Learning Objectives

1. Define monetary policy and describe the Federal Reserve’s monetary policy goals.
2. Describe the Federal Reserve’s monetary policy targets and explain how expansionary and contractionary monetary policies affect the interest rate.
3. Use aggregate demand and aggregate supply graphs to show the effects of monetary policy on real GDP and the price level.
4. Discuss the Fed’s setting of monetary policy targets.
5. Discuss the policies the Federal Reserve used during the 2007 — 2009 recession.
What Is Monetary Policy?

- Monetary policy: The actions the Federal Reserve takes to manage the money supply and interest rates to pursue its economic objectives.
- The Goals of Monetary Policy:
  1. Price stability
  2. High employment
  3. Stability of financial markets and institutions
  4. Economic growth
1. *Price stability:* Rising prices erode the value of money as a medium of exchange and a store of value. Three Fed chairmen, Volcker, Greenspan, and Bernanke, argued that if inflation is low over the long-run, the Fed will have the flexibility it needs to lessen the impact of recessions.

2. *High unemployment:* Unemployed workers and underused factories and buildings reduce GDP below its potential level. Unemployment causes financial distress as well as some social problems. The goal of high employment extends beyond the Fed to other branches of the federal government.
Price Stability

**Figure 15.1**

The Inflation Rate, January 1952–August 2011

For most of the 1950s and 1960s, the inflation rate in the United States was 4 percent or less. During the 1970s, the inflation rate increased, peaking during 1979–1981, when it averaged more than 10 percent. After 1992, the inflation rate was usually less than 4 percent, until increases in oil prices pushed it above 5 percent during the summer of 2008. The effects of the recession caused several months of deflation—a falling price level—early in 2009.

*Note:* The inflation rate is measured as the percentage change in the consumer price index (CPI) from the same month in the previous year.
1. (conti.) *Stability of financial markets and institutions*: When financial markets and institutions are not efficient in matching savers and borrowers, resources are lost. The 2007 – 2009 financial crisis brought this issue to the forefront. To ease liquidity problems facing investment banks unable to obtain short-term loans in 2008, the Fed temporarily allowed them to receive discount loans.

2. *Economic growth*: Policymakers aim to encourage stable EG because stable growth allows HHs and firms to plan accurately and encourages the long-run investment that is needed to sustain growth. EG is key to raising standard of living. Policy can spur EG by providing incentives for savings and investment.
Monetary Policy Targets

- MP targets can be achieved by using its policy tools (three tools).
- Sometimes, the Fed can achieve multiple goals successfully: it can take actions that increase both employment and economic growth because both are closely related.
- At other times, the Fed encounters conflicts bw its policy goals. E.g., increasing interest rates can reduce the inflation rate but reduce EG (by reducing HHs and firms’ spending). In this case, many economists support that the Fed should focus mainly on achieving price stability.
The Fed can’t affect both the unemployment and inflation rates directly. Instead, it uses monetary policy targets, that it can affect directly and that, in turn, affect variables that are closely related to the Fed’s policy goals (e.g. real GDP and the PL).

The two monetary policy targets are:

1. the money supply
2. the interest rate.

During normal times, the Fed typically uses the interest rate as its policy target.

The Fed was forced to develop new policy tools during the recession of 2007 — 2009.
The money demand curve slopes downward because lower interest rates cause households and firms to switch from financial assets, such as U.S. Treasury bills, to money. All other things being equal, a fall in the interest rate from 4 percent to 3 percent will increase the quantity of money demanded from $900 billion to $950 billion. An increase in the interest rate will decrease the quantity of money demanded.

The interest rate is the *opportunity cost*, or what you forgo, to hold money.
Changes in real GDP or the price level cause the money demand curve to shift. An increase in real GDP or an increase in the price level will cause the money demand curve to shift from $MD_1$ to $MD_2$. A decrease in real GDP or a decrease in the price level will cause the money demand curve to shift from $MD_1$ to $MD_3$. 

