

CHAPTER

16

The Federal Reserve and Monetary Policy

SECTION 1 The Federal Reserve System

SECTION 2 Functions of the Federal Reserve

SECTION 3 Monetary Policy

SECTION 4 Applying Monetary and Fiscal Policy

CASE STUDY Interpreting Signals from the Fed

CONCEPT REVIEW

Fiscal policy is the federal government's use of taxes and government spending to affect the economy. It has one of two goals: to decrease unemployment or to fight inflation.

CHAPTER 16 KEY CONCEPT

Monetary policy includes all the Federal Reserve actions that change the money supply in order to influence the economy. Its purpose is to curb inflation or to reduce economic stagnation or recession.

WHY THE CONCEPT MATTERS

All economies experience the business cycle, a series of periods of growing and shrinking economic activity. Sometimes, these ups and downs become extreme, and the government takes action to even out the business cycle. The government has many tools available to do this—monetary policy is one of the most important.

Online Highlights

More at ClassZone.com

Economics Update

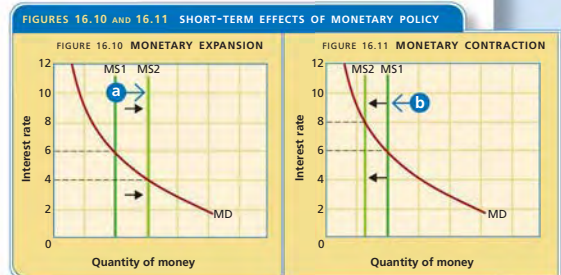
Go to **ECONOMICS UPDATE** for chapter updates and current news on monetary policy. (See Case Study, pp. 504–505).

Animated Economics

Go to **ANIMATED ECONOMICS** for interactive lessons on the graphs and tables in this chapter. ▶

Interactive Review

Go to **INTERACTIVE REVIEW** for concept review and activities.



How do interest rates affect the demand for money? See Figures 16.10 and 16.11 on page 495.

The Federal Reserve System

OBJECTIVES

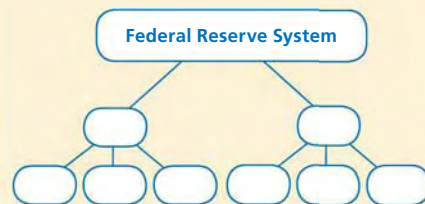
- In Section 1, you will
- examine the purpose and duties of a central bank
 - identify the distinctive features of the Federal Reserve System
 - explain the structure of the Federal Reserve System

KEY TERMS

central bank, p. 474
 monetary, p. 474
 Federal Reserve System, p. 474
 currency, p. 475
 Board of Governors, p. 476
 Federal Open Market Committee, p. 477
 thrift institution, p. 478

TAKING NOTES

As you read Section 1, complete a cluster diagram to identify the major characteristics of the Federal Reserve System. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**



Creating the Fed

QUICK REFERENCE

A **central bank** is a nation's main monetary authority.

Monetary is a term that means "relating to money."

The **Federal Reserve System** is the central bank of the United States.

KEY CONCEPTS

As you recall from Chapter 10, there were times when the U.S. economy suffered from panics and banking was very unstable. The government made many efforts to address this problem, but had only limited success. Perhaps the most far-reaching of these efforts to stabilize the American financial system was the passage of the Federal Reserve Act in 1913. This act created a central bank for the United States. A **central bank** is a nation's main monetary authority, which is able to conduct certain monetary practices. (**Monetary** means "relating to money.") The **Federal Reserve System** is the central bank of the United States and is commonly called the Fed. The Fed is an independent organization within the government, which has both public and private characteristics.

The Duties of a Central Bank

Most countries have a central bank to oversee their banking system. The central bank may be owned and controlled by the government or it may have considerable political independence. There are three common duties that all central banks perform: holding reserves, assuring stability of the banking and monetary systems, and lending money to banks and the government.

Holding Reserves Central banks are sometimes called reserve banks. You learned in Chapter 10 that banks lend only a part of their funds to individuals and businesses and keep the rest in reserve. The central bank holds these reserves to influence the amount of loanable funds banks have available. This allows the central bank to control the money supply.

Assuring Stability The central bank also acts to assure stability in the national banking and monetary systems. For example, it is one of the banking regulatory agencies that regulate and supervise banks to make sure that they act in ways that serve the interests of depositors and of the economy. Also, by controlling the way money is issued and circulated, the central bank attempts to avoid the confusion that might result when individual banks issue their own bank notes.

Lending Money The final duty of the central bank involves one of the primary functions of all banks—it lends money. Its lending practices are unlike those of other banks, however. It does not seek to make a profit through lending, and it serves private banks and the government rather than individual customers and businesses.



The Duties of the Fed

With the passage of the Federal Reserve Act of 1913, Congress created the first national bank in the United States that could truly fulfill the duties of a central bank. The Fed supervises banking in the United States by providing regulation and oversight to make sure that banks follow sound practices in their operations. The Fed also takes steps to ensure that banks do not defraud customers and works to protect consumers' rights as they relate to borrowing money.

Like all central banks, the Fed provides banking services for both private banks and the national government. It accepts and holds deposits in the form of cash reserves, transfers funds between banks or between banks and the government, and makes loans to these institutions. Because it performs such functions, the Fed is sometimes referred to as the bankers' bank.

This responsibility of the Fed is especially important in times of emergency. Shortly after the Fed was created, it played a major role in financing U.S. involvement in World War I by purchasing government war bonds. The Fed also took emergency action after the terrorist attacks on New York City and Washington, D.C. in 2001. It issued \$45 billion in loans to banks throughout the United States in order to ensure that there would be as little disruption to the banking system as possible in light of the destruction in these cities.

The Fed also distributes **currency**, which is coins and paper money, and regulates the supply of money. The supply of money does not mean actual cash but all available sources of money. Specifically, the amount of money that banks have available to lend has important effects on the whole economy. You will learn more about these functions of the Fed in Section 2.

Creating the Fed
President Woodrow Wilson proposed the Federal Reserve Act, in part, to break the power of the nation's biggest banks.

Economics Update

Find an update on the duties of the Fed at ClassZone.com

QUICK REFERENCE

Currency is coins and paper money.

APPLICATION Comparing and Contrasting

- A.** Recall what you learned about the structure and functions of commercial banks in Chapter 10. What are the similarities and differences between the Federal Reserve and a commercial bank?

The Structure of the Fed

KEY CONCEPTS

The Fed is different from most countries' central banks because it is not a single national bank but has both a national and a regional structure. This structure represents a compromise between power resting at the regional level and at the national level. As you may recall from Chapter 10, many U.S. citizens were hesitant to give too much power to a national bank. In addition, the United States is a large and economically diverse country with a complex banking system.

Elements of the Fed

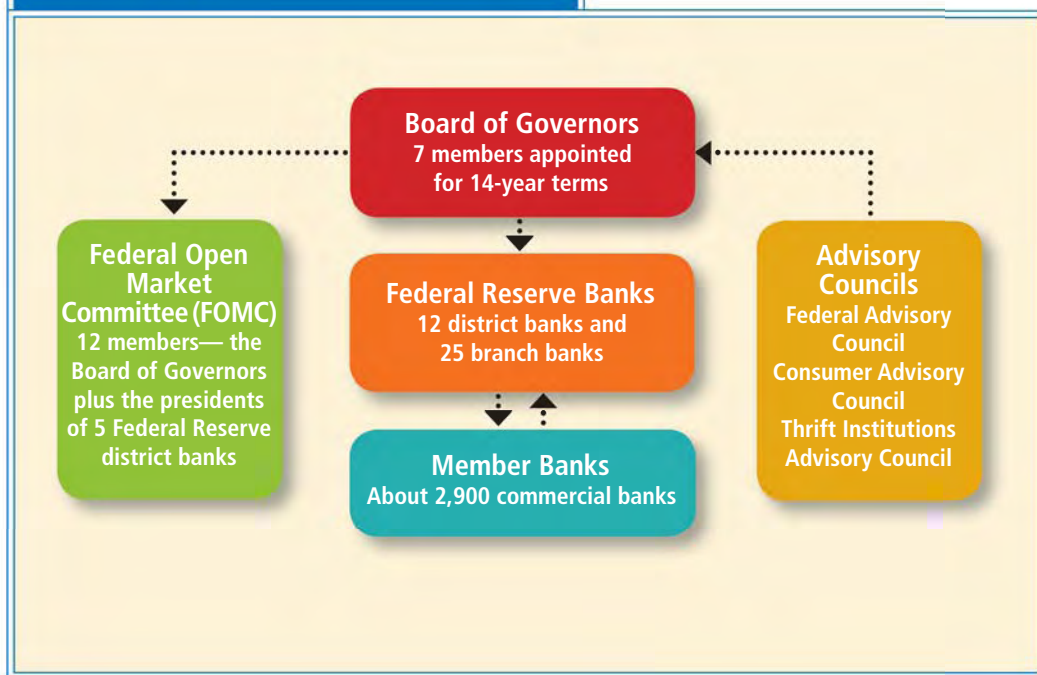
The elements that make up the Fed reflect this balance between national and regional authority. An appointed board sets national Fed policy, and a regional system of district banks carries out this policy and performs the duties of the central bank. This approach gives the Fed some independence from political influence. Even so, the Fed is ultimately accountable to Congress. Figure 16.1 shows how the Fed is organized.

Board of Governors The **Board of Governors** is a board of seven appointed members who supervise the operations of the Fed and set policy. The president appoints members for a single 14-year term, with the approval of the Senate. One board member's term expires every two years, and the president may also appoint replacements to fill vacancies created by members who leave before the end of their terms. The president chooses the chairman and vice-chairman, who serve four-year terms, from among

QUICK REFERENCE

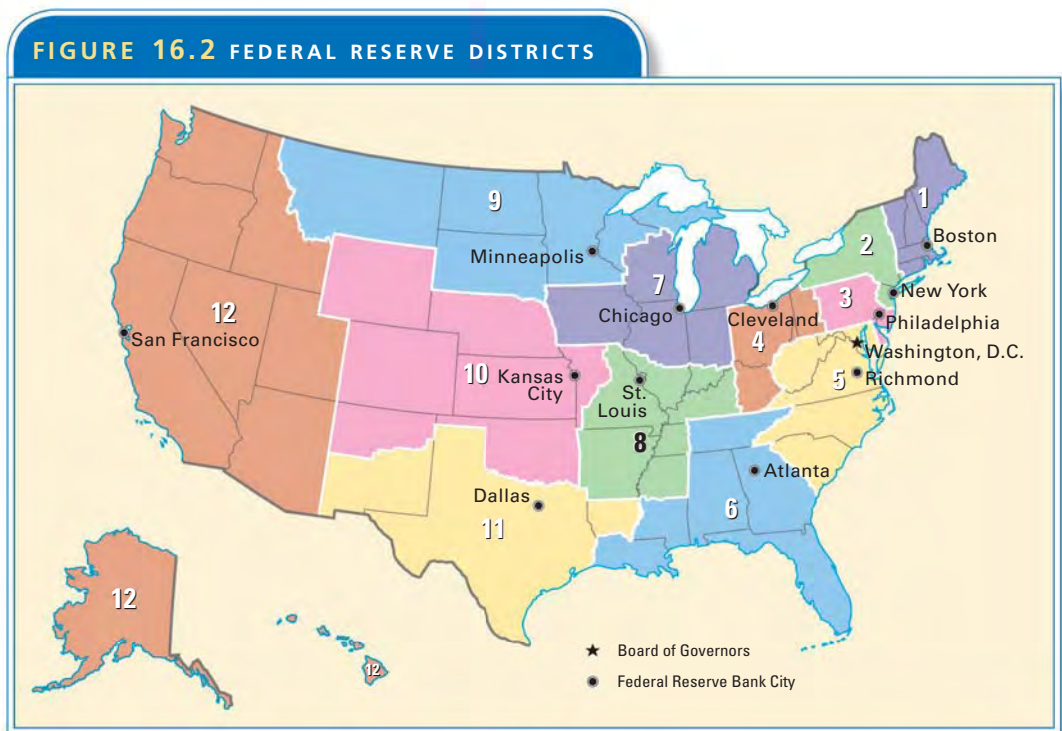
The **Board of Governors** supervises the operations of the Fed.

