

Chapter 16

The Structure of Central Banks: The Federal Reserve and the European Central Bank

Learning Objectives

After reading this chapter, you should be able to:

- L01** Explain the structure of the Federal Reserve System.
- L02** Assess the effectiveness of the Federal Reserve System.
- L03** Describe the European Central Bank and analyze the euro-area crisis.

The instability and chaos that accompany financial panics damage more than just the banks that are directly involved. Fear of losing one's savings is a great disincentive to making deposits in banks, and making fewer deposits means smaller banks and fewer loans. Everyone is slow to regain confidence in the financial system after a panic, making it hard for anyone to get financing. New businesses can't get the resources they need to get started; established companies can't find the financing they need to expand. The more frequent the panics, the worse the situation gets, and the slower the economy grows.

That description sounds like the world after the financial crisis of 2007–2009. But it describes even more aptly the financial flaws of the United States during the late 19th and early 20th centuries. Between 1870 and 1907, the nation experienced 21 financial panics of varying severity. In the mostly agrarian economy of the time, a typical crisis began with either a crop failure that left farmers with nothing to sell or a bumper crop that drove prices down below costs. Either way, farmers defaulted on their loans. The losses damaged the balance sheets of rural banks, leading them to withdraw funds from larger banks in New York or Chicago, where they held deposits. If the rural banks' withdrawals were large enough, the urban banks would be forced to call in their own loans or to refuse renewal of loans that were coming due. As word of the financial difficulties spread, other banks would become concerned and begin to call in their loans as well. Finally, when average people (small depositors) heard of the problem, they would flock to their local banks, demanding to receive their balances in the form of currency or gold.¹

¹The process could also go the other way, from the big banks to the small ones. A large loan default in New York, for example, would force the large city bank to try to acquire reserves from the small country banks. The small banks would then be forced to start calling in loans, and the process would go on from there.

Unless confidence in the system was restored quickly, such runs left bankers with no choice but to close their doors. During the Panic of 1907, an astonishing two-thirds of banks found themselves temporarily unable to redeem deposits in cash. The situation led one prominent German banker to observe that the U.S. banking system was at the same point in the early 1900s that Europe's had been in the 1400s. In the intervening centuries, Europeans had developed a system of central banks; Americans hadn't.

The prevailing philosophy of many 19th-century Americans was that centralized government of any form should be kept to a minimum. But the punishing effects of frequent financial panics led people to reconsider the merits of a powerful central bank. In 1913, Congress passed the Federal Reserve Act, which created the U.S. Federal Reserve System. As the central bank's knowledge of how policy mechanisms worked grew, its governance improved. By the 1990s, the Fed was widely recognized as a key promoter of low inflation and maximum sustainable growth.



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President Barack Obama nominates Janet Yellen to succeed Ben Bernanke as the 15th chair of the Board of Governors of the Federal Reserve System.

While central banking had stabilized European financial systems before 1900, the 20th century was another story. In that century, Europe experienced high inflation rates, low growth, high and volatile interest rates, and unstable exchange rates. After two world wars, governments' free spending led to unrelenting fiscal deficits. When European economies stagnated in the 1970s and 1980s, a consensus built that inflation was the fundamental problem and poor monetary policy was to blame. Leaders came to believe that the only way to ensure both political and economic stability was to forge closer ties among the continent's countries. They decided the best solution was a common currency and a single central bank. The result was the *European Economic and Monetary Union (EMU)* with its common currency, the euro, and its central bank, the *European Central Bank (ECB)*.

Europe's monetary union—born in 1999—was the natural outgrowth of a decades-long process that established the free movement of goods, services, and capital throughout the continent of more than

500 million people. Like the Fed, the ECB is based on principles that support the goal of price stability (principles we learned about in Chapter 15). We turn now to an examination of these two central banks to see how their structure helps them to meet their objectives.

The Structure of the Federal Reserve System

The Federal Reserve Act, passed in 1913 and amended numerous times since then, established what is now known as the **Federal Reserve System**. It is composed of three branches with overlapping responsibilities.² There are 12 regional *Federal Reserve Banks*, distributed throughout the country; a central governmental agency, called the *Board of Governors of the Federal Reserve System*, located in Washington, D.C.; and

²The Dodd-Frank Act of 2010, discussed in Chapter 14, was the most recent source of extensive changes in the Federal Reserve Act. It curtailed the Fed's authority as a lender of last resort but made it the supervisor of systemically important financial institutions (SIFIs).

the *Federal Open Market Committee*. In addition, a series of advisory committees make recommendations to the board and the Federal Reserve Banks. Finally, there are the private banks that are members of the system. This complex structure diffuses power in a way that is typical of the U.S. government, creating a system of checks and balances that reduces the tendency for power to concentrate at the center.

All national banks (those chartered by the federal government) are required to belong to the Federal Reserve System. State banks that receive their charters from individual state banking authorities have the option of joining, but most do not. The original reason was cost. Prior to a change in the law in 1980, member banks were required to hold noninterest-bearing reserve deposits at the Fed, while nonmember banks could hold reserves in interest-bearing securities, such as U.S. Treasury bills. Today, members and nonmembers alike must hold reserve deposits at the Fed on which the Fed pays interest, so there is no real distinction between them.

The Federal Reserve Banks

In the heart of Wall Street, two blocks from the site where the World Trade Center towers once stood, sits a large, fortresslike building that is the home of the Federal Reserve Bank of New York. Deep in the fourth subbasement is the largest gold vault in the world, stocked with many more bars than are in Fort Knox. All of this gold belongs to foreign countries and international organizations like the International Monetary Fund. It is stored there for free. You can take a tour to see the gold vault if you call ahead, but you won't get into the rest of the building without an invitation. When the bank was built, one of the vaults held cash, but today that vault is filled with excess furniture. Cash is stored across the Hudson River in New Jersey, in a three-story vault the size of a football field. People rarely enter the vault, and there are no tours—just thick walls, fences, security cameras, and armed guards. (The cash is stored on pallets of about 160 shrink-wrapped blocks of 4,000 notes each. It is moved around entirely by small robotic forklifts.)

The Federal Reserve Bank of New York is the largest of the 12 **Federal Reserve Banks**, accounting for about one-fifth of all Reserve Bank employment. The Reserve Banks, together with their branches, constitute the operational arm of the Federal Reserve System; and with more than 19,000 employees as of 2015, they account for the bulk of Reserve System employment. (All 12 have cash vaults, but only New York has gold.) Figure 16.1 shows the location of the banks and the region or “district” each one serves. From a modern vantage point, this map looks very odd. Why is nearly one-third of the continental United States served by a single bank in San Francisco while the Philadelphia district is so small? And why are two of the 12 banks in Missouri?

One explanation is that the lines were drawn in 1914, so they represent the population density at the time. Then there was politics. Senator Carter Glass, one of the authors of the Federal Reserve Act, was from Richmond, Virginia, the headquarters of the fifth district; Speaker of the House Champ Clark came from Missouri, the state with two Reserve Banks. But more important, politicians decided that no district should coincide with a single state. The Federal Reserve Bank of New York, for example, serves all of New York State as well as northern New Jersey (where the cash vault is), a small slice of southwestern Connecticut, Puerto Rico, and the Virgin Islands. The purpose of this arrangement is twofold: to ensure that



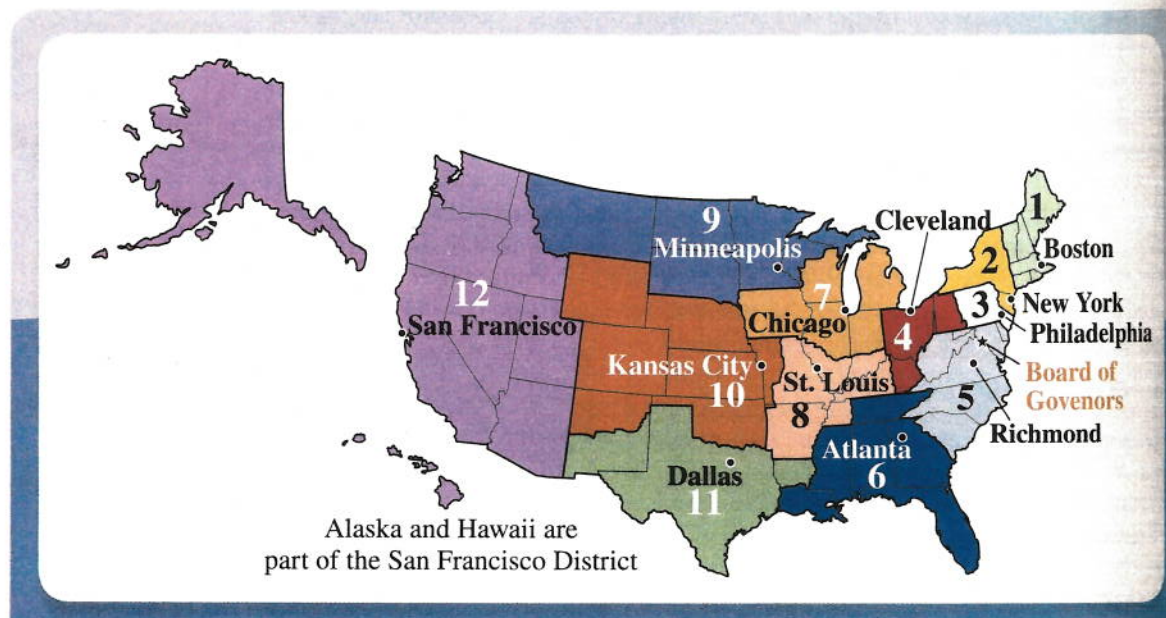
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The gold vault at the Federal Reserve Bank of New York contains about one-fifth of official gold reserves in the world: more than 200 million troy ounces worth almost \$260 billion at early-2016 prices. A single gold bar weighs 400 ounces and is worth more than \$500,000.

Figure 16.1

The Federal Reserve System

The 12 Federal Reserve Banks and Their Districts



every district contains as broad a mixture of economic interests as possible and that no person or group can obtain preferential treatment from the Reserve Bank.

Reserve Banks are strange creations, part public and part private. They are federally chartered banks and private, nonprofit organizations, owned by the commercial banks in their districts. As such, they are overseen by both their own boards of directors and the Board of Governors, an arm of the federal government. The method for choosing the nine members of each Reserve Bank's board of directors ensures the inclusion of not only bankers but other business leaders and people who represent the public interest. Six directors are elected by the commercial bank members of the Reserve Bank (three directors representing commercial banks and three representing the public), and the remaining three directors (also representing the public) are appointed by the Board of Governors. Though the range of views represented is wide, everyone has an interest in ensuring economic and financial stability.