**Figure 15.3** Shifts in the Money Demand Curve
How the Fed Manages the Money Supply: A Quick Review

If the Federal Open Market Committee (FOMC) decides to increase the money supply, it orders the trading desk at the Federal Reserve Bank of New York to purchase U.S. Treasury securities.

The sellers of these Treasury securities deposit the funds they receive from the Fed in banks, which increases the banks’ reserves.

Typically, the banks loan out most of these reserves, which creates new checking account deposits and expands the money supply.

If the FOMC decides to decrease the money supply, it orders the trading desk to sell Treasury securities, which decreases banks’ reserves and contracts the money supply.

Equilibrium in the Money Market

Just as with other markets, equilibrium in the money market occurs where the money demand curve crosses the money supply curve.

*When the Fed increases the money supply, the short-term interest rate must fall until it reaches a level at which households and firms are willing to hold the additional money.*
Figure 15.4

The Effect on the Interest Rate When the Fed Increases the Money Supply

When the Fed increases the money supply, households and firms will initially hold more money than they want, relative to other financial assets. Households and firms use the money they don’t want to hold to buy Treasury bills and make deposits in interest-paying bank accounts. This increase in demand allows banks and sellers of Treasury bills and similar securities to offer lower interest rates. Eventually, interest rates will fall enough that households and firms will be willing to hold the additional money the Fed has created. In the figure, an increase in the money supply from $900 billion to $950 billion causes the money supply curve to shift to the right, from $MS_1$ to $MS_2$, and causes the equilibrium interest rate to fall from 4 percent to 3 percent.
Figure 15.5

The Effect on Interest Rates When the Fed Decreases the Money Supply

When the Fed decreases the money supply, households and firms will initially hold less money than they want, relative to other financial assets. Households and firms will sell Treasury bills and other financial assets and withdraw money from interest-paying bank accounts. These actions will increase interest rates. Eventually, interest rates will rise to the point at which households and firms will be willing to hold the smaller amount of money that results from the Fed’s actions.

In the figure, a reduction in the money supply from $900 billion to $850 billion causes the money supply curve to shift to the left, from $MS_1$ to $MS_2$, and causes the equilibrium interest rate to rise from 4 percent to 5 percent.
The Relationship between Treasury Bill Prices and Their Interest Rates

What is the price of a Treasury bill that pays $1,000 in one year, if its interest rate is 4%? What is the price of the Treasury bill if its interest rate is 5%?

\[
\frac{1000 - p}{p} = 4\%
\]
A Tale of Two Interest Rates

Why do we need two models of the interest rate (the loanable funds model and the money market model)?

- The loanable funds model is concerned with the long-term real rate of interest,
- The money-market model is concerned with the short-term nominal rate of interest.

The long-term real rate of interest is the interest rate that is most relevant when:

- Savers consider purchasing a long-term financial investment.
- Firms borrow to finance long-term investment projects.
- Households take out mortgage loans

Choosing a Monetary Policy Target

- There are many different interest rates in the economy.
- For purposes of monetary policy, the Fed has targeted the interest rate known as the federal funds rate.
Choosing a Monetary Policy Target

- There are many different IRs in the economy.
- For purposes of MP, the Fed has targeted the interest rate known as the federal funds rate.

Federal funds rate: The interest rate banks charge each other for overnight loans. It is NOT set by the Fed. Instead, it is determined by the supply of reserves relative to the demand for them.

The money market model determines the short-term nominal IR. The rate is most relevant when conducting MP because it is the rate most affected by increases and decreases in the MS.

These two rates are closely related: When the Fed takes actions to increase the short-term nominal IR, the long-term real rate will also increase.

The Fed chooses the MS or the IR as its MP target.
The Fed does not set the federal funds rate, but its ability to increase or decrease bank reserves quickly through open market operations keeps the actual federal funds rate close to the Fed’s target rate.

The orange line is the Fed’s target for the federal funds rate, and the jagged green line represents the actual value for the federal funds rate on a weekly basis.