FIGURE 16.1 STRUCTURE OF THE FED



the seven members. The chairman is considered the most influential member and is the spokesperson for the board. Alan Greenspan, who held the position for nearly 20 years, was so influential as Fed chairman that he almost came to personify the institution. (You can read more about Alan Greenspan on page 494.)

Twelve District Banks The Federal Reserve System is organized into 12 districts. Figure 16.2 shows these districts and the cities where the Federal Reserve district banks and the offices of the Board of Governors are located. While the district banks are responsible for carrying out the national policy set forth by the Board of Governors, each one also serves the needs of its particular region.



Member Banks All nationally chartered banks automatically are members of the Federal Reserve System. State-chartered banks, if they wish, may apply to join the Fed. In 2004, there were about 2,000 national bank members and 900 state bank members, about 37 percent of all commercial banks.

Each member bank must purchase stock in its Federal Reserve district bank. However, this stock ownership is not the same as ownership of stock in a private corporation or a commercial bank. It may not be bought or sold on the open market. Member banks earn a set dividend rate on the stock they hold. This helps to make up for the interest they do not earn on the reserves that the Fed requires them to hold. (See the information on reserve requirements on page 484.)

Federal Open Market Committee The **Federal Open Market Committee (FOMC)** is a board of the Fed that supervises the sale and purchase of federal government securities. The term *open market* refers to the way that government securities are bought and sold. The FOMC consists of 12 voting members, including the Board of Governors, the president of the Federal Reserve Bank of New York, and four other Fed district bank presidents who take turns serving one-year terms. All Fed bank presidents attend the meetings and provide input even when they have no vote.

QUICK REFERENCE

The **Federal Open Market Committee (FOMC)** supervises the sales and purchase of government securities.

A GLOBAL PERSPECTIVE

Comparing Central Banks

Today, more than 160 nations have central banks. These banks function as the main monetary authority for their respective nations. They also serve the same purpose—maintaining economic stability. Further, they use similar tools to fulfill this purpose. Even so, these central banks do have several differences. One difference is historical. The Federal Reserve, for example, was established by an act of Congress in 1913. The Bank of England, Great Britain’s central bank, claims a royal pedigree, having been established in 1694 during the reign of William and Mary. In China, the People’s Bank of China (PBC) began as a commercial bank in 1948. It functioned as a central bank and a commercial bank until 1983, when it was reorganized solely as a central bank.

Another difference lies in the production of money. The central banks of Great Britain and China both produce and distribute currency. In the United States, the Treasury produces currency and the Federal Reserve distributes it.



Chinese bank note



British bank note

CONNECTING ACROSS THE GLOBE

1. Why do you think central banks are common to countries that have very different forms of government, such as the United States and China?
2. In terms of money production, how does the Bank of England differ from the Federal Reserve?

The sale and purchases of federal government bonds on the open market are the principal tools used by the Fed to promote a stable, growing economy. At the end of each of its meetings, the FOMC issues a public statement to explain its assessment of the economy and its latest actions. You will learn more about the functions of the FOMC in Section 3.

Advisory Councils Three committees provide advice directly to the Board of Governors. The 12 members of the Federal Advisory Council, one from each Fed district, represent the commercial banking industry. The Consumer Advisory Council advises the board on matters concerning the Fed’s responsibilities in enforcing consumer protection laws related to borrowing. Its 30 members, for the most part, are drawn from consumer groups and the financial services industry.

The Federal Reserve Board created the Thrift Institutions Advisory Council in 1980 to provide advice about the needs of this important segment of the financial services industry. **Thrift institutions** are savings and loan institutions, savings banks, or other institutions that serve savers. While the Fed does not regulate thrift institutions, the thrifts must conform to the Fed’s reserve requirements and may borrow from the Fed.

QUICK REFERENCE

A **thrift institution** is a financial institution that serves savers.

APPLICATION Making Inferences

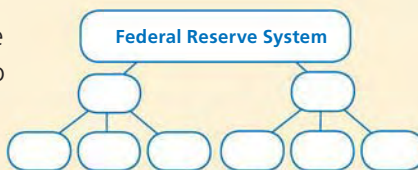
- B. How does the 14-year term of members of the Board of Governors help make the Fed an independent government agency?

SECTION 1 Assessment

REVIEWING KEY CONCEPTS

- Explain the relationship between the terms in each of these pairs.
 - central bank
Federal Reserve System
 - monetary
currency
 - Board of Governors
Federal Open Market Committee
- What are the three duties of a central bank?
- How is the Fed different from other central banks?
- How does the composition of the Federal Open Market Committee reflect the blend of national and regional power in the Fed?
- What do all thrift institutions have in common?

- 6. Using Your Notes** What are the five elements of the Fed? Refer to your completed cluster diagram.

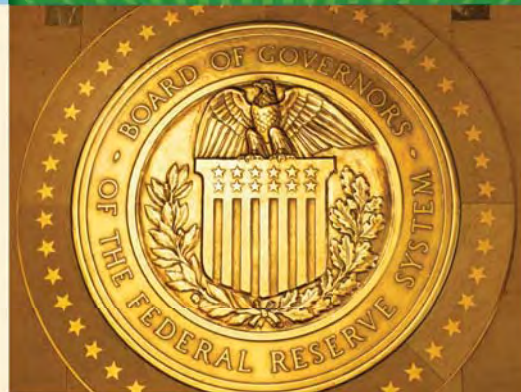


Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

CRITICAL THINKING

- Analyzing Causes and Effects** If all members of the Board of Governors served 14-year terms, no president would appoint more than four members during two terms in office. However, many board members do not serve full terms, and vacancies occur on average more than once every two years. How does this situation affect a president's influence on the Board?
- Drawing Conclusions** The four rotating members on the Federal Open Market Committee are chosen from these groups:
 - Boston, Philadelphia, and Richmond
 - Cleveland and Chicago
 - Atlanta, St. Louis, and Dallas
 - Minneapolis, Kansas City, and San Francisco
 Why does the Fed mandate that one of the rotating members must come from each of these four groups?
- Challenge** The Federal Reserve Act of 1913 created the Federal Advisory Council. The Consumer Advisory Council was not created until 1976. How does this difference reflect changes in the duties of the Fed?

ECONOMICS IN PRACTICE



Analyzing Information

Refer to Figure 16.2 on page 477 to answer the following questions about the creation and present alignment of the Fed.

Analyze Maps Complete the chart below by indicating your answer to each question in the space provided.

Question	Response
Which region of the country has the most Fed district banks?	
How does the size of Fed districts 1–5 compare with districts 9–12?	
Where is the Board of Governors located?	
In which Fed district is your community located?	
How do the Federal Reserve Districts reflect U.S. geographic and economic diversity?	

Challenge How might the Federal Reserve districts be different if they were created today?

Functions of the Federal Reserve

OBJECTIVES

- In Section 2, you will
- identify the services the Fed provides for the banking system
 - explain how the Fed acts as a banker for the federal government
 - describe the creation of money
 - discuss what factors influence the money supply

KEY TERMS

- check clearing, *p. 480*
 bank holding company, *p. 481*
 bank exams, *p. 481*
 required reserve ratio, *p. 484*
 deposit multiplier formula, *p. 485*

TAKING NOTES

As you read Section 2, complete a chart to identify the major functions of the Federal Reserve. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

Functions of the Federal Reserve		
Serving the banking system	Serving the federal government	Creating money

Serving the Banking System

KEY CONCEPTS

As the banker's bank, the Fed has the responsibility of helping banks do their jobs. The Fed serves the banking system in a variety of ways, including providing check clearing and other services that facilitate the transfer of funds, lending money, and regulating and supervising banking activity.

QUICK REFERENCE

Check clearing is a service offered by the Fed to record receipts and expenditures of bank clients.

SERVICE 1 Check Clearing

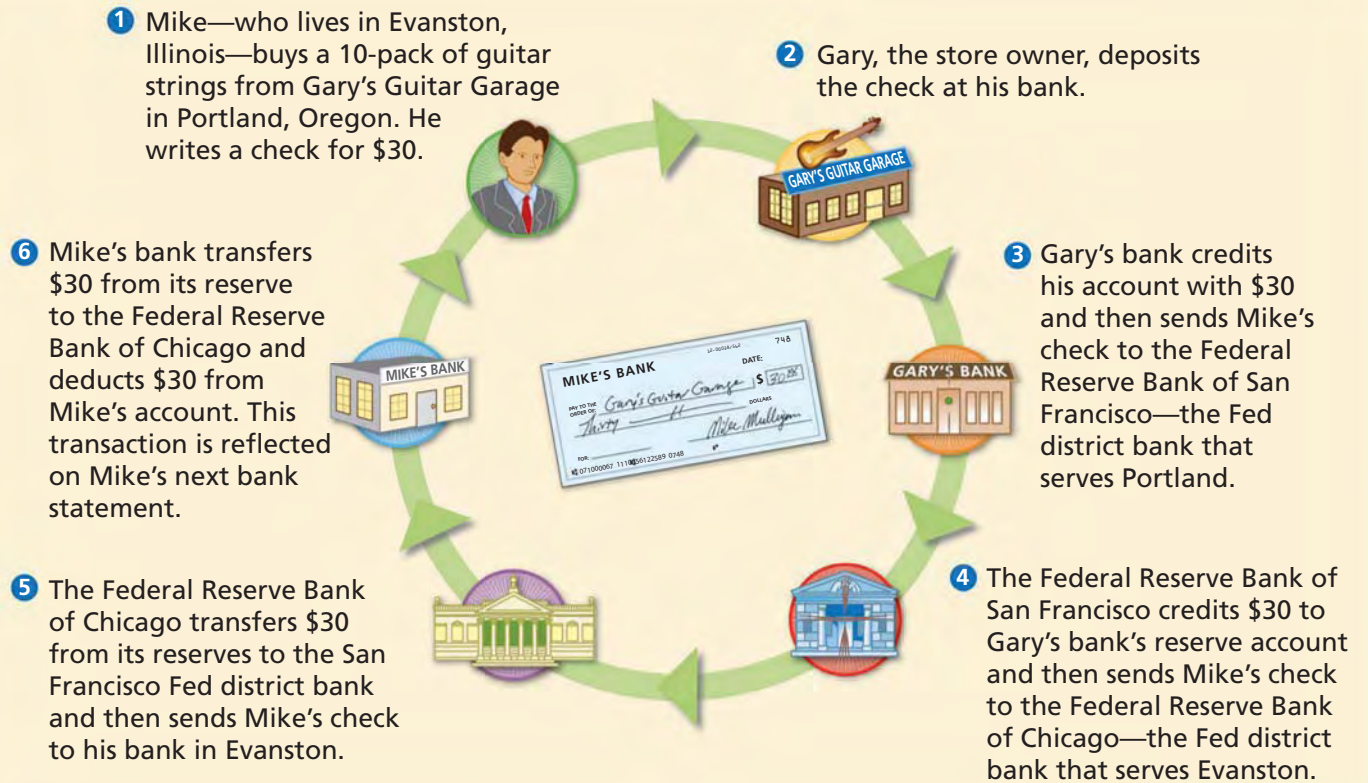
One of the services that the Fed offers to banks is **check clearing**, a process in which banks record the receipts and expenditures of their clients. Each Fed district processes millions of checks every day, but most checks clear in two days or less. Figure 16.3 on the next page shows how a check is cleared by following its path from the time it is written until the money is taken from the check writer's account. Electronic-payment methods, such as credit and debit cards, have begun to replace checks. Further, more private companies are involved in the check-clearing process. As a result, check clearing has become a less important function of the Fed.