Each Reserve Bank has a president, one of whose key responsibilities, as we will discuss later, is to sit periodically as a voting member of the Federal Open Market Committee. Subject to the approval of the Board of Governors, the president is selected for a five-year term by the six members of the bank's board of directors who represent the public.³ (All 12 presidents' terms run concurrently, starting and ending at exactly the same time.) Reserve Bank presidents tend to come from one of three groups. Some have worked their way up inside the Federal Reserve System and are experts on the business of the district banks. Others are academic economists who have studied the

³All nine directors used to appoint the Reserve Bank president, but the bailouts during the crisis of 2007–2009 fed the perception that the Federal Reserve System was too sympathetic to the financial institutions they regulate. In reaction, the Dodd-Frank Act of 2010 excluded the three commercial bank representatives on the Reserve Bank board from the process of selecting the president.

financial system. Then there are former bankers, people who were once customers of the Federal Reserve. Because the presidents work together, the fact that they come from diverse backgrounds means that collectively they have the experience to manage the wide-ranging responsibilities of the Federal Reserve Banks.

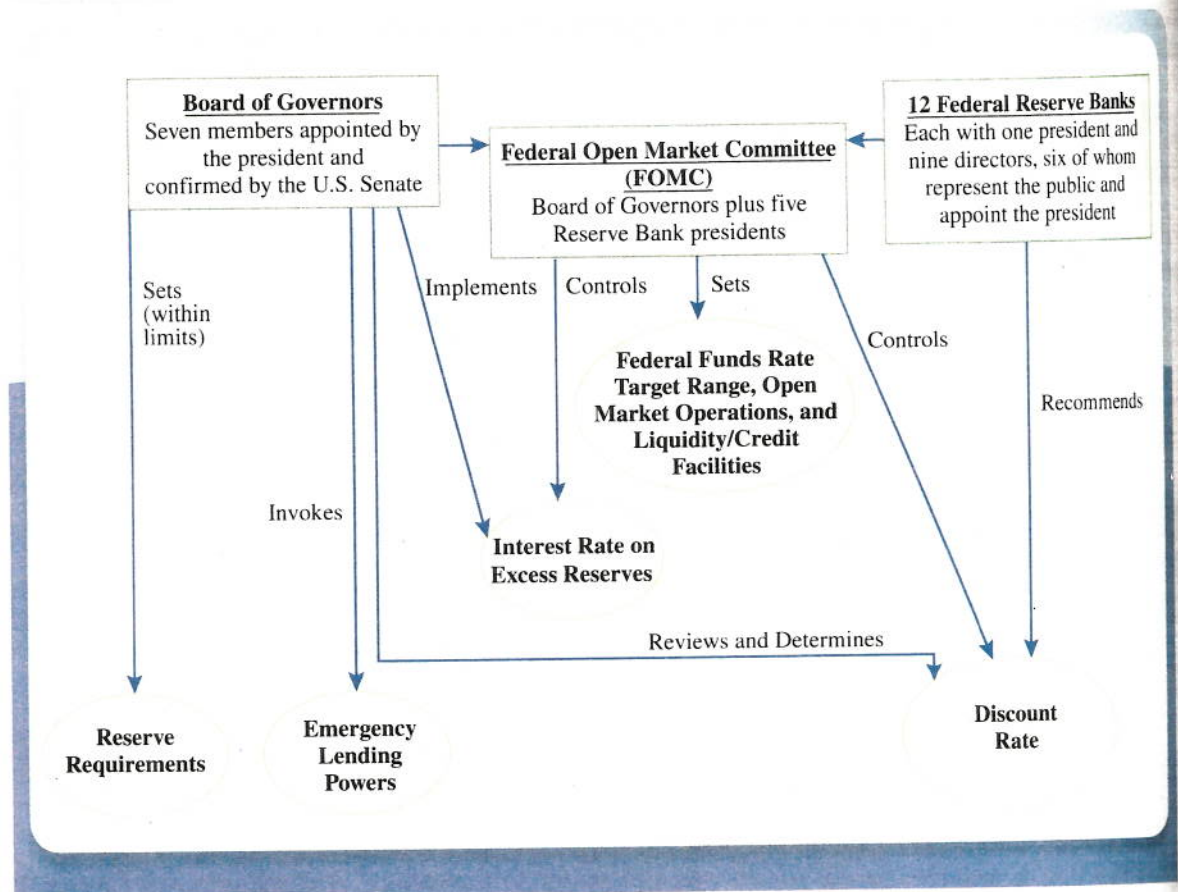
The Reserve Banks conduct the day-to-day business of the central bank, serving as both the government's bank and the bankers' bank. Here is a brief list of the functions they perform:

1. As the bank for the U.S. government, they
 - a. Issue new currency (Federal Reserve notes) and destroy old, worn currency.
 - b. Maintain the U.S. Treasury's bank account and process electronic payments.
 - c. Manage the U.S. Treasury's borrowings. That means issuing, transferring, and redeeming U.S. Treasury bonds, notes, and bills. But like you and your bank, the Treasury decides what it wants, and the Federal Reserve Banks just do it.
2. As the bankers' bank, they
 - a. Hold deposits for the banks in their districts.
 - b. Operate and ensure the integrity of a payments network for transferring funds.
 - c. Make funds available to commercial banks within the district through *discount loans* on which they charge interest at the *discount rate*.
 - d. Supervise and regulate financial institutions in the district to ensure their safety and soundness, as well as evaluate proposed bank mergers and new operations.
 - e. Collect and make available data on business conditions.

In addition to these duties, the Federal Reserve Bank of New York provides services to foreign central banks and to certain international organizations that hold accounts there. The Federal Reserve Bank of New York is also the system's point of contact with financial markets. It is where Treasury securities are auctioned, foreign currency is bought and sold, and the Federal Reserve's own portfolio is managed through what are called *open market operations*. In the financial crisis of 2007–2009, the Federal Reserve Bank of New York also operated a variety of special new *liquidity and credit facilities* that supplied funds to intermediaries and allowed the Fed to acquire a portfolio of non-Treasury assets, ranging from commercial paper to mortgage-backed securities (see Chapter 18 Tools of the Trade).

Finally, the Reserve Banks play an important part in formulating monetary policy. They do it primarily through their representation on the Federal Open Market Committee (FOMC), which makes interest-rate decisions and determines the size and composition of the Fed's balance sheet, and less importantly through their participation in setting the **discount rate**, the interest rate charged on loans to commercial banks. The Federal Reserve Act specifies that the discount rate is to be set by each of the Reserve Bank's board of directors, with the approval of the Board of Governors, and strictly speaking, it is. But the directors have virtually no say over the discount rate, because it is set in practice at a premium above the interest rate on excess reserves (IOER rate, see Chapter 18) that the FOMC controls. Once the FOMC makes its decision, there is nothing left for anyone else to do.⁴ That's why in Figure 16.2 detailing the complex structure of the Federal Reserve System a solid line labeled "Controls" runs from the FOMC to the discount rate. (We will learn more about this topic in Chapter 18.)

⁴The only exception so far was during the financial crisis of 2007–2009, when the governors reduced the spread of the discount rate above the federal funds rate to encourage borrowing.

Figure 16.2 The Structure and Policy Organization of the Federal Reserve System

The Board of Governors

The headquarters of the Federal Reserve System sits at the corner of 20th Street and Constitution Avenue in northwest Washington, D.C., a short walk from the White House in one direction and the State Department in the other. The seven members of the Board, who are called governors, are appointed by the president and confirmed by the U.S. Senate for 14-year terms. The long terms are intended to protect the Board from political pressure. The fact that the terms are staggered—one beginning every two years—limits any individual president's influence over the membership. The Board has a chairperson and two vice chairs, appointed by the president from among the seven governors for four-year renewable terms.⁵ The Board's membership usually includes academic economists, bank regulators, and bankers. To ensure adequate regional representation on the Board, no two governors can come from the same Federal Reserve district. The Federal Reserve Act explicitly requires "a fair representation of the financial, agricultural, industrial, and commercial interests."

⁵To elevate the Board's mandate for financial stability, the Dodd-Frank Act of 2010 created the new role of vice chair for supervision. As of September 2016, that position remains unfilled.



YOUR FINANCIAL WORLD

TreasuryDirect

The Federal Reserve takes care of the U.S. Treasury's banking needs. It is the government's banker, assisting the government by operating auctions for U.S. Treasury bonds when the government needs to borrow, keeping track of who owns the Treasury bonds, making interest payments on them every six months, and paying the principal when they mature. Although much of the Treasury's debt is bought and held by large financial institutions like banks, pension funds, and insurance companies, you can buy it yourself, without anyone's help, through *TreasuryDirect*.

TreasuryDirect lets you purchase as little as \$1,000 worth of Treasury securities without paying any broker fees. All you need to do is fill out a few forms, write a check, and send them in. Everything you need to get started is available at the Bureau of Public Debt's website.

As a technical matter, buying a government bond means bidding at an auction that is held two or three times a week. How do you know what price to bid? Individuals aren't experts on bond pricing, so if they had to figure out how much to bid,

TreasuryDirect would never work. The solution is to place what is called a *noncompetitive bid*. This guarantees you will receive the bond you want at the average auction price, which is based on the bids of people who know what they are doing. Individuals send in checks to cover the face value of the bonds they want, and because the auction is normally designed so that the purchase price is less than face value, you get a small refund in the mail a few weeks later. The only complicated part of this is deciding exactly which bonds you want to buy.

Once you have bought the bonds, you will receive a notice of the interest payments, as well as periodic statements listing what you own. If you decide you want to sell the bonds, the Fed will do it for you at the highest market price available. TreasuryDirect is by far the cheapest way to buy U.S. Treasury securities, especially in small amounts and for issues like Treasury Inflation-Protected Securities (see the discussion of TIPS in Your Financial World, Chapter 6, page 154), which are difficult to purchase on the open market but easy to buy at auction.