*Note:* The federal funds target for the period after December 2008 was 0 to 0.25 percent.
(conti.) The Fed has generally focused more on the IR than on the MS. In 1993, Greenspan informed the U.S. congress that the Fed would cease using M1 or M2 targets to guide the conduct of MP.

- Banks receive no interest on their reserves, so they have an incentive to invest reserves above the RR. Banks that need additional reserves can borrow in the federal funds market from banks that have reserves available.

- The Fed can increase or decrease bank reserve by OMOs, and then can come very close to hitting the target rate.

- Note that the FFR is NOT directly relevant for HHs and firms.
How Interest Rates Affect Aggregate Demand

- The FFR is a short-term nominal IR, the Fed sometimes has difficulty affecting long-term real IR. Nevertheless, we just assume that the Fed is able to use OMOs to affect the long-term real IR.

- Changes in IRs will not affect Gov. purchases, but they will affect the other three components of AD:
  1. Consumption: Lower IRs lower the cost of durable goods and reduce the return to saving, leading HHs to save less and spend more. Higher interest rates raise the cost of consumer durables and increase the return to saving, leading HHs to save more and spend less.
1. (conti.) Investment: New houses and investment goods; in addition, lower IRs can increase investment through their impact on stock prices. As IRs decline, stocks become more attractive and the increase in demand raises their prices. Firms then have incentives to issue more shares of equity and acquire more funds to increase investment.

2. Net exports: If the IRs in the U.S. rise relative to IRs in other countries, investing in US financial assets become more desirable, which increases the demand for the dollar and then increases the value of the dollar. Consequently, NEs reduce.
The Effects of MP on Real GDP and the PL: An Initial Look

> **Expansionary monetary policy**: The Federal Reserve’s increasing the money supply and decreasing interest rates to increase real GDP.

> **Contractionary monetary policy**: The Federal Reserve’s adjusting the money supply to increase interest rates to reduce inflation.

Contractionary MP is also known as a *tight* MP. An expansionary MP is also known as a *loose* MP.
The Expansionary Monetary Policy

- *The LR AS curve* shifts to the right because over time capital and labor increase. Technological progress also occurs.
- These factors also result in firms supply more G&S at any given PL in the SR. *The SR AS curve* also shifts to the right.
- *The AD curve* will also shift the right: As population grows and income rise, C, I, and G all increase over time. However, sometimes AD doesn't increase enough to keep the economy at potential GDP (E.g., reduction in C and I due to pessimism; reduction in G due to reducing the budget deficit).
- When the Fed economists anticipate that AD is not growing fast enough to allow the economy to remain at full employment, they present their findings to the FOMC, which decides whether a change in MP is needed.
Monetary Policy

The economy begins in a recession at point A, with real GDP of $13.8 trillion and a price level of 98. An expansionary monetary policy causes aggregate demand to shift to the right, from $AD_1$ to $AD_2$, increasing real GDP from $13.8$ trillion to $14.0$ trillion and the price level from 98 to 100 (point B). With real GDP back at its potential level, the Fed can meet its goal of high employment.

Expansionary monetary policy  The Federal Reserve’s decreasing interest rates to increase real GDP.
The economy begins at point A, with real GDP at $14.2 trillion and the price level at 102. Because real GDP is greater than potential GDP, the economy experiences rising wages and prices. A contractionary monetary policy causes aggregate demand to shift to the left, from $AD_1$ to $AD_2$, decreasing real GDP from $14.2$ trillion to $14.0$ trillion and the price level from 102 to 100 (point B). With real GDP back at its potential level, the Fed can meet its goal of price stability.

**Figure 15.7b**

**Monetary Policy**

The Federal Reserve’s increasing interest rates to reduce inflation.
To stimulate the economy in late 2008, the Fed pushed the target for the federal funds rate to nearly zero and kept it there through 2011, but faced a *liquidity trap* when many banks began piling up excess reserves rather than lending the funds out to those whose financial positions had been damaged by the recession.
Because the federal funds rate cannot be negative, the Fed embarked on a policy of *quantitative easing* by purchasing securities—including certain *mortgage-backed securities*—beyond the short-term Treasury securities that are usually involved in open market operations.