SERVICE 2 Lending Money

Banks often loan each other money on a short-term basis. Sometimes all the banks in a region are faced with short-term cash flow issues, usually during natural disasters. At such times, the Fed will provide



FIGURE 16.3 The Federal Reserve and Check Clearing



ANALYZE CHARTS

This diagram illustrates the steps in the check-clearing process for a typical check transaction. Note how many banks handle Mike's check during the process. What is the importance of the Fed's role in clearing Mike's check?

loans to banks and may charge reduced interest rates. Banks must have sufficient assets and capital to qualify for Fed loans. In addition, smaller banks that have seasonal cash flow needs due to the nature of their local economy may borrow from the Fed. The Fed also acts as the lender of last resort to prevent a banking crisis.

SERVICE 3 Regulating and Supervising Banks

Each Federal Reserve Bank supervises the practices of state-chartered member banks and bank holding companies in its district. A **bank holding company** is a company that owns, or has a controlling interest in, more than one bank. This supervision includes **bank exams**, which are audits of the bank's financial practices. These exams make sure that banks are not engaged in risky or fraudulent practices, especially in lending. The Fed monitors bank mergers to ensure that competition is maintained and enforces truth-in-lending laws to protect consumers in such areas as home mortgages, auto loans, and retail credit.

QUICK REFERENCE

A **bank holding company** owns, or has a controlling interest in, more than one bank.

A **bank exam** is an audit of the bank's financial practices.

APPLICATION Making Inferences

A. Why might the Fed help a small bank in an agricultural region stabilize its cash flow?

Serving the Federal Government

KEY CONCEPTS

A second function of the Fed is to serve as the federal government's banker. As you learned in Chapter 14, the federal government receives billions of tax dollars each year and uses this money on a variety of programs through direct spending and transfer payments. In its role as the federal government's banker, the Fed also fulfills certain fiscal responsibilities by helping the government to carry out its taxation and spending activities.

SERVICE 1 Paying Government Bills

When the IRS collects tax revenues, the funds are deposited with the Fed. The Fed then issues checks or makes electronic payments, via the U.S. Treasury, for such programs as Social Security, Medicare, and IRS tax refunds. When these funds are deposited in the recipient's bank account or the check is cashed, the Fed deducts that amount from the government's account.

Including military personnel, the federal government employs about 4.6 million people, and their wages and benefits are processed through the Fed. Direct government spending also comes from accounts at the Fed. Whether the government is buying office supplies or military equipment or paying contractors to maintain federal highways, the money is funneled through the Fed. The Fed also processes food stamps, which are issued by the Department of Agriculture, and postal money orders, which are issued by the U.S. Postal Service. The Fed, therefore, facilitates government payments in a way that is similar to the way it clears checks and processes electronic payments in the private sector.

Economics Update

Find an update on the Fed's role in the sale of government securities at ClassZone.com

SERVICE 2 Selling Government Securities

As you learned in Chapter 15, the federal government has different kinds of securities that it sells when it wants to borrow money. (Remember that securities are another name for bonds and stocks.) The Fed processes U.S. savings bonds and auctions other kinds of securities for the U.S. Treasury to provide funds for various government activities.

The Fed has many roles in this process. It provides information about the securities to potential buyers, receives orders from customers, collects payments from buyers, credits the funds to the Treasury's account, and delivers the bonds to their owners. It also pays the interest on these bonds on a regular basis or at maturity. Many of these transactions are now handled electronically. Even when individuals purchase government securities on the Treasury Department's Web site, the Fed transfers funds between the purchaser and the Treasury and pays the interest when it is due. The Fed does not charge fees for these services.

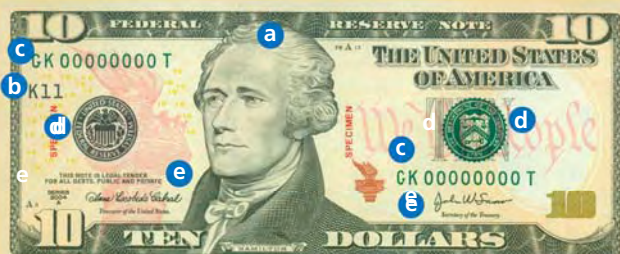
In addition to selling government securities to raise money to fund government activities, the Federal Open Market Committee supervises the sales and purchases of government securities as a way to stabilize the economy. You'll learn more about this aspect of the Fed's work in Section 3.

SERVICE 3 Distributing Currency

One of the important functions of a central bank is to issue a standard currency that is used throughout the economy. In the United States, Federal Reserve notes are the official paper currency. These notes are fiat money backed by the confidence of the federal government and managed by the Federal Reserve. The government's backing is made plain by the statement on each note: "This note is legal tender for all debts, public and private." Figure 16.4 highlights several important features of Federal Reserve notes.

The Department of the Treasury's Bureau of Engraving and Printing prints Federal Reserve notes, which are distributed by the Fed to its district banks. The notes are then moved on to depository institutions and finally into the hands of individuals and businesses. The Fed makes sure that bills are distributed to banks in the amounts that they need. Paper money has a life span of between two and five years. Smaller denomination bills tend to have a shorter life span. Larger denomination bills stay in circulation longer. When bills get worn out, they are taken out of circulation, destroyed, and replaced with new ones. In a similar way, the Fed distributes coins that are produced by the U.S. Mint.

FIGURE 16.4 A FEDERAL RESERVE NOTE



- a Federal Reserve Notes are the official U.S. paper **currency**.
- b Code indicates to which Federal Reserve Bank the Treasury issued the note. For example, B2 is New York, E5 is Richmond, and K11 is Dallas.
- c Each note has a unique serial number. The second letter identifies the Fed district to which the note was issued.
- d The Federal Reserve seal is on the left, the Treasury Department seal on the right.
- e The signature of the Treasurer is on the left, the signature of the Secretary of the Treasury on the right.
- f In 1955, Congress required that the phrase "In God We Trust" be used on all currency and coins.

ANALYZE

1. To which Federal Reserve Bank was this bill issued?
2. How might serial numbers help the authorities detect counterfeit bills?

APPLICATION Comparing Economic Information

- B. How are the banking services the Fed provides to the government similar to the services it provides to banks?

Creating Money

KEY CONCEPTS

Creating money does not mean printing paper currency and minting coins. It refers to the way money gets into circulation through deposits and loans at banks. (You learned briefly about this process in Chapter 10.) Because the United States has a fractional reserve banking system, banks are not allowed to loan out all the money they have in deposits. The Fed establishes a **required reserve ratio (RRR)**, which is the fraction of the bank's deposits that must be kept in reserve by the bank, to control the amount a bank can loan. Money on deposit in excess of the required reserve amount can be loaned out. The money in reserve may be stored as cash in the bank's vault or deposited with the Fed.

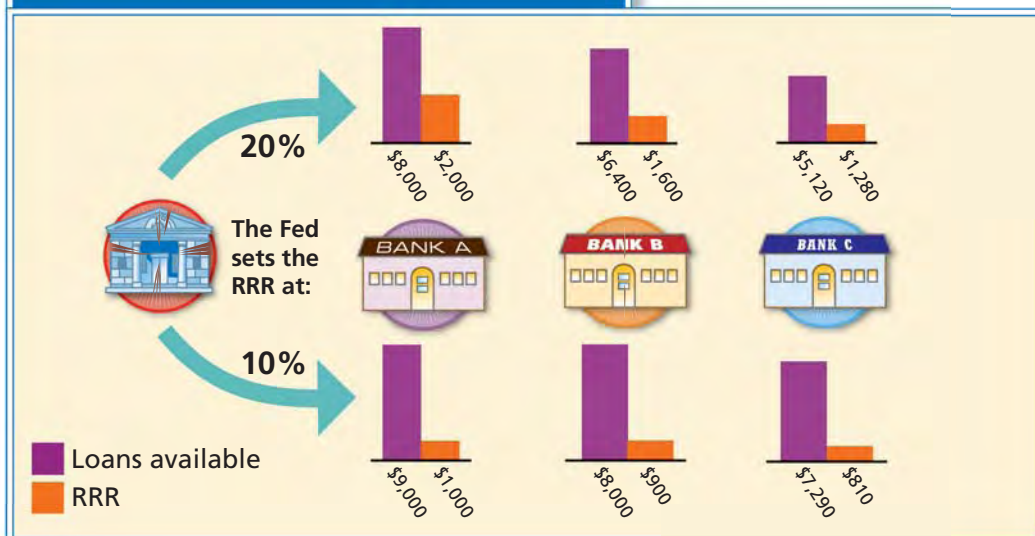
QUICK REFERENCE

Required reserve ratio (RRR) is the fraction of a bank's deposits that it must keep in reserve.

EXAMPLE Money Creation

The banking system creates money whenever banks receive deposits and make loans. The level of the RRR determines how much money may be loaned and, therefore, how much money gets created. Let's see how this works by studying Figure 16.5. At the top of the chart, the RRR is set at 20 percent. If Bank A has \$10,000 in deposits, it must keep 20 percent, or \$2,000, on reserve. It lends the remaining \$8,000 to Kecia's Fitness Studio, which Kecia deposits in Bank B. Bank B keeps 20 percent of the \$8,000, or \$1,600, on reserve as required. Bank B lends the remaining \$6,400 to Juan's Computer Repair, and Juan deposits it in Bank C. At this point, the money supply has increased by \$14,400, the total of the loans made. The process could continue until there was nothing left to lend.

FIGURE 16.5 The Fed Creates Money



ANALYZE CHARTS

Remember that the amount of money that each bank can loan is limited by the RRR. Suppose that Bank C loaned its available funds to Miles and Miles deposited the money in Bank D. How much money would Bank D have to hold in reserve and how much would it have available for loans if the RRR is set at 20 percent? What would these figures be if the RRR were set at 10 percent?

Now look at what happens if the Fed reduces the RRR to 10 percent. The change is shown at the bottom of Figure 16.5. Bank A can now lend \$9,000 to Kecia and Bank B can lend \$8,100 to Juan. In this scenario, the money supply would increase by \$17,100. The decrease in the RRR allowed the money supply to increase by an additional \$2,700.

How do you figure out how much the money supply will increase after all possible loans have been made? The **deposit multiplier formula** is a mathematical formula that tells how much the money supply will increase after an initial cash deposit in a bank. The formula is $1/\text{RRR}$. For example, if the RRR is 10 percent the deposit multiplier equals 10. Figure 16.6 illustrates how the deposit multiplier formula is used to determine the amount of increase in the money supply from an initial deposit of \$100 and a reserve requirement of 10 percent.

QUICK REFERENCE

Deposit multiplier formula tells how much the money supply will increase after an initial cash deposit.

MATH CHALLENGE

FIGURE 16.6 Deposit Expansion Multiplier

Step 1: Study the table below, which shows how an initial deposit of \$100 can increase the money supply. To quantify the total amount of money that can be created from this initial deposit, economists use the deposit expansion multiplier.

	Money deposited	=	10% held as reserves	+	90% loaned out
Bank A	\$100.00	=	\$10.00	+	\$90.00
Bank B	\$90.00	=	\$ 9.00	+	\$81.00
Bank C	\$81.00	=	\$ 8.10	+	\$72.90
Bank D	\$72.90	=	\$ 7.29	+	\$65.61
---	---		---		---
	Total		\$100.00		\$900.00

Step 2: Calculate the deposit expansion multiplier.

