Chapter 2

1. The basic function of financial markets is to channel funds from savers who have an excess of funds to spenders who have a shortage of funds. Financial markets can do this either through direct finance, in which borrowers borrow funds directly from lenders by selling them securities, or through indirect finance, which involves a financial intermediary that stands between the lender-savers and the borrower-spenders and helps transfer funds from one to the other. This channeling of funds improves the economic welfare of everyone in society. Because they allow funds to move from people who have no productive investment opportunities to those who have such opportunities, financial markets contribute to economic efficiency. In addition, channeling of funds directly benefits consumers by allowing them to make purchases when they need them most.
2. Financial markets can be classified as debt and equity markets, primary and secondary markets, exchanges and over-the-counter markets, and money and capital markets.
3. The principal money market instruments (debt instruments with maturities of less than one year) are U.S. Treasury bills, negotiable bank certificates of deposit, commercial paper, repurchase agreements, and federal funds. The principal capital market instruments (debt and equity instruments with maturities greater than one year) are stocks, mortgages, corporate bonds, U.S. government securities, U.S. government agency securities, state and local government bonds, and consumer and bank commercial loans.
4. An important trend in recent years is the growing internationalization of financial markets. Eurobonds, which are denominated in a currency other than that of the country in which they are sold, are now the dominant security in the international bond market and have surpassed U.S. corporate bonds as a source of new funds. Eurodollars, which are U.S. dollars deposited in foreign banks, are an important source of funds for American banks.
5. Financial intermediaries are financial institutions that acquire funds by issuing liabilities and, in turn, use those funds to acquire assets by purchasing securities or making loans. Financial intermediaries play an important role in the financial system because they reduce transaction costs, allow risk sharing, and solve problems created by adverse selection and moral hazard. As a result, financial intermediaries allow small savers and borrowers to benefit from the existence of financial markets, thereby increasing the efficiency of the economy. However, the economies of scope that help make financial intermediaries successful can lead to conflicts of interest that make the financial system less efficient.
6. The principal financial intermediaries fall into three categories: (a) banks—commercial banks, savings and loan associations, mutual savings banks, and credit unions; (b) contractual savings institutions—life insurance companies, fire and casualty insurance companies, and pension funds; and (c) investment intermediaries—finance companies, mutual funds, and money market mutual funds.
7. The government regulates financial markets and financial intermediaries for two main reasons: to increase the information available to investors and to ensure the soundness of the financial system. Regulations include requiring disclosure of information to the public, restrictions on who can set up a financial intermediary, restrictions on what assets financial intermediaries can hold, the provision of deposit insurance, limits on competition, and restrictions on interest rates.

Chapter 3

1. To economists, the word *money* has a different meaning from *income* or *wealth*. Money is anything that is generally accepted as payment for goods or services or in the repayment of debts.
2. Money serves three primary functions: as a medium of exchange, as a unit of account, and as a store of value. Money as a medium of exchange avoids the problem of double coincidence of wants that arises in a barter economy, and thus lowers transaction costs and encourages specialization and the division of labor. Money as a unit of account reduces the number of prices needed in the economy, which also reduces transaction costs. Money also functions as a store of value, but performs this role poorly if it is rapidly losing value due to inflation.
3. The payments system has evolved over time. Until several hundred years ago, the payments system in all but the most primitive societies was based primarily on precious metals. The introduction of paper currency lowered the cost of transporting money. The next major advance was the introduction of checks, which lowered transaction costs still further. We are currently moving toward an electronic payments system in which paper is eliminated and all transactions are handled by computers. Despite the potential efficiency of such a system, obstacles are slowing the movement to a checkless society and the development of new forms of electronic money.

Chapter 4

1. The yield to maturity, which is the measure most accurately reflecting the interest rate, is the interest rate that equates the present value of future payments of a debt instrument with its value today. Application of this principle reveals that bond prices and interest rates are negatively related: When the interest rate rises, the price of the bond must fall, and vice versa.
2. The return on a security, which tells you how well you have done by holding this security over a stated period of time, can differ substantially from the interest rate as measured by the yield to maturity. Long-term bond prices have substantial fluctuations when interest rates change and thus bear interest-rate risk. The resulting capital gains and losses can be large, which is why long-term bonds are not considered safe assets with a sure return.
3. The real interest rate is defined as the nominal interest rate minus the expected rate of inflation. It is both a better measure of the incentives to borrow and lend and a more accurate indicator of the tightness of credit market conditions than is the nominal interest rate.

Chapter 5

1. The theory of portfolio choice tells us that the quantity demanded of an asset is (a) positively related to wealth, (b) positively related to the expected return on the asset relative to alternative assets, (c) negatively related to the riskiness of the asset relative to alternative assets, and (d) positively related to the liquidity of the asset relative to alternative assets.
2. The supply and demand analysis for bonds provides one theory of how interest rates are determined. It predicts that interest rates will change when there is a change in demand because of changes in income (or wealth), expected returns, risk, or liquidity or when there is a change in supply because of changes in the attractiveness of investment opportunities, the real cost of borrowing, or the government budget.
3. An alternative theory of how interest rates are determined is provided by the liquidity preference framework, which analyzes the supply of and demand for money. It shows that interest rates will change when the demand for money changes because of alterations in income or the price level or when the supply of money changes.
4. There are four possible effects of an increase in the money supply on interest rates: the liquidity effect, the income effect, the price-level effect, and the expected-inflation effect. The liquidity effect indicates that a rise in money supply growth will lead to a decline in interest rates; the other effects work in the opposite direction. The evidence seems to indicate that the income, price-level, and expected-inflation effects dominate the liquidity effect such that an increase in money supply growth leads to higher—rather than lower—interest rates.

Chapter 6

1. Bonds with the same maturity will have different interest rates because of three factors: default risk, liquidity, and tax considerations. The greater a bond's default risk, the higher its interest rate relative to other bonds; the greater a bond's liquidity, the lower its interest rate; and bonds with tax-exempt status will have lower interest rates than they otherwise would. The relationship among interest rates on bonds with the same maturity that arises because of these three factors is known as the *risk structure of interest rates*.
2. Four theories of the term structure provide explanations of how interest rates on bonds with different terms to maturity are related. The expectations theory views long-term interest rates as equaling the average of future short-term interest rates expected to occur over the life of the bond. By contrast, the segmented markets theory treats the determination of interest rates for each bond's maturity as the outcome of supply and demand in that market only. Neither of these theories by itself can explain the fact that interest rates on bonds of different maturities move together over time and that yield curves usually slope upward.
3. The liquidity premium (preferred habitat) theory combines the features of the other two theories, and by so doing is able to explain the facts just mentioned. It views long-term interest rates as equaling the average of future short-term interest rates expected to occur over the life of the bond plus a liquidity premium. This theory allows us to infer the market's expectations about the movement of future short-term interest rates from the yield curve. A steeply upward-sloping curve indicates that future short-term rates are expected to rise; a mildly upward-sloping curve, that short-term rates are expected to stay the same; a flat curve, that short-term rates are expected to decline slightly; and an inverted yield curve, that a substantial decline in short-term rates is expected in the future.

Chapter 8

1. There are eight basic facts about U.S. financial structure. The first four emphasize the importance of financial intermediaries and the relative unimportance of securities markets for the financing of corporations; the fifth recognizes that financial markets are among the most heavily regulated sectors of the economy; the sixth states that only large, well-established corporations have access to securities markets; the seventh indicates that collateral is an important feature of debt contracts; and the eighth presents debt contracts as complicated legal documents that place substantial restrictions on the behavior of the borrower.
2. Transaction costs freeze many small savers and borrowers out of direct involvement with financial markets. Financial intermediaries can take advantage of economies of scale and are better able to develop expertise to lower transaction costs, thus enabling their savers and borrowers to benefit from the existence of financial markets.
3. Asymmetric information results in two problems: adverse selection, which occurs before the transaction, and moral hazard, which occurs after the transaction. Adverse selection refers to the fact that bad credit risks are the ones most likely to seek loans, and moral hazard refers to the risk of the borrower's engaging in activities that are undesirable from the lender's point of view.
4. Adverse selection interferes with the efficient functioning of financial markets. Tools to help reduce the adverse selection problem include private production and sale of information, government regulation to increase information, financial intermediation, and collateral and net worth. The free-rider problem occurs when people who do not pay for information take advantage of information that other people have paid for. This problem explains why financial intermediaries, particularly banks, play a more important role in financing the activities of businesses than securities markets do.
5. Moral hazard in equity contracts is known as the principal–agent problem, because managers (the agents) have less incentive to maximize profits than stockholders (the principals). The principal–agent problem explains why debt contracts are so much more prevalent in financial markets than equity contracts. Tools to help reduce the principal–agent problem include monitoring, government regulation to increase information, and financial intermediation.
6. Tools to reduce the moral hazard problem in debt contracts include net worth, monitoring and enforcement of restrictive covenants, and financial intermediaries.