The economic recovery remained weak following two rounds of quantitative easing between November 2008 and June 2011.

So in September 2011, the Fed announced a new program, which some people in financial markets called “Operation Twist,” under which it would purchase $400 billion in long-term Treasury securities while it would sell an equal amount of shorter-term Treasury securities.

Both quantitative easing and Operation Twist had the same objective: to reduce interest rates on long-term Treasury securities, which typically move closely with those on home mortgage loans, in order to increase aggregate demand.

MyEconLab Your Turn: Test your understanding by doing related problems 3.11 and 3.12 at the end of this chapter.
Can the Fed Eliminate Recessions?

- The Fed can manage to shift the AD curve to keep the economy continually at potential GDP. In reality, this objective is difficult for the Fed to achieve, as the length and severity of the 2007-2009 recession indicates.

- Instead, keeping recessions shorter and milder than they would otherwise be is usually the best the Fed can do.

- An example: Consider the 2001 recession and the Fed’s actions. From Jan 2001 to Dec 2001, the FOMC continued to reduce the FFR from 6.5% to 1.75%. Consequently, the Fed reduced the severity of the 2001 recession successfully:
  - Real GDP declined only during two quarters in 2001; GDP was actually higher for 2001 than 2000;
  - HH purchases of consumer durables and new homes remained strong during 2001, etc.
The upward-sloping straight line represents the long-run growth trend in real GDP. The curved red line represents the path real GDP takes because of the business cycle. If the Fed is too late in implementing a change in monetary policy, real GDP will follow the curved blue line. The Fed’s expansionary monetary policy results in too great an increase in aggregate demand during the next expansion, which causes an increase in the inflation rate.
A Summary of How Monetary Policy Works

Table 15.1  Expansionary and Contractionary Monetary Policies

The arrows point to the steps involved in the policy that occur relative to what would have happened without the policy.
By isolating the impact of monetary policy, *holding constant all other factors affecting the variables involved*, we are invoking the *ceteris paribus* condition.

This point is important because a contractionary monetary policy does not cause the price level to fall; rather, it causes the price level *to rise by less than it would have risen without the policy*.

An expansionary monetary policy is sometimes referred to as a *loose* policy, or an *easy* policy.

A contractionary monetary policy is sometimes referred to as a *tight* policy.

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**Don’t Let This Happen to You**
Remember That with Monetary Policy, It’s the Interest Rates—Not the Money—That Counts
It isn’t the increase in the money supply that brings about additional spending; *it’s the lower interest rates*.

**MyEconLab Your Turn:** Test your understanding by doing related problem 3.15 at the end of this chapter.
The Fed can use monetary policy to affect aggregate demand, thereby changing the price level and the level of real GDP.

The discussion of monetary policy illustrated by Figure 15.7 is simplified, however, because it ignores two important facts about the economy:

1. The economy experiences continuing inflation, with the price level rising every year.

2. The economy experiences long-run growth, with the LRAS curve shifting to the right every year.

By taking into account these two facts, the *dynamic aggregate demand and aggregate supply model* can provide us with a more complete understanding of monetary policy.
The Effects of Monetary Policy on Real GDP and the Price Level: A More Complete Account

Figure 15.9
An Expansionary Monetary Policy
The economy begins in equilibrium at point A, with real GDP of $14.0 trillion and a price level of 100. Without monetary policy, aggregate demand will shift from $AD_1$ to $AD_2$(without policy), which is not enough to keep the economy at full employment because long-run aggregate supply has shifted from $LRAS_1$ to $LRAS_2$. The economy will be in short-run equilibrium at point B, with real GDP of $14.3 trillion and a price level of 102. By lowering interest rates, the Fed increases investment, consumption, and net exports sufficiently to shift aggregate demand to $AD_2$(with policy). The economy will be in equilibrium at point C, with real GDP of $14.4 trillion, which is its full employment level, and a price level of 103. The price level is higher than it would have been if the Fed had not acted to increase spending in the economy.
Using Monetary Policy to Fight Inflation