Together with a staff of about 2,700, the **Board of Governors of the Federal Reserve System** performs the following duties:

- Sets the reserve requirement, which determines the level of reserves banks are required to hold.
- Approves or disapproves discount rate recommendations made by the Federal Reserve Banks.
- Approves changes in the interest rate paid on excess reserves (IOER rate, see Chapter 18) consistent with changes in the range for the target federal funds rate set by the Federal Open Market Committee (FOMC).
- Acts as rule-writing agency for consumer credit protection laws (with enforcement by the Consumer Financial Protection Bureau).
- Approves bank merger applications.
- Supervises and regulates the Reserve Banks, including their budgets and their presidents' salaries.
- Along with the Reserve Banks, regulates and supervises the banking system, examining individual banks, nonbank systemically important financial institutions (SIFIs), and financial market utilities (FMUs) for safety and soundness and for compliance with the law.
- Invokes **emergency powers** to lend to nonbanks when circumstances are deemed "unusual and exigent." These powers provided the authority for much of the Fed's emergency lending in the crisis of 2007–2009 but were curtailed by the Dodd-Frank Act of 2010 (see Chapter 14, page 390).

- Analyzes financial and economic conditions, both domestic and international.
- Collects and publishes detailed statistics about the system's activities and the economy at large. As you have seen throughout this book, the Federal Reserve Economic Database (FRED) provides a wide variety of information about the United States and other economies, including data collected directly by the Fed about the amount of money in the economy (M1 and M2), interest rates, exchange rates, the banking system's assets and liabilities, the level of production in U.S. industry, and the level of household wealth.

The seven governors do not have their own support staff. Instead, they request help and information from the directors of various departments, who assign individuals to specific tasks. The directors answer to the chair of the Board of Governors.

The Federal Open Market Committee

When most people think about the Federal Reserve, what comes to mind is not the payments system or bank supervision but interest-rate setting. And when the business press discusses the Fed, its attention is really on the **Federal Open Market Committee (FOMC)**. This is the group that sets the key interest rates and adjusts the Fed's balance sheet to control the availability of money and credit to the economy. The FOMC has been around since 1936 and has 12 voting members. These are the seven governors, the president of the Federal Reserve Bank of New York, and a rotating selection of four of the remaining 11 Reserve Bank presidents. The chair of the Board of Governors chairs the FOMC as well, and the committee's vice chair is the president of the Federal Reserve Bank of New York. While only five of the 12 Reserve Bank presidents vote at any one time, all of them participate in the meeting.

The FOMC could control any interest rate, but the rate it chooses to control is the **federal funds rate**, the rate banks charge each other for unsecured overnight loans on their excess deposits at the Fed. We will discuss the details of this arrangement in the next two chapters. For now, keep in mind that the rate the FOMC controls is a nominal interest rate. However, because inflation expectations don't change quickly when a credible central bank aims at price stability, the FOMC in effect controls the *real* interest rate. (Recall that the real interest rate equals the nominal interest rate minus expected inflation.) The real interest rate plays a central role in economic decisions. The higher the real interest rate, the more expensive borrowing is, and the less likely a company is to build a new factory or an individual is to purchase a new car. Furthermore, the lower the level of purchases by firms and households, the lower the level of growth will be. So by controlling the federal funds rate, the FOMC influences real growth. (This mechanism is described in Part V.)

The FOMC currently meets eight times a year, or roughly once every six weeks, in the Board Room at the Federal Reserve in Washington, D.C. During times of crisis, the committee can confer and change policy over the telephone. Because these "inter-meeting" policy shifts signal the financial markets that the FOMC believes conditions are dire, they are reserved for extraordinary times, like the aftermath of the terrorist attacks on the World Trade Center of September 2001. One measure of the financial crisis of 2007–2009 is that it prompted 12 unscheduled FOMC meetings, surpassing the cumulative total of recent decades!



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The Board Room at the Federal Reserve in Washington, D.C., with its oblong table. This is the meeting place of the Federal Open Market Committee and Board of Governors of the Federal Reserve System.

Since 2009, all scheduled FOMC meetings have taken place over a two-day period, starting around 2 p.m. one afternoon, and finishing the next day at 1 p.m. In addition to the 7 governors and 12 Reserve Bank presidents, numerous Board staff members attend, along with at least one senior staff member from each Reserve Bank. In all, between 50 and 60 people are there. The primary purpose of the meeting is to decide on the target range for the federal funds rate and, in response to the crisis of 2007–2009, on the scale and mix of assets to acquire. No less important, the FOMC agrees on how to communicate its policies to the public, including any **forward guidance** about likely future policy. The FOMC itself does not engage in the financial market transactions that are required to keep the market federal funds rate near this target or to manage the Fed's portfolio. That job falls to the system open market account (SOMA) manager, who, together with his or her staff, works for the Federal Reserve Bank of New York. The policy directive simply instructs the New York Fed's staff to buy and sell securities, or to adjust the IOER rate, so as to maintain the market federal funds rate in the target range or to assemble the desired asset mix.

To figure out who really controls these key policy decisions, we need to look closely at how the FOMC works, focusing on the information that is distributed in advance and the mechanics of the meeting. Two important documents are distributed to all attendees prior to each meeting: the *Beige Book* and the *Tealbook*. The *Beige Book* is a compilation of anecdotal information about current business activity, collected by the staffs of the Reserve Banks and published about two weeks before the meeting. This is the only FOMC document that is released to the public before the meeting. The *Tealbook* contains two parts: the Board staff's economic forecast for the next few years (until 2010, this part was called the *Greenbook*) and a discussion of financial markets and current policy options (formerly called the *Bluebook*). The *Tealbook* is distributed electronically during the week preceding the meeting. It is a confidential document and is not released to the public until five years after the meeting. On a quarterly basis, the governors and the Reserve Bank presidents also submit in advance of the meeting their own projections for economic growth, unemployment, inflation, and (since 2012) the timing and pace of future changes to the target range for the federal funds rate. The final versions of their projections are submitted on the second day of the FOMC meeting.

An FOMC meeting is a formal proceeding that can be divided into two parts, each beginning with a staff report followed by a round of discussion that includes all of the meeting's participants (consisting of the 12 voting members and the remaining 7 Reserve Bank presidents). Here's the usual order in which people speak:

1. The SOMA desk manager reports on financial market conditions and actions taken to achieve the target range for the federal funds rate and the desired asset mix since the last meeting.
2. Senior staff of the Board comment on the economic situation and financial developments, and present the staff's forecast (from the *Tealbook*).
3. One at a time, committee members (including Reserve Bank presidents who are not currently voting) discuss their view of the economic outlook, including specific regional information. During the process, speakers also may comment in response to others' statements. The chair speaks at the end, concluding what is called the *economic go-round*.
4. The director of the Division of Monetary Affairs, who doubles as the secretary of the FOMC, describes the two or three policy options (from the *Tealbook*).

In recent years, the options often included adjustments to the Fed's asset mix and to the forward guidance regarding future policy.

5. Again, one at a time, the committee members comment on the policy options, with the chair speaking last. The discussion can lead to amendments of the policy options and of the FOMC statement that will be released after the meeting.
6. A vote is taken, with the chair voting first, the vice chair second, and then the committee members in alphabetical order.

The staff may respond to questions following their presentations, and there is some give-and-take among the FOMC members. One advantage of two-day meetings is that members also can engage each other informally—for example, over dinner on the first night. At 2 p.m. on the second day, an hour or two after the meeting adjourns, the committee releases a policy statement containing its decisions and a brief explanation of them. At a quarterly frequency, an update to the economic and target federal funds rate projections of the 19 FOMC members is provided to the committee before its meeting; after those meetings, the update is released simultaneously with the policy statement and is followed at about 2:30 p.m. with a press conference by the Fed chair. Finally, three weeks later, detailed minutes summarizing the deliberations are released on the FOMC's public website.

To see where the committee's power lies and who controls interest-rate and asset-mix decisions, notice a few things (see Table 16.1). First, and foremost, the chair is the voice of the Federal Reserve System. He or she speaks to Congress and the public on behalf of the FOMC. Second, note that the governors make up a majority of the committee, and they work together daily at the headquarters of the Federal Reserve in

Table 16.1 A User's Guide to the Fed

The Federal Reserve System is complicated, so here is a list of the key players:

<i>Chair of the Board of Governors</i>	Most powerful person in the Federal Reserve System. Also chair of the FOMC. Effectively controls FOMC meetings and monetary policy. Appointed by the U.S. president to a four-year term, subject to U.S. Senate confirmation; must be one of the governors.
<i>Other members of the Board of Governors</i>	Supervise and regulate an important portion of the financial industry. All are voting members of the FOMC. Appointed by the president to 14-year terms, subject to U.S. Senate confirmation. The two vice chairs (of which one is designated for supervision) must be members of the Board of Governors.
<i>President of the Federal Reserve Bank of New York</i>	Runs the biggest and most important of the Reserve Banks, where monetary policy operations are carried out and much of the Fed's work for the Treasury is done. Also provides services to commercial banks in the district. As with the presidents of the other Reserve Banks, appointed by the nonbanking members of the bank's board of directors, with the approval of the Board of Governors, for a five-year term. Also vice chair of the FOMC.
<i>Presidents of the 11 other Federal Reserve Banks</i>	Provide services to commercial banks in their districts. All participate in every FOMC meeting and four serve one-year terms as voting members of the FOMC on a rotating basis.

The Board of Governors and each of the Reserve Banks maintain websites that publish data, economic research, speeches, and information about customer services. In addition, the FOMC maintains a list of its meeting times on the Board of Governors website, along with links to the committee's statements, minutes, transcripts, and economic projections, as well as the chair's press conferences. The place to start is www.federalreserve.gov.



TOOLS OF THE TRADE

Decoding the FOMC Statement

As the financial crisis deepened in 2008, the range of FOMC policy actions broadened, and financial stability rose to the top of the Fed's agenda. Accordingly, the form of the **FOMC statement** released at the end of the FOMC's regularly scheduled meetings changed markedly. Nevertheless, some of the statement's familiar components remained:

- A clear statement of the committee's decision at the meeting regarding its target or target range for the federal funds rate (the interest rate that the FOMC controls).
- A summary of the committee's view of economic conditions, especially the inflation outlook.
- A description of how the outlook is expected to influence future policy.
- A description of the policy tools, in addition to the federal funds rate, that the Fed will use to achieve its objectives (to understand these, you have to follow current events very closely).
- A report of the voting.

Consider, for example, the following excerpt from the FOMC statement of January 27, 2016, only six weeks after the FOMC hiked the federal funds rate target range for the first time since 2006.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. . . . Inflation is expected to remain low in the near term . . . but to rise to 2 percent over the medium term as the transitory effects of declines in energy and import prices dissipate and the labor market strengthens further. The Committee is closely monitoring global economic and financial developments and is assessing their implications for the labor market and inflation, and for the balance of risks to the outlook.

