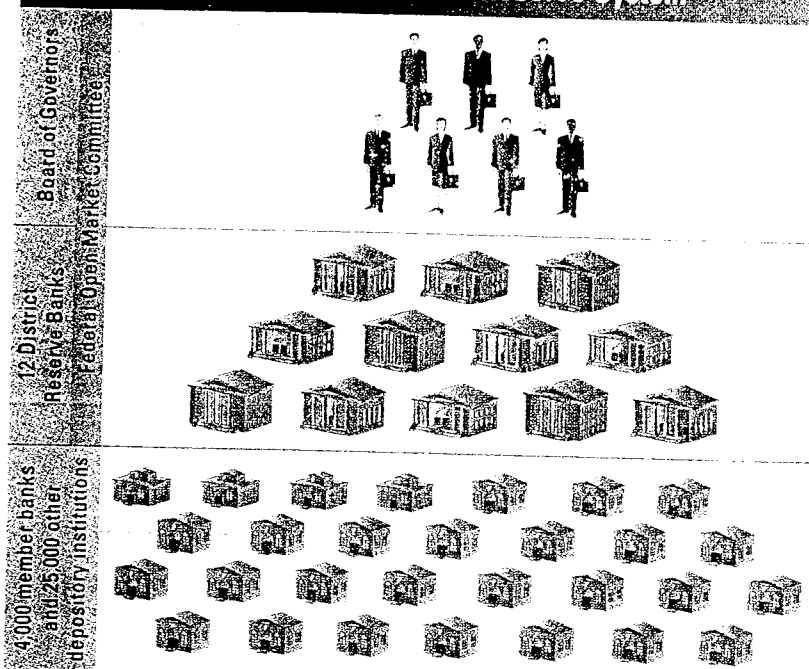
Member banks themselves own the Federal Reserve System. Like so many American institutions, the structure of the Federal Reserve System represents compromises between centralized power and regional powers. (See Figure 16.1.)

The Board of Governors

The Federal Reserve System is overseen by the **Board of Governors** of the Federal Reserve. The Board of Governors is headquartered in Washington, D.C. Its seven members are appointed for staggered fourteen-year terms by the President of the United States with the advice and consent of the Senate. The terms are staggered to prevent any one President from appointing a full Board of Governors and to protect board members from day-to-day political pressures. Members cannot be reappointed after serving a full term. Geographical restrictions on these appointments ensure that no one district is over-represented.

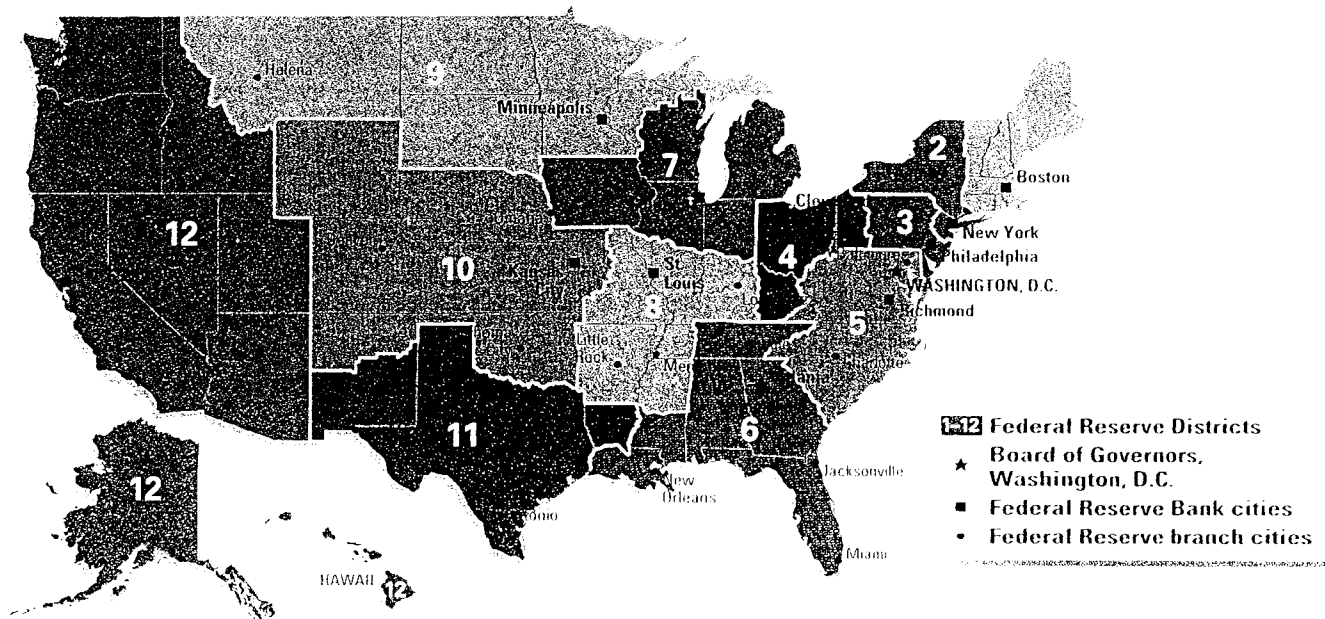
The President also appoints, from among these seven members, the chair of the Board of Governors. The Senate confirms the

Figure 16.1 Structure of the Federal Reserve System



About 40 percent of all United States banks belong to the Federal Reserve. These members hold about 75 percent of all bank deposits in the United States. **Government** How does the structure of the Fed reflect a compromise between centralized power and regional powers?

Figure 16.2 Federal Reserve Districts



Most Federal Reserve Districts contain a variety of agricultural, manufacturing, and service industries as well as rural and urban areas.
Government How does the makeup of the Federal Reserve Districts help ensure that no single region is dominant?

appointment. Chairs serve four-year terms, which can be renewed. The chair acts as the main spokesperson for monetary policy for the country. **Monetary policy** refers to the actions the Fed takes to influence the level of real GDP and the rate of inflation in the economy.

Recent chairs of the Fed have been economists from business, academia, or government. Alan Greenspan, whose previous career was in building economic forecasting models, has been the most notable chair of the Fed in recent years. He took office in 1987, serving both Republican and Democratic administrations. (See page 424 for a profile of Greenspan.)

Twelve District Reserve Banks

The Federal Reserve Act divided the United States into twelve **Federal Reserve Districts**, as shown on Figure 16.2. One Federal Reserve Bank is located in each of the twelve districts.

Each Federal Reserve Bank monitors and reports on economic and banking conditions in its district. Each Federal Reserve

District is made up of more than one state. The Federal Reserve Act aimed to establish a system in which no one region could exploit the central bank's power at another's expense.

Congress also regulated the makeup of each Bank's board of nine directors to make sure that many groups' interests would be represented. Member banks elect three bankers and three leaders in industry, commerce, or other businesses to their district boards. The remaining three directorships, appointed by the Board of Governors of the Federal Reserve, represent broad public interests. The district president is then elected from among these nine directors.

Member Banks

All nationally chartered banks are required to join the Federal Reserve System. The remaining members are state-chartered banks that join voluntarily. Since 1980, all banks have equal access to Fed services like

monetary policy the actions the Federal Reserve takes to influence the level of real GDP and the rate of inflation in the economy

Federal Reserve Districts the twelve banking districts created by the Federal Reserve Act

FAST FACT

In 1913, when the Fed was established, economic and financial power was concentrated in the East and Midwest. Notice that no Federal Reserve Bank exists in Los Angeles, now one of the largest cities in the country.

Federal Advisory Council (FAC) the research arm of the Federal Reserve

Federal Open Market Committee (FOMC) Federal Reserve committee that makes key decisions about interest rates and the growth of the United States money supply

check clearing and reserve loans, whether or not they are Fed members.

Each of the approximately 4,000 Fed member banks contributes a small amount of money to join the system. In return, they receive stock in the system. This stock earns them dividends from the Fed at a rate of up to 6 percent.

A research arm of the Fed, the **Federal Advisory Council (FAC)**, collects information about each district and reports to the Board of Governors about economic conditions within their districts. It consists of one member from each Federal Reserve District—twelve members in all. The FAC's main function is to provide feedback and advice to the Board of Governors concerning the overall financial health of each district. The FAC meets with the Board of Governors four times a year.