Figure 15.10
A Contractionary Monetary Policy in 2006

The economy began 2005 in equilibrium at point A, with real GDP equal to potential GDP of $12.6 trillion and a price level of 100.0. From 2005 to 2006, potential GDP increased from $12.6 trillion to $12.9 trillion, as long-run aggregate supply increased from $LRAS_{2005}$ to $LRAS_{2006}$. The Fed raised interest rates because it believed the housing boom was causing aggregate demand to increase too rapidly.

Without the increase in interest rates, aggregate demand would have shifted from $AD_{2005}$ to $AD_{2006(\text{without policy})}$, and the new short-run equilibrium would have occurred at point B. Real GDP would have been $13.2$ trillion—$300$ billion greater than potential GDP—and the price level would have been $104.5$.

The increase in interest rates resulted in aggregate demand increasing only to $AD_{2006(\text{with policy})}$. Equilibrium occurred at point C, with real GDP of $13.0$ trillion being only $100$ billion greater than potential GDP, and the price level rising only to $103.2$. 
The Effects of Monetary Policy

Solved Problem 15.4

The hypothetical information in the table above shows what the values for real GDP and the price level will be in 2015 if the Fed does not use monetary policy.

a. If the Fed wants to keep real GDP at its potential level in 2015, should it use an expansionary policy or a contractionary policy? Should the trading desk buy Treasury bills or sell them?

**Solving the Problem**

**Step 1:** Review the chapter material.

**Step 2:** Answer the questions in part a. by explaining how the Fed can keep real GDP at its potential level.

Because the economy will be below potential real GDP in 2015 without monetary policy, the Fed must undertake an expansionary policy to keep real GDP at its potential level by buying Treasury bills, which will increase reserves in the banking system. Banks will increase their loans, which will increase the money supply and lower the interest rate.
The Effects of Monetary Policy

Solved Problem 15.4

The Effects of Monetary Policy

<table>
<thead>
<tr>
<th>Year</th>
<th>Potential GDP</th>
<th>Real GDP</th>
<th>Price Level</th>
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</thead>
<tbody>
<tr>
<td>2014</td>
<td>$15.2 trillion</td>
<td>$15.2 trillion</td>
<td>114</td>
</tr>
<tr>
<td>2015</td>
<td>15.6 trillion</td>
<td>15.4 trillion</td>
<td>116</td>
</tr>
</tbody>
</table>

The hypothetical information in the table above shows what the values for real GDP and the price level will be in 2015 if the Fed does not use monetary policy.

b. Suppose the Fed’s policy is successful in keeping real GDP at its potential level in 2015. State whether each of the following will be higher or lower than if the Fed had taken no action:
   i. Real GDP
   ii. Potential real GDP
   iii. The inflation rate
   iv. The unemployment rate

**Step 3:** Answer part b. by explaining the effect of the Fed’s policy.

If the Fed’s policy is successful, real GDP in 2015 will increase from $15.4 trillion to its potential level of $15.6 trillion. Potential real GDP is not affected by monetary policy, so its value will not change. The expansionary monetary policy shifts the AD curve to the right, so short-run equilibrium will move up the short-run aggregate supply (SRAS) curve, and the price level will be higher. Because the level of real GDP will be higher, the unemployment rate will be lower than it would have been without policy.
**Solved Problem 15.4**

**The Effects of Monetary Policy**

<table>
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<tr>
<td>2015</td>
<td>15.6 trillion</td>
<td>15.4 trillion</td>
<td>116</td>
</tr>
</tbody>
</table>

The hypothetical information in the table above shows what the values for real GDP and the price level will be in 2015 if the Fed does *not* use monetary policy.

c. Draw an aggregate demand and aggregate supply graph to illustrate your answer. Be sure that your graph contains LRAS and SRAS curves for 2014 and 2015; AD curves for both years, with and without monetary policy action; and equilibrium real GDP and the price level in 2015, with and without policy.