Given the economic outlook, the Committee decided to maintain the target range for the federal funds rate at $\frac{1}{4}$ to $\frac{1}{2}$ percent. The stance of monetary policy remains accommodative, thereby supporting further improvement in labor market conditions and a return to 2 percent inflation.

. . . The Committee expects that economic conditions will evolve in a manner that will warrant only gradual increases in the federal funds rate . . . [which] is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data

Voting for the FOMC monetary policy action were: Janet L. Yellen, Chair; William C. Dudley, Vice Chairman; Lael Brainard; James Bullard; Stanley Fischer; Esther L. George; Loretta J. Mester; Jerome H. Powell; Eric Rosengren; and Daniel K. Tarullo.

[Note: At the time of this meeting, there were only five governors because two positions were vacant. That left only 10 voters.]

Interpreting these statements takes some practice, especially as the Fed widens the range of policy tools and provides more complex, outcome-based (or "state-contingent") forward guidance. A summary of the one here might go like this: "With inflation stubbornly below the Fed's medium-term objective, there is no rush to raise the federal funds rate, even though it remains significantly below the longer-run norm. The sustained drop in energy prices, economic slowdowns abroad (including China and other emerging economies), and recent tightening of broader financial conditions also warrant continued policy accommodation."

By going to the FOMC's website at www.federalreserve.gov/fomc, you can look at recent statements and see how they have been changing. What do you think the Fed will do next?

Washington, D.C. Third, aside from the quarterly projections of FOMC members, the most important information distributed to all committee members before a meeting is the Tealbook forecast and policy options. The Tealbook is prepared by the Federal Reserve Board staff, which is controlled by the chair. Fourth, the chair sets the agenda for the FOMC meeting, determines the order in which people speak, and proposes the FOMC policy statement (see Tools of the Trade above). Finally, though the votes are made public immediately after the meeting, committee members observe a blackout period from a week preceding an FOMC meeting to a week following the meeting, during which they do not speak publicly about the economic outlook or current monetary policy. Dissenters, who are identified immediately in the press release that comes the afternoon of the meeting, usually wait a week to explain their views in public. And

remember, the Board of Governors controls the Reserve Banks' budgets, as well as the salaries of their presidents.

Press reports, then, do give a good sense of where the FOMC's power lies. The chair of the Fed is the FOMC's most important member. So, if you want to know whether interest rates are likely to go up or down, or whether the Fed will alter the size and composition of its portfolio, that is the person you should listen to most closely. To have an impact on policy, governors or Reserve Bank presidents must build support for their positions through their statements at the meeting and in public speeches. While the chair is very powerful, the committee structure provides an important check on his or her power. Indeed, even two dissents on an FOMC vote are unusual, while three dissents—an outcome that has occurred only once since the 1980s—could raise doubts about the chair's leadership.

Assessing the Federal Reserve System's Structure

In the previous chapter, we developed a checklist for assessing a central bank's structure. We said that an effective central bank is one in which policymakers are largely independent of political influence, make decisions by committee, are accountable and transparent, and state their objectives clearly. Let's evaluate the Federal Reserve System using these criteria.

Independence from Political Influence

We set out three criteria for judging a central bank's independence: budgetary independence, irreversible decisions, and long terms in office. The Fed meets each of these. It controls its own budget. The Fed's substantial revenue is a combination of interest on the government securities it holds and fees charged to banks for payments system services, including check clearing, electronic funds transfers, and the like. In fact, the Fed's income is so large that, in a typical year, 95 percent of it is returned to the U.S. Treasury.⁶ Interest-rate changes are implemented immediately and can be changed only by the FOMC—no one else can reverse or change them. The terms of the governors are 14 years; the chair's term runs for four years; and the Reserve Bank presidents serve for five years (and they aren't even appointed by politicians).

Even though the structural elements required to maintain an independent monetary policy are in place, the Fed occasionally comes under political attack. As we have said, raising interest rates is never popular. In 2009, public outrage over the financial crisis and the bailouts of large intermediaries made the Fed a political target, posing the biggest threat to its independence in many years. Many legislators favored greater scrutiny of the Fed. And while the U.S. government proposed to enhance the Fed's supervisory powers because of the financial crisis, some in Congress sought to strip it of those powers altogether. Ultimately, the Dodd-Frank Act of 2010 curtailed the

⁶In 2015, interest rates were extraordinarily low, while the Fed's crisis and postcrisis asset purchases had expanded its balance sheet massively. Prior to the crisis, you could usually approximate the Fed's interest income by multiplying the value of its securities holdings—more than \$4.2 trillion—by the U.S. Treasury's one-year interest rate, roughly 0.30 percent in 2015. You'll get a number around \$13 billion. (The same calculation in 2007 resulted in a figure of roughly \$40 billion.) However, Fed net income actually hit a record \$100 billion in 2015, because the Fed's holdings of long-term Treasury bonds and non-Treasury assets (mostly mortgage-backed securities) provided a higher yield than one-year Treasuries. The Fed returned \$98 billion to the Treasury.



APPLYING THE CONCEPT THE EVOLUTION OF FEDERAL RESERVE INDEPENDENCE

Like most large bureaucracies, the Federal Reserve moves very slowly and deliberately. Nevertheless, there have been some defining moments when the Fed's structure changed suddenly and significantly. The first one came in 1935, after the economywide financial failures that led to the Great Depression of the 1930s. To remove monetary policy from the political arena, the Secretary of the Treasury and the Comptroller of the Currency, two political appointees who served at the pleasure of the president, were kicked off the Federal Reserve Board, and the FOMC was created.

But independence in name is not independence in fact. During World War II, the Federal Reserve became part of the war effort, which meant ensuring a cheap source of funds for the Treasury. The Fed worked to keep interest rates low by making sure that bond prices remained high. Importantly, when the Treasury went to issue securities, to keep prices high the Fed would buy what the public refused to purchase. Early in 1951, the Secretary of the Treasury, who was under pressure to finance the new Korean War, tried to force the Fed

to purchase significant quantities of bonds directly from the Treasury. Faced with rising inflation, the FOMC had announced its desire to curtail credit growth by reducing the rate at which it purchased government debt. President Truman was forced to step in and resolve the standoff. On March 4, 1951, the president, the secretary of the Treasury, and the Federal Reserve chair reached an "accord" and issued a joint announcement establishing the FOMC's independence in setting interest rates and controlling the rate of monetary expansion.*

These two events provided the foundation for the Federal Reserve's independence in forming monetary policy. Of course, the FOMC's ability to do its job still depends on the willingness of politicians to refrain from interference. The president and the secretary of the Treasury can make comments criticizing the FOMC's monetary policy decisions, and Congress does have the ability to revoke the Fed's independence. Following the financial crisis of 2007–2009, congressional criticism of the Fed became unusually intense, while proposals to limit Fed independence flourished. In contrast, the U.S. government proposed to expand the Fed's supervisory powers to help prevent another financial crisis.

*For a brief summary of this history, see Carl E. Walsh, "Federal Reserve Independence and the Accord of 1951," *Federal Reserve Bank of San Francisco Weekly Letter*, No. 93-21, May 28, 1993.

Fed's emergency lending powers and required new disclosures of Fed transactions, but it also widened Fed supervisory responsibility (see Chapter 14). Congressional critics have repeatedly proposed bills that would seriously diminish the Fed's independence in implementing monetary policy, as well as its ability to serve as lender of last resort. As of 2016, however, no such legislation has been enacted.

Decision Making by Committee

The Fed clearly makes decisions by committee, because the FOMC *is* a committee. While the chair of the Board of Governors may dominate policy decisions, the fact that there are 12 voting members provides an important safeguard against arbitrary action by a single individual. In the Federal Reserve, no one person can become a dictator.

Accountability and Transparency

The FOMC releases huge amounts of information to the public. Prior to each meeting, the committee publishes the Beige Book and makes it publicly available. Within a couple of hours of the meeting's adjournment, the committee releases and posts on its website a brief policy statement giving its decisions and its reasoning. (At quarterly intervals, committee members' economic and target federal funds rate projections are released at the same time as the policy statement, and about a half-hour later the Fed chair gives a press conference.) Then, three weeks later, the committee publishes a detailed summary of the meeting—the minutes—that also states how





YOUR FINANCIAL WORLD

The Fed Can't Save You from a Stock Market Crash

Can the Federal Reserve keep the stock market from crashing, helping us all to sleep better at night? We have already said that the central bank's job is to reduce systematic risk by stabilizing prices, output growth, and the financial system. It does that by setting interest rates and ensuring that banks have funds to honor their commitments. But there is only so much that a central bank can, should, or will do. In the end, no one can save us from all the risks we face.

Indeed, stock markets crash even when governments fiercely resist. After peaking in mid-2015, the Shanghai Stock Exchange composite index plunged by as much as 43 percent despite massive efforts by the Chinese government (including the People's Bank of China) to prop up the market. In the United States during the financial crisis of 2007–2009, the S&P 500 stock market index plummeted by 56 percent even as the Federal Reserve cut its policy rate to near zero and doubled the size of its balance sheet.

The U.S. stock market in the early 2000s especially well illustrates the pressures central bankers face and the limits of their actions. As equity prices rose in 1998 and 1999, many investors came to believe that the Federal Reserve would ease monetary policy to bail out stockholders rather than

let the stock market decline significantly. Their reasoning went like this: a stock market crash would reduce wealth, which in turn would reduce consumption spending, sending the economy into a severe recession—something the central bank would not allow. For investors, this assumption meant that they could buy stocks without worrying about the downside; they need not fear a crash. And the lower the perceived risk, the smaller the risk premium became. This drove stock prices up even further. (Remember that the lower the risk, the more you will pay for a financial instrument.)

What actually happened? As the stock market declined through 2001 and 2002, the Federal Reserve did indeed lower its interest-rate target, from 6 percent to 1 percent, to spur economic activity. But that did not halt the stock price slide—from peak to trough the S&P 500 stock market index dropped 47 percent. After a mild recession, inflation rose back above 2 percent, but keeping stocks from falling from their unsustainable heights was beyond the Fed's control, even if it had wanted to do it.

No one can eliminate the risk that is inherent in an investment—not even the most powerful central bank in the world.

each member voted and gives the reasons for any dissenting votes. And after a five-year waiting period, the FOMC publishes the word-for-word transcript of the meeting along with the Tealbook and other staff presentations. Added to these documents is the Federal Reserve Board's twice-yearly "Monetary Policy Report to the Congress," which provides great detail about the outlook and the considerations behind policy setting. This report is accompanied by the chair's appearance before Congress to discuss the state of the nation's economy. Members of the FOMC also give frequent public speeches, and occasionally they testify before Congress. In an average year, the chair gives 15 to 20 speeches, and other governors and Reserve Bank presidents speak 5 to 10 times each. All of these communications—the Beige Book, the statement, the press conference, the minutes, the transcripts, the biannual report, the testimony, and the speeches—can be found on various Fed websites.