The fact that the banks themselves, rather than a government agency, own the Federal Reserve gives the system a high degree of political independence. This independence helps the Fed to make decisions that best suit the interests of the country as a whole.

The Federal Open Market Committee

The **Federal Open Market Committee (FOMC)** makes key decisions about interest rates and the growth of the United States money

supply. The committee meets about eight times a year in private to discuss the cost and availability of credit, for business and consumers, across the country. Announcements of the FOMC's decisions can affect the financial markets, the rates for home mortgages, and many other economic institutions around the world. You will read more about the effects of monetary policy later in this chapter.

Members of the Federal Open Market Committee are drawn from the Board of Governors and the twelve district banks. All seven members of the Board of Governors sit on the FOMC. Five of the twelve district bank presidents also sit on the committee. The president of the New York Federal Reserve Bank is a permanent member. The four other district presidents serve one-year terms on a rotating basis. The Board of Governors holds a majority of the seats on the FOMC, giving them effective control over the committee's actions.

After meeting with the FOMC, the chair of the Board of Governors announces the committee's decisions to the public. The Federal Reserve Banks and financial markets spring into action as they react to Fed decisions. In the next section, you will read about how the Fed's decisions are carried out and what functions the Federal Reserve serves.

Section 1 Assessment

Key Terms and Main Ideas

1. Who serves on the **Board of Governors** of the Federal Reserve?
2. What is **monetary policy**?
3. Describe the makeup of the **Federal Reserve Districts**.
4. What does the **Federal Advisory Council (FAC)** do?
5. What is the role of the **Federal Open Market Committee (FOMC)**?

Applying Economic Concepts

6. **Critical Thinking** How does the banking system of the United States reflect a free enterprise economy?

7. **Try This** Locate your Federal Reserve District on the map on page 417. What states make up your district? What mixture of agricultural, manufacturing, and service industries does your district contain? Is it made up of both rural and urban areas?

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Skills for LIFE

Critical Thinking

Writing and Speaking

Social Studies

Technology Skills

Recognizing Bias in Writing

Bias is the particular opinion or point of view held by a writer on a specific topic. An author's bias is not always obvious at first glance. As a critical reader, you must take steps to identify whether or not a piece of writing contains bias. Any piece of writing relating to economic topics may reflect the author's point of view on a particular public policy or institution. Read the selection on the Federal Reserve Board below, and then answer the questions that follow to help you identify any bias that is reflected in the writing.

- 1. Identify the source.** Begin your critical reading of a piece by identifying who the author is, who the audience is, and any obvious signs of bias.
(a) Who is the author of the excerpt below? (b) Is this a personal letter, diary entry, or public document? (c) Do you detect any obvious bias?
- 2. Look for evidence of bias.** Next, search the excerpt for words or phrases that may reflect the author's bias. (a) What words does the author use to describe Mr. Greenspan and his actions? (b) Which phrases describe the author's attitude toward the Federal Reserve Board? (c) How does the author describe Humphrey Hawkins?
- 3. Draw conclusions.** Take any signs of bias into account when drawing conclusions about the topic. What point is the author trying to make in this article?

This morning lawmakers will summon Fed Chairman Alan Greenspan over to the Hill for his mandatory semi-annual gabfest. Accountability is a useful requirement for all political figures, even mighty central bankers who stand watch over multitrillion dollar markets, so we have no trouble with the notion that Congress has the power to require Mr. Greenspan's presence and his report. We do have trouble with Humphrey-Hawkins, the law that prescribes the Chairman's testimony. Its terms assume that the Fed's job is essentially to choose between two dark scenarios. The first is growth, accompanied by inflation. The second is no growth, accompanied by no inflation. . . . We'd like to suggest that the parties involved take a deep breath here while we repeat ourselves: There are plenty of signs out there that the economy is growing without inflation.

"Phillips Think" [Editorial-Review & Outlook], The Wall Street Journal, February 26, 1997

Additional Practice

Locate an editorial from a newspaper on a topic relating to economics, and identify any bias in the writing.

Section 2

Federal Reserve Functions

Preview

Objectives

After studying this section you will be able to:

1. **Describe** how the Federal Reserve serves the federal government.
2. **Describe** how the Federal Reserve serves banks.
3. **Describe** how the Federal Reserve regulates the banking system.
4. **Understand** the Federal Reserve's role in regulating the nation's money supply.

Section Focus

The Federal Reserve functions as the government's banker and as a banker's bank. It regulates the nation's banking system. It also monitors and regulates the nation's money supply.

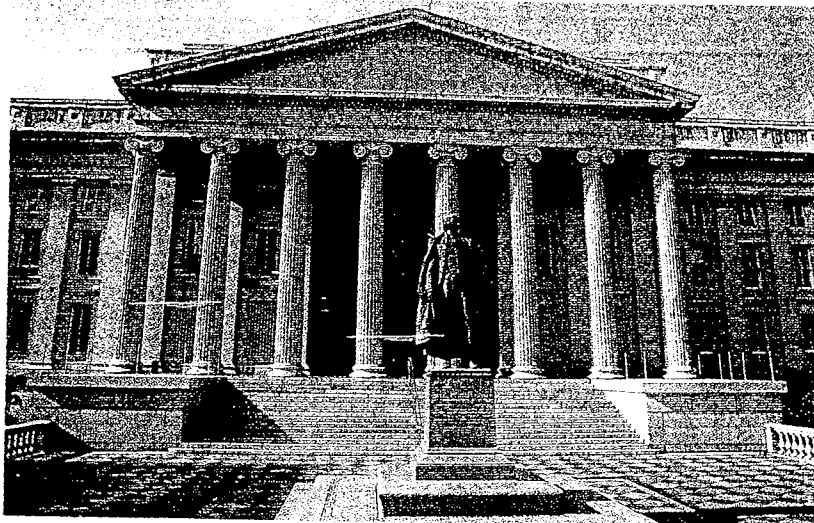
Key Terms

check clearing
bank holding company
federal funds rate
discount rate
net worth

As the central bank of the United States, the twelve district banks that make up the core of the Federal Reserve System carry out several important functions. The Federal Reserve System does the following:

- provides banking and fiscal services to the federal government
- provides banking services to member and nonmember banks
- regulates the banking industry
- tracks and manages the national money supply to meet current demand and to stabilize the economy

▼ The Department of the Treasury does its banking at the Federal Reserve.



Serving Government

The United States government has an operating budget of about \$2.2 trillion. It raises about \$1 trillion annually in taxes. It makes about \$900 billion in transfer payments through programs such as Medicare and Social Security. For its banking needs, the federal government turns to the Federal Reserve.

Federal Government's Banker

The Federal Reserve serves as banker for the United States government. It maintains a checking account for the Treasury Department. It processes payments such as social security checks, IRS refunds, and other government payments. For example, if you receive a check from the federal government and cash it at your local bank, the Federal Reserve deducts the amount from the Treasury's account.

Government Securities Auctions

The Federal Reserve also serves as a financial agent for the Treasury Department and other government agencies. The Fed sells, transfers, and redeems government bonds, bills, and notes, or securities. It also makes interest payments on these securities.

The Treasury Department periodically auctions off government bills, bonds, and notes to finance the government's activities. The funds raised from these auctions are automatically deposited into the Federal Reserve Bank of New York.

Issuing Currency

Under the Federal Reserve System, only the federal government can issue currency. The Department of the Treasury issues coins minted at the United States Mint. The district Federal Reserve Banks issue paper currency (Federal Reserve Notes), which is printed at the Bureau of Engraving and Printing. As bills become worn or torn, the Federal Reserve takes them out of circulation and replaces them with fresh ones.

Serving Banks

The Federal Reserve also provides services to banks throughout the nation. Its most visible function is in its check-clearing services. In addition, it safeguards bank reserves and lends reserves to banks that need to borrow to maintain legally required reserves.

Check Clearing

Figure 16.3 shows how checks "clear" within the Fed system. **Check clearing** is the process by which banks record whose account gives up money and whose account receives money when a customer writes a check. The Fed can clear millions of checks at any one time using high-speed equipment. Most checks clear within two days—a remarkable achievement when you consider that the Fed deals with about 20 billion checks per year.

Supervising Lending Practices

To ensure stability in the banking system, the Federal Reserve monitors bank reserves throughout the system. Each of the twelve Federal Reserve Banks sends out bank examiners to check up on lending and other financial activities of member banks.