Sample Calculations

$$\frac{1}{\text{Required reserve ratio}} = \text{Deposit expansion multiplier} \quad \frac{1}{10\%} = \frac{1}{0.10} = 10$$

Step 3: Use the deposit expansion multiplier to calculate the total money that can be loaned.

$$\text{Initial deposit} \times \left[\text{Deposit expansion multiplier} - 1 \right] = \text{Total available for loans} \quad \$100 \times [10 - 1] = \$100 \times 9 = \$900$$

APPLICATION Analyzing Effects

- C. If the Fed raised the RRR from 10 percent to 12 percent, how would it affect the money supply and by approximately how much, if the initial deposit was \$5,000? Show your calculations.

Factors Affecting Demand for Money

KEY CONCEPTS

The Fed monitors two major indicators of the money supply, namely M1 and M2. Recall that you learned in Chapter 10 that M1 includes cash and checkable deposits, while M2 includes M1 plus savings deposits and certain time deposits. The Fed needs to know how large each type of money is in order to act appropriately to manage the supply of money. Four factors influence how much money individuals and businesses need—cash on hand, interest rates, the cost of consumer goods and services, and the level of income.

FACTOR 1 Cash on Hand

Individuals and businesses need cash to complete certain financial transactions. Recall that M1, which includes cash and checkable deposits, is also called transactions money. Consumers use this money to pay for things such as food, clothing, transportation costs such as gasoline and bus or train fares, and entertainment. Businesses also use cash and checks for many day-to-day expenses. The fastest growing form of payment is the debit card, which was used for more than 23 billion transactions in 2005. While a debit card is not money, it is linked to a checking account, and the funds in the account are considered money.

The Fed understands that there are certain times when people need more cash. It routinely increases the amount of cash at banks during the holiday season because people want more money to buy gifts. Similarly, during the summer months the Fed ensures that banks in areas popular with tourists have more cash. Natural disasters also influence the amount of cash the Fed puts into circulation. In response to Hurricane Katrina's devastation of the Gulf Coast in 2005, the Fed shipped large amounts of currency to banks in several nearby districts because of the immediate demand for more cash by residents. Since many parts of the Gulf Coast were without electricity, people were not able to use debit cards and credit cards as they ordinarily would.

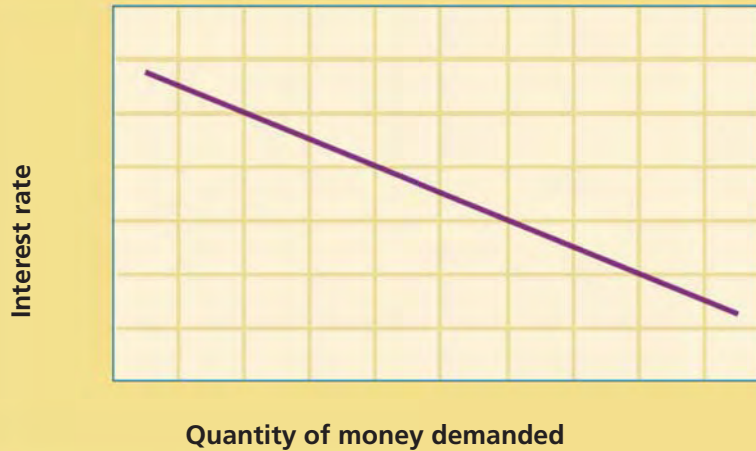
FACTOR 2 Interest Rates

When interest rates are high, individuals and businesses may place excess cash in savings instruments, such as bonds, stocks, or savings accounts. This of course pulls cash out of circulation. The money then exists as a part of M2. Figure 16.7 shows how the demand for money is affected by interest rates. When interest rates are high, the demand for money is lower because there is less incentive for individuals and businesses to spend and more incentive to save and earn interest. When interest rates are lower, however, more money is demanded because people have less incentive to save and more incentive to spend.



Cash on Hand Portable ATMs dispensed much-needed cash to evacuees from the Gulf Coast after Hurricane Katrina.

FIGURE 16.7 DEMAND FOR MONEY



Here, the term *money* refers to M1. Note that when interest rates are high the quantity demanded of money is lower. Conversely, when interest rates decrease the quantity demanded of money increases.

FACTOR 3 Cost of Consumer Goods and Services

As the cost of consumer goods or services increases, buyers may wish to have more money available. Suppose that adverse weather conditions and higher energy prices have driven up the prices of fresh fruits and vegetables. People may need to have more cash when they buy groceries at the supermarket than they did before the prices increased. They might also find that it takes more cash to buy gasoline than it used to.

Businesses face the same challenges. They would also wish to have more cash to purchase the goods and services they need for their operations. Of course, when businesses pay more for goods and services, production costs increase and the higher costs are often passed on to consumers. This, in turn, may lead consumers to want to have more money available.

FACTOR 4 Level of Income

As income increases, individuals and companies have a tendency to hold more cash. Recall that level of income is one of the factors that affect demand. Suppose that Bob has a part-time job cooking at a restaurant. When he gets a raise, he notices that he keeps more money in his wallet because he feels he can afford to spend more on clothes and DVDs. The same holds true for businesses. When their income increases, they will keep more cash because they are able to spend more on the goods and services that they need to pay for operations. In general, when income levels rise, so will the demand for money.

The Fed can take several actions to change the money supply in response to changes in demand for money. More important, the Fed can use these methods of increasing or decreasing the money supply to stabilize the economy. In the next section, you'll learn about the nature of these methods and how they are used to establish economy stability.

APPLICATION Analyzing Effects

D. Which factor is likely to increase the size of M2? Why?



Comparing the Treasury and the Fed

The following passage provides information about the U.S. Treasury and the Federal Reserve System. Compare the two by looking for similarities and differences between them. This will help you understand the role that each plays in the nation's economy.

TIPS FOR COMPARING Use the following tips to help you compare economic information.

The U.S. Treasury and the Federal Reserve System

Although the U.S. Treasury and the Federal Reserve are **both** essential to the functioning of the nation's economy, they **differ** in many ways. The U.S. Treasury Department was established by an act of Congress in 1789. It is the primary federal agency responsible for the economic prosperity of the United States. As such, it is responsible for managing federal finances, including the collection of taxes, duties, and other monies due to the United States; the paying of the nation's bills; and the management of government accounts and the public debt. In addition, the Treasury Department produces stamps, currency, and coinage.

The Federal Reserve System **similarly** was established by an act of Congress but much later, in 1913. **Unlike** the U.S. Treasury, which is a department of the federal government, the Fed is the nation's central bank. According to its mission statement, the purpose of the Federal Reserve is "to provide the nation with a safer, more flexible, and more stable monetary and financial system."

The duties of the Federal Reserve fall into four general areas: conducting the nation's monetary policy in pursuit of maximum employment and economic stability; supervising and regulating the nation's banking institutions; maintaining the stability of the financial system; and providing financial services such as check clearing and short-term loans to member banks. The Fed consists of a board of governors and 12 regional banks, a structure that **varies** considerably from that of the Treasury.

Look for words that signal similarities, such as *both*, *similarly*, and *also*.

Look for words that signal differences, or contrasts, such as *unlike*, *differ*, and *varies*.

THINKING ECONOMICALLY Analyzing

1. In what ways are the Treasury and the Fed similar?
2. What are some important differences between the Fed and the Treasury?
3. Which do you think is more policy oriented, the Fed or the Treasury? Explain why you think so.

SECTION 2 Assessment

REVIEWING KEY CONCEPTS

- Use each of the three terms below in a sentence that illustrates the meaning of the term.
 - check clearing
 - bank holding company
 - required reserve ratio
- Why are bank exams an important way for the Fed to help create a sound banking system?
- What is the relationship between the required reserve ratio and the deposit multiplier formula?
- How does the Fed's check-clearing service help the banking system?
- How does the deposit multiplier formula allow the Fed to create money through the banking system?

6. Using Your Notes What are the three services that the Fed provides to the federal government? Refer to your completed chart.

Functions of the Federal Reserve		
Serving the banking system	Serving the federal government	Creating money

Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

CRITICAL THINKING

- 7. Applying Economic Concepts** Daniel is a high school senior living in California. He receives a check from his grandmother in Florida as a graduation gift. How is the Federal Reserve involved in transferring the money from Daniel's grandmother's bank account to his account? Illustrate your answer with a flow chart.
- 8. Applying Economic Concepts** You've been planning your college finances and you know that you'll have to take a bank loan to cover tuition costs. You read that the Fed intends to raise the RRR from 10 percent to 20 percent. How will this change affect the money supply and your ability to borrow money for college tuition?
- 9. Analyzing Data** The Fed sets the required reserve ratio at 10 percent. What is the initial deposit if the money supply increases by \$40,000? Use the deposit multiplier formula to determine your answer and show your calculations.
- 10. Challenge** Banks do not earn interest on the funds they hold as reserves. How does this provide an incentive to banks to create money by making loans rather than to deposit excess funds in a Fed bank?

ECONOMICS IN PRACTICE



Buying school supplies

Evaluating Demand for Money

Consider the factors that affect the demand for money and then complete the following activities.

Identify Changes in Demand The chart below shows some scenarios that would cause demand for money to change. For each example, note if demand is increasing or decreasing.

Factor Affecting Demand for Money	Increasing or Decreasing?
Back-to-school shopping begins	
Banks lower the interest rate on CDs from 6% to 3%	
Energy costs for home heating are up by 20%	
Interest rates on savings deposits increase from 1% to 4.5%	

Challenge What type of potential economic instability is suggested by rising prices? How might the Fed adjust the money supply in such a situation? You will learn more about this topic in Section 3.

Monetary Policy

OBJECTIVES

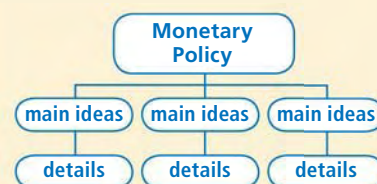
- In Section 3, you will
- examine the Fed's tools for monetary policy
 - explain how the Fed's monetary policy promotes growth and stability
 - analyze the challenges the Fed faces in implementing its policy

KEY TERMS

monetary policy, p. 490
 open market operations, p. 490
 federal funds rate, p. 490
 discount rate, p. 491
 prime rate, p. 491
 expansionary monetary policy, p. 492
 contractionary monetary policy, p. 492
 easy-money policy, p. 492
 tight-money policy, p. 493
 monetarism, p. 496

TAKING NOTES

As you read Section 3, complete a hierarchy diagram to track main ideas and supporting details about monetary policy. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**



The Fed's Monetary Tools

QUICK REFERENCE

Monetary policy

includes the Fed's actions that change the money supply in order to influence the economy.

Open market operations are the sales and purchase of federal government securities.

The **federal funds rate (FFR)** is the interest rate that banks charge one another to borrow money.