This avalanche of information seems enough to give everyone a sense of what the FOMC is doing and why. But some things are still missing from the Fed's communications. For example, unlike some central banks, the FOMC does not agree on or publish a *consensus* economic or interest-rate projection (the individual members' projections are summarized anonymously in a table). In addition, key inputs into the decision-making process—documents like the staff forecast and the policy options in the Tealbook—and the meeting transcript are not made public until five years after the fact. The Fed also delays the dissemination of information about the recipients of its loans because it does not want to trigger a run on a

fragile—or even on a healthy—intermediary. On the other hand, as we will discuss in a moment, the Fed's 2012 shift to an inflation-targeting strategy helps focus Fed communications, making both the message and the policy more effective (see also Tools of the Trade).

Policy Framework

The Congress of the United States has set the Federal Reserve's objectives: "The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."

What should we make of this vague statement? Some people see ambiguity as advantageous. Because laws are difficult to change, they argue, we wouldn't want the Fed's objectives to be extremely specific; the imprecision of the language means the Fed has considerable leeway in setting its own goals. For most of its existence, the FOMC was unable or unwilling to tell us exactly how it interprets this broad mandate.

Today, however, the FOMC's approach is largely transparent, and (although Fed officials resist being labeled inflation-targeters) the strategy is consistent with the **inflation-targeting** framework that is now utilized by most leading central banks around the world. The strategic shift was enshrined in the FOMC's January 2012 special Statement on Longer-Run Goals and Monetary Policy Strategy, which the committee expects to reaffirm each year.⁷ This FOMC consensus on longer-run strategy is likely to prove a key legacy of former Board Chairman Bernanke's leadership.

Most important, the FOMC statement quantifies the inflation goal over the longer term—namely, an annual rise of 2 percent in the price index for personal consumption expenditures. With each monthly release of that price index (which is somewhat different from the consumer price index reported monthly in the news media), observers can judge whether inflation is headed toward that objective. "In setting monetary policy," the statement said, "the Committee seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level."

Importantly, the FOMC does *not* set a specific standing goal for longer-run "normal" economic growth, for maximum employment, or for the "normal" level of unemployment because—unlike the longer-run inflation rate—the Fed does not control these outcomes. The FOMC's quarterly "Summary of Economic Projections" does, however, give the latest anonymous estimates of each of the 19 FOMC participants for longer-run unemployment, inflation, and output growth. Finally, the strategy specifies a "balanced approach" whenever the FOMC faces a tradeoff between its goals of minimizing deviations of inflation from the 2 percent target and deviations of employment from the FOMC's assessment of its maximum sustainable level. Put differently, the speeds at which the FOMC seeks to realize each of these two goals can differ when the goals conflict with each other.

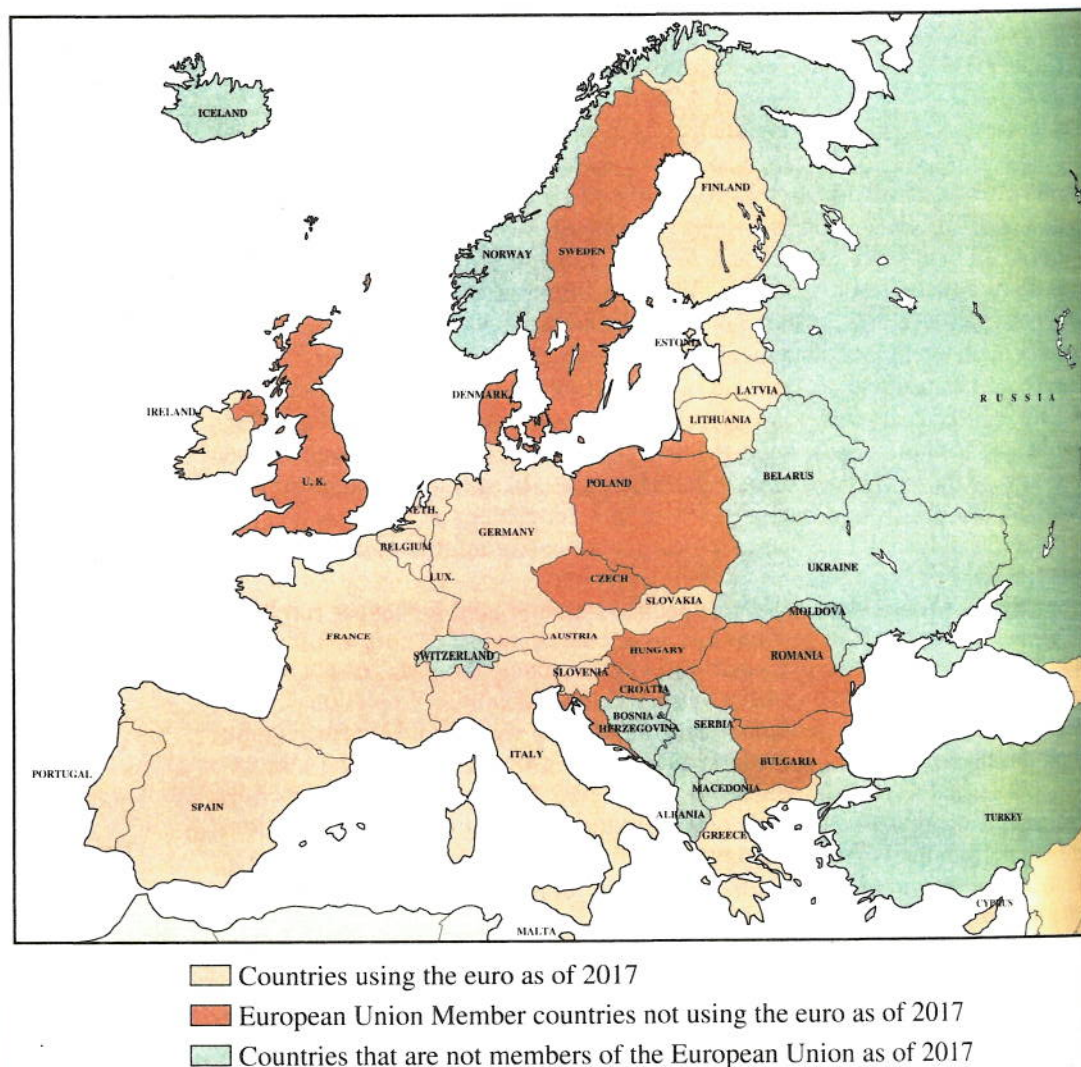


⁷In reaffirming the 2012 statement at its January 2016 meeting, the FOMC modified it to clarify that its inflation objective is symmetric. The 2016 version is at www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals_20160126.pdf.

The European Central Bank

As recently as 1998, Romans shopped with *lire*, Berliners with *deutsche marks*, and Parisians with *francs*. The Banca d'Italia, Italy's central bank, controlled the number of lire that circulated, while the Bundesbank managed the quantity of deutsche marks, and the Banque de France the volume of francs. But on January 1, 1999, the majority of Western European countries adopted a common currency. Today, residents of Rome, Berlin, and Paris all make their purchases in euros, and monetary policy is the job of the **European Central Bank (ECB)**. In the same way that a dollar bill is worth a dollar everywhere in the United States, a euro note is worth a euro everywhere in the **euro area**. By 2017, the euro had become the currency of 19 countries (see the map in Figure 16.3).

Figure 16.3 The European System of Central Banks



The agreement to form a European monetary union was formalized in the Treaty of Maastricht, named for the Dutch city in which it was signed in 1992. The treaty initiated a lengthy process that led ultimately to the creation of the **European System of Central Banks (ESCB)**, which is composed of the European Central Bank (ECB) in Frankfurt, Germany, and the national central banks (NCBs) in the 28 countries in the European Union. The ECB and the NCBs of the 19 countries that participate in the monetary union make up what is known as the **Eurosystem**, which shares a common currency and common monetary policy. At this writing, Denmark, Sweden, and the United Kingdom, as well as 6 of the 13 countries that joined the European Union since May 1, 2004, remained outside the Eurosystem and retained control over their monetary policy.

A myriad of names and abbreviations are associated with central banking in Europe. To avoid confusion, we will refer to the institution that is responsible for monetary policy in the euro area as the European Central Bank. Our goal is to understand its basic organizational structure.⁸ As we examine the ECB, keep in mind that, in economic terms, Europe is larger, and the euro area is only a bit smaller, than the United States.

Organizational Structure

The Eurosystem mirrors the structure of the Federal Reserve System in several ways. There is the six-member **Executive Board of the ECB**, which is similar to the Board of Governors; the **national central banks**, which play many of the same roles as the Federal Reserve Banks; and the **Governing Council**, which formulates monetary policy, just as the FOMC does.⁹ The Executive Board has a president (Mario Draghi of Italy until October 2019) and a vice president (Vitor Constâncio of Portugal until May 2018), who play the same role as the leaders of the Federal Reserve's Board of Governors. ECB Executive Board members are appointed by a committee composed of the heads of state of the countries that participate in the monetary union (see Table 16.2 on page 440).

The ECB and the NCBs together perform the traditional operational functions of a central bank, which we learned about in the last chapter. In addition to using interest rates to control the availability of money and credit in the economy, they are responsible for the smooth operation of the payments system and the issuance of currency. Together, they also serve as the lender of last resort. In 2014, under the newly implemented Single Supervisory Mechanism, the ECB became the euro area's leading bank supervisor. Like the Fed, it directly supervises the large systemic banks. While the details differ from country to country, the national central banks continue to serve as bankers to the banks and governments in their countries, just as the Federal Reserve Banks serve the banks in their districts and the U.S. government.

There are several important differences between the Fed and the ECB, however. Some exist by design and others as a result of the way the system came into being (see Table 16.3). First, the implementation of monetary policy—the ECB's

⁸Two publications are helpful in understanding European monetary policy. The first chief economist of the ECB, Otmar Issing, who also served on the ECB Executive Board in its first eight years, explains the evolution of ECB policies in *The Birth of the Euro* (Cambridge, UK: Cambridge University Press, 2008). *The Monetary Policy of the ECB*, published by the ECB in 2011, provides a technical description of how things work.