They also study proposed bank mergers and bank holding company charters to

ensure competition in the banking and financial industries. A **bank holding company** is a company that owns more than one bank. The Board of Governors approves or disapproves mergers and charters based on the findings and recommendations of the Reserve Banks.

The Federal Reserve also protects consumers by enforcing truth-in-lending laws, which require sellers to provide full and accurate information about loan terms. Under a provision called Regulation Z, millions of consumers receive information about retail credit terms, auto loans, and home mortgages every year.

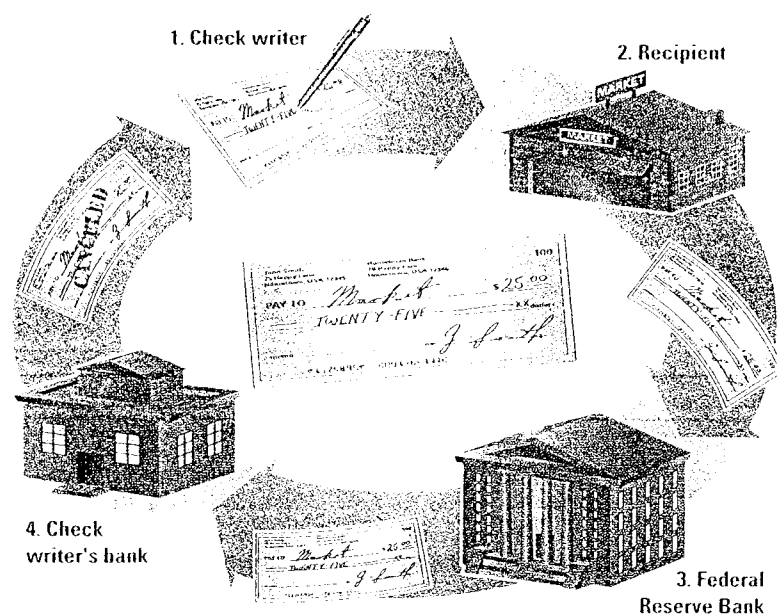
Lender of Last Resort

Under normal circumstances, banks lend each other money on a day-to-day basis, using money from their reserve balances.

check clearing the process by which banks record whose account gives up money and whose account receives money when a customer writes a check

bank holding company a company that owns more than one bank

Figure 16.3 The Path of a Check



After you write a check, the recipient presents it at his or her bank. The check is then sent to a Federal Reserve Bank. The reserve bank collects the necessary funds from your bank and transfers them to the recipient's bank. Your processed check is returned to you by your bank or is available for you to view on the Internet. **Economic Institutions** In what other ways does the Fed serve banks?

federal funds rate interest rate banks charge each other for loans

discount rate rate the Federal Reserve charges for loans to commercial banks

net worth total assets minus total liabilities

These funds are called federal funds. The interest rate that banks charge each other for these loans is the **federal funds rate**.

Banks can also borrow from the Federal Reserve. They do so routinely and especially in financial emergencies such as severe recessions. The Federal Reserve acts as a lender of last resort, making emergency loans to commercial banks so that they can maintain required reserves. The rate the Federal Reserve charges for these loans is called the **discount rate**. You will read more about the role of the discount rate in the economy of the United States in Section 3.

Regulating the Banking System

Banks, savings and loan companies, credit unions, and bank holding companies are supervised by various state and federal authorities. The Fed coordinates all regulatory activities.

Reserves

As you read in Chapter 10, the United States banking system operates as a fractional reserve banking system. Banks hold in reserve only a fraction of their funds—just enough to meet customers' daily needs. Banks then lend their remaining reserves, charging interest to earn returns.

Each financial institution that holds deposits for customers must report daily to the Fed about its reserves and activities. The Fed uses these reserves to control how much money is in circulation at any one time. You'll read more about the Fed's role in controlling the money supply in the next section.

Bank Examinations

The Federal Reserve and other regulatory agencies also examine banks periodically to make sure that each institution is obeying laws and regulations. Examiners may make unexpected bank visits to make sure that banks are following sound lending practices.

Bank examiners can force banks to sell risky investments or to declare loans that will not be repaid as losses. If examiners find that a bank has taken excessive risks, they may classify that institution as a problem bank and force it to undergo more frequent examinations. Examiners would take the same action for banks that have low net worth. **Net worth** equals total assets minus total liabilities. In addition, any bank that goes to the Fed for emergency loans too often will be subject to financial review and close government supervision.

Regulating the Money Supply

The Federal Reserve is best known for its role in regulating the nation's money supply. You will recall from Chapter 10 that economists and the Fed watch several indicators of the money supply. M1 is simply a measure of the funds that are easily accessible or in circulation. M2 includes the funds counted in M1 as well as money market accounts and savings instruments. Economists also measure M3. M3 goes even further to include large time deposits and some government securities. The Fed's job is to consider these various measures of the money supply and compare those figures with the likely demand for money.

Factors That Affect Demand for Money

People hold money for a variety of reasons. The amount of money that firms or individuals hold depends generally on four factors:

1. cash needed on hand
2. interest rates
3. price levels in the economy
4. general level of income

People and firms need to have a certain amount of cash on hand to make economic transactions—to buy groceries, supplies, clothing, and so forth. The more of your wealth you hold as money, the easier it will be to make economic transactions.

Of course, we can't earn interest on money that we hold as cash. As interest rates rise, it becomes more expensive for

individuals to hold money as cash rather than placing it in assets that pay returns, such as bonds, stocks, or savings accounts. So as interest rates rise, people and firms will generally keep their wealth in assets that pay returns. In other words, they demand less money in the form of cash. (See Figure 16.4.)

The general price level in the economy affects the demand for money, too. As price levels rise, so does the demand for cash. If your usual cost for an outing with your friends is \$25 and prices rise 10 percent, you will now need \$27.50 for a night out.

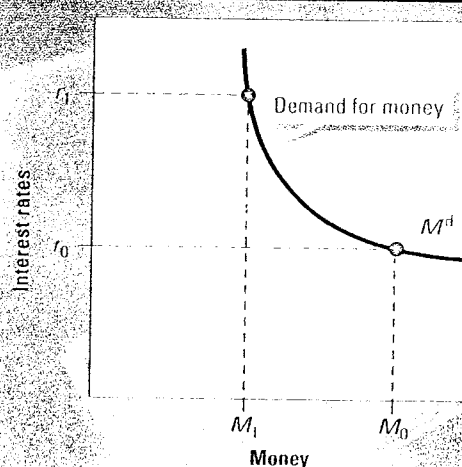
The final factor that influences money demand is the general level of income. On a personal level, if you take an after-school job that pays you \$75 per week, you will likely carry around more cash than you did before. On a national level, as GDP or real income rises, families and firms keep more of their wealth or income in cash.

Stabilizing the Economy

The laws of supply and demand affect money, just as they affect everything else in the economy. Too much money in the economy leads to a general rise in prices, or inflation. A glut of dollars lessens their value. In inflationary times, it will take more money to purchase the same goods and services. It is the Fed's job to keep the money supply stable.

In an ideal world, in which real GDP grew smoothly and the economy stayed at

Figure 16.4 Demand for Money



As interest rates increase from r_0 to r_1 , the quantity of money demanded falls from M_0 to M_1 . **Incentives** Explain demand for money in terms of incentives.

full employment, the Fed would increase the money supply just to match the growth in the demand for money. If the Fed could accomplish this, the country would experience very low inflation rates and, ideally, the economy would remain at full employment. As you read in Chapter 15, however, it is hard to predict economic effects.

The Fed uses its tools to stabilize the economy as best it can. In the next section, you will read about the tools that the Fed can use to help the economy function at full employment without contributing to inflation.

Section 2 Assessment

Key Terms and Main Ideas

1. What is **check clearing**?
2. What is a **bank holding company**?
3. What is the difference between the **federal funds rate** and the **discount rate**?
4. How is **net worth** calculated?

Applying Economic Concepts

5. **Try This** Create a graphic organizer showing how the Federal Reserve serves the federal government and banks.

6. **Critical Thinking** What are the advantages of having the Federal Reserve oversee the regulation of the banking system?

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Profile

Alan Greenspan (b. 1926)

The Federal Reserve Board (the Fed) helps to control the nation's money supply. The economist and former professional pop musician at its head may be the most powerful person in America when it comes to the nation's economy. Alan Greenspan's careful handling of the Federal Reserve won him credit for the remarkable economic boom of the 1990s and a place in the administrations of four presidents.