**Step 4:** *Answer part c. by drawing the graph.*
Your graph should look similar to Figure 15.9.
Solved Problem  15.4

The Effects of Monetary Policy

<table>
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<td>2015</td>
<td>15.6 trillion</td>
<td>15.4 trillion</td>
<td>116</td>
</tr>
</tbody>
</table>

The economy starts in equilibrium in 2014 at point $A$, with the $AD$ and $SRAS$ curves intersecting along the $LRAS$ curve. Real GDP is at its potential level of $15.2$ trillion, and the price level is 114. Without monetary policy, the $AD$ curve shifts to $AD_{2015}(\text{without policy})$, and the economy is in short-run equilibrium at point $B$. Because potential real GDP has increased from $15.2$ trillion to $15.6$ trillion, short-run equilibrium real GDP of $15.4$ trillion is below the potential level. The price level has increased from 114 to 116. With policy, the $AD$ curve shifts to $AD_{2015}(\text{with policy})$, and the economy is in equilibrium at point $C$. 
Solved Problem 15.4

The Effects of Monetary Policy

Real GDP is at its potential level of $15.6 trillion. Because we only know that the new equilibrium price level will be higher than 116, the graph shows it rising to 118. Without the Fed’s expansionary policy, the inflation rate in 2015 would have been about 1.8 percent. With policy, it will be about 3.5 percent. Bear in mind that in reality, the Fed is unable to use monetary policy to keep real GDP exactly at its potential level, as this problem suggests.

<table>
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<td>116</td>
</tr>
</tbody>
</table>

MyEconLab Your Turn: For more practice, do related problems 4.4 and 4.5 at the end of this chapter.
Should the Fed Target the Money Supply?

- Some economists have argued that rather than use an IR as its monetary policy target, the Fed should use the money supply.
- Many of the economists who make this argument belong to the monetarism school (Milton Friedman). They favor a monetary growth rule (MGR):
  - A plan for increasing the money supply at a constant rate that doesn’t change i.r.t. economic conditions (recessions or expansions).
  - They have proposed a MGR of increasing MS at a rate equal to the long-run growth rate of real GDP, 3.5%.
- They believe that active MP destabilizes the economy, increasing the number of recessions and their severity.
- The relationship bw movements in MS and movements in real GDP and PL becomes weaker. The MGR is less attractive today.
Why Doesn’t the Fed Target Both the Money Supply and the Interest Rate?

**Figure 15.11**

The Fed Can’t Target Both the Money Supply and the Interest Rate

The Fed is forced to choose between using either an interest rate or the money supply as its monetary policy target. In this figure, the Fed can set a target of $900 billion for the money supply or a target of 5 percent for the interest rate, but the Fed can’t hit both targets because it can achieve only combinations of the interest rate and the money supply that represent equilibrium in the money market.
How does the Fed choose a target for the FFR?

- **The Taylor rule:** A rule developed by John Taylor that links the Fed’s target for the federal funds rate to macroeconomic variables.

- It begins with an estimate of the value of the equilibrium real FFR, which is the FFR-adjusted for inflation—that would be consistent with real GDP being equal to potential GDP in the LR.

- Federal funds target rate = Current inflation rate + Real equilibrium federal funds rate + $\frac{1}{2} \times \text{Inflation gap} + \frac{1}{2} \times \text{Output gap}$
(conti.) *Inflation gap* (the diff. bw current inflation rate and a target inflation rate) and output gap (the diff. bw real GDP and the potential GDP) appear there because the Fed is concerned about both inflation and fluctuation in real GDP.

Taylor demonstrated that when the equilibrium real FFR is 2% and the target rate of inflation is 2%, the expression does a good job of explaining changes in the Fed’s target for the FFRs.

Note that the Taylor rule doesn’t account for changes in the target inflation rate or the equilibrium IR.
Should the Fed Target Inflation?