Chapter 9

1. A financial crisis occurs when a particularly large disruption to information flows occurs in financial markets, with the result that financial frictions increase sharply, thereby rendering financial markets incapable of channeling funds to households and firms with productive investment opportunities, and causing a sharp contraction in economic activity.
2. Financial crises can start in advanced countries like the United States in several possible ways: mismanagement of financial liberalization/innovation, asset-price booms and busts, or a general increase in uncertainty when major financial institutions fail. The result is a substantial increase in adverse selection and moral hazard problems that lead to a contraction of lending and a decline in economic activity. The worsening business conditions and deterioration in bank balance sheets then triggers the second stage of the crisis, the simultaneous failure of many banking institutions, a banking crisis. The resulting decrease in the number of banks causes a loss of their information capital, leading to a further decline of lending and a spiraling down of the economy. In some instances, the resulting economic downturn leads to a sharp slide in prices, which increases the real liabilities of firms and households and therefore lowers their net worth, leading to a debt deflation. The further decline in borrowers' net worth worsens adverse selection and moral hazard problems, so that lending, investment spending, and aggregate economic activity remain depressed for a long time.
3. The most significant financial crisis in U.S. history, that which led to the Great Depression, involved several stages: a stock market crash, bank panics, worsening of asymmetric information problems, and finally a debt deflation.
4. The global financial crisis of 2007–2009 was triggered by mismanagement of financial innovations involving subprime residential mortgages and the bursting of a housing price bubble. The crisis spread globally, with substantial deterioration in banks' and other financial institutions' balance sheets, a run on the shadow banking system, and the failure of many high-profile firms.
5. The 2007–2009 financial crisis did not lead to a depression because of aggressive Federal Reserve actions and worldwide government intervention through bailouts of financial institutions.

Chapter 10

1. Financial crises in emerging market countries develop along two basic paths: one involving the mismanagement of financial liberalization/globalization that weakens bank balance sheets and the other involving severe fiscal imbalances. Both lead to a speculative attack on the currency, and eventually to a currency crisis in which there is a sharp decline in the value of the domestic currency. The decline in the value of the domestic currency causes a sharp rise in the debt burden of domestic firms, which leads to a decline in firms' net worth, as well as increases in inflation and interest rates. Adverse selection and moral hazard problems then worsen, leading to a collapse of lending and economic activity. The worsening economic conditions and increases in interest rates result in substantial losses for banks, leading to a banking crisis, which further depresses lending and aggregate economic activity.

Chapter 11

1. The balance sheet of commercial banks can be thought of as a list of the sources and uses of bank funds. A bank's liabilities are its sources of funds, which include checkable deposits, time deposits, discount loans from the Fed, borrowings from other banks and corporations, and bank capital. A bank's assets are its uses of funds, which include reserves, cash items in process of collection, deposits at other banks, securities, loans, and other assets (mostly physical capital).
2. Banks make profits through the process of asset transformation: They borrow short (accept short-term deposits) and lend long (make long-term loans). When a bank takes in additional deposits, it gains an equal amount of reserves; when it pays out deposits, it loses an equal amount of reserves.
3. Although more-liquid assets tend to earn lower returns, banks still desire to hold them. Specifically, banks hold excess and secondary reserves because they provide insurance against the costs of a deposit outflow. Banks manage their assets to maximize profits by seeking the highest returns possible on loans and securities while at the same time trying to lower risk and making adequate provisions for liquidity. Although liability management was once a staid affair, large (money center) banks now actively seek out sources of funds by issuing liabilities such as negotiable CDs or by actively borrowing from other banks and corporations. Banks manage the amount of capital they hold to prevent bank failure and to meet bank capital requirements set by the regulatory authorities. However, they do not want to hold too much capital because by so doing they will lower the returns to equity holders.
4. The concepts of adverse selection and moral hazard explain many credit risk management principles involving loan activities: screening and monitoring, establishment of long-term customer relationships and loan commitments, collateral and compensating balances, and credit rationing.
5. With the increased volatility of interest rates that occurred in the 1980s, financial institutions became more concerned about their exposure to interest-rate risk. Gap and duration analyses tell a financial institution if it has more rate-sensitive liabilities than assets (in which case a rise in interest rates will reduce profits and a fall in interest rates will raise profits). Financial institutions manage their interest-rate risk by modifying their balance sheets but can also use strategies involving financial derivatives.
6. Off-balance-sheet activities consist of trading financial instruments and generating income from fees and loan sales, all of which affect bank profits but are not visible on bank balance sheets. Because these off-balance-sheet activities expose banks to increased risk, bank management must pay particular attention to risk assessment procedures and internal controls to restrict employees from taking on too much risk.

Chapter 14

1. The Federal Reserve System was created in 1913 to lessen the frequency of bank panics. Because of public hostility to central banks and the centralization of power, the Federal Reserve System was created with many checks and balances to diffuse power.
2. The structure of the Federal Reserve System consists of twelve regional Federal Reserve banks, around 2,500 member commercial banks, the Board of Governors of the Federal Reserve System, the Federal Open Market Committee (FOMC), and the Federal Advisory Council. Although on paper the Federal Reserve System appears to be decentralized, in practice it has come to function as a unified central bank controlled by the Board of Governors, especially the board's chairman.
3. The Federal Reserve is more independent than most agencies of the U.S. government, but it is still subject to political pressures because the legislation that structures the Fed is written by Congress and can be changed at any time.
4. The case for an independent Federal Reserve rests on the view that curtailing the Fed's independence and subjecting it to more political pressures would impart an inflationary bias to monetary policy. An independent Fed can afford to take the long view and not respond to short-run problems that will result in expansionary monetary policy and a political business cycle. The case against an independent Fed holds that it is undemocratic to have monetary policy (so important to the public) controlled by an elite that is not accountable to the public. An independent Fed also makes the coordination of monetary and fiscal policy difficult.
5. The theory of bureaucratic behavior suggests that one factor driving central banks' behavior might be an attempt to increase their power and prestige. This view explains many central bank actions, although central banks may also act in the public interest.
6. The European System of Central Banks has a similar structure to the Federal Reserve System, with each member country having a National Central Bank, and an Executive Board of the European Central Bank being located in Frankfurt, Germany. The Governing Council, which is made up of the six members of the Executive Board (which includes the president of the European Central Bank) and the presidents of the National Central Banks, makes the decisions on monetary policy. The Eurosystem, which was established under the terms of the Maastricht Treaty, is even more independent than the Federal Reserve System because its charter cannot be changed by legislation. Indeed, it is the most independent central bank in the world.
7. There has been a remarkable trend toward increasing independence of central banks throughout the world. Greater independence has been granted to central banks such as the Bank of England and the Bank of Japan in recent years, as well as to other central banks in such diverse countries as New Zealand and Sweden. Both theory and experience suggest that more independent central banks produce better monetary policy.

Chapter 15

1. The three players in the money supply process are the central bank, banks (depository institutions), and depositors.
2. Four items in the Fed's balance sheet are essential to our understanding of the money supply process: the two liability items, currency in circulation and reserves, which together make up the monetary base, and the two asset items, securities and loans to financial institutions.
3. The Federal Reserve controls the monetary base through open market operations and extension of loans to financial institutions and has better control over the monetary base than over reserves. Although float and Treasury deposits with the Fed undergo substantial short-run fluctuations, which complicate control of the monetary base, they do not prevent the Fed from accurately controlling it.
4. A single bank can make loans up to the amount of its excess reserves, thereby creating an equal amount of deposits. The banking system can create a multiple expansion of deposits, because as each bank makes a loan and creates deposits, the reserves find their way to another bank, which uses them to make loans and create additional deposits. In the simple model of multiple deposit creation in which banks do not hold on to excess reserves and the public holds no currency, the multiple increase in checkable deposits (simple deposit multiplier) equals the reciprocal of the required reserve ratio.
5. The simple model of multiple deposit creation has serious deficiencies. Decisions by depositors to increase their holdings of currency or of banks to hold excess reserves will result in a smaller expansion of deposits than the simple model predicts. All three players—the Fed, banks, and depositors—are important in the determination of the money supply.
6. The money supply is positively related to the nonborrowed monetary base MB_n, which is determined by open market operations, and the level of borrowed reserves (lending) from the Fed, BR. The money supply is negatively related to the required reserve ratio, rr; holdings of currency; and excess reserves. The model of the money supply process takes into account the behavior of all three players in the money supply process: the Fed through open market operations and setting of the required reserve ratio; banks through their decisions to borrow from the Federal Reserve and hold excess reserves; and depositors through their decisions about holding of currency.
7. The monetary base is linked to the money supply using the concept of the money multiplier, which tells us how much the money supply changes when the monetary base changes.

Chapter 16

1. A supply and demand analysis of the market for reserves yields the following results: When the Fed makes an open market purchase or lowers reserve requirements, the federal funds rate declines. When the Fed makes an open market sale or raises reserve requirements, the federal funds rate rises. Changes in the discount rate and the interest rate paid on reserves may also affect the federal funds rate.
2. Conventional monetary policy tools include open market operations, discount policy, reserve requirements, and interest on reserves. Open market operations are the primary tool used by the Fed to implement monetary policy in normal times because they occur at the initiative of the Fed, are flexible, are easily reversed, and can be implemented quickly. Discount policy has the advantage of enabling the Fed to perform its role of lender of last resort, while raising interest rates on reserves to increase the federal funds rate avoids the need to conduct massive open market operations to reduce reserves when banks have accumulated large amounts of excess reserves.
3. Conventional monetary policy tools no longer are effective when the zero-lower-bound problem occurs, in which the central bank is unable to lower short-term interest rates because they have hit a floor of zero. In this situation, central banks use nonconventional monetary policy tools, which involve liquidity provision, asset purchases, and commitment to future policy actions. Liquidity provision and asset purchases lead to an expansion of the central bank balance sheet, which is referred to as *quantitative easing*. Expansion of the central bank balance sheet by itself is unlikely to have a large impact on the economy, but changing the composition of the balance sheet, which is what liquidity provision and asset purchases accomplished and is referred to as *credit easing*, can have a large impact by improving the functioning of credit markets.
4. The monetary policy tools used by the European Central Bank are similar to those used by the Federal Reserve System and involve open market operations, lending to banks, and reserve requirements. Main financing operations—open market operations in repos that are typically reversed within two weeks—are the primary tool to set the overnight cash rate at the target financing rate. The European Central Bank also operates standing lending facilities, which ensure that the overnight cash rate remains within 100 basis points of the target financing rate.

Chapter 17

1. The six basic goals of monetary policy are price stability (the primary goal), high employment (output stability), economic growth, stability of financial markets, interest-rate stability, and stability in foreign exchange markets.

2. Having a strong nominal anchor is a key element in successful monetary policy. It helps promote price stability by tying down inflation expectations and limiting the time-inconsistency problem, in which monetary policymakers conduct monetary policy in a discretionary way that focuses on short-run objectives but produces poor long-run outcomes.

3. Inflation targeting has several advantages: (1) It enables monetary policy to focus on domestic considerations; (2) it is readily understood by the public and is highly transparent; (3) it increases accountability of the central bank; and (4) it appears to ameliorate the effects of inflationary shocks. It does have some disadvantages, however: (1) Inflation is not easily controlled by the monetary authorities, so that an inflation target is unable to send immediate signals to both the public and markets; (2) it might impose a rigid rule on policymakers, although this has not been the case in practice; and (3) a sole focus on inflation may lead to larger output fluctuations, although this has also not been the case in practice.

4. In recent years, the Federal Reserve has had a strategy of having an implicit, not an explicit, nominal anchor. This strategy has the following advantages: (1) It enables monetary policy to focus on domestic considerations; (2) it does not rely on a stable money–inflation relationship; and (3) it has had a demonstrated success, producing low inflation with the longest business cycle expansion in U.S. history. However, it does have some disadvantages: (1) It has a lack of transparency; (2) it is strongly dependent on the preferences, skills, and trustworthiness of individuals in the central bank and the government; and (3) it has some inconsistencies with democratic principles, because the central bank is not highly accountable.

5. Four lessons can be learned from the global financial crisis: (1) Developments in the financial sector have a far greater impact on economic activity than was earlier realized; (2) the zero-lower-bound on interest rates can be a serious problem; (3) the cost of cleaning up after a financial crisis is very high; and (4) price and output stability do not ensure financial stability.

6. The lessons from the financial crisis provide an argument for more flexible inflation targeting, possibly with a higher inflation target. The lessons also suggest that there is a case for monetary policy to lean against credit booms, but not asset-price bubbles.

7. Because interest-rate and aggregate policy instruments are incompatible, a central bank must choose between them on the basis of three criteria: measurability, controllability, and the ability to affect goal variables predictably. Central banks now typically use short-term interest rates as their policy instrument.

8. The Taylor rule indicates that the federal funds rate should be set equal to the inflation rate plus an "equilibrium" real fed funds rate plus a weighted average of two gaps: (1) an inflation gap, current inflation minus a target rate; and (2) an output gap, the percentage deviation of real GDP from an estimate of its potential (natural rate) level. The output gap in the Taylor rule could represent an indicator of future inflation, as stipulated in Phillips curve theory. However, this theory is controversial, because high output relative to potential as measured by low unemployment has not seemed to produce higher inflation in recent years.

Chapter 20

1. The quantity theory of money as expressed by the equation of exchange, $M \times V = P \times Y$, indicates that nominal spending is determined solely by movements in the quantity of money. The quantity theory indicates that (1) changes in the quantity of money lead to proportional changes in the price level, because $P = (M \times \overline{V})/\overline{Y}$, and (2) the inflation rate is the growth rate of the money supply minus the growth rate of aggregate output—that is, $\pi = \%\Delta M - \%\Delta Y$. These implications of the quantity theory are borne out in the data in the long run, but not the short run.
2. The government budget constraint indicates that a deficit must be financed by either money creation or the issuing of government bonds. That is, $DEF = G - T = \Delta MB + \Delta B$. Combining this fact with the quantity theory indicates that financing a persistent deficit by money creation will lead to a sustained inflation. This analysis helps explain hyperinflations, in which inflation and money growth go to extremely high levels because of massive budget deficits.
3. John Maynard Keynes suggested three motives for holding money: the transactions motive, the precautionary motive, and the speculative motive. His resulting liquidity preference theory views the transactions and precautionary components of money demand as proportional to income. However, the speculative component of money demand is viewed as sensitive to interest rates as well as to expectations about the future movements of interest rates. This theory, then, implies that velocity is unstable and cannot be treated as a constant.
4. Portfolio theories of money demand indicate that the demand for money is determined not only by interest rates, income, and payment technology, as in the Keynesian analysis, but also by wealth, riskiness of other assets, inflation risk, and liquidity of other assets.
5. Two main conclusions can be reached from the research on the demand for money: The demand for money is sensitive to interest rates, but little evidence exists that it is or has been ultrasensitive (liquidity trap). Since 1973, money demand has been found to be unstable, with the most likely source of the instability being the rapid pace of financial innovation. Because the money demand function is found to be both unstable and sensitive to interest rates, velocity cannot be viewed as constant and is not easily predictable. This situation has led to a downgrading of the focus on money supply and a greater emphasis on interest rates in the conduct of monetary policy.

Chapter 21

1. Planned expenditure, the total amount of goods demanded in the economy, is the same as aggregate demand, which is the sum of four types of spending: consumption expenditure, planned investment spending, government purchases, and net exports. We represent the total aggregate demand (Y^{ab}) with Equation 1: $Y^{ad} = C + I + G + NX$.
2. Consumption expenditure is described by the consumption function, which indicates that consumption expenditure will rise as disposable income increases. Planned expenditure and hence aggregate demand is negatively related to the real interest rate because a rise in the real interest rate reduces both planned investment spending and net exports. An increase in financial frictions raises the real cost of borrowing and hence lowers investment spending and aggregate demand. The government also affects planned expenditure by increased spending, which directly raises aggregate demand, or by taxes, which indirectly affect aggregate demand by influencing disposable income and hence consumption expenditure.
3. The level of aggregate output when the goods market is in equilibrium is determined by the condition that aggregate output equals aggregate demand.
4. The *IS* curve traces out the combinations of the real interest rate and aggregate output for which the goods market is in equilibrium. The *IS* curve slopes downward because higher real interest rates lower planned investment spending and net exports and so lower equilibrium output.
5. The *IS* curve shifts to the right when there is a rise in autonomous consumption, a rise in autonomous investment, a rise in government purchases, a rise in autonomous net exports, a fall in taxes, or a fall in financial frictions. Movements of these six factors in the opposite direction will shift the *IS* curve to the left.

Chapter 24

1. For aggregate demand shocks and permanent supply shocks the price stability and economic activity stability objectives are consistent: Stabilizing inflation stabilizes economic activity even in the short run. For temporary supply shocks, however, there is a tradeoff between stabilizing inflation and stabilizing economic activity in the short run. In the long run, however, no conflict arises between stabilizing inflation and economic activity.
2. Activists regard the self-correcting mechanism through wage and price adjustment as very slow and hence see the need for the government to pursue active, accommodating policy to address high unemployment when it develops. Nonactivists, by contrast, believe that the self-correcting mechanism is fast and therefore advocate that the government avoid active policy to eliminate unemployment.
3. Milton Friedman's view that in the long-run inflation is always and everywhere a monetary phenomenon is borne out by aggregate demand and supply analysis: It shows that monetary policymakers can target any inflation rate in the long run they want through autonomous monetary policy, which adjusts the equilibrium real interest rate using the federal funds rate policy tool to change the level of aggregate demand.
4. Two types of inflation can result from an activist stabilization policy to promote high employment: cost-push inflation, which occurs because of negative supply shocks or a push by workers to get higher wages than is justified by productivity gains; and demand-pull inflation, which results when policymakers pursue high output and employment targets through policies that increase aggregate demand. Both demand-pull and cost-push inflation led to the Great Inflation from 1965 to 1982.

Chapter 25

1. The simple principle (derived from rational expectations theory) that how expectations are formed changes when the behavior of forecasted variables changes led to the famous Lucas critique of econometric policy evaluation. Lucas argued that when policy changes, how expectations are formed changes; hence the relationships in an econometric model will change. An econometric model that has been estimated on the basis of past data will no longer be the correct model for evaluating the effects of this policy change and may prove to be highly misleading. The Lucas critique also points out that the effects of a particular policy depend critically on the public's expectations about the policy.
2. Advocates of rules to conduct monetary policy believe that rules solve the time-inconsistency problem because policymakers have to follow a set plan that enables them to stick to the plan and achieve desirable long-run outcomes. Advocates of discretion believe that rules are way too rigid because they cannot foresee every contingency and do not allow the use of judgment. Constrained discretion imposes a conceptual structure and its inherent discipline on policymakers, but it does so without eliminating all flexibility, so that it combines some of the advantages ascribed to rules with those ascribed to discretion.
3. An important way to constrain discretion is by committing to a credible, nominal anchor, a nominal variable, such as the inflation rate, the money supply, or an exchange rate, that ties down the price level or inflation to achieve price stability. A credible nominal anchor helps solve the time-inconsistency problem and anchor inflation expectations. Credibility has the benefit of stabilizing both output and inflation fluctuations and also enables anti-inflation policies to lower inflation at a lower cost in terms of lost output.
4. Approaches to establishing credibility include implementing actual policies to keep inflation low, inflation targeting, exchange-rate targeting, and the promotion of central bank independence. Another approach to establishing central bank credibility is the appointment of a "conservative" central banker (like Paul Volcker) who is hawkish on controlling inflation.

Chapter 26

1. The transmission mechanisms of monetary policy include traditional interest-rate channels that operate through the real cost of borrowing and affect investment; other asset price channels such as exchange rate effects, Tobin's *q* theory, and wealth effects; and the credit view channels—the bank lending channel, the balance sheet channel, the cash flow channel, the unanticipated price level channel, and household liquidity effects.
2. Four lessons for monetary policy can be drawn from this chapter: (a) It is dangerous always to associate monetary policy easing or tightening with a fall or a rise in short-term nominal interest rates; (b) other asset prices besides those on short-term debt instruments contain important information about the stance of monetary policy because they are important elements in the monetary policy transmission mechanisms; (c) monetary policy can be effective in reviving a weak economy even if short-term interest rates are already near zero; and (d) avoiding unanticipated fluctuations in the price level is an important objective of monetary policy, thus providing a rationale for price stability as the primary long-run goal for monetary policy.