The Chairman of the Fed

Alan Greenspan's first term as chairman of the Federal Reserve Board began in a dramatic fashion. Soon after he took office in August 1987, the stock market crashed. Investors feared that lenders would adopt a tight money policy, as banks had done after the last great market crash in 1929. Instead, Greenspan responded with actions that boosted the nation's money supply. The stock market quickly recovered, and the nation avoided the economic meltdown that could have followed.

Hard Times

Having grown up during the Great Depression, Greenspan knows hard economic times. As a young child he showed a gift for numbers and amazed his parents' friends with his ability to do math problems in his head. After high school, however, he decided to develop his musical talents, and enrolled at New York's Juilliard School of Music. During the 1940s, he toured with a swing band.

Soon tiring of life on the road, Alan Greenspan returned to New York City and earned bachelor's and master's degrees in economics at New York University. Moving to Columbia University to pursue a Ph.D.,

he had to quit school when he ran short of money. In 1954, he and a friend started an economic consulting firm.

The Transition to Public Life

Alan Greenspan first went to Washington, D.C., in 1974 to chair the President's Council of Economic Advisors. In 1977, he returned to New York to complete his Ph.D., but 10 years later, President Ronald Reagan recalled him to Washington to head the Federal Reserve. At the time, many people were critical of the Fed's heavy-handed role in shaping monetary policy. The previous chairman had thrown the economy into recession in the early 1980s when he raised interest rates in an effort to halt high inflation.

Although Greenspan strongly opposes inflation, he is sensitive to the loss of jobs that accompanies any major attempt to slow the growth of the money supply. Under Greenspan, interest rate adjustments were frequent but generally small in scale. He preferred to use monetary policy to make minor adjustments in the economy's course rather than to drive it in a new direction. As a result, Greenspan's terms as Fed chairman witnessed the longest period of economic growth in the nation's history.

CHECK FOR UNDERSTANDING

1. Source Reading Describe Greenspan's approach to using the powers of the Federal Reserve to influence the nation's economy.

2. Critical Thinking Explain how a sharp increase in interest rates by the Fed could slow inflation but also lead to higher unemployment and a recession.

3. Learn More Visit the Federal Reserve's Web site and summarize the most recent Fed activities that are reported there.

Monetary Policy Tools

Preview

Objectives

After studying this section you will be able to:

1. **Describe** the process of money creation.
2. **Explain** how the Federal Reserve uses reserve requirements, the discount rate, and open market operations to implement U.S. monetary policy.
3. **Understand** why some monetary policy tools are favored over others.

Section Focus

Banks create money in their day-to-day operations. The Federal Reserve uses the tools of monetary policy to control the amount of money in circulation.

Key Terms

money creation
required reserve ratio (RRR)
money multiplier formula
excess reserves
prime rate
open market operations

In early 2001, when it appeared that economic growth was slowing, the Fed began reducing interest rates. The September 11 terrorist attacks further increased the need for such changes in economic policy. By early 2003, the Fed had cut interest rates 13 times, to 45-year lows. By reducing the cost of borrowing, the Fed hoped to encourage consumers to spend more money and stimulate economic growth. In this section you will see why the Fed uses these tactics to influence economic growth.

Money Creation

The Department of the Treasury is responsible for manufacturing money. The Federal Reserve is responsible for putting dollars into circulation. How does this money get into the economy? The process is called **money creation**, and it is carried out by the Fed and by banks all around the country. Recall from Chapter 15 the multiplier effect of government spending. The multiplier effect in fiscal policy holds that every one dollar change in fiscal policy creates a change greater than one dollar in the economy. The process of money creation works in much the same way.

How Banks Create Money

Money creation does not mean the printing of money. Banks create money not by

printing it, but by simply going about their business.

For example, suppose you take out a loan of \$1,000. You decide to deposit the money in a checking account. Once you have deposited the money, you now have a balance of \$1,000. Since demand deposit account balances, such as your checking account, are included in M1, the money supply has now increased by \$1,000. The process of money creation begins here.

Banks make money by charging interest on loans. Your bank will lend part of the \$1,000 that you deposited. The amount that the bank is allowed to lend is determined by the **required reserve ratio (RRR)**—the fraction of the deposit that must be kept on reserve. This is calculated as the ratio of reserves to deposits. The RRR is the fraction of deposits that banks are required to keep in reserve. The required reserve ratio, which is established by the Federal Reserve, ensures that banks will have enough funds to supply customers' withdrawal needs.

Suppose in our example that the RRR is 0.1, or 10 percent. This means that of your \$1,000 demand deposit balance, the bank is allowed to lend \$900.



▲ The daily activities of banks and their customers create money through the multiplier effect.

money creation the process by which money enters into circulation

required reserve ratio (RRR) ratio of reserves to deposits required of banks by the Federal Reserve

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money multiplier formula amount of new money that will be created with each demand deposit, calculated as $1 \div \text{RRR}$

Let's say the bank lends that \$900 to Elaine, and she deposits it in her checking account. Elaine now has \$900 she didn't have before. Elaine's \$900 is now included in M1. You still have your \$1,000 demand deposit account balance, on which you can write a check at any time. Thus, your initial deposit to the bank, and the subsequent loan, have caused the money supply to increase by \$1,000 + \$900 for a total of \$1,900.

Now suppose that Elaine uses the \$900 to buy Joshua's old car. Joshua deposits the \$900 from Elaine into his checking account. His bank keeps 10 percent of the deposit, or \$90, as required reserves. It will lend the other \$810 to its customers. So, Joshua has a demand deposit balance of \$900, which is included in the money supply, and the new borrower gets \$810, which is also added to the money supply. This means that the money supply has now increased by \$1,000 + \$900 + \$810 = \$2,710—all because of your initial \$1,000 deposit. (See Figure 16.5.)

The Money Multiplier

This process will continue until the loan amount, and hence the amount of new money that can be created, becomes very small. The amount of new money that will be created, in the end, is given by the **money multiplier formula**, which is calculated as $1 \div \text{RRR}$. The money multiplier tells us how much the money supply will increase after an initial cash deposit to the banking system. To apply the formula, we multiply the initial deposit by the money multiplier:

Increase in money supply =

$$\text{initial cash deposit} \times \frac{1}{\text{RRR}}$$

In our example the RRR is 0.1, so the money multiplier is $1 \div 0.1 = 10$. This means that the deposit of \$1,000 leads to a \$10,000 increase in the money supply.

As of 2003 in the United States, banks were required to hold 3 percent reserves against demand deposit assets up to \$41.3 million and 10 percent on all demand deposit assets exceeding \$41.3 million.

In the real world, however, people hold some cash outside of the banking system, meaning that some funds leak out of the money multiplier process. Also, banks

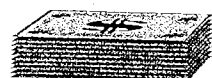


In this example of money creation, the money supply increases by \$2,710 after four rounds.

Money Suppose Joshua deposited only \$500 of Elaine's payment into his account. How much would the money supply increase then?

Figure 16.5 Money Creation

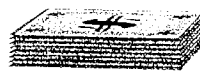
$$\$1,000 + \$900 + \$810 = \$2,710$$



You deposit \$1,000 into your checking account.



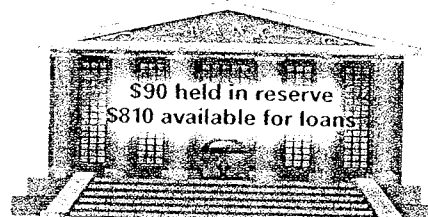
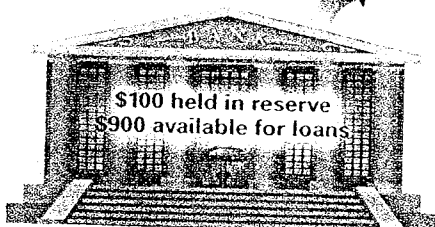
Your \$1,000 deposit minus \$100 in reserves is loaned to Elaine, who gives it to Joshua.



Joshua's \$900 deposit minus \$90 in reserves is loaned to another customer.



At this point, the money supply has increased by \$2,710.



sometimes hold **excess reserves**, which are reserves greater than the required amounts. These excess reserves ensure that banks will always be able to meet their customers' demands and the Fed's reserve requirements. The actual money multiplier effect in the United States is estimated to be between 2 and 3.

The Federal Reserve has three tools for adjusting the amount of money in the economy. These tools are reserve requirements, the discount rate, and open market operations.

Reserve Requirements

The simplest way for the Fed to adjust the amount of reserves in the banking system is to change the required reserve ratio. It is not, however, the tool most used by the Fed.

Reducing Reserve Requirements

A reduction of the RRR would free up reserves for banks, allowing them to make more loans. It would also increase the money multiplier. Both effects would lead to a substantial increase in the money supply.

Increasing Reserve Requirements

The process also works in reverse. Even a slight increase in the RRR would force banks to hold more money in reserves. This would cause the money supply to contract, or shrink.

Although changing reserve requirements can be an effective means of changing the money supply, the Fed does not use this tool often because it is disruptive to the banking system. Even a small increase in the RRR would force banks to call in significant numbers of loans, that is, to require the borrower to pay the entire outstanding balance of the loan. This may be difficult for the borrower. For this reason, the Fed rarely changes reserve requirements.

Discount Rate

As you read in Section 2, the discount rate is the interest rate that the Federal Reserve charges on loans to financial institutions.

Banks borrow from the Fed to maintain reserves at the required level. Changes in the discount rate affect the cost of borrowing from the Fed. In turn, changes in the discount rate can affect the prime rate. The **prime rate** is the rate of interest banks charge on short-term loans to their best customers—usually large companies with good credit ratings. Changes in the discount rate are reflected in the prime rate.

Reducing the Discount Rate

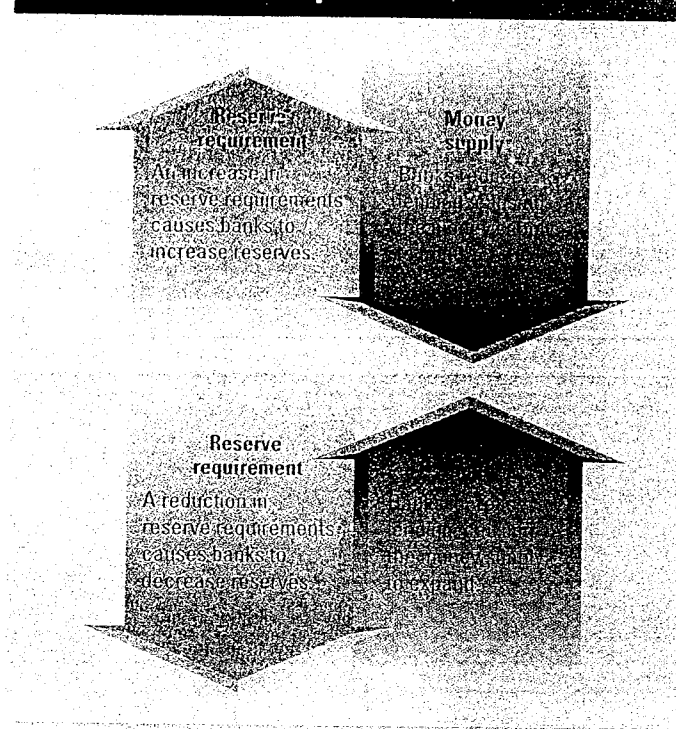
If the Fed wants to encourage banks to lend more of their reserves, it may reduce the discount rate. With a lower discount rate, banks can reduce their excess reserves by lending them out. They won't have to worry about their reserves falling too low. They can add to their reserves by borrowing from the Fed at a low rate.

These new loans will increase the money supply, just as a decrease in RRR would. The money multiplier will apply to these

excess reserves
reserves greater than
the required amounts

prime rate rate of
interest banks charge
on short-term loans to
their best customers

Figure 16.6 Reserve Requirements



When the Fed increases reserve requirements, the money supply decreases. **Monetary and Fiscal Policy** What is the effect of reducing reserve requirements? Why?

open market operations
the buying and selling
of government
securities to alter the
supply of money

new loans, ensuring that each dollar of reserves that is lent will create an even larger increase in the money supply.

Increasing the Discount Rate

If, on the other hand, the Federal Reserve wants to reduce the money supply, it will increase the discount rate. This will make banks less willing to borrow from the Fed. As a result, they will hold more excess reserves to keep from falling below their required levels. Banks increase their excess reserves by reducing loans. A reduction in loans, in turn, will reduce the amount of currency circulating in the economy, causing a reduction of the money supply.

If banks do not wish to borrow from the Federal Reserve, they may borrow from one another in the federal funds market. Of course, if banks find the federal funds rate too high, they may still borrow from the

Fed. In practice, however, the Fed maintains the discount rate close to the federal funds rate in order to prevent large swings in borrowed reserves.

Open Market Operations

The most important monetary policy tool is **open market operations**. Open market operations are the buying and selling of government securities to alter the supply of money. Open market operations are by far the most used monetary policy tool.

Bond Purchases

When the Federal Open Market Committee (FOMC) chooses to increase the money supply, it orders the trading desk at the Federal Reserve Bank of New York to purchase a certain quantity of government securities on the open market.

Figure 16.7 Discount Rate

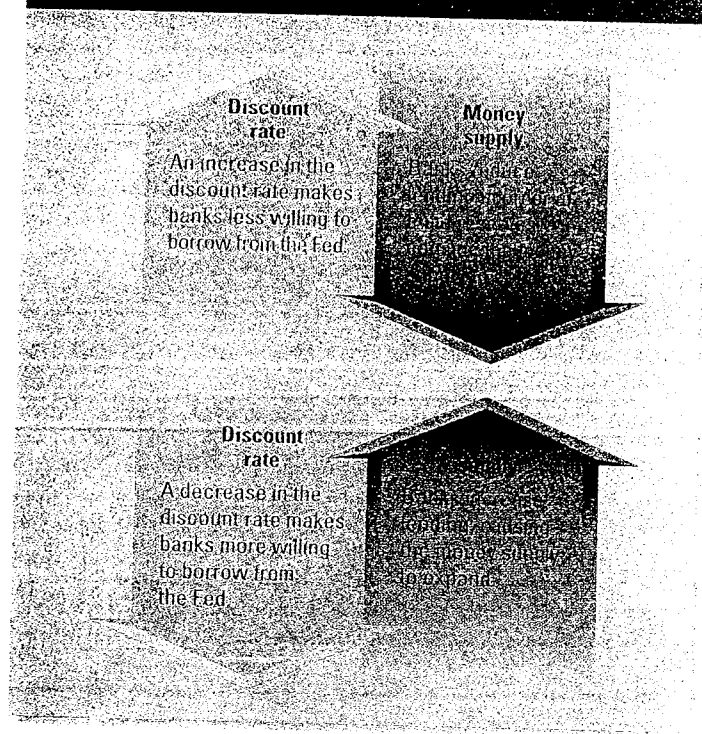
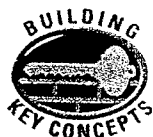
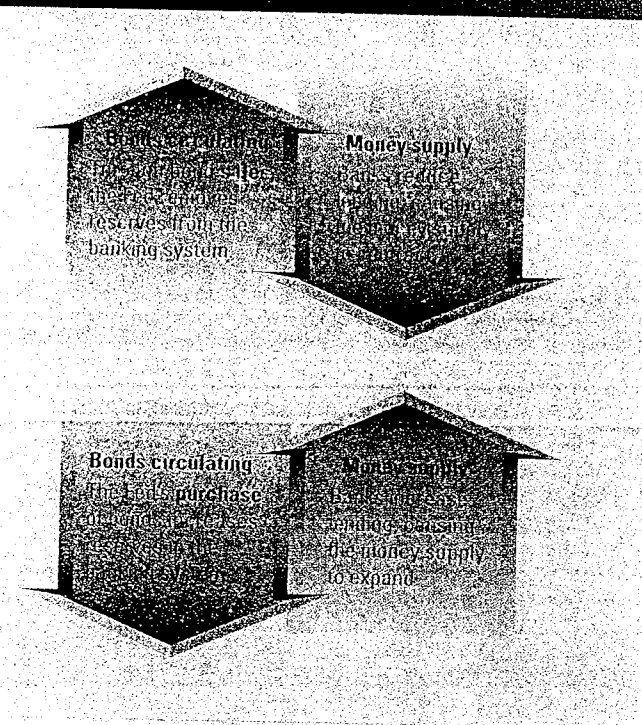


Figure 16.8 Open Market Operations



Because an increase in the discount rate makes borrowing more costly, the money supply contracts. Banks are more willing to borrow and lend money when the discount rate is low (left). Open market operations (right), however, are the most-used monetary policy tool.

Fiscal and Monetary Policy How do open market operations differ from the monetary policy tools shown in Figures 16.6 and 16.7?

The Federal Reserve Bank buys these securities with a check drawn on Federal Reserve funds. The bond seller then deposits the money from the bond sales in its bank. In this way, funds enter the banking system, setting in motion the money creation process described earlier.

Bond Sales

If the FOMC chooses to decrease the money supply, it must make an open market bond sale. In this case, the Fed sells government securities back to bond dealers, receiving from them checks drawn on their own banks. After the Fed processes these checks, the money is out of circulation. This operation reduces reserves in the banking system. Banks reduce their outstanding loans in order to keep reserves at the required levels. The money multiplier process then works in reverse, resulting in a decline in the money supply that is greater than the value of the initial securities purchase.

Using Monetary Policy Tools

Open market operations are the most used of the Federal Reserve's monetary policy tools. They can be conducted smoothly and on an ongoing basis to meet the Fed's goals. The Fed changes the discount rate less frequently. It usually follows a policy of



Global Connections

Global Monetary Policy Before 12 European countries adopted a single common currency in 2002, the European System of Central Banks (ESCB) was created to handle the European Union monetary policy. The ESCB includes the new European Central Bank as well as the central banks of all European Union member nations. Its job is similar to that of the Federal Reserve. The ESCB conducts monetary policy for the European Union nations, conducts foreign exchange operations, and provides banks with services such as check cashing. The ESCB's monetary policy tools include open market operations as well as reserve requirements. **How do the monetary policy tools of the ESCB resemble those of the Federal Reserve?**

keeping the discount rate in line with other interest rates in the economy in order to prevent excess borrowing by member banks from the Fed. (See the graph "Key Interest Rates" on page 542 in the Economic Atlas and Databank.)

Today, the Fed does not change reserve requirements to conduct monetary policy. Changing reserve requirements would force banks to make drastic changes in their plans. Open market operations or changes in the discount rate do not disrupt financial institutions.

The Federal Reserve uses these monetary policy tools to adjust the money supply. Why the Fed would want to change the money supply, and the effects of monetary policy, are the subjects of the next section.

Section 3 Assessment

Key Terms and Main Ideas

1. What is **money creation**?
2. What is the **required reserve ratio (RRR)**?
3. State the **money multiplier formula**.
4. Why do banks sometimes hold **excess reserves**?
5. If the discount rate rose, would you expect the **prime rate** to rise or fall?
6. What are **open market operations**?

Applying Economic Concepts

7. **Math Practice** Suppose the RRR is 0.15. Use the money multiplier formula to determine by how much a \$2,000

checking account deposit will increase the money supply.

8. **Critical Thinking** Will the money supply actually increase by the amount you calculated in Question 7? Why or why not?

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Monetary Policy and Macroeconomic Stabilization

Preview

Objectives

After studying this section you will be able to:

1. **Understand** how monetary policy works.
2. **Explain** the problems of timing and policy lags in implementing monetary policy.
3. **Explain** how predictions about the length of a business cycle affect monetary policy.
4. **Describe** two distinct approaches to monetary policy.

Section Focus

The Federal Reserve uses monetary policy to try to tame business cycles. The unpredictable length of business cycles, however, makes it difficult to determine when it is wise to intervene in the economy.

Key Terms

monetarism
easy money policy
tight money policy
inside lag
outside lag

monetarism the belief that the money supply is the most important factor in macroeconomic performance

Adherents of **monetarism** believe that the money supply is the most important factor in macroeconomic performance. How, then, does monetary policy influence macroeconomic performance?

How Monetary Policy Works

Monetary policy alters the supply of money. The supply of money, in turn, affects interest rates. As you read earlier,

interest rates affect the level of investment and spending in the economy.

The Money Supply and Interest Rates

It is easy to see the cost of money if you are borrowing it. The cost—the price that you as borrower pay—is the interest rate. Even if you have your own money, however, the interest rate still affects you. The interest rate is also the cost of having money, because you are giving up interest by not saving or investing. Thus, the interest rate is always the cost of money.

The market for money is like any other market. If the supply is higher, the price—the interest rate—is lower. If the supply is lower, the price—the interest rate—is higher. In other words, when the money supply is low, interest rates are high. When the money supply is high, interest rates are low.

Interest Rates and Spending

Recall from Chapter 12 that interest rates are important factors of spending in the economy. Lower interest rates encourage greater investment spending by business firms. This is because a firm's cost of borrowing—or of using its own funds—decreases as the interest rate decreases.

Firms find that lower interest rates give them more opportunities for profitable

► Keeping the economy stable requires a delicate balancing act.



investment. If a firm has to pay 15 percent interest on its loans, it may find few profitable opportunities. If interest rates fall to 8 percent, however, the firm may find that some opportunities are now profitable.

If the macroeconomy is experiencing a contraction—declining income—the Fed may want to stimulate, or expand, it. It will follow an **easy money policy**. That is, it will increase the money supply. An increased money supply will lower interest rates, thus encouraging investment spending. Such a policy may, however, encourage overborrowing and overinvestment, followed by layoffs and cutbacks.

If the economy is experiencing a rapid expansion that may cause high inflation, the Fed may introduce a **tight money policy**. That is, it will reduce the money supply. The Fed reduces the money supply to push interest rates upward. By raising interest rates, the Fed causes investment spending to decline. This brings real GDP down, too.

Even though it can only alter the money supply, the Fed has a great impact on the economy. The money supply determines the interest rate, and the interest rate determines the level of aggregate demand. Recall from Chapter 12 that aggregate demand represents the relationship between price levels and quantity demanded in the overall economy. The level of aggregate demand helps determine the level of real GDP. (See Figure 16.9.)

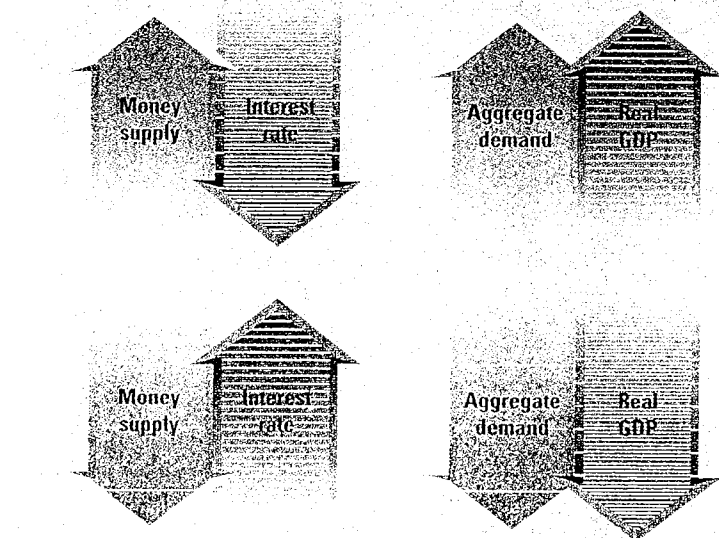
The Problem of Timing

Monetary policy, like fiscal policy, must be carefully timed if it is to help the macroeconomy. If policies are enacted at the wrong time, they could actually intensify the business cycle, rather than smooth it out. To see why, consider Figure 16.10.

Good Timing

Figure 16.10A shows the business cycle with a properly timed stabilization policy. The green curve, which shows greater fluctuations, is the business cycle as explained in Chapter 12. The goal of stabilization policy is to smooth out those fluctuations—

Figure 16.9 Effects of Monetary Policy



If the economy is experiencing a contraction, an easy money policy may stimulate growth. If the economy is experiencing rapid expansion that may cause high inflation, a tight money policy may help reduce the price increases. **Gross Domestic Product** Explain the relationship between aggregate demand and GDP.

in other words, to make the peaks a little bit lower and the troughs not quite as deep. This will minimize inflation in the peaks and the effects of recessions in the troughs. Properly timed stabilization policy smooths out the business cycle, as shown in the red curve in Figure 16.10A.

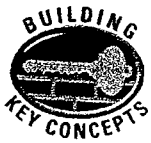
Bad Timing

If stabilization policy is not timed properly, however, it can actually make the business cycle worse, not better. For example, suppose that policymakers are slow to recognize the contraction shown as the green line in Figure 16.10B. Perhaps because their data are inaccurate or slow to arrive, government economists simply do not realize that a contraction is occurring until the economy is deeply into it. Some period of time may pass before they recognize the contraction.

Likewise, it takes time to enact expansionary policies and have those policies

easy money policy
monetary policy that increases the money supply

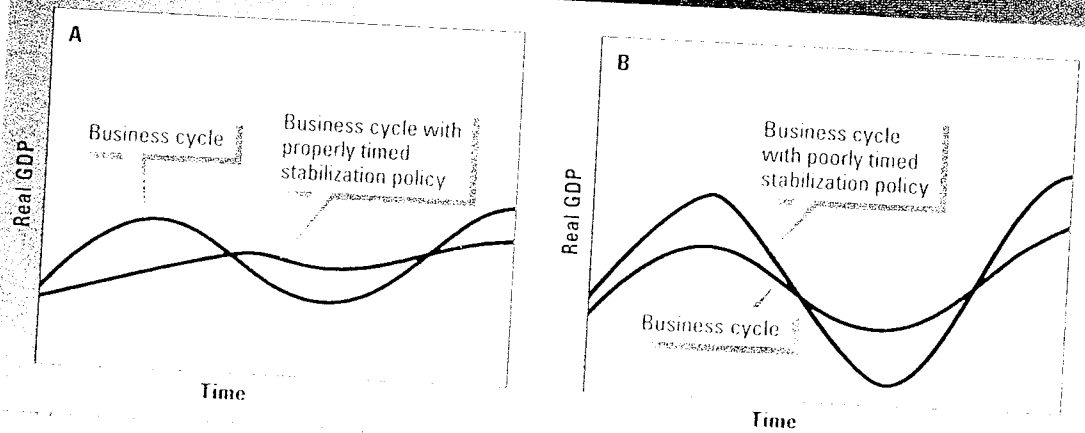
tight money policy
monetary policy that reduces the money supply



The timing of monetary policy measures can intensify the business cycle.

Monetary and Fiscal Policy What are the effects of proper and improper timing?

Figure 16.10 - Business Cycles and Stabilization Policy



take effect. By the time this takes place, the economy may already be coming out of the recession on its own. If the expansionary effects of a loose money policy affect the economy while it is already expanding, the result could be an even larger expansion that causes high inflation.

If expansionary policies are enacted too late, the economy may have slowed down so much that businesses are reluctant to borrow at *any* rate for new investment. This dilemma, in which the central bank is unable to encourage lending with rate cuts, is called “pushing on a string.”

Policy Lags

As you can see, there are a couple of problems in the timing of macroeconomic policy. These are called policy lags.

Inside Lags

The **inside lags** are delays in implementing policy. These lags occur for two reasons. First, it takes time to identify a problem. While economists have developed sophisticated computer models for predicting economic trends, they still cannot know for sure that the economy is headed into a new phase of the business cycle until it is already there. Statistics may conflict and it can take up to a year to recognize a serious economic problem.

A good example of this problem occurred in 1990. Although a recession

began in July 1990, Alan Greenspan, the chair of the Board of Governors of the Federal Reserve, testified in October 1990 that the economy had not yet slipped into recession. Looking back, however, we now know that a recession had begun months earlier. Even Greenspan, an economic expert with the staff of the Fed and other resources at his disposal, was slow to recognize that a recession had begun.

A second reason for inside lags is that once a problem has been recognized, it can take additional time to enact policies. This problem is more severe for fiscal policy than for monetary policy. Fiscal policy, which includes changes in government spending and taxation, requires actions by Congress and the President. Since Congress must debate new plans and get the approval of the President, it may take time before a new policy is enacted.

The enactment of monetary policy, on the other hand, is streamlined. The Federal Open Market Committee meets eight times each year to discuss monetary policy—more often if necessary. Once it has decided that changes are called for, the FOMC can make open market policy or discount rate changes almost immediately.

Outside lags

Once a new policy is determined, it takes time to become effective. This time period, known as the **outside lag**, also differs for

inside lag delay in implementing monetary policy

outside lag the time it takes for monetary policy to have an effect

monetary and fiscal policy. For fiscal policy, the outside lag lasts as long as is required for new government spending or tax policies to take effect and begin to affect real GDP and the inflation rate. This time period can be relatively short, as with a tax rebate that returns government revenues to households eager for spending money. One statistical model concluded that an increase in government spending would increase GDP after just six months.

Outside lags can be much longer for monetary policy, since they primarily affect business investment plans. Firms may require months or even years to make large investment plans, especially those involving new physical capital, such as a new factory. Thus, a change in interest rates may not have its full effect on investment spending for several years. This conclusion is supported by several studies that suggest that the outside lag for monetary policy is probably rather long. More than two years may pass before the maximum impact of monetary policy is felt.

Given the longer inside lag for fiscal policy and the longer outside lag for monetary policy, it is not obvious which policy has the shorter total lag. In practice, partisan politics and budgetary pressures often prevent the President and Congress from agreeing on fiscal policy. Because of the political difficulties of implementing fiscal policy, we rely to a greater extent on the Fed to use monetary policy to soften the business cycle.

Predicting Business Cycles

The Federal Reserve must not only react to current trends. It must also anticipate changes in the economy. How should policymakers decide when to intervene in the economy?

Monetary Policy and Inflation

You have already read that expansionary policy, if enacted at the wrong time, may push an economy into high inflation, thus reducing any beneficial impact. This is the



▲ Unprecedented economic growth in the 1990s led some economists to predict an end to the peaks and troughs of past business cycles. Recession in the early 2000s, however, showed the cycle beginning again.

chief danger of using an easy money policy to get the economy out of a recession.

An inflationary economy can be tamed by a tight money policy, but the timing is again crucial. If the policy takes effect as the economy is already cooling off on its own, the tight money could turn a mild contraction into a full-blown recession.

The decision of whether to use monetary policy, then, must be based partly on our expectations of the business cycle. Some recessions are short-run phenomena that will, in the long run, disappear. Some inflationary peaks may also be expected to last for the short run and end in the long run. Given the timing problems of monetary policy, in some cases it may be wiser to allow the business cycle to correct itself rather than run the risk of an ill-timed policy change.

If a recession is expected to turn into an expansion in a short time, the best course of action may be to take a laissez-faire approach to the economy and let the economy correct itself. On the other hand, if we expect a recession to last several years, then all but the most conservative onlookers

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Figure 16.11 Fiscal and Monetary Policy Tools

	Fiscal policy tools	Monetary policy tools
Expansionary tools	<ol style="list-style-type: none"> 1. increasing government spending 2. cutting taxes 	<ol style="list-style-type: none"> 1. open market operations: bond purchases 2. decreasing the discount rate 3. decreasing reserve requirements
Contractionary tools	<ol style="list-style-type: none"> 1. decreasing government spending 2. raising taxes 	<ol style="list-style-type: none"> 1. open market operations: bond sales 2. increasing the discount rate 3. increasing reserve requirements



Both the federal government and the Federal Reserve can influence the nation's economy.

Fiscal and Monetary Policy How are fiscal and monetary policy similar? How do they differ?

would recommend an active policy. So the question is this: How long will a recessionary or inflationary period last?

How Quickly Does the Economy Self-Correct?

Economists disagree on the answer to this question. Their estimates for the U.S. economy range from two to six years. Since

the economy may take quite a long time to recover on its own from an inflationary peak or a recessionary trough, there is time for policymakers to guide the economy back to stable levels of output and prices.

Approaches to Monetary Policy

In practice, the lags discussed here make monetary and fiscal policy difficult to apply. Interventionist policy, a policy encouraging action, is likely to make the business cycle worse if the economy self-adjusts quickly. Laissez-faire economists who believe that the economy will self-adjust quickly will recommend against enacting new policies. Economists who believe that economies emerge slowly from recessions, however, will usually recommend enacting fiscal and monetary policies to move the process along.

The rate of adjustment may also vary over time, making policy decisions even more difficult. This debate over which approach to take with monetary policy will probably never be settled to the satisfaction of all economists.