**Inflation targeting** Conducting monetary policy so as to commit the central bank to achieving a publicly announced level of inflation.

Arguments in favor of inflation targeting focus on four points:

1. Having an explicit inflation target would draw the public’s attention to the fact that the Fed can affect inflation but not real GDP in the long run, recalling that potential real GDP is not affected by monetary policy, and that real GDP eventually returns to its potential level.

2. By announcing an inflation target, the Fed would make it easier for households and firms to form accurate expectations of future inflation, improving their planning and the efficiency of the economy.

3. An announced inflation target would help institutionalize good U.S. monetary policy that is subject to fewer abrupt changes as members join and leave the FOMC.

4. An inflation target would promote accountability for the Fed by providing a yardstick against which Congress and the public could measure the Fed’s performance.
Inflation targeting also has opponents, who typically raise three points:

1. Having a numeric target for inflation reduces the flexibility of monetary policy to address other policy goals.

2. Inflation targeting assumes that the Fed can accurately forecast future inflation rates, which is not always the case.

3. Holding the Fed accountable only for an inflation goal may make it less likely that the Fed will achieve other important policy goals.
How Does the Fed Measure Inflation?

The Fed excludes food and energy prices from its main measure of inflation.

The Fed relies mainly on a subcategory of the personal consumption expenditures price index (PCE) in tracking inflation: the so-called core PCE. The PCE is a measure of the price level that includes only the prices of goods from the consumption category of GDP.

MyEconLab Your Turn: Test your understanding by doing related problem 5.8 at the end of this chapter.
How Does the Fed Measure Inflation?

- CPI overstates the true underlying rate of inflation; GDP deflator includes prices of goods, such as industrial equipment, that are not widely purchased by the typical consumer and worker. The personal consumption expenditures price index (PCE) is a measure of the PL that is similar to the GDP deflator, except that it includes only the prices of goods from the consumption category of GDP.

- In 2000, the Fed announced that it would rely more on the PCE than on the CPI in tracking inflation. Three advantages of PCE:
  1. The PCE is so-called chain-type price index, as opposed to the market-basket approach used in constructing the CPI. As consumers shift the mix of products they buy each year, the market-basket approach causes CPI to overstate actual inflation. A chain-type price index allow the mix of products to change over year.
  2. PCE includes the prices of more goods and services that CPI.
Past value of PCE can be recalculated as better ways of computing price index are developed and as new data become available. This allows the Fed to better track historical trends in inflation.

In 2004, the Fed announced that it would begin to rely on a subcategory of the PCE: the so-called core PCE, which excludes food and energy prices. Prices of food and energy tend to fluctuate up and down for reasons that may not be related to the causes of general inflation and that can not be easily controlled by MP.

Although the three measures (CPI, PCE, core PCE) of inflation move roughly together, the core PCE has been more stable than the others.
Fed Policies during the 2007–2009 Recession

15.6 LEARNING OBJECTIVE

Discuss the policies the Federal Reserve used during the 2007–2009 recession.
The Inflation and Deflation of the Housing Market Bubble

Many economists believe that a stock market bubble can sometimes form when the prices of stocks rise to levels that are unjustified by the profitability of the firms issuing the stock.

Stock market bubbles end when enough investors decide stocks are overvalued and begin to sell.

Subprime loans are loans granted to borrowers with flawed credit histories.

Some mortgage lenders that had concentrated on making subprime loans suffered heavy losses and went out of business, and most banks and other lenders tightened the requirements for borrowers.

This credit crunch made it more difficult for potential homebuyers to obtain mortgages, further depressing the market.
Sales of new homes in the United States went on a roller-coaster ride, rising by 60 percent between January 2000 and July 2005, before falling by 80 percent between July 2005 and May 2010.

*Note:* The data are seasonally adjusted at an annual rate.
The Changing Mortgage Market

Many members of Congress believed that home ownership could be increased by creating a secondary market in mortgages, where banks and savings and loans could resell mortgages so individual investors could provide funds for them to grant more mortgages.