⁹While the ECB may appear to be modeled after the Federal Reserve System, its structure is actually based on that of the Deutsche Bundesbank, the German central bank. Europeans uniformly viewed the Bundesbank as being successful in stabilizing the post-World War II German economy, so it was a natural model, but the real reason for the new structure was politics. The designers of the ECB had to find a way to create a common central bank that incorporated all of the existing national central banks. This meant adding a new central administration while retaining the NCBs, which already existed.

Table 16.2 Key Aspects of the European Central Bank

European Central Bank (ECB)	The central authority in Frankfurt, Germany, that oversees monetary policy in the common currency area. (Established July 1, 1998.)
National central banks (NCBs)	The central banks of the countries that belong to the European Union.
European System of Central Banks (ESCB)	The ECB plus the NCBs of all the countries in the European Union, including those that do not participate in the monetary union.
Eurosystem	The ECB plus the NCBs of euro-area countries; together, they carry out the tasks of central banking in the euro area.
ECB Executive Board	The six-member body in Frankfurt that oversees the operation of the ECB and the Eurosystem.
Governing Council	The (currently) 25-member committee that makes monetary policy in the common currency area.
Euro	The currency used in the countries of the European Monetary Union.
Euro area	The countries that use the euro as their currency.

day-to-day interaction with the financial markets—is accomplished at all the national central banks, rather than being centralized as it is in the United States. Second, the ECB's budget is controlled by the national central banks, not the other way around. This arrangement means that the NCBs control the finances of the Executive Board and its headquarters in Frankfurt. Third, the ECB still supplies a large volume of reserves through collateralized lending to the banks, in addition to sales and purchases of securities.

Aside from its regulatory role, the focus of the ECB's activity is on the control of money and credit in the Eurosystem—that is, on monetary policy. The Governing Council, the equivalent of the Fed's FOMC, is composed of the six Executive Board members and the governors of the 19 (as of 2017) central banks in the euro area. Meetings to consider monetary policy actions are held eight times a year. While decisions are made by formal votes of the Governing Council, the votes are not published. The rationale for not disclosing the votes is to ensure that Governing Council members focus on setting policy for the euro area as a whole, regardless of economic conditions in the individual countries they come from. For the governor of the Banque de France to vote to raise interest rates at a time when the French economy is on its way into a recession would be difficult, even if it is the right thing to do for the euro area as a whole. Occasionally, however, Governing Council members air their dissent in public.¹⁰

A number of important safeguards were included in the Treaty of Maastricht to ensure the central bank's independence. First, there are the terms of office: Executive Board members serve eight-year terms (without the possibility of reappointment), and member nations must appoint their central bank governors for a minimum of five

¹⁰An important difference between the ECB's Governing Council and the FOMC is that the governors of the Federal Reserve Board always hold the majority of the seats on the FOMC (7 out of 12) while the Executive Board members are always a minority on the Governing Council (6 versus 15 NCB governors voting at each meeting). In the Eurosystem, power is less centralized than it is at the Fed.

Table 16.3 Comparing the FOMC with the ECB's Governing Council

	FOMC	Governing Council
Independence		
Budgetary control	Controlled by the Board of Governors	Controlled by the NCBs
Decisions irreversible	Yes	Yes
Terms of appointment	Governors 14 years, Reserve Bank presidents 5 years	Executive Board members 8 years; heads of NCBs minimum of 5 years
Threat of legislative change	Requires an act of Congress	Requires agreement of all signatories to Treaty of Maastricht
Decision making		
	Committee of 19 members; governors and New York Reserve Bank president always vote; 11 other Reserve Bank presidents rotate 4 voting slots	Committee of 25 members, with 6 Executive Board members and, as of 2016, 15 of 19 NCB governors voting at each meeting
Accountability and transparency		
Policy deliberations	Immediate release of target interest rate with a brief statement including the votes of the committee members; quarterly forecasts and press conference by the chair	Immediate release of target interest rate with an explanatory statement; the president and vice president answer questions
	Minutes of the meeting released after three weeks	Account of the meeting released after about one month
	Transcripts released after 5 years	No transcripts
Other information	Twice-yearly reports to Congress	Quarterly report to the European Parliament
	Public speeches of members	Public speeches of members
	Data collection and dissemination	Data collection and dissemination
	Publication of research reports, along with FOMC members' quarterly forecasts of inflation and growth	Publication of research reports, along with twice-yearly staff forecasts of inflation and growth
Policy framework		
	Dual mandate of price stability and maximum sustainable employment; "balanced approach" to tradeoffs between goals; price stability defined numerically	Price stability is paramount and defined numerically. All other goals are secondary
Cooperation with fiscal policymakers		
	No explicit mechanism Not authorized to purchase most state and municipal debt	Stated requirements for member countries' deficits and debt levels that are frequently violated Selectively purchases sovereign debt of member-states



LESSONS FROM THE CRISIS

THE EURO-AREA CRISIS AND THE ECB

The Maastricht Treaty provided the European Central Bank (ECB) with a legal foundation that makes it highly independent. But even a strong central bank depends on the support of other authorities: it cannot secure price stability over the long term if fiscal policymakers do not control the rise of public debt, and it cannot ensure economic stability if prudential regulators allow a systemwide capital shortfall that fosters bank runs. Yet the treaty failed to create the euro-area institutions that would provide the support needed by the monetary union's central bank.

Put another way, the treaty mastered the time-consistency problems of monetary policy but not of fiscal and prudential policy. When the euro-area crisis began in earnest in 2010, policymakers had to scramble to prevent a break-up of the monetary union. Here's what happened.

The global financial crisis of 2007–2009 severely damaged euro-area banks and plunged euro-area economies into a deep recession. Where fiscal deficits were already large, as in Greece, they widened much further. Where fiscal deficits were contained but the entire banking sector had overextended itself with risky lending, as in Spain, the national government was forced to borrow heavily to bail out the banks. These two problems—weakened banks and overstretched sovereigns—fed on each other. Insolvent countries could no longer support insolvent banks. Banks and other investors—often from other countries—ran from the hard-hit sovereigns, refusing to lend more, and depositors ran from hard-hit banks. Everyone sought safety in countries where they felt they could trust the government.

The runs hit Greece, Ireland, and Portugal first (and worst) and then moved on to Italy and Spain. In Figure 16.4, we can see the consequences for bonds issued by these countries on the geographic periphery of the euro area. The yield spreads for these sovereigns had been driven unrealistically low, in part by what turned out to be unwise purchases

of their debt by banks and other investors in the core euro area. In 2011, these spreads exploded. As the crisis deepened, depositors and bondholders feared both sovereign default and “redenomination” risk—the re-introduction of a domestic currency that would depreciate versus the euro.

As this story makes clear, the weaknesses of fiscal policy and prudential regulation in some countries had spillover effects on other countries. Much like bank runs, bad news in one country led to contagion elsewhere.

Addressing the euro-area crisis fell initially to the ECB. On July 26, 2012, ECB President Mario Draghi famously said that “the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough.” To back up that pledge, the ECB instituted a mechanism to purchase government bonds to lower the market interest rates faced by countries subject to speculation that they might leave the euro. It also offered unlimited reserves to euro-area banks. Figure 16.4 shows that these policies indeed helped narrow interest-rate spreads.

But the euro area must still face the more fundamental and persistent challenge avoided by the Maastricht Treaty: building the institutions necessary to prevent or manage spillovers and thus support the efficacy of the euro-area central bank. On the financial stability side, this means having common banking supervision, resolution arrangements, and deposit insurance that cover the entire euro area so that depositors don't care if their deposits are in a bank in Athens, Frankfurt, or Madrid.

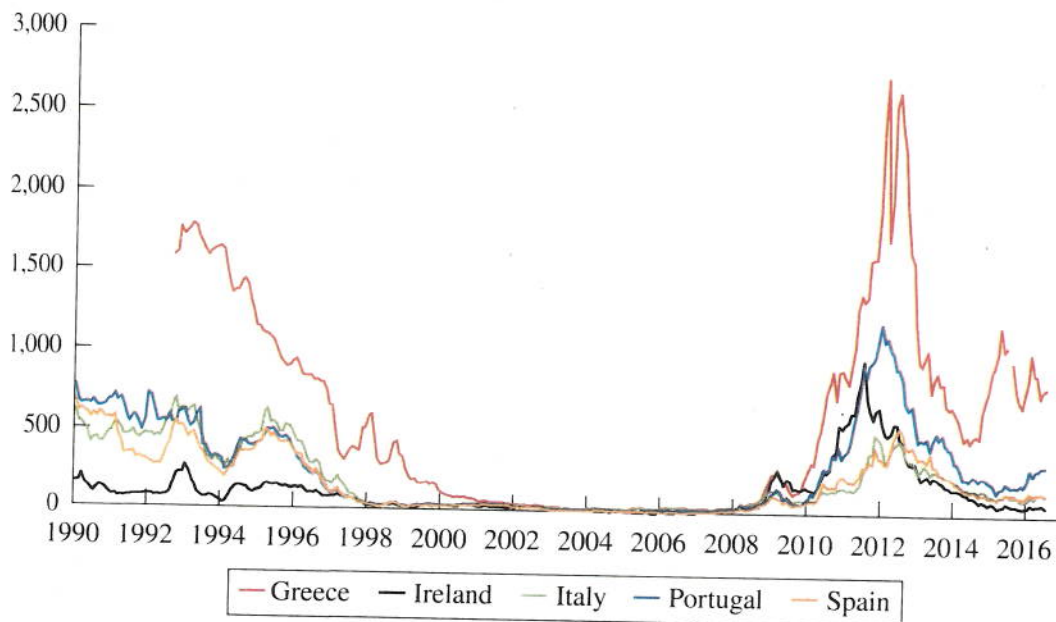
Euro-area policymakers have made headway on the first two of these three goals. They established common banking supervision through the Single Supervisory Mechanism, a new arm of the ECB. And they have come somewhat closer to a common resolution framework through the European Stability Mechanism, which offers funding for governments, especially when used to support their banks; and through the Single Resolution Mechanism for funding and restructuring insolvent banks. A tax on banks is being used to provide the resources for the resolution fund, which is expected to reach its target size by 2023.

These policy developments help explain why the 2015 resurgence of crisis in Greece involved only minimal

years. Second, the ECB's financial interests must remain separate from any political organization. Third, the treaty states explicitly that the Governing Council cannot take instructions from any government, so its policy decisions are irreversible. The fact that the ECB is the product of a treaty agreed to by all of the countries of the European Union makes it extraordinarily difficult to change any of the terms under which it operates. People who study central banks generally agree that these provisions make the ECB's legal mandate the strongest in the world.

In order to continue operating efficiently as the monetary union enlarged to include new members, in 2015 the Governing Council of the ECB implemented a complex system of rotation that bears a passing resemblance to the system used by the FOMC. Executive Board members have permanent votes on the Governing Council, just as the Board of Governors of the Federal Reserve System does, while the leaders of the NCBs

Figure 16.4 10-Year Yield Spreads of Selected Euro-Area Government Bonds over German Government Bonds (Basis Points), 1990–2016



SOURCE: Eurostat.

spillovers (have a look again at the pattern of interest rates in Figure 16.4). In short, the steps taken by policymakers to fill the void left by the Maastricht Treaty were sufficient to prevent contagion in 2015.

Nevertheless, the construction of the banking union is far from complete, especially regarding resolution and deposit

insurance. Once all aspects of the financial system become a joint responsibility of all euro-area countries, then—and only then—will euro-area depositors be secure regardless of where their banks are located. And only then will we be able to say that the euro-area crisis is over and that the euro will survive.

rotate each month, with 15 of 19 current leaders voting at each meeting. In contrast to the FOMC's annual voting rotation, the Governing Council's monthly rotation ensures that each member country (including the smallest) has effective representation in every year.

Accountability and Transparency

Like the Federal Reserve, the ECB distributes large volumes of information on its website, in all of the ECB's official languages. Included are a weekly balance sheet, a monthly statistical bulletin, an analysis of current economic conditions, biannual forecasts of inflation and growth, research reports relevant to current policy, and an annual report. In addition, the president of the ECB appears before the European Parliament every quarter to report on monetary policy and answer questions, and Governing





IN THE BLOG

The Importance of Being Europe

Despite its name, Europe's Economic and Monetary Union (EMU) is primarily a political rather than economic endeavor. Certainly the countries that have adopted the euro (as of 2016, 19 of the 28 members of the European Union, or EU) have lowered transactions costs and facilitated the flow of trade and finance among themselves. And the euro has also helped reduce inflation in Europe's formerly high-inflation periphery. However, a common currency is not necessary to keep inflation low and stable, and it is neither *necessary* nor *sufficient* for closer economic integration.

The founders of EMU viewed it as more than a process to achieve economic and monetary integration of the EU. They viewed it as a profound step toward political union in Europe. Some of EMU's original advocates and supporters understood that a common currency would lead to stresses—financial, economic, and political. But given the experience of the wars brought on by European nationalism in the 20th century, EMU's designers expected that future stresses would push European leaders even harder to achieve political union.

That outcome was never preordained. In the absence of acute pressure, progress toward greater risk sharing among euro-area sovereigns could be expected to slow. Indeed, persistent economic and financial strains have nurtured the strongest anti-European political reactions

since integration began in the 1950s. In several EU countries—notably France, Germany, and the United Kingdom—political parties opposed to European integration have gained prominence, fueled in part by discontent about a wave of migration from outside Europe. In a June 2016 referendum, Britain voted to exit the European Union.

For more than 60 years, European integration has been driven by a French-German partnership. The key product of this collaboration—the EU—has improved the welfare of more than 500 million people by expanding the free flow of goods, services, capital, and people across European borders. Its success has made another war in the center of Europe unthinkable. Yet, this progress toward economic integration also boosts competition that can be unpopular, and it is vulnerable to further gains by anti-EU political parties.

European politicians were warned about the instability of a monetary union that would include economically diverse countries. History provides no examples of a broad currency union surviving in the absence of fiscal and financial union. Fiscal union means sharing sovereignty over tax and spending decisions. Financial union means sharing sovereignty over (and fiscal burdens resulting from) banking regulation, supervision, resolution, and deposit

Council members speak regularly in public. But the most important aspect of the ECB's communication strategy concerns statements about the Governing Council's policy deliberations. (Like the FOMC, the Governing Council of the ECB targets a short-term interest rate on interbank loans, provides forward guidance, and has developed several liquidity-supplying facilities that alter its asset scale and mix in order to counter widespread financial disruptions.)

Following each of the Governing Council's monthly meetings on monetary policy, the president and vice president of the ECB hold a news conference in Frankfurt. The proceedings begin with the president reading a several-page statement announcing the council's interest-rate decision, together with a brief report on current economic and financial conditions in the euro area. The president and vice president then answer questions. A transcript of all their remarks is posted on the ECB's website (www.ecb.int) soon afterward. This procedure was the model for the Fed chair's quarterly press conference that began in 2011. And, in 2015, the ECB began to issue a written "account" of Governing Council meetings that is comparable to the minutes published by the FOMC. However, the ECB's accounts do not detail votes of the Governing Council; nor does the ECB keep verbatim transcripts.

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insurance, and over capital markets. The simple comparison of EMU with the U.S. monetary union—which has enjoyed fiscal union since 1789 and financial union since the Great Depression—makes these differences clear.

To make EMU work, euro-area institutions still need to adapt in big ways. In 2014, the euro area transferred the regulation and supervision of its largest banks to the Single Supervisory Mechanism, housed inside the European Central Bank (ECB). And the European Stability Mechanism was created in 2012 as a precursor to a joint bank resolution fund. Even so, as of 2016, euro-area banks and their sovereigns remain linked by a “doom loop.” That is, on the one hand, individual countries within the euro area still bear the financial burden for resolutions of impaired domestic banks, which weighs on the quality of their debt securities; and on the other, these banks hold large amounts of their government’s liabilities. Finally, there is no consensus on a euro-area-wide deposit insurance mechanism.

Against this background, the burden of maintaining financial stability in EMU has fallen on the ECB—easily the euro area’s strongest institution. Considering the context, the ECB has been extraordinarily effective. Without the ECB’s 2012 commitment to do “whatever it takes” to save the euro, it is doubtful that the euro area today would have 19 members.

To preserve price stability—its primary mandate—the ECB has gone further than most people thought possible. Beginning in 2015, the central bank expanded its balance sheet massively through the purchase of government and private debt. Yet these aggressive actions remain a point of conflict among euro-area countries.

Ultimately, even if the ECB achieves its inflation objective—close to, but below, 2 percent—it is merely buying time. Ironically, the ECB’s success in containing euro-area financial strains diminishes the incentives of countries and policymakers to address the structural weaknesses of EMU. Yet, these prolonged and repeated strains expose EMU’s underlying instability; preserving it will entail *greater* sharing of risk and sovereignty among its member states.

The architects of the Maastricht Treaty, which laid the basis for EMU, likely envisioned a strong political union, not just a monetary union. But Europe’s citizenry has never exhibited strong support for a strong, federal regime, so Europeans are faced with a stark choice. They can either embrace a closer union along with its financial, fiscal, and political consequences; or they can walk away from the broad-based euro, with at least some countries reintroducing the national currencies that disappeared nearly two decades ago. While the first option remains much more likely, the political challenges are daunting.

In assessing whether the ECB’s communications strategy is sufficient, we need to ask two questions. First, does the information that is released minimize the extent to which people will be surprised by future policy actions? Second, does it hold policymakers accountable for their decisions? On the first issue, uncertainties arise when conflicting opinions are expressed, but this information helps the public understand the range and complexity of policy debate in the Governing Council. On the second issue, most indications are that the system is working and that there is accountability. The ECB is forced to justify its actions to the euro-area public, explaining its policies and responding to criticisms in more than a dozen languages.

The Price Stability Objective and Monetary Policy Strategy

The Treaty of Maastricht states, “The primary objective of the European System of Central Banks [ESCB] shall be to maintain price stability. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the [European] Community,” including the objective of sustainable and noninflationary



growth. Like the Fed's legislatively dictated objectives, this statement is quite vague. However, the treaty is widely understood to place priority on price stability as the top objective for the ECB, while the Fed's mandate does not. The Governing Council's response has been to explain its interpretation of the statement and describe the factors that guide its policy decisions. Before assuming operational responsibility on January 1, 1999, the council prepared a press release entitled "A Stability-Oriented Monetary Policy Strategy." The strategy has two parts. First, there is a numerical definition of price stability. Second, the Governing Council announces its intention to focus on a broad-based assessment of the outlook for future prices, with money playing a prominent role.¹¹

The ECB's Governing Council defines price stability as an inflation rate of close to, but less than, 2 percent, based on a euro-area-wide measure of consumer prices. The index, called the harmonized index of consumer prices (HICP), is similar to the U.S. consumer price index (CPI). The HICP is an average of retail price inflation in all the countries of the monetary union, weighted by the size of their gross domestic products. So inflation in Germany, where more than one-fourth of the total economic activity in the euro area occurs, is much more important to policy decisions than inflation in Ireland, whose economy is about one-sixteenth the size of Germany's. This arrangement has important implications for monetary policy operations, because there are times when the proper policy for Ireland is to lower interest rates but the proper policy for Germany is to raise them. Given Ireland's relative size, a change in inflation or growth there has little impact on the euro area as a whole. The same is true for other small countries in the union.

The fact that the economically large countries matter much more than the small ones can affect the dynamics of the Governing Council's interest-rate decisions—remember the Council includes the heads of all the euro-area national central banks, as well as the members of the Executive Board. While the Governing Council's job is to stabilize prices in the euro area as a whole, one wonders whether the smaller countries might have undue influence on its policy decisions. To understand this concern, imagine what would happen if all the Governing Council's members pressed for actions appropriate to their own countries. The result would be a policy appropriate to the median country. And because there are only four large countries in the ECB—Germany, France, Italy, and Spain—the median country is likely to be small: Ranked by nominal GDP, Greece is the median country, accounting for less than 2 percent of 2015 euro-area GDP. The custom of drawing half the Executive Board members from the large countries and half from the small ones is not a foolproof counterweight to this tendency.

These potential shortcomings notwithstanding, evidence strongly suggests that the ECB is doing the job it is supposed to do. Despite an extraordinary crisis since 2010, the long-run inflation projections of professional forecasters remain modestly shy of 2 percent as of early 2016, highlighting the ECB's credibility. Put differently, the Governing Council's policy has been largely appropriate to the euro area as a whole; it has not been skewed toward smaller countries' concerns. The specificity of the price stability objective set forth in the Treaty of Maastricht holds policymakers accountable, limiting discretion in their decision making.¹²

¹¹The ECB refers to this statement as its "two-pillar" strategy. Observers have been critical of the way money is included in the policy framework. If the goal is to stabilize prices, why isn't money growth just one of a wide range of indicators that are factored into policy decisions? Following a 2004 policy review, ECB practice downgraded the importance of the monetary pillar, blunting this type of criticism.