KEY CONCEPTS

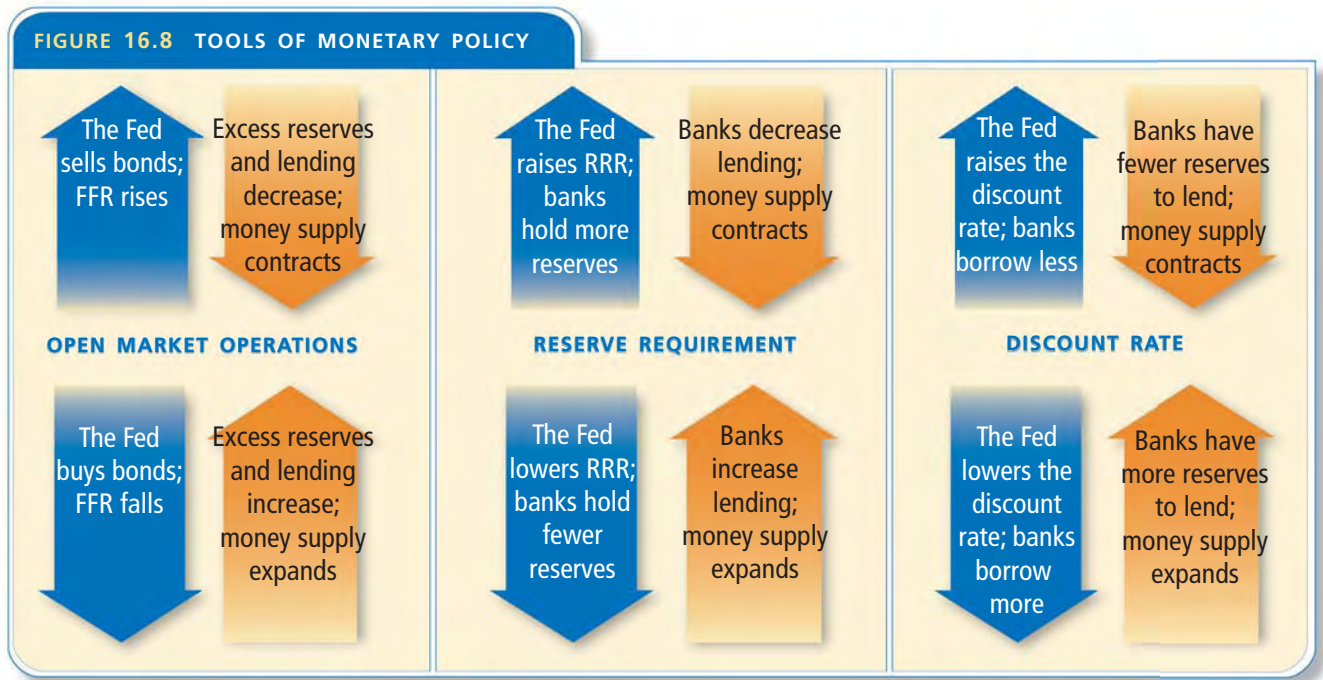
Monetary policy involves Federal Reserve actions that change the money supply in order to influence the economy. There are three actions the Fed can take to manage the supply of money: open market operations, adjusting the reserve requirement, and adjusting the discount rate. They may be taken individually or in combination with one another. The impact of these actions is shown in Figure 16.8.

ACTION 1 Open Market Operations

Open market operations are the sales and purchase of marketable federal government securities. This is the monetary policy tool most used by the Fed to adjust the money supply. When the Fed wants to expand the money supply, it buys government securities. The Fed pays for the bonds it buys from commercial banks or the public by writing checks on itself. When sellers receive the funds from the Fed, they deposit them in banks. The banks can then lend their new excess reserves. When the Fed wants to contract the money supply, it sells government bonds on the open market. The purchasers of the bonds transfer funds to the Fed to pay for the bonds. These funds are taken out of circulation, and the reserves available for loans decrease.

The Fed communicates its intention to buy or sell bonds by announcing a target for the federal funds rate. The **federal funds rate (FFR)** is the interest rate at which a depository institution lends immediately available funds (balances at the Federal Reserve) to another depository institution overnight. When the Fed lowers the target for the FFR, it buys bonds. When it raises the target, it sells bonds. The Fed does not set the rate directly but influences it through its actions.

FIGURE 16.8 TOOLS OF MONETARY POLICY



ACTION 2 Adjusting the Reserve Requirement

As you recall from Section 2, the Fed sets the required reserve ratio (RRR) for all depository institutions. The RRR affects the money supply through the deposit multiplier formula. Increasing the RRR can reduce the money supply; decreasing the RRR can expand the money supply. Since the early 1990s, the RRR has been between 10 and 12 percent for transaction deposits and between 0 and 3 percent for time deposits.

ACTION 3 Adjusting the Discount Rate

The **discount rate** is the interest rate that the Fed charges when it lends money to other banks. The discount rate affects the money supply because it sets the reserves that banks have available to lend. When the Fed increases the discount rate, banks tend to borrow less money from the Fed. They must then use their existing funds to meet reserve requirements and have less excess reserves to lend. Therefore, the money supply decreases. The opposite happens when the discount rate is lowered. Banks borrow more money from the Fed and increase their reserves. When this happens, they have more money to lend, and the money supply increases.

The Fed's actions also impact businesses and individuals who borrow. The **prime rate** is the interest rate that banks charge their best customers. Interest rates for other borrowers tend to be two or three percentage points above prime. To make a profit on the loans they make, banks need to charge higher rates than they pay to borrow. So when the discount rate increases, so does the prime rate and, therefore, the cost of business and consumer credit.

QUICK REFERENCE

The **discount rate** is the interest rate that the Fed charges when it lends money to other banks.

The **prime rate** is the interest rate that banks charge their best customers.

APPLICATION Analyzing Causes

A. Which open market operation causes the money supply to expand? Why?

Approaches to Monetary Policy

KEY CONCEPTS

The most important job of the Fed is to promote growth and stability in the American economy. The purpose of monetary policy is to curb inflation and reduce economic stagnation or recession. By focusing on these goals, the Fed tries to promote full employment and growth without rapid increases in prices or high interest rates.

The Fed uses two basic policies—expansionary or contractionary monetary policy. **Expansionary monetary policy** is a plan to increase the amount of money in circulation. **Contractionary monetary policy** is a plan to reduce the amount of money in circulation. When the economy slows, the Fed uses expansionary monetary policy to pump more money into the economy. When the economy is overheated, the Fed uses a contractionary policy to reduce the amount of money in the economy.

POLICY 1 Expansionary Policy

In Chapter 15 you studied expansionary policy as it related to the federal government's fiscal-policy actions. This type of fiscal policy is used during a slowdown in economic activity. The Fed's expansionary monetary policy is used at the same point in the business cycle. It is sometimes called the **easy-money policy** because it puts more money into circulation by making it easier for borrowers to secure a loan.

During a recession, when unemployment is high, the Fed wants to have more money circulating in the economy to stimulate aggregate demand. When it is easier to borrow money, consumers will take out more loans to buy homes, automobiles, and other goods and services. In response, businesses then produce more, which creates jobs and decreases unemployment. An easy-money policy allows businesses to borrow funds to help them expand. When more loans are made, more money is created in the banking system.

The Fed enacts an easy-money policy by buying bonds on the open market, by decreasing reserve requirements, by decreasing the discount rate, or by some combination of these tools. The Fed's most common action in this situation is to buy bonds on the open market. When the Fed decides to buy more bonds, it increases the demand for them, which raises their price. Recall that bond prices have an inverse, or opposite, relationship to interest rates. When bond prices rise, interest rates fall. Lower interest rates will encourage more lending. More lending increases consumer spending and investment. This, in turn, increases aggregate demand, resulting in the growth of GDP and lower unemployment.

If the Fed expands the money supply too much, however, aggregate demand may increase to a level that causes inflation.

QUICK REFERENCE

Expansionary monetary policy is a plan to increase the money supply.

Contractionary monetary policy is a plan to reduce the money supply.

Easy-money policy is another name for expansionary monetary policy.

Monetary Policy The Fed's monetary policy must be well-timed and well-balanced to have the required effect.



POLICY 2 Contractionary Policy

In Chapter 15, you also studied the federal government's contractionary fiscal policy, used during an expansionary period. The Fed's contractionary monetary policy also is used when economic activity is rapidly increasing. It is sometimes called a **tight-money policy** because it is designed to reduce inflation by making it more difficult for businesses and individuals to get loans.

Suppose that aggregate demand is increasing faster than aggregate supply, leading to higher prices and concerns about inflation. The Fed would want to have less money circulating because more money fuels demand and may lead to inflation in wages and prices. In other words, the Fed would want to make it harder for businesses and individuals to borrow money. Therefore, it would decrease the money supply by decreasing reserves available for loans.

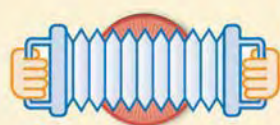
The Fed enacts a tight-money policy by selling bonds on the open market, increasing reserve requirements, or increasing the discount rate. As with easy-money policy, the Fed's most likely action involves open market operations. Selling bonds causes bond prices to fall and interest rates to increase. Higher interest rates discourage lending. Less lending decreases aggregate demand, which decreases growth in GDP, and lowers the general price level. If the Fed contracts the money supply too much, however, aggregate demand may decrease to a level where unemployment increases. Figure 16.9 summarizes how the Fed uses expansionary and contractionary monetary policies.

QUICK REFERENCE

Tight-money policy is another name for contractionary monetary policy.

ECONOMICS ESSENTIALS

FIGURE 16.9 Approaches to Monetary Policy



Expansionary Policy

- Buy bonds on the open market
- Lower the reserve requirement
- Reduce the discount rate

How does the Fed use its monetary policy tools?



Contractionary Policy

- Sell bonds on the open market
- Raise the reserve requirement
- Increase the discount rate

ANALYZE CHARTS

Monetary policy is designed to even out the extremes of the business cycle by expanding or contracting the money supply. Explain how the actions listed under Expansionary Policy increase the supply of money and those under Contractionary Policy decrease the supply of money.

APPLICATION Comparing and Contrasting

- B. What are the similarities and differences between expansionary fiscal policy and expansionary monetary policy?

Alan Greenspan: Fighting Inflation

FAST FACTS

Alan Greenspan

Title: Chairman of the Federal Reserve Board (1987–2006)

Born: March 6, 1926, New York City

Major Accomplishment: Controlled inflation while supporting unprecedented economic growth

Presidents Served

Under: Ronald Reagan, George H. W. Bush, Bill Clinton, George W. Bush

Time as Fed Chairman

man: 18 years, 5 months (second longest tenure)

Notable Quotation:

I guess I should warn you, if I turn out to be particularly clear, you've probably misunderstood what I've said.

During his 18-plus years as chairman of the Fed, Alan Greenspan came to personify the institution. The worldwide financial community and the media waited eagerly to hear what he would say after each meeting of the FOMC. Why did so many people come to believe that one man's decisions could have such a profound impact on everything from the performance of the stock market to mortgage rates?

Managing Monetary Policy

President Ronald Reagan appointed Alan Greenspan chairman of the Federal Reserve Board of Governors in 1987. He had a reputation as a committed inflation fighter and fulfilled that role with great success. The core inflation rate was 3.9 percent when he became chairman and was 2 percent in 2005.

Although the chairman has only one vote on the FOMC, Greenspan's economic insight and persuasiveness gave him much greater power. He led the Fed in using open market operations to help raise interest rates to cool down the economy when it experienced inflationary periods. At other times, for example, when the stock market crash of October 1987 threatened to lead the economy into a severe recession, Greenspan responded by expanding the money supply as needed to cushion the shock. Then, in the late 1990s, he pushed the Fed to edge up interest rates, and the economy experienced a period of unprecedented growth without inflation.

Greenspan's success was due to his clear understanding of the tools of monetary policy and how to apply them, as well as in-depth knowledge of a wide range of economic indicators. Also, throughout his years as chairman, he developed a sense of timing, knowing just when to direct the Fed to expand the money supply and when to contract it.



A Celebrity During his tenure as Fed chairman, Alan Greenspan practically achieved celebrity status.

APPLICATION Making Inferences

- C. Did Greenspan advocate a tight-money policy or an easy-money policy in the late 1990s? How do you know?

Economics Update

Find an update about Alan Greenspan at ClassZone.com

Impacts and Limitation of Monetary Policy

KEY CONCEPTS

As you recall, the purpose of monetary policy is to curb inflation and to halt recessions, which result in unemployment. But what impact does monetary policy have on the economy, and how successful is it in fulfilling its purpose?

IMPACT 1 Short-Term Effects

Adjustments to monetary policy have both short-term and long-term effects. The short-term effect is change in the price of credit—in other words, the interest rates on loans. The Fed’s open market operations influence the FFR fairly quickly by increasing or decreasing the level of reserves that banks have available to lend. Figure 16.10 shows that when the Fed uses an easy-money policy to expand the money supply, interest rates decline. When the Fed uses a tight-money policy, as shown in Figure 16.11, interest rates rise.

FIGURES 16.10 AND 16.11 SHORT-TERM EFFECTS OF MONETARY POLICY

FIGURE 16.10 MONETARY EXPANSION

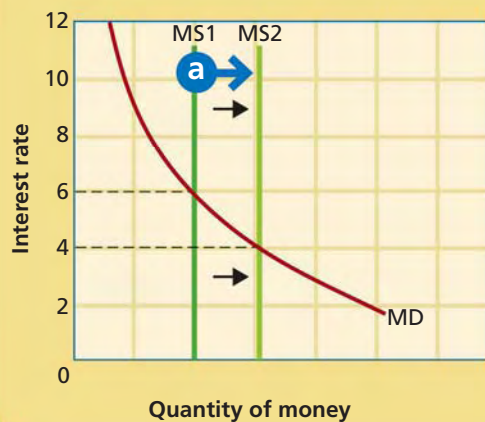
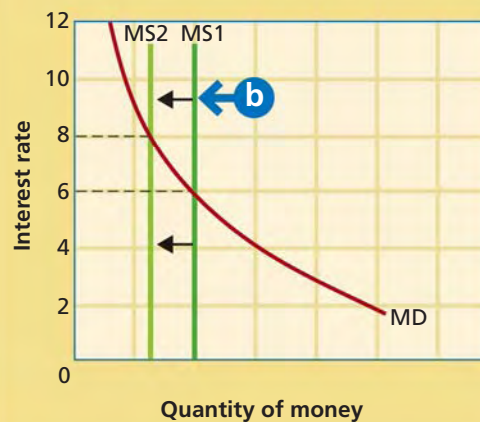


FIGURE 16.11 MONETARY CONTRACTION



The money supply (MS1, MS2) is a vertical line because it represents the fixed amount of money available as determined by the Fed.

Demand for money (MD) is the same as demand for any product. As prices (interest rates) fall, demand increases. As prices rise, demand falls.

- a** The supply curve shifts to the right when the money supply expands.
- b** The supply curve shifts to the left when the money supply contracts.

ANALYZE GRAPHS

1. What happens to the equilibrium interest rate in Figure 16.10? What happens to it in Figure 16.11?
2. How do these graphs show the effects of easy-money and tight-money policy?



Use an interactive money supply curve at ClassZone.com

IMPACT 2 Policy Lags

Some lags, or delays, that affect monetary policy are related to identifying the problem. The Fed needs specific information and statistics in order to identify the problem and take action. Other lags have to do with how quickly the change in policy

takes effect. Many economists suggest that it may take as long as two years for adjustments in monetary policy to take full effect. This may have long-term effects on the economy. For example, businesses often delay plans for expansion if interest rates are too high. Because policies designed to lower rates may take some time to take effect, actual investment in expansion may lag months or years behind the plans.

IMPACT 3 Timing Issues

As with fiscal policy, monetary policy must be coordinated with the business cycle in order to provide a stable economic environment. If the policy is correct and the timing is good, extremes in the business cycle will be evened out. If the timing is bad, a business cycle phase may be exaggerated. For example, high interest rates in 1990 that were intended to help fight inflation actually took effect as the economy was going into a recession, worsening the effects of that recession.

Supporters of monetarism cite such situations to show that using monetary policy to influence short-term changes in the business cycle can create major problems. **Monetarism** is a theory that suggests that rapid changes in the money supply are the main cause of economic instability. Milton Friedman is the most prominent monetarist. (You can read more about Friedman on page 76.) He studied how changes in the growth rate of the money supply affected prices and concluded that inflation is always accompanied by rapid monetary growth. Conversely, he noted that there has been little or no inflation when the money supply has grown slowly and steadily.

Monetarists do believe that monetary policy is an important tool. However, they argue that best way to ensure economic growth and stability is to allow the money supply to grow slowly and steadily—by around 3 percent a year. They disapprove of the Fed’s use of monetary policy to constantly tinker with the money supply.



Monetarism According to monetarists, a slow, steady growth in the amount of money in circulation is the best monetary policy.

Other Issues

The use of the monetary policy tools is just one way the economy can be corrected. It is more effective if it is coordinated with fiscal policy. In addition, the goals of the Fed may clash with those of Congress or the president. Since members of the Fed’s Board of Governors serve for 14-year terms, they are not as susceptible to political pressure as are politicians, who are elected every two to six years.

APPLICATION Analyzing Causes

- D. What will happen to interest rates when the Fed sells bonds in open market operations? Why?

QUICK REFERENCE

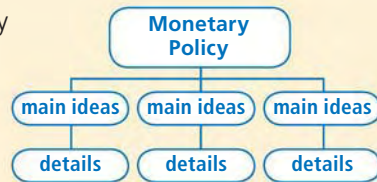
Monetarism is a theory that holds that rapid changes in the money supply cause economic instability.

SECTION 3 Assessment

REVIEWING KEY CONCEPTS

- Explain the difference between the terms in each of these pairs.
 - monetary policy* *easy-money policy* *discount rate*
monetarism *tight-money policy* *prime rate*
- How should a contractionary monetary policy affect interest rates and the rate of inflation? Why?
- How should an expansionary monetary policy affect interest rates and the unemployment rate? Why?
- How does the Fed use open market operations as a monetary policy tool?
- What is the main short-term effect of monetary policy?

6. Using Your Notes Which monetary policy tool does the Fed use least often? Refer to your completed hierarchy diagram.



Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

CRITICAL THINKING

- Analyzing Causes** To curb inflation, why is it easier for the Fed to use monetary policy to raise interest rates than it is for Congress to implement contractionary fiscal policy?
- Making Inferences** What are the Fed's underlying assumptions about the state of the economy, based on these Fed actions?
 - The Fed's open market operations caused the FFR to drop from 6.25 percent to 1 percent.
 - The FFR rose from 1 percent to 4.25 percent.
- Applying Economic Concepts** In 2005, the Fed set the discount rate for banks in good financial condition at 1 percent above the targeted FFR.
 - Would these banks be more likely to borrow short-term funds from another bank or from the Fed? Why?
 - How does this policy help keep the federal funds rate close to the target set by the Fed?
- Challenge** Explain how the Fed buying bonds affects interest rates, aggregate demand, price level, and GDP. Illustrate your answer using two graphs, one showing the money market and one showing aggregate supply and aggregate demand.

ECONOMICS IN PRACTICE



Durable goods—washing machines

Applying Economic Concepts

Think about the ways monetary policy is used to address economic problems. Then complete the following activities.

Determine Monetary Policy The chart below lists several economic situations. For each one, decide whether an easy-money or tight-money policy is needed.

Economic Situation	Monetary Policy Needed
Consumer spending on durable goods rises faster than production	
Rising energy prices are pushing prices of many products higher	
Unemployment rate increases from 5.4% to 6.8% over six months	

Challenge Choose one example that requires an easy-money policy and one that requires a tight-money policy and explain how open market operations would be used in each case.

Applying Monetary and Fiscal Policy

OBJECTIVES

In Section 4, you will

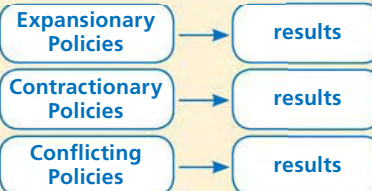
- describe how monetary and fiscal policy can coordinate to improve the economy
- understand how monetary and fiscal policy can work against each other
- identify other measures that can be used to manage the economy

KEY TERMS

wage and price controls, p. 501

TAKING NOTES

As you read Section 4, complete a cause-and-effect chart using the key concepts and other helpful words and phrases. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**



Policies to Expand the Economy

KEY CONCEPTS

The goals of both fiscal and monetary policy are to stabilize the economy by easing the effects of recession and controlling inflation. Fiscal policy relies on government spending and taxation to achieve its goals. Monetary policy uses open market operations, the discount rate, and reserve requirements as its tools.

These policies, as well as affecting the economy, also have an impact on each other. As you recall, both monetary and fiscal policy have limitations. These include policy lags, political constraints, and timing issues. Policy lags relate to the time it takes to identify the problem and for policy actions to take effect. Political considerations may limit government's ability to do what is best for the economy. Timing, too, is important because to be effective government actions must counteract the negative effects of the business cycle. Intervention at the wrong time may skew the cycle and make the problem worse.

A second phenomenon affecting timing is explained by the rational expectations theory. As you recall from Chapter 15, this states that individuals and business firms learn, through experience, to anticipate changes in monetary and fiscal policy and take steps to protect their interests. For example, if there is debate in Congress about tax cuts, individuals and businesses may take actions before the legislation is even passed, based on their expectations that tax cuts will increase their income. Individuals may decide to purchase durable goods, such as automobiles, refrigerators, and washing machines. Similarly, businesses may decide to expand their operations by building new factories and hiring more workers. On the other hand, if individuals and businesses think the tax cuts will be temporary, they may choose not to spend as the policy intended.



Rational Expectations

Expectations that tax cuts will increase their incomes may cause people to buy "big-ticket" items such as refrigerators.

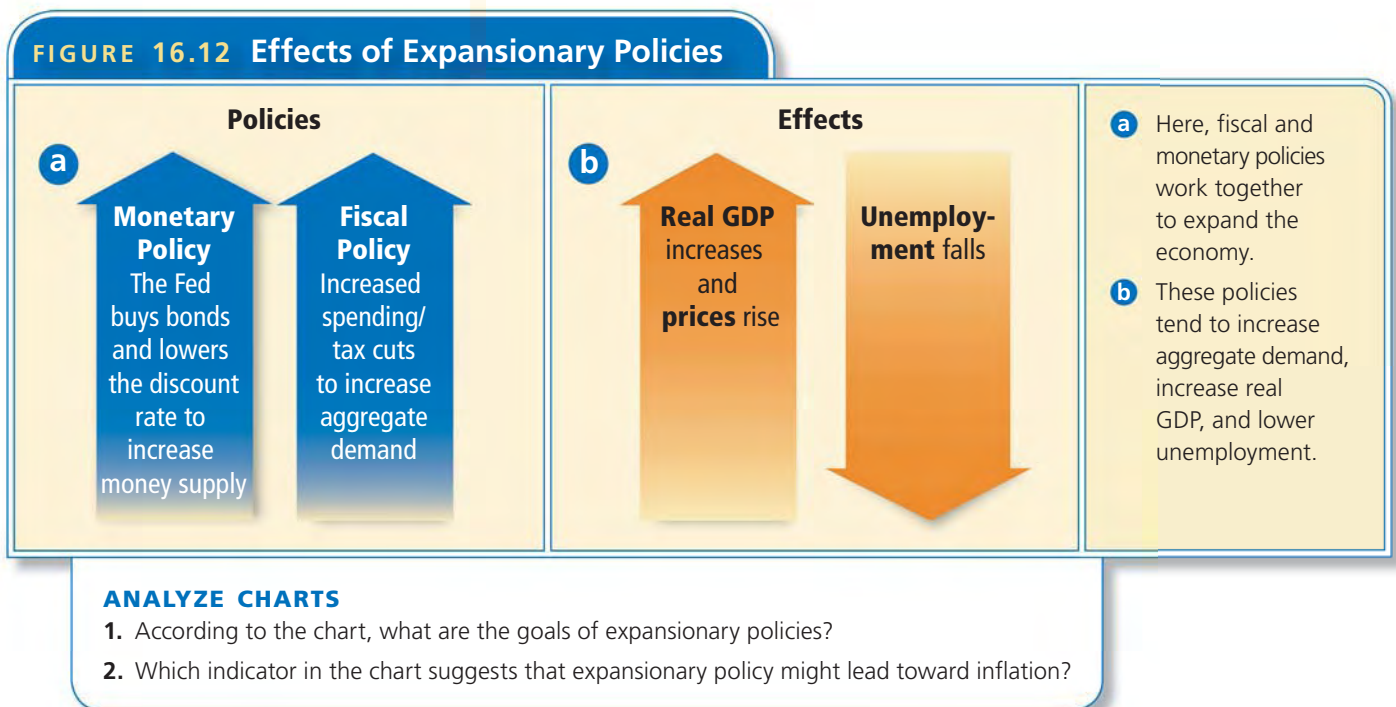
People who disagree with the use of most discretionary policy often support their argument with the rational expectations theory. They suggest that rather than fiddling with fiscal and monetary policy, the government should aim for a stable monetary policy so that business decisions are made for economic reasons and not in anticipation of new policies.

EXAMPLE Expansionary Monetary and Fiscal Policy

The goal of expansionary policy is to stimulate the economy by reducing unemployment and increasing investment. As you recall, expansionary fiscal policy involves increased government spending or tax cuts. Also, to enact expansionary monetary policy, the Fed buys government bonds or reduces the discount rate or the reserve requirement.

For example, suppose that the unemployment rate is 9.5 percent and the Consumer Price Index (CPI) is at 2 percent. The economy is in recession and inflation is a minimal concern. In order to increase the money supply, the Fed buys bonds on the open market and lowers the discount rate. The federal government also cuts personal income taxes and increases government spending. These expansionary policies are designed to increase aggregate demand and decrease unemployment. Real GDP will expand and prices will rise as aggregate demand increases. Figure 16.12 shows how expansionary policies affect these key economic indicators.

Expansionary fiscal policy is likely to raise interest rates, while expansionary monetary policy should decrease interest rates. Therefore, the actual change in interest rates will depend on the relative strength of the two policies. The amount of investment spending will depend on what happens with interest rates.



APPLICATION Analyzing Effects

A. What effect would government borrowing to finance increased spending have on interest rates and why?

Policies to Control Inflation

KEY CONCEPTS

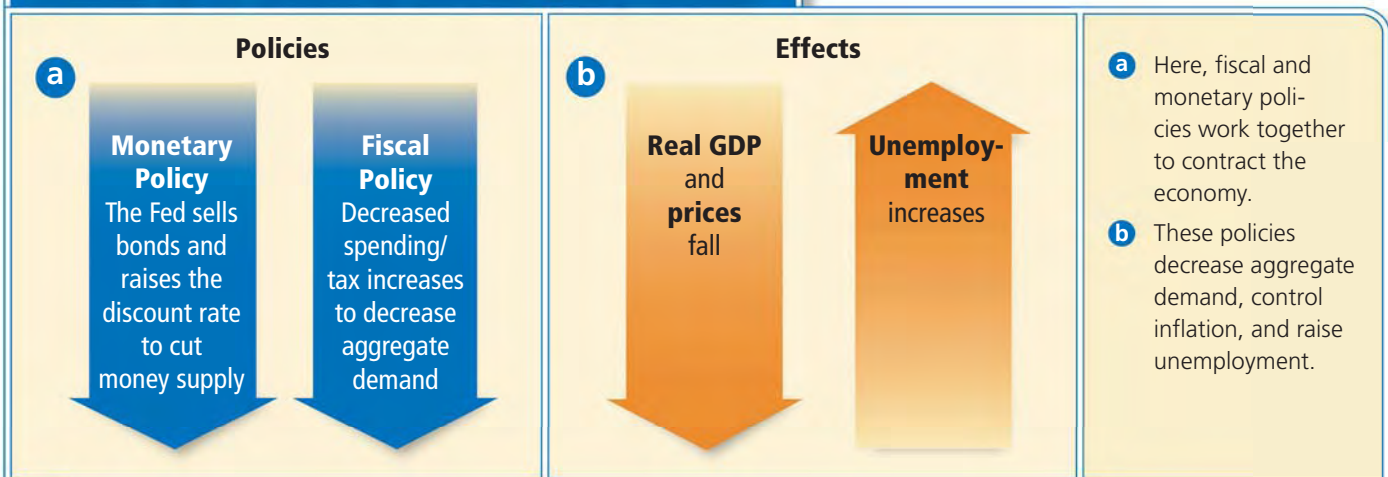
The goal of contractionary monetary policy is to tighten up the economy by decreasing inflation and increasing interest rates. Contractionary fiscal policy tools include decreased government spending or tax increases. The Fed will sell bonds on the open market or raise the discount rate or the reserve requirement as contractionary monetary policy tools.

EXAMPLE Contractionary Monetary and Fiscal Policy

Suppose that the unemployment rate is 4.5 percent and the CPI is running in excess of 10 percent. The economy is operating at or above a sustainable level of output, and inflation is very high. In order to decrease the money supply, the Fed sells bonds on the open market and raises the discount rate. The federal government cuts spending on government programs. It also may raise taxes. These contractionary policies are designed to decrease aggregate demand and bring inflation under control. Real GDP will decrease, and prices will fall as aggregate demand decreases. Further, unemployment tends to rise as real GDP decreases. Figure 16.13 shows how contractionary monetary and fiscal policies affect the key economic indicators of unemployment and real GDP.

Contractionary fiscal policy is likely to lower interest rates because decreased government spending will decrease demand for loans. Contractionary monetary policy should raise interest rates. Therefore, the actual change in interest rates will depend on the relative strength of the two policies. The amount of investment spending depends on what happens with interest rates.

FIGURE 16.13 Effects of Contractionary Policies



ANALYZE CHARTS

1. According to the chart, what are the goals of contractionary policies?
2. In what way might the fiscal policy shown here not help to control inflation?

YOUR ECONOMIC CHOICES

RATIONAL EXPECTATIONS THEORY

Will you begin to build or wait?

You and several business partners have purchased an empty lot and plan to build a new store on it. There has been discussion in the media recently about rising inflation and the possibility that the Fed will raise interest rates. Do you go forward with your plan to build, or do you wait? Why?



▲ Empty lot



▲ Completed store

EXAMPLE Wage and Price Controls

At times in the past, the government has taken extreme measures to control the economy, especially during wartime. For example, the government may establish a set of wage and price guidelines that are not mandatory. **Wage and price controls** are limits, established by the government, on increases in certain wages and prices. These controls, unlike wage and price guidelines, are mandatory and enforced by the government.

World War II led to increased production of goods needed by the military. This situation created shortages of many consumer goods as well as a labor shortage, which tended to drive up prices and wages. In an effort to control inflation, President Franklin D. Roosevelt established the Office of Price Administration (OPA) in 1942. This agency set strict wage and price controls on all sectors of the economy. These measures had some, but not total, success. They were phased out almost immediately after the end of the war.

In 1971, President Richard M. Nixon was faced with stagflation, a situation in which rising unemployment is accompanied by rising inflation rates. In August of that year, Nixon announced a 90-day freeze on wages and prices to try to control inflation. The program was renewed several times and lasted until April 1974. Even so, it had little impact. From late 1971 to early 1974, the inflation rate actually rose from about 4 percent to 11 percent.

QUICK REFERENCE

Wage and price controls are government limits on increases in wages and prices.

APPLICATION Comparing and Contrasting

B. What are the similarities and differences between contractionary monetary policy and wage and price controls?

Policies in Conflict

KEY CONCEPTS

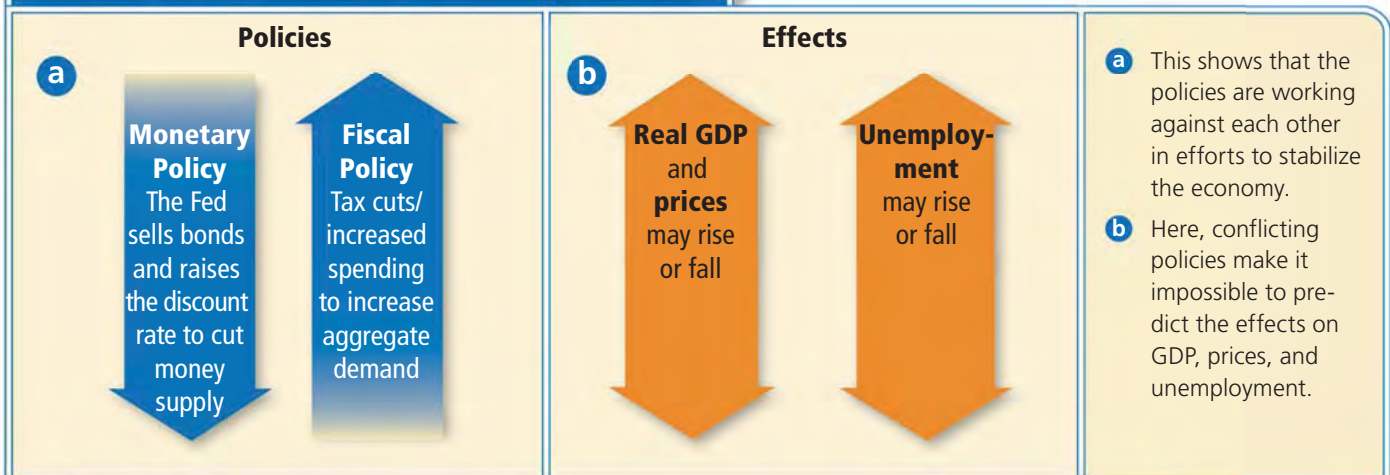
As you have seen, coordinated policies are, for the most part, effective in reaching a mutually agreed upon goal—that is, a stable but growing economy with little inflation. When fiscal and monetary policies are not coordinated, however, one policy can counter the effect of the other and thwart this goal, creating economic instability instead.

EXAMPLE Conflicting Monetary and Fiscal Policies

Suppose that the unemployment rate is 7 percent and the CPI stands at 6 percent and is steadily rising. The Fed may decide that the most pressing problem for the economy is rising inflation. So, to cool down the economy it follows a contractionary monetary policy, selling bonds on the open market and raising the discount rate. At the same time, the federal government may decide that rising unemployment needs is a bigger problem. To stimulate aggregate demand, it follows an expansionary fiscal policy, cutting personal taxes and increasing spending on public works programs.

The only clear result of these conflicting policies is that interest rates will increase. Because the policies are in conflict, the effects on GDP, prices, and unemployment cannot be predicted. This is illustrated in Figure 16.14.

FIGURE 16.14 Effects of Conflicting Policies



ANALYZE GRAPHS

1. According to the chart, which policy is designed to increase GDP?
2. How do you think conflicting monetary and fiscal policies, like those described above, will affect consumer spending? Why?

APPLICATION Analyzing Causes

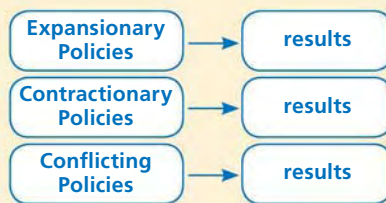
- C. Why do tax cuts and increased government spending result in a rise in interest rates?

SECTION 4 Assessment

REVIEWING KEY CONCEPTS

1. Use the term below in a sentence that illustrates the meaning of the term.
wage and price controls
2. How is rational expectations theory related to the limitations of fiscal and monetary policy?
3. Why does rational expectations theory oppose most discretionary fiscal and monetary policy?
4. Does monetary policy or fiscal policy most directly affect the economy? Why?
5. Why might an expansionary fiscal policy and a contractionary monetary policy work against each other?

- 6. Using Your Notes** What are the effects of expansionary fiscal and monetary policies? Refer to your completed diagram.



Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

CRITICAL THINKING

7. **Drawing Conclusions** What happens to interest rates if the Fed implements a contractionary monetary policy when Congress and the president cut taxes and increase government spending? What effect do you think this would have on the economy? Why?
8. **Applying Economic Concepts** When President Nixon imposed wage and price controls in the 1970s in an attempt to control inflation, he felt he could then use expansionary fiscal policy to decrease unemployment. These policies helped him win reelection in 1972, but inflation rose sharply over the next three years. Use the economic concepts you have learned in this section to explain what happened.
9. **Challenge** Many economists argue that the economy is better off when monetary policy is used most often to stabilize the economy, with fiscal policy being used primarily as a backup to bring the economy out of longer recessions. Do you agree or disagree with this assessment? Why or why not?

ECONOMICS IN PRACTICE



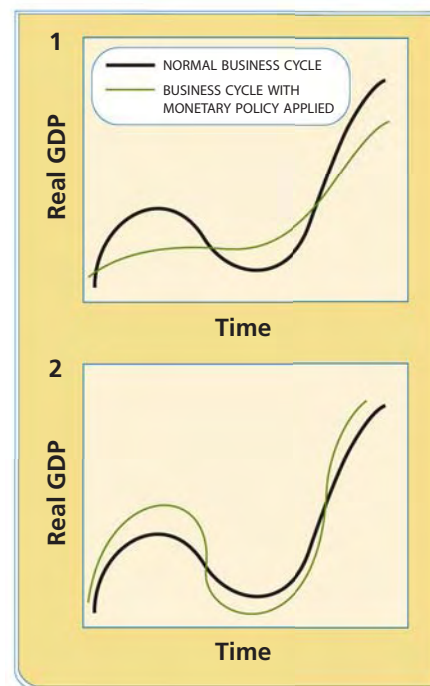
Applying Economic Concepts

Recall what you have learned about the effectiveness of monetary policy, then complete the activities below.

Interpreting Economic Models

Which graph shows poor timing of monetary policy in relation to the business cycle? What is the effect of monetary policy on the business cycle shown on each graph?

Challenge How do these graphs reflect rational expectations theory?



Interpreting Signals from the Fed

Background The Federal Reserve is a powerful institution, so people pay attention to the Fed chairman's comments. A hint that the Fed might raise the discount rate can lead to a great deal of activity in the stock market. Some people might buy stock because they are confident that the Fed will keep inflation low. Others might sell stock because they are worried that the economy is slowing down. Over the 18 years that Alan Greenspan was Fed chairman, economists and financial observers scrutinized his every word in an attempt to predict how his statements would affect the economy. When Ben Bernanke was appointed as Fed chairman in 2006, observers had to learn a new language.

What's the issue? How much does the market rely on signals from the Fed to make economic decisions? Read the following to see what happened when the status quo changed and the signals were different.

A. Internet Article

This article demonstrates how Fed Chairman Ben Bernanke had to carefully review his public comments.

Crossed Economic Signals

Fed Expected to Boost Key Interest Rates

After nearly two decades of decoding Alan Greenspan's famously opaque speaking style, financial markets are having to learn to interpret his successor Ben Bernanke. So far, the results have been a little rocky. . . .

Some economists believe the Fed will stop with the funds rate at 5 percent, up significantly from the 46-year low of 1 percent in effect before the rate increases began. Others think the Fed will only pause for a meeting or two and then raise rates one or two more times. And still a third group thinks there won't be any pause as the Fed continues a steady march toward higher rates.

Part of the blame for the confusion is being assigned to Bernanke, who took over as Fed chairman on Feb. 1. He roiled markets over the past two weeks, first with testimony before the Joint Economic Committee on April 27 that the markets read as a strong signal that the Fed was going to pause in its string of rate increases, and then the next week when he told a reporter that the markets had misinterpreted his comments.

Economists said that the incident showed that there is a new Fed chairman with a different speaking style. . . . In any event, forecasters predicted Bernanke will be brushing up on his communication techniques.

Source: "Fed Expected to Boost Key Interest Rates," by Martin Crutsinger. Associated Press, May 10, 2006.



Thinking Economically Why does the Fed chairman need to develop strong communication techniques ?

B. Political Cartoon

Harley Schwadron drew this cartoon about the new Fed chairman following in his predecessor's footsteps.

Source: www.CartoonStock.com



Thinking Economically What message does this cartoon convey about how the Fed has been known to give information?

C. Newspaper Article

This article reports on a speech Chairman Bernanke made at an international financial conference and the reaction that followed.

Open to Analysis

Bernanke Talks Tough on Inflation

Ben S. Bernanke, chairman of the Federal Reserve, warned Monday that recent inflation trends were “unwelcome developments,” indicating that he was far less worried about signs of weaker economic growth than about the danger of higher prices.

In his toughest comments yet about the risks of inflation, Mr. Bernanke said consumer prices were rising faster than he would like. . . . Investors, increasingly convinced that the central bank will raise rates . . . immediately began selling stocks.

The Dow industrials and the broader Standard & Poor’s 500-stock index each fell about 1.75 percent, and the Nasdaq index tumbled more than 2 percent. . . .

Speaking to a conference . . . on international monetary issues with other central bankers, Mr. Bernanke said inflation had climbed to the upper limits of his acceptability.

“Core inflation, measured over the past three to six months, has reached a level that, if sustained, would be at or above the upper range that many economists, including myself, would consider consistent with price stability,” Mr. Bernanke said. . . .

Mr. Bernanke made clear that he thought the economy was now in a “transition” to slower economic growth. . . . Instead of highlighting signs of a cooling economy, which would ease inflationary pressures, Mr. Bernanke placed top emphasis on the need for vigilance against rising prices.

Source: “Bernanke Talks Tough on Inflation,” by Edmund L. Andrews. *New York Times*, June 6, 2006

Thinking Economically What kind of monetary policy did investors expect Bernanke to follow—expansionary or contractionary policy? Explain your answer.

THINKING ECONOMICALLY Synthesizing

1. How do articles A and C illustrate the rational expectations theory?
2. Based on these three sources and your own knowledge, how would you describe the differences and similarities between Greenspan and Bernanke and their impact on the market?

Review this chapter using interactive activities at **ClassZone.com**

- Online Summary
- Quizzes
- Vocabulary Flip Cards
- Graphic Organizers
- Review and Study Notes

Online Summary

Complete the following activity either on your own paper or online at **ClassZone.com**

Choose the key concept that best completes the sentence. Not all key concepts will be used.

bank holding company	Federal Reserve System
Board of Governors	monetarism
central bank	monetary policy
contractionary monetary policy	open market operations
deposit multiplier formula	prime rate
discount rate	required reserve ratio
easy-money policy	thrift institution
expansionary monetary policy	tight-money policy
federal funds rate	wage and price controls
Federal Open Market Committee	

The 1 is the 2 of the United States and is commonly known as the Fed. The 3 supervises the operations of the Fed. The 4 supervises the sales and purchase of federal government securities.

The Fed controls the amount of money a bank can loan through the 5. The 6 tells how much the money supply will increase after an initial cash deposit.

7 is actions by the Fed that change the money supply in order to influence the economy. The three tools used by the Fed to change the money supply are reserve requirements, the 8, which is the rate the Fed charges when it lends money to banks, and 9. The last tool allows the Fed to influence the 10, the rate banks charge one another to borrow funds overnight.

11 seeks to increase the amount of money in circulation and is also known as 12. 13 seeks to decrease the amount of money in circulation and is also known as 14.

REVIEWING KEY CONCEPTS

The Federal Reserve System (pp. 474–479)

1. What are the three duties of the Federal Reserve?
2. What are the different responsibilities of the Board of Governors and the Federal Open Market Committee?

Functions of the Federal Reserve (pp. 480–489)

3. What are the three functions of the Federal Reserve?
4. How does the size of the RRR affect the banking system's ability to create money?

Monetary Policy (pp. 490–497)

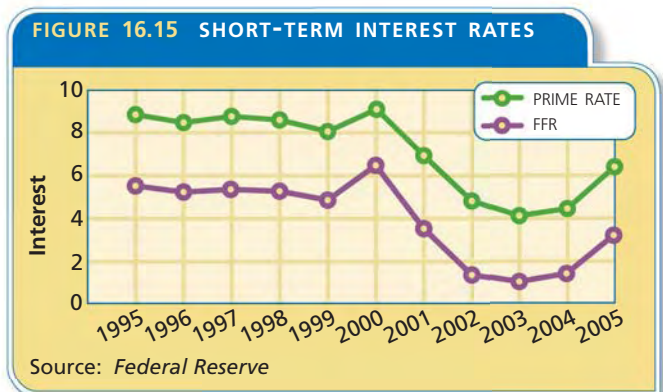
5. What is the Fed's most frequently used monetary policy tool?
6. What is the purpose of monetary policy?

Applying Monetary and Fiscal Policy (pp. 498–505)

7. What tools would be used to implement contractionary monetary and fiscal policy?
8. Why might it be important to coordinate monetary and fiscal policy?

APPLYING ECONOMIC CONCEPTS

Look at the line graph below showing the FFR and the prime rate over several years.



9. What is the relationship of the prime rate to the FFR as shown on this graph?
10. What conclusion can you draw about the U.S. economy based on interest rates in 2002–2004?

CRITICAL THINKING

- 11. Making Inferences** Eight times per year the Fed collects economic information from each of its districts and compiles a report to help the FOMC make its decisions. How does this practice reflect the benefits of the Fed's structure?
- 12. Applying Economic Concepts** In response to the terrorist attacks of September 11, 2001, the Fed started lowering the FFR target the following week. Congress was unable to agree on a program to help stimulate the economy until March 2002. How does this situation illustrate the effects of policy lags on monetary and fiscal policy?
- 13. Analyzing Causes and Effects** Suppose that the Fed buys a \$10,000 T-bond from the First National Bank. What effect will this have on First National's reserves and on the FFR? Why?
- 14. Drawing Conclusions** In 2001, Congress approved a major tax cut package, while the Fed lowered the FFR target. In January 2006, the president asked Congress to make the tax cuts permanent, and the Fed raised the FFR target. When were fiscal and monetary policies working together, and when were they in conflict?
- 15. Challenge** The FOMC issued the following statement after one of its meetings:

Although recent economic data have been uneven, the expansion in economic activity appears solid. Core inflation has stayed relatively low in recent months, and longer-term inflation expectations remain contained. Nevertheless, possible increases in resource utilization as well as elevated energy prices have the potential to add to inflation pressures.

The Committee judges that some further policy firming may be needed to keep the risks to the attainment of both sustainable economic growth and price stability roughly in balance.

Did the committee raise, lower, or maintain the target for the FFR? Cite evidence from the statement to support your answer.

SIMULATION

Stabilize the Economy

Step 1 Choose a partner. Imagine that you are advisers to the president of your Federal Reserve District bank. Your job is to prepare the president for the next FOMC meeting. The current state of the economy is shown in column A of the Key Economic Indicators table below. Decide whether an expansionary or contractionary monetary policy is needed. Recommend the type of open market operations needed as well as a target for the FFR. Give reasons for your recommendation and outline what you expect to happen to the other indicators as a result of this policy.

Indicator	A	B	C
GDP	+3.00	+2.00	+6.50
CPI	+6.25	+3.00	+1.50
Unemployment Rate	5.60	7.50	4.50
Federal Funds Rate	7.75	4.75	5.25

Step 2 The state of the economy two years later is shown in column B. Develop a new recommendation based on this data, with the same kind of details you included in Step 1.

Step 3 The economy has experienced several years of growth as indicated by the information in column C. Develop a new recommendation based on your evaluation of this situation.

Step 4 Share your three recommendations with the class. As a class, decide on a final monetary policy recommendation for each scenario.

Step 5 Consider what would happen if the government used a coordinated fiscal policy for the data in columns A and B and a conflicting fiscal policy with the data in column C. Discuss as a class what would happen to the three key indicators when fiscal policy effects are considered.