One barrier to creating this secondary market was that most investors were unwilling to buy mortgages because they were afraid of losing money if the borrower stopped making payments, or defaulted, on the loan.

To reassure investors, Congress used two government-sponsored enterprises (GSEs):

• The Federal National Mortgage Association (“Fannie Mae”)
• The Federal Home Loan Mortgage Corporation (“Freddie Mac”)

By the 1990s, a large secondary market existed in mortgages, with funds flowing from investors through Fannie Mae and Freddie Mac to banks and, ultimately, to individuals and families borrowing money to buy houses.
The Role of Investment Banks

By the 2000s, investment banks expanded their traditional advisory roles and began buying mortgages, bundling large numbers of them together as bonds known as *mortgage-backed securities*, and reselling them to investors.

By the height of the housing bubble in 2005 and early 2006, lenders had greatly loosened the standards for obtaining a mortgage loan, issuing many mortgages requiring very small down payments to subprime borrowers and “Alt-A” borrowers who stated—but did not document—their incomes.

Lenders also created new types of *adjustable-rate mortgages* that allowed borrowers to pay a very low interest rate for the first few years of the mortgage and then pay a higher rate in later years.

By mid-2007, the decline in the value of mortgage-backed securities and the large losses suffered by commercial and investment banks began to cause turmoil in the financial system.

Many investors refused to buy mortgage-backed securities, and some would buy only bonds issued by the U.S. Treasury.
During the housing boom, many people purchased houses with down payments equal to 5 percent or less of the price, as opposed to the 20 percent traditionally expected.

In this sense, borrowers were highly leveraged, which means that their investment in their house was made mostly with borrowed money.

An investment financed at least partly by borrowing is called a leveraged investment.

The equity in your house is the difference between the market price of the house and the amount you owe on a loan; if the latter is greater than the former, you have negative equity, and are said to be “upside down” on your mortgage.

MyEconLab  Your Turn: Test your understanding by doing related problem 6.8 at the end of this chapter.
The Fed and the Treasury Department Respond

Initial Fed and Treasury Actions  The Fed and Treasury took the following actions in March 2008:

• The Fed announced it would temporarily make discount loans to primary dealers—firms it participated with in regular open market transactions.

• The Fed announced that it would loan up to $200 billion of Treasury securities in exchange for mortgage-backed securities.

• The Fed and the Treasury helped JPMorgan Chase acquire the investment bank Bear Stearns, which was on the edge of failing.

In early September, the Treasury moved to have the federal government take control of Fannie Mae and Freddie Mac, and they were placed under the supervision of the Federal Housing Finance Agency.

Later that month, the investment bank Lehman Brothers went bankrupt and the financial crisis significantly worsened.
Responses to the Failure of Lehman Brothers  Some economists and policymakers were concerned with the moral hazard problem, which is the possibility that managers of financial firms might make riskier investments if they believe that the federal government will save them from bankruptcy.

The adverse reaction in financial markets from the Fed and Treasury having allowed Lehman Brothers to go bankrupt led them to reverse course two days later.

In October 2008, Congress passed the Troubled Asset Relief Program (TARP), under which the Treasury attempted to stabilize the commercial banking system by providing funds to banks in exchange for stock.

Many of the Fed and Treasury’s actions were controversial because they involved:

• Partial government ownership of financial firms.
• Implicit guarantees to large financial firms that they would not be allowed to go bankrupt.
• Unprecedented intervention in financial markets.

These approaches were intended to achieve the traditional macroeconomic policy goals of high employment, price stability, and stability of financial markets.
Should You Buy a House during a Recession?

At the beginning of this chapter, we asked whether buying a house during a recession is a good idea.

As we have seen, the Fed often takes actions to lower interest rates during a recession, so you may want to take advantage of that by buying a house at such time.

But, recessions are also times of rising unemployment, and you would not want to make a commitment to borrow a lot of money for 15 or more years if you were in significant danger of losing your job.

We can conclude, then, that if your job seems secure, buying a house during a recession may be a good idea.