¹²Strong evidence for the effectiveness and credibility of the ECB can be found in Stephen Cecchetti and Kermit Schoenholtz, "How Central Bankers See It: The First Decade of ECB Policy and Beyond," NBER Working Paper 14489, November 2008.

Key Terms

Board of Governors of the Federal Reserve System, 429	Eurosystem, 439	FOMC statement, 433
discount rate, 427	Executive Board of the ECB, 439	forward guidance, 431
emergency powers, 429	federal funds rate, 430	Governing Council of the ECB, 439
euro area, 438	Federal Open Market Committee (FOMC), 430	inflation targeting, 437
European Central Bank (ECB), 438	Federal Reserve Banks, 425	national central banks (NCBs), 439
European System of Central Banks (ESCB), 439	Federal Reserve System, 424	

Using FRED: Codes for Data in This Chapter

Data Series	FRED Data Code
Federal funds rate	FEDFUNDS
Discount rate (primary credit)	DPCREDIT
Personal consumption expenditures price index	PCEPI
Personal consumption expenditures index (less food and energy)	PCEPILFE
Euro-area harmonized index of consumer prices	CP0000EZ19M086NEST
France gross sovereign debt (percent of GDP)	GGGDTAFRA188N
Germany gross sovereign debt (percent of GDP)	GGGDTADEA188N
Italy gross sovereign debt (percent of GDP)	GGGDTAITA188N
Japan gross sovereign debt (percent of GDP)	GGGDTAJPA188N
Spain gross sovereign debt (percent of GDP)	GGGDTAESA188N
U.S. gross sovereign debt (percent of GDP)	GGGDTAUSA188N
Projection of Germany gross sovereign debt (percent of GDP)	GGGDTPDEA188N
Projection of Italy gross sovereign debt (percent of GDP)	GGGDTPITA188N
U.S. unemployment rate	UNRATE
FOMC long-run projection for unemployment rate	UNRATECTMLR
Discount window borrowings from Federal Reserve	DISCBORR
Federal funds target rate	DFEDTAR

Chapter Lessons

1. The Federal Reserve System is the central bank of the United States. Its decentralized structure comprises three primary elements:
 - a. Twelve Federal Reserve Banks, each with its own board of directors, that
 - i. Serve as the government's bank, issuing currency, maintaining the U.S. Treasury's bank account, and handling the Treasury's securities.
 - ii. Serve as the bankers' bank, holding deposits, operating a payments system, making loans, and evaluating the safety and soundness of financial institutions in their districts.

- b. The seven-member Board of Governors in Washington, D.C., including the chair:
 - i. Regulates and supervises the financial system.
 - ii. Oversees the Federal Reserve Banks.
 - iii. Publishes economic data.
- c. The Federal Open Market Committee:
 - i. Makes monetary policy by setting interest rates or altering the balance sheet.
 - ii. Has 12 voting members, including the seven governors and five of the 12 Reserve Bank presidents.
 - iii. Meets eight times a year.
 - iv. Is controlled largely by the chair.
- 2. The FOMC's success in meeting its objectives is enhanced by:
 - a. Its independence, which comes from its members' long terms, budgetary autonomy, and the irreversibility of its policy decisions.
 - b. Clear communication of its policy decisions through an explanatory statement that is distributed immediately, through a quarterly press conference, and through minutes that are published three weeks after each scheduled meeting.
 - c. Regular public appearances of the committee's members.
- 3. The European Central Bank (ECB) is the central bank for the countries that participate in the European Monetary Union—the euro area.
 - a. The Eurosystem is composed of three distinct parts:
 - i. The national central banks (NCBs) provide services to the banks and governments in their countries.
 - ii. The European Central Bank (ECB) in Frankfurt, with its six-member Executive Board, oversees the monetary system.
 - iii. The Governing Council makes monetary policy decisions.
 - b. The ECB's primary objective is to stabilize prices in the common currency area.
 - c. The ECB's success in meeting its monetary policy objectives is aided by the timely announcement of policy decisions, press conferences in which top ECB officials respond to questions, published accounts of meetings, and the release of twice-yearly forecasts.
 - d. The ECB also is the leading supervisor of euro-area banks, directly supervising the region's largest banks.

connect Conceptual and Analytical Problems

1. What are the Federal Reserve's goals, and who established them? How are Fed officials held accountable for meeting them? Explain why the chair is the most influential Fed official. (LO1)
2. Go to the Federal Reserve Board's website and locate the FOMC's most recent statement. What did the committee members say at their last meeting regarding the target range for the Federal funds rate and the two goals of price stability and sustainable economic growth? (LO2)
3. Some people have argued that the high inflation of the late 1970s was a consequence of the fact that Federal Reserve Board Chairman Arthur Burns did what President Richard Nixon wanted him to do. What policy do you think President Nixon might have wanted? (LO2)
4. How might the ECB's pursuit of price stability as its primary objective restrict its response to the sovereign debt crisis in the euro area? (LO3)

5. Evaluate the following statement: "The Maastricht Treaty helped solve the time-consistency problem in monetary policy but not fiscal policy." (LO3)
6. How did the response to the financial crisis of 2007–2009 alter the appointment process of presidents of the Federal Reserve Banks? (LO1)
7. What are the goals of the ECB? How are its officials held accountable for meeting them? (LO3)
8. Why did the sovereign debt problem of Greece—a country that accounts for less than 2 percent of euro-area GDP—threaten the banking system throughout the euro area? (LO3)
9. Go to the ECB's website and locate the most recent introductory statement made by the president of the ECB at the press conference following a Governing Council meeting. What was the Governing Council's policy decision? How was it justified? Is there any reference to financial stability measures? (LO3)
10. Do you think the FOMC has an easier or a harder time agreeing on monetary policy than the Governing Council of the ECB? Why? (LO3)
11. Why did the "no-bailout" clause of the Maastricht Treaty come under stress during and after the financial crisis of 2007–2009? (LO3)
12. Do you think the current procedures for appointing members to the Board of Governors are consistent with the principles of good central bank design? Explain your answer. (LO1)
- 13.* Currently, all the national central banks in the Eurosystem are involved with the implementation of monetary policy. What do you think the advantage would be of centralizing the conduct of these day-to-day interactions with financial markets at the ECB in Frankfurt? Are there any disadvantages you can think of? (LO3)
14. If you were charged with redrawing the boundaries of the Federal Reserve districts, what criteria would you use to complete the task? (LO1)
15. Entering 2016, U.S. interest rates and inflation had been low for some time. The FOMC added to its annual statement of longer-run goals that it would be "concerned if inflation were running persistently above or below" its inflation-rate objective of 2 percent. Why might the FOMC have emphasized this "symmetry" of its price-stability goal? (LO2)
16. Why do you think the statement released after each Federal Open Market Committee meeting retains the same basic structure? (LO2)
17. Do you think, in the interest of transparency, the Chair of the Federal Reserve Board should explain in detail the subtleties surrounding policy decisions? Why or why not? (LO2)
18. Suppose a fellow student in your money and banking class made the following statement: "Given that the Federal Reserve now specifies a numerical target for inflation but not for maximum employment, it has, in effect, a hierarchical mandate like the ECB, placing primacy on the price stability part of its mandate." On what basis could you disagree with this student? (LO1, LO3)
19. Compare the communication strategies of the Federal Reserve and the ECB. In what ways are they similar? Identify two key elements of the Fed's strategy that are *not* part of the ECB's strategy and discuss whether you think the ECB is justified in omitting each of them. (LO1, LO3)

*Indicates more difficult problems

20. During the euro-area crisis, interest-rate spreads between the sovereign debt of peripheral countries and Germany widened most sharply when it was feared that one or more countries might leave the euro area. These spreads narrowed when ECB actions restored confidence in the monetary union. What accounts for this pattern? (LO3)



Data Exploration

For general information on using Federal Reserve Economic Data (FRED) online, visit www.mhhe.com/moneyandbanking5e and refer to the FRED Resources.

1. How large are the public debt burdens of key euro-area economies? Are they rising or falling? Plot without recession bars the debt-to-GDP ratios of Germany (FRED code: GGGDTADEA188N), and Italy (FRED code: GGGDTAITA188N). Extend each line (matching its color) using the projections of the International Monetary Fund (FRED codes: GGGDTPDEA188N, and GGGDTPITA188N, respectively). Are these ratios consistent with the Maastricht Treaty's public debt-to-GDP guideline of 60 percent? (LO3)
2. The European Central Bank (ECB) has translated its primary objective of price stability into an explicit, quantitative goal of keeping euro-area annual inflation close to, but below, 2 percent over the medium term. Plot the percent change from a year ago of the euro-area price level, called the *harmonized index of consumer prices* (FRED code: CP0000EZ19M086NEST). Evaluate the performance of the ECB on average since 2000 and over shorter intervals. Download the data and compute the average inflation rate for the full period and for the periods 2008–2009, 2010–2011, and 2012–present. (LO3)
3. In 2012, the Federal Reserve announced an inflation objective of 2 percent “over the longer run” for the price index of personal consumption expenditures (FRED code: PCEPI). However, many analysts focus on the “core” price index (FRED code: PCEPILFE), which omits the volatile food and energy components. For the Fed’s horizon, does this difference matter? Plot the percent change from a year ago of both price measures since 2000. Download the data and compute the averages and standard deviations over that period. What do you conclude? (LO2)
4. Its statement of July 27, 2016, indicated that the FOMC would pursue policies to meet its “objectives of maximum employment and 2 percent inflation.” Plot since 2009 the evolution of the FOMC’s longer-run projection for the unemployment rate (FRED code: UNRATECTMLR), the actual unemployment rate (FRED code: UNRATE), and the percent change from a year ago of the core personal consumption expenditures price index (FRED code: PCEPILFE). Summarize the description provided by FRED (beneath the plot) of the FOMC longer-run unemployment projection. Then use the plot to explain why the FOMC statement indicated that the federal funds interest rate will likely remain for some time “below levels that are expected to prevail in the longer run.” (LO2)
5. In August 2007 and in March 2008, the Federal Reserve Board reduced the discount rate to ease liquidity conditions for banks. Plot discount window borrowing (FRED code: DISCBORR) between January 2007 and December 2008. As a second line, plot on the right axis the difference between the discount rate (FRED code: DPCREDIT) and the federal funds rate target (FRED code: DFEDTAR). Did narrowing the spread between the discount rate and the federal funds target rate trigger the borrowing surge in September–October 2008? (LO2)