

PRINTED BY: [REDACTED]@gmail.com. Printing is for personal, private use only. No part of this book may be reproduced or transmitted without publisher's prior permission. Violators will be prosecuted.

**CHAPTER 16**

Interest Rates and Monetary Policy

Learning Objectives

- LO16.1** Discuss how the equilibrium interest rate is determined in the market for money.
- LO16.2** Describe the balance sheet of the Federal Reserve and the meaning of its major items.
- LO16.3** List and explain the goals and tools of monetary policy.
- LO16.4** Describe the federal funds rate and how the Fed directly influences it.
- LO16.5** Identify the mechanisms by which monetary policy affects GDP and the price level.
- LO16.6** Explain the effectiveness of monetary policy and its shortcomings.

Some newspaper commentators have stated that the chairperson of the Federal Reserve Board (currently Ben Bernanke) is the second most powerful person in the United States, after the U.S. president. That is undoubtedly an exaggeration because the chair has only a single vote on the 7-person Federal Reserve Board and 12-person Federal Open Market Committee. But there can be no doubt about the chair's influence as well as the overall importance of the Federal Reserve and the **monetary policy** that it conducts. Such policy consists of deliberate changes in the money supply to influence interest rates and thus the total level of spending in the economy. The goal of monetary policy is to achieve and maintain price-level stability, full employment, and economic growth.

PRINTED BY:

mccrayva.vm@gmail.com. Printing is for personal, private use only. No part of this book may be reproduced or transmitted without publisher's prior permission. Violators will be prosecuted.

Interest Rates

LO16.1 Discuss how the equilibrium interest rate is determined in the market for money.

The Fed's primary influence on the economy in normal economic times is through its ability to change the money supply (M_1 and M_2) and therefore affect interest rates. Interest rates can be thought of in several ways. Most basically, **interest** is the price paid for the use of money. It is also the price that borrowers need to pay lenders for transferring purchasing power to the future. And it can be thought of as the amount of money that must be paid for the use of \$1 for 1 year. Although there are many different interest rates that vary by purpose, size, risk, maturity, and taxability, we will simply speak of *the* interest rate unless stated otherwise.

Let's see how the interest rate is determined. Because it is a "price," we again turn to demand and supply analysis for the answer.

The Demand for Money

Why does the public want to hold some of its wealth as *money*? There are two main reasons: to make purchases with it and to hold it as an asset.

Transactions Demand, D_t People hold money because it is convenient for purchasing goods and services. Households usually are paid once a week, every 2 weeks, or monthly, whereas their expenditures are less predictable and typically more frequent. So households must have enough money on hand to buy groceries and pay mortgage and utility bills. Nor are business revenues and expenditures simultaneous. Businesses need to have money available to pay for labor, materials, power, and other inputs. The demand for money as a medium of exchange is called the **transactions demand for money**.

The level of nominal GDP is the main determinant of the amount of money demanded for transactions. The larger the total money value of all goods and services exchanged in the economy, the larger the amount of money needed to negotiate those transactions. The transactions demand for money varies directly with nominal GDP. We specify *nominal* GDP because households and firms will want more money for transactions if prices rise or if real output increases. In both instances a larger dollar volume will be needed to accomplish the desired transactions.

In **Figure 16.1a (Key Graph)** we graph the quantity of money demanded for transactions against the interest rate. For simplicity, let's assume that the amount demanded depends exclusively on the level of nominal GDP and is independent of the interest rate. (In reality, higher interest rates are associated with slightly lower volumes of money demanded for transactions.) Our simplifying assumption allows us to graph the transactions demand, D_t , as a vertical line. This demand curve is positioned at \$100 billion, on the assumption that each dollar held for transactions purposes is spent an average of three times per year and that nominal GDP is \$300 billion. Thus the public needs \$100 billion (= \$300 billion/3) to purchase that GDP.

Asset Demand, D_a The second reason for holding money derives from money's function as a store of value. People may hold their financial assets in many forms, including corporate stocks, corporate or government bonds, or money. To the extent they want to hold money as an asset, there is an **asset demand for money**.

People like to hold some of their financial assets as money (apart from using it to buy goods and services) because money is the most liquid of all financial assets; it is immediately usable for purchasing other assets when opportunities arise. Money is also an attractive asset to hold when the prices of other assets such as bonds are expected to decline. For example, when the price of a bond falls, the bondholder who sells the bond prior to the payback date of the full principal will suffer a loss (called a *capital loss*). That loss will

partially or fully offset the interest received on the bond. Holding money presents no such risk of capital loss from changes in interest rates.

The disadvantage of holding money as an asset is that it earns no or very little interest. Checkable deposits pay either no interest or lower interest rates than bonds. Currency itself earns no interest at all.

Knowing these advantages and disadvantages, the public must decide how much of its financial assets to hold as money, rather than other assets such as bonds. The answer depends primarily on the rate of interest. A household or a business incurs an opportunity cost when it holds money; in both cases, interest income is forgone or sacrificed. If a bond pays 6 percent interest, for example, holding \$100 as cash or in a noninterest checkable account costs \$6 per year of forgone income.



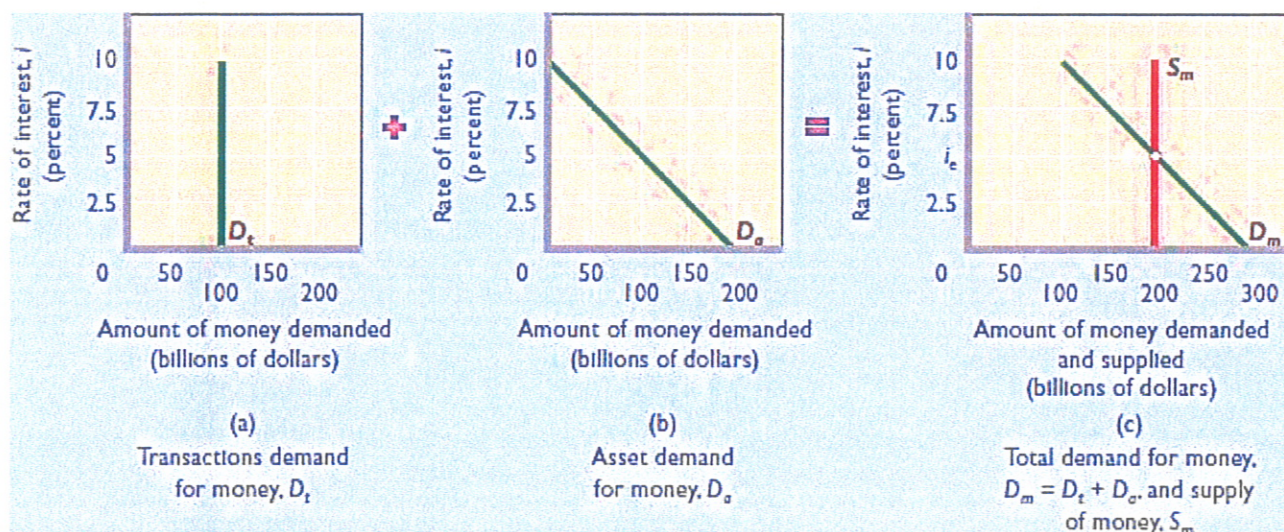
The amount of money demanded as an asset therefore varies inversely with the rate of interest (which is the opportunity cost of holding money as an asset). When the interest rate rises, being liquid and avoiding capital losses becomes more costly. The public reacts by reducing its holdings of money as an asset. When the interest rate falls, the cost of being liquid and avoiding capital losses also declines. The public therefore increases the amount of financial assets that it wants to hold as money. This inverse relationship just described is shown by D_a in Figure 16.1b.

PRINTED BY:

██████████. Printing is for personal, private use only. No part of this book may be reproduced or transmitted without publisher's prior permission. Violators will be prosecuted.

KEY GRAPH

FIGURE 16.1 The demand for money, the supply of money, and the equilibrium interest rate. The total demand for money D_m is determined by horizontally adding the asset demand for money D_a to the transactions demand D_t . The transactions demand is vertical because it is assumed to depend on nominal GDP rather than on the interest rate. The asset demand varies inversely with the interest rate because of the opportunity cost involved in holding currency and checkable deposits that pay no interest or very low interest. Combining the money supply (stock) S_m with the total money demand D_m portrays the market for money and determines the equilibrium interest rate i_e .



QUICK QUIZ FOR FIGURE 16.1

- In this graph, at the interest rate i_e (5 percent):
 - the amount of money demanded as an asset is \$50 billion.
 - the amount of money demanded for transactions is \$200 billion.
 - bond prices will decline.
 - \$100 billion is demanded for transactions, \$100 billion is demanded as an asset, and the money supply is \$200 billion.
- In this graph, at an interest rate of 10 percent:
 - no money will be demanded as an asset.
 - total money demanded will be \$200 billion.
 - the Federal Reserve will supply \$100 billion of money.
 - there will be a \$100 billion shortage of money.
- Curve D_a slopes downward because:
 - lower interest rates increase the opportunity cost of holding money.
 - lower interest rates reduce the opportunity cost of holding money.
 - the asset demand for money varies directly (positively) with the interest rate.
 - the transactions-demand-for-money curve is perfectly vertical.

4. Suppose the supply of money declines to \$100 billion. The equilibrium interest rate would:
- fall, the amount of money demanded for transactions would rise, and the amount of money demanded as an asset would decline.
 - rise, and the amounts of money demanded both for transactions and as an asset would fall.
 - fall, and the amounts of money demanded both for transactions and as an asset would increase.
 - rise, the amount of money demanded for transactions would be unchanged, and the amount of money demanded as an asset would decline.

Answers: 1. d; 2. a; 3. b; 4. d

Total Money Demand, D_m As shown in Figure 16.1, we find the **total demand for money, D_m** , by horizontally adding the asset demand to the transactions demand. The resulting downsloping line in Figure 16.1c represents the total amount of money the public wants to hold, both for transactions and as an asset, at each possible interest rate.

Recall that the transactions demand for money depends on the nominal GDP. A change in the nominal GDP—working through the transactions demand for money—will shift the total money demand curve. Specifically, an

PRINTED BY: [REDACTED]. Printing is for personal, private use only. No part of this book may be reproduced or transmitted without publisher's prior permission. Violators will be prosecuted.

increase in nominal GDP means that the public wants to hold a larger amount of money for transactions, and that extra demand will shift the total money demand curve to the right. In contrast, a decline in the nominal GDP will shift the total money demand curve to the left. As an example, suppose nominal GDP increases from \$300 billion to \$450 billion and the average dollar held for transactions is still spent three times per year. Then the transactions demand curve will shift from \$100 billion (= \$300 billion/3) to \$150 billion (= \$450 billion/3). The total money demand curve will then lie \$50 billion farther to the right at each possible interest rate.

Page 354

WORKED PROBLEMS

W16.1

Demand for money



The Equilibrium Interest Rate

We can combine the demand for money with the supply of money to determine the equilibrium rate of interest. In Figure 16.1c, the vertical line, S_m , represents the money supply. It is a vertical line because the monetary authorities and financial institutions have provided the economy with some particular stock of money. Here it is \$200 billion.

Just as in a product market or a resource market, the intersection of demand and supply determines the equilibrium price in the market for money. In Figure 16.1, this equilibrium price is the equilibrium interest rate, i_e . At this interest rate, the quantity of money demanded (= \$200 billion) equals the quantity of money supplied (= \$200 billion). The equilibrium interest rate can be thought of as the market-determined price that borrowers must pay for using someone else's money over some period of time.

Changes in the demand for money, the supply of money, or both can change the equilibrium interest rate. For reasons that will soon become apparent, we are most interested in changes in the supply of money. The important generalization is this: An increase in the supply of money will lower the equilibrium interest rate; a decrease in the supply of money will raise the equilibrium interest rate.

Interest Rates and Bond Prices

Interest rates and bond prices are inversely related. When the interest rate increases, bond prices fall; when the interest rate falls, bond prices rise. Why so? First understand that bonds are bought and sold in financial markets and that the price of bonds is determined by bond demand and bond supply.

Suppose that a bond with no expiration date pays a fixed \$50 annual interest payment and is selling for its face value of \$1,000. The interest yield on this bond is 5 percent:

$$\frac{\$50}{\$1,000} = 5\% \text{ interest yield}$$

Now suppose the interest rate in the economy rises to $7\frac{1}{2}$ percent from 5 percent. Newly issued bonds will pay \$75 per \$1,000 lent. Older bonds paying only \$50 will not be salable at their \$1,000 face value. To compete with the $7\frac{1}{2}$ percent bond, the price of this bond will need to fall to \$667 to remain competitive. The \$50 fixed annual interest payment will then yield $7\frac{1}{2}$ percent to whoever buys the bond:

$$\frac{\$50}{\$667} = 7\frac{1}{2}\%$$

Next suppose that the interest rate falls to $2\frac{1}{2}$ percent from the original 5 percent. Newly issued bonds will pay \$25 on \$1,000 loaned. A bond paying \$50 will be highly attractive. Bond buyers will bid up its price to \$2,000, where the yield will equal $2\frac{1}{2}$ percent:

$$\frac{\$50}{\$2,000} = 2\frac{1}{2}\%$$

WORKED PROBLEMS

W16.2

Bond prices
and interest
rates



The point is that bond prices fall when the interest rate rises and rise when the interest rate falls. There is an inverse relationship between the interest rate and bond prices.

QUICK REVIEW 16.1

- People demand money for transaction and asset purposes.
- The total demand for money is the sum of the transactions and asset demands; it is graphed as an inverse relationship (downsloping line) between the interest rate and the quantity of money demanded.
- The equilibrium interest rate is determined by money demand and supply; it occurs when people are willing to hold the exact amount of money being supplied by the monetary authorities.
- Interest rates and bond prices are inversely related.

PRINTED BY:

Printing is for personal, private use only. No part of this book may be reproduced or transmitted without publisher's prior permission. Violators will be prosecuted.

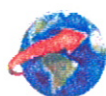
Page 355

The Consolidated Balance Sheet of the Federal Reserve Banks

LO16.2 Describe the balance sheet of the Federal Reserve and the meaning of its major items

With this basic understanding of interest rates, we can turn to monetary policy, which relies on changes in interest rates to be effective. The 12 Federal Reserve Banks together constitute the U.S. “central bank,” nicknamed the “Fed.” (Global Perspective 16.1 also lists some of the other central banks in the world, along with their nicknames.)

The Fed's balance sheet helps us consider how the Fed conducts monetary policy. Table 16.1 consolidates the pertinent assets and liabilities of the 12 Federal Reserve Banks as of April 10, 2013. You will see that some of the Fed's assets and liabilities differ from those found on the balance sheet of a commercial bank.



GLOBAL PERSPECTIVE 16.1

Central Banks, Selected Nations

The monetary policies of the world's major central banks are often in the international news. Here are some of their official names, along with a few of their popular nicknames.

Australia: Reserve Bank of Australia (RBA)
Canada: Bank of Canada
Euro Zone: European Central Bank (ECB)
Japan: The Bank of Japan (BOJ)
Mexico: Banco de Mexico (Mex Bank)
Russia: Central Bank of Russia
Sweden: Sveriges Riksbank
United Kingdom: Bank of England
United States: Federal Reserve System (the “Fed”)

Assets

The two main assets of the Federal Reserve Banks are securities and loans to commercial banks. (Again, we will simplify by referring only to *commercial banks*, even though the analysis also applies to *thrifts*—savings and loans, mutual savings banks, and credit unions.)

Securities The securities shown in Table 16.1 are government bonds that have been purchased by the Federal Reserve Banks. They consist largely of Treasury bills (short-term securities), Treasury notes (mid-term securities), and Treasury bonds (long-term securities) issued by the U.S. government to finance past budget deficits. These securities are part of the public debt—the money borrowed by the federal government. The Federal Reserve Banks bought these securities from commercial banks and the public through open-market operations. Although they are an important source of interest income to the Federal Reserve Banks,

they are mainly bought and sold to influence the size of commercial bank reserves and, therefore, the ability of those banks to create money by lending.

Loans to Commercial Banks For reasons that will soon become clear, commercial banks occasionally borrow from Federal Reserve Banks. The IOUs that commercial banks give these “bankers’ banks” in return for loans are listed on the Federal Reserve balance sheet as “Loans to commercial banks.” They are assets to the Fed because they are claims against the commercial banks. To commercial banks, of course, these loans are liabilities in that they must be repaid. Through borrowing in this way, commercial banks can increase their reserves.

Liabilities

On the “liabilities and net worth” side of the Fed's consolidated balance sheet, three entries are noteworthy: reserves, Treasury deposits, and Federal Reserve Notes.

Reserves of Commercial Banks The Fed requires that the commercial banks hold reserves against their checkable deposits. The Fed pays interest on these required reserves and also on the excess reserves that banks choose to hold at the Fed. Banks held a huge amount of these excess reserves at the Fed during the severe recession of 2007–2009 and on through at least 2013 as the economy recovered only sluggishly after the Great Recession. Banks simply were highly concerned that loans to some private borrowers might not get paid back. When held in the Federal Reserve Banks, these reserves are listed as a liability on the Fed's balance sheet. They are assets on the books of the commercial banks, which still own them even though they are deposited at the Federal Reserve Banks.

TABLE 16.1 Consolidated Balance Sheet of the 12 Federal Reserve Banks, April 10, 2013 (in Millions)

Assets		Liabilities and Net Worth	
Securities	\$2,957,619	Reserves of commercial banks	\$1,851,361
Loans to commercial banks	439	Treasury deposits	52,478
All other assets	<u>271,355</u>	Federal Reserve Notes (outstanding)	1,137,087
		All other liabilities and net worth	<u>188,487</u>
Total	<u>\$3,229,413</u>	Total	<u>\$3,229,413</u>

Source: Federal Reserve Statistical Release, H.4.1, April 10, 2013, www.federalreserve.gov.

PRINTED BY:

Printing is for personal, private use only. No part of this book may be reproduced or transmitted without publisher's prior permission. Violators will be prosecuted.

Treasury Deposits The U.S. Treasury keeps deposits in the Federal Reserve Banks and draws checks on them to pay its obligations. To the Treasury these deposits are assets; to the Federal Reserve Banks they are liabilities. The Treasury creates and replenishes these deposits by depositing tax receipts and money borrowed from the public or from the commercial banks through the sale of bonds.

Page 356

Federal Reserve Notes Outstanding As we have seen, the supply of paper money in the United States consists of Federal Reserve Notes issued by the Federal Reserve Banks. When this money is circulating outside the Federal Reserve Banks, it constitutes claims against the assets of the Federal Reserve Banks. The Fed thus treats these notes as a liability.

QUICK REVIEW 16.2

- The two main assets of the Federal Reserve Banks are securities and loans to commercial banks. Most of the securities are bills, notes, and bonds issued by the U.S. Treasury to finance past federal budget deficits.
- The three major liabilities of the Federal Reserve Banks are reserves of commercial banks, Treasury deposits, and outstanding Federal Reserve notes.

Tools of Monetary Policy

LO16.3 List and explain the goals and tools of monetary policy.

ORIGIN OF THE IDEA

O16.2

Tools of
monetary
policy



With this look at the Federal Reserve Banks' consolidated balance sheet, we can now explore how the Fed can influence the money-creating abilities of the commercial banking system. The Fed has four main tools of monetary control it can use to alter the reserves of commercial banks:

- Open-market operations
- The reserve ratio
- The discount rate
- Interest on reserves

Open-Market Operations

Bond markets are "open" to all buyers and sellers of corporate and government bonds (securities). The Federal Reserve is the largest single holder of U.S. government securities. The U.S. government, not the Fed, issued these Treasury bills, Treasury notes, and Treasury bonds to finance past budget deficits. Over the

decades, the Fed has purchased these securities from major financial institutions that buy and sell government and corporate securities for themselves or their customers.

The Fed's **open-market operations** consist of buying government bonds (U.S. securities) from or selling government bonds to commercial banks and the general public. The conduit for the Fed's open-market operations is the New York Federal Reserve Bank and a group of 21 or so large financial firms called "primary dealers." These financial institutions, in turn, buy the bonds from and sell the bonds to commercial banks and the general public. Open-market operations are the Fed's most important day-to-day instrument for influencing the money supply.

Buying Securities Suppose that the Fed decides to have the Federal Reserve Banks buy government bonds. They can purchase these bonds either from commercial banks or from the public. In both cases the reserves of the commercial banks will increase.

From Commercial Banks When Federal Reserve Banks buy government bonds *from commercial banks*,

- (a) The commercial banks give up part of their holdings of securities (the government bonds) to the Federal Reserve Banks.
- (b) The Federal Reserve Banks, in paying for these securities, place newly created reserves in the accounts of the commercial banks at the Fed. (These reserves are created "out of thin air," so to speak!) The reserves of the commercial banks go up by the amount of the purchase of the securities.

PRINTED BY:

██████████. Printing is for personal, private use only. No part of this book may be reproduced or transmitted without publisher's prior permission. Violators will be prosecuted.

LAST WORD

Worries about ZIRP, QE, and Twist

ZIRP, QE, and Operation Twist Provided Massive Economic Stimulus During and After the Great Recession. But There Remain Many Worries About Unintended Consequences.

When the financial crisis reached its peak in 2008, the Fed acted aggressively to prevent bank runs and stabilize the financial system by acting as a lender of last resort. It also did its best to get the economy moving again by lowering short-term interest rates to nearly zero—a strategy that came to be known as the zero interest rate policy, or ZIRP.



When ZIRP by itself didn't seem to be causing enough stimulus, the Fed also began engaging in trillions of dollars' worth of bond purchases. Those purchases went by the name of quantitative easing, or QE, because the Fed printed up electronic money to pay for the purchases, thereby massively increasing (easing) the total quantity of money in circulation. The Fed's hope was that the additional money would lead to additional spending and lending that would boost aggregate demand by increasing consumption and investment. Later, the policy known as Operation Twist lowered longer-term interest rates.

One important effect of ZIRP and Operation Twist was to help the U.S. federal government engage in aggressive deficit-financed fiscal stimulus. Thanks to ZIRP and Operation Twist, the federal government was able to fund large deficits by issuing 10-year bonds at nominal interest rates of about 2 percent—substantially lower than the historical average of about 6 percent.

But the Federal Reserve didn't just help the federal government with low

PRINTED

BY: [REDACTED] Printing is for personal, private use only. No part of this book may be reproduced or transmitted without publisher's prior permission. Violators will be prosecuted.

interest rates. It also served as the federal government's primary lender. In 2012, for instance, the Federal Reserve purchased over 70 percent of all U.S. government debt. Thus, 70 percent of the federal government's new borrowing came from the Federal Reserve in the form of newly printed money that the Fed created in order to fund its open-market purchases of government bonds.

Page 377

The consensus among economists was that the Fed's aggressive use of ZIRP and QE were warranted by the severity of the financial crisis and the historically slow pace with which the economy recovered after the 2007–2009 recession. However, concerns were also raised about possible unintended consequences.

One worry had to do with the large annual budget deficits that the federal government was running. While many economists felt that the large deficits were appropriate given the sluggish economy, others believed that the federal government was overspending and taking resources away from the private sector. As a result, they felt that the Fed's use of ZIRP and QE was making it too easy for Congress to overspend and run large budget deficits because the Fed would always provide a ready buyer for the bonds that had to be issued to finance those large deficits.

A longer-term worry was that when ZIRP ended and interest rates began to rise again toward normal levels, the federal government would be suddenly confronted with huge interest costs. Consider the \$16 trillion of debt that had accumulated by 2013: \$16 trillion borrowed at 2 percent interest generates annual interest payments of \$320 billion per year. But if the interest rate on government debt were to rise back to its historical average of 6 percent, the annual interest payments on \$16 trillion would come to \$960 billion per year. Such a huge increase in annual interest payments would likely require either massive budget cuts or even more borrowing, unless the economy began to grow so quickly that increased tax revenues were enough to compensate for the increased interest payments.

Another problem with extremely low interest rates is that they punish savers. A senior citizen who has saved for retirement will find that her investments yield very low rates of return when the Fed is keeping interest rates low. Instead of being able to live off of the interest generated by her investments, she may find herself spending down her accumulated savings because the interest payments amount to nearly nothing.

On a larger scale, pension plans and retirement funds are also hit hard by low interest rates. Those institutions take deposits from current workers, invest those funds, and promise to pay out certain amounts when workers retire. Prior to the financial crisis, most of those institutions had assumed that they would be able to earn 8 percent per year on the retirement funds that they were entrusted with. But with the Fed keeping interest rates so low, the pension plans and retirement funds were not earning anywhere near 8 percent per year on their investments. As a result, the low interest rates engineered by the Fed made it very unlikely that pension plans and retirement funds would be able to keep their promises to retirees and deliver enough money in 20 or 30 years to pay each individual retiree what he or she had been promised.

SUMMARY

LO16.1 Discuss how the equilibrium interest rate is determined in the market for money.

The total demand for money consists of the transactions demand for money plus the asset demand for money. The amount of money demanded for transactions varies directly with the nominal GDP; the amount of money demanded as an asset varies inversely with the interest rate. The market for money combines the total demand for money with the money supply to determine equilibrium interest rates.

Interest rates and bond prices are inversely related.

LO16.2 Describe the balance sheet of the Federal Reserve and the meaning of its major items.

The consolidated balance sheet of the Federal Reserve System lists the collective assets and liabilities of the 12 Federal Reserve banks. The assets consist largely of Treasury notes, Treasury bills, and Treasury bonds. The major liabilities are reserves of commercial banks, Treasury deposits, and Federal Reserve notes outstanding.

The balance sheet is useful in understanding monetary policy because open-market operations increase or decrease the Fed's assets and liabilities.

LO16.3 List and explain the goals and tools of monetary policy.

The goal of monetary policy is to help the economy achieve price stability, full employment, and economic growth.

The four main instruments of monetary policy are (a) openmarket operations, (b) the reserve ratio, (c) the discount rate, and (d) interest on reserves.

LO16.4 Describe the federal funds rate and how the Fed directly influences it.

The federal funds rate is the interest rate that banks charge one another for overnight loans of reserves. The prime interest rate is the benchmark rate that banks use as a reference rate for a wide range of interest rates on short-term loans to businesses and individuals.

The Fed adjusts the federal funds rate to a level appropriate for economic conditions. Under an expansionary monetary policy, it purchases securities from commercial banks and the general public to inject reserves into the banking system. This lowers the federal funds rate to the targeted level and also reduces other interest rates (such as the prime rate). Under a restrictive monetary policy, the Fed sells securities to commercial banks and the general public via open-market operations. Consequently, reserves are removed from the banking system, and the federal funds rate and other interest rates rise.

LO16.5 Identify the mechanisms by which monetary policy affects GDP and the price level.

Monetary policy affects the economy through a complex cause-effect chain: (a) policy decisions affect commercial bank reserves; (b) changes in reserves affect the money supply; (c) changes in the money supply alter the interest rate; (d) changes in the interest rate affect investment; (e) changes in investment affect aggregate demand; (f) changes in aggregate demand affect the equilibrium real GDP and the price level. Table 16.3 draws together all the basic ideas relevant to the use of monetary policy.

LO16.6 Explain the effectiveness of monetary policy and its shortcomings.

The advantages of monetary policy include its flexibility and political acceptability. In recent years, the Fed has used monetary policy to keep inflation low while helping limit the depth of the recession of 2001, to boost the economy as it recovered from that recession, to help stabilize the banking sector in the wake of the mortgage debt crisis, and to promote recovery from the severe recession of 2007–2009. Today, nearly all economists view monetary policy as a significant stabilization tool.

Monetary policy has two major limitations and potential problems: (a) recognition and operation lags complicate the timing of monetary policy; (b) in a severe recession, the reluctance of banks to lend excess reserves and firms to borrow money to spend on capital goods may contribute to a liquidity trap that limits the effectiveness of an expansionary monetary policy.