Section 4 Assessment

Key Terms and Main Ideas

1. Why would the Federal Reserve enact an **easy money policy**?
2. Why would the Federal Reserve enact a **tight money policy**?
3. What are **inside lags**, and why do they occur?
4. Why does monetary policy have such long **outside lags**?
5. What is **monetarism**?

Applying Economic Concepts

6. **Critical Thinking** Why do business cycles make monetary policy difficult to time?
7. **Try This** With a partner, stage a debate on monetary policy. One of you will take an interventionist approach, encouraging action, the other a laissez-faire approach,

discouraging action. Use information from your textbook to help craft your argument.

8. **Using the Databank** Examine the graphs on Economic Indicators in the Economic Atlas and Databank on pages 538–539. How would you describe the economic performance of the United States at the end of the twentieth century?

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Real-life Case Study

Monetary and Fiscal Policy

Banking, Monetary Policy, and the Great Depression

In 1929, the collapse of the stock market touched off a period of economic devastation known as the Great Depression. Millions of Americans found themselves unemployed and lost their homes, farms, and life savings.

Bank Failures In late October 1929, dropping stock prices caused many panicked investors to sell their stocks, which resulted in the collapse of the stock market on October 29, 1929. Banks had invested heavily in the stock market and lost huge sums. Fearful that banks would run out of money, people rushed to their banks demanding their money. To pay back these deposits, banks had to recall loans from borrowers, but they could not do so fast enough to pay all the depositors demanding their money. Thousands of banks failed.

Emergency Action In 1933, President Franklin D. Roosevelt took emergency action and declared a bank "holiday." All banks closed temporarily to stop the banking panic.

Congress then passed the Banking Act of 1933, which created the Federal Deposit Insurance Corporation (FDIC) to insure deposits. This meant that even if a bank failed, deposits would be guaranteed by the federal government.

Meanwhile, banks became extremely cautious. They made fewer loans and kept enough cash on hand in case depositors all came at once to withdraw their funds. Banks began to hold substantial reserves, far in excess of those required by the Federal Reserve.

Federal Reserve Response These excess reserves concerned the Federal Reserve, which feared that banks might distribute that money, possibly causing inflation. In 1937, the Fed raised reserve requirements for the banks, thus lowering the money supply to prevent inflation. Banks responded by cutting back their loans even further to have enough cash for depositors.

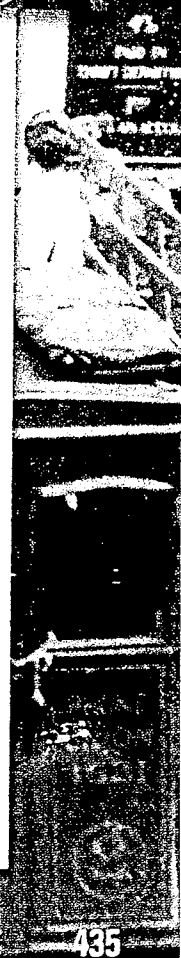
This Federal Reserve policy had an unintended negative result. Banks reduced lending, which led to a recession. Since that time the Fed has learned not to make sharp increases in reserve requirements.

Applying Economic Ideas

1. Why did the Federal Reserve raise reserve requirements in 1937?
2. Were banks justified in holding excess reserves in the 1930s? Why or why not?



▲ Countless investors lost everything in the Crash of 1929.



Chapter 16 Assessment

Chapter Summary

A summary of major ideas in Chapter 16 appears below. See also the **Guide to the Essentials of Economics**, which provides additional review and test practice of key concepts in Chapter 16.

Section 1 The Federal Reserve System (pp. 415–418)

To stabilize the nation's banking system, Congress created the Federal Reserve System. The Federal Reserve is made up of twelve **Federal Reserve Districts** and is overseen by a small but powerful **Board of Governors**. As a private institution serving a public function, the Federal Reserve is a central bank relatively free from government control.

Section 2 Federal Reserve Functions (pp. 420–423)

The Federal Reserve serves the banking needs of the government and of individual banks. It regulates the nation's banking system. It also monitors and regulates the nation's money supply.

Section 3 Monetary Policy Tools (pp. 425–429)

Money creation occurs through the day-to-day operations of banks. The Federal Reserve uses three tools of monetary policy to control the amount of money in circulation. The three tools are changing the required reserve ratio, changing the discount rate, and buying or selling bonds on the open market.

Section 4 Monetary Policy and Macroeconomic Stabilization (pp. 430–434)

The Federal Reserve enacts monetary policy to lessen the effects of business cycles. The unpredictable length of business cycles, however, makes it difficult to determine when it is wise to intervene in the economy. **Inside lags** and **outside lags** make it difficult to conduct monetary and fiscal policy.

Key Terms

Match the following definitions with the terms listed below. You will not use all of the terms.

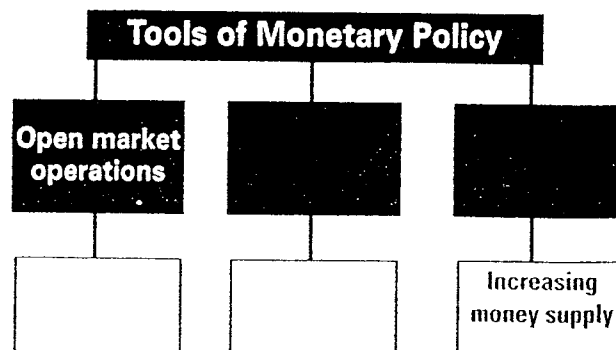
inside lag
discount rate
Board of Governors
federal funds rate
excess reserves
Federal Reserve District

tight money policy
money creation
outside lag
easy money policy
prime rate
check clearing

1. Rate the Federal Reserve charges for loans to commercial banks
2. Process by which money enters into circulation
3. The seven-member board that oversees the Federal Reserve System
4. Monetary policy that reduces the money supply
5. Reserves greater than the required amounts
6. The process by which banks record whose account gives up money and whose account receives money when a customer writes a check
7. The time it takes for monetary policy to have an effect

Using Graphic Organizers

8. On a separate sheet of paper, copy the tree map below. Complete the tree map with the tools of monetary policy and their expected effects on the economy.



Reviewing Main Ideas

9. What was the reasoning behind the creation of the Federal Reserve?
10. List and describe three services the Federal Reserve offers banks.
11. Describe the money multiplier formula in your own words.
12. How do inside lags and outside lags affect monetary policy?
13. What is the difference between easy money policies and tight money policies?

Critical Thinking

14. **Analyzing Information** Review the services the Federal Reserve offers banks and the regulations it places on banks. Which service or regulation do you think is most important to the American banking system?
15. **Analyzing Information** Why are open market operations the most commonly used actions taken by the Fed? What advantages do open market operations have over other monetary policy tools?
16. **Recognizing Cause and Effect** If the Federal Reserve Board were to implement an easy money policy, what actions would it take? What would be the expected results of this policy? What conditions could lead the Fed to take such actions?

Problem-Solving Activity

17. Suppose the economy is experiencing a high rate of inflation. As chair of the Federal Reserve Board, what actions would you take to put the economy back on track?

Skills for Life

Recognizing Bias in Writing Review the steps shown on page 419; then complete the following activity based on the passage on inflation below.

18. Who is the author of the excerpt below?
19. Is this a personal letter, diary entry, or public document?
20. What words does the author use to describe the actions of Alan Greenspan?
21. Do you detect any obvious bias?
22. What economic attitudes may have influenced the author's opinion?

"In the late 1960s, after 20 years in which the gross domestic product had grown 4% a year, inflation had remained below 2%, and the Dow Jones Industrial Average had increased fivefold, the U.S. economy began a long slide into an economic abyss. Inflation and interest rates shot up, stock prices stagnated, and by the late 1970s, few thought the U.S. economy could ever recover.

Today, many believe this same fate is once again awaiting the U.S. economy. According to the pessimists, the U.S. stock market is in a bubble that is about to burst, and inflation is about to explode. The recent dip in the stock market -- prompted by more gloomy warnings from Alan Greenspan -- appeared to give credence to these worrywarts. But they are wrong."

Brian S. Wesbury, chief economist at Griffin, Kubik, Stephens & Thompson, "Have No Fear, Inflation Isn't Here" [Commentary], *The Wall Street Journal/Interactive Edition*, October 21, 1999

Economics Journal

Organizing Information Review your list of terms and definitions. Use your list and other information from the chapter to create a graphic organizer summarizing the role of the Fed in the United States economy.

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