

# 1

## Why Study Money, Banking, and Financial Markets?



### Preview

On the evening news you have just heard that the Federal Reserve is raising the federal funds rate by  $\frac{1}{2}$  of a percentage point. What effect might this have on the interest rate of an automobile loan when you finance your purchase of a sleek new sports car? Does it mean that a house will be more or less affordable in the future? Will it make it easier or harder for you to get a job next year?

This book provides answers to these and other questions by examining how financial markets (such as those for bonds, stocks, and foreign exchange) and financial institutions (banks, insurance companies, mutual funds, and other institutions) work and by exploring the role of money in the economy. Financial markets and institutions not only affect your everyday life but also involve flows of trillions of dollars of funds throughout our economy, which in turn affect business profits, the production of goods and services, and even the economic well-being of countries other than the United States. What happens to financial markets, financial institutions, and money is of great concern to politicians and can even have a major impact on elections. The study of money, banking, and financial markets will reward you with an understanding of many exciting issues. In this chapter, we provide a road map of the book by outlining these issues and exploring why they are worth studying.

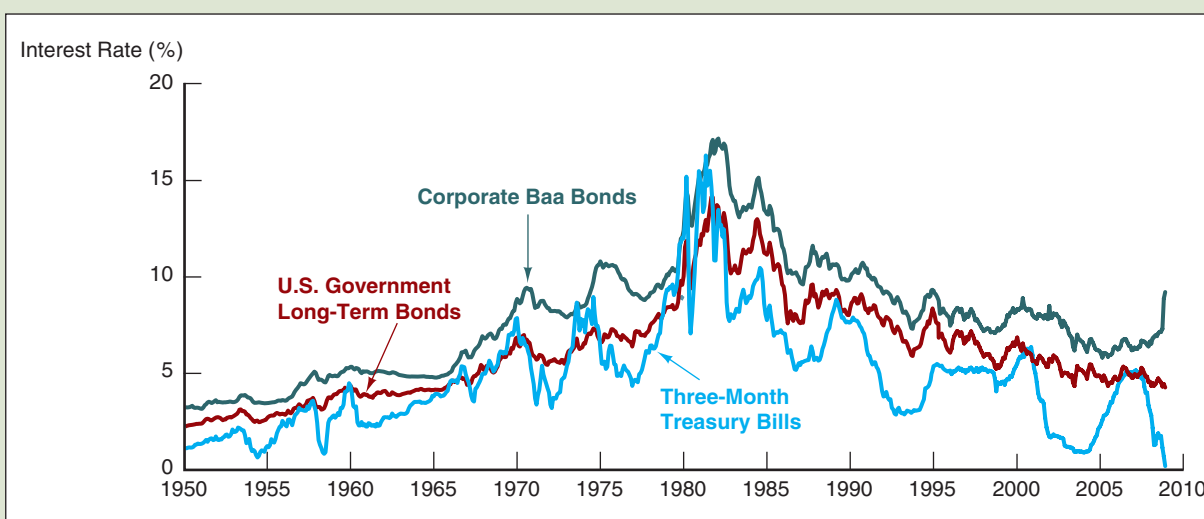
### WHY STUDY FINANCIAL MARKETS?

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Part 2 of this book focuses on **financial markets**, markets in which funds are transferred from people who have an excess of available funds to people who have a shortage. Financial markets such as bond and stock markets are crucial to promoting greater economic efficiency by channeling funds from people who do not have a productive use for them to those who do. Indeed, well-functioning financial markets are a key factor in producing high economic growth, and poorly performing financial markets are one reason that many countries in the world remain desperately poor. Activities in financial markets also have direct effects on personal wealth, the behavior of businesses and consumers, and the cyclical performance of the economy.

#### The Bond Market and Interest Rates

A **security** (also called a *financial instrument*) is a claim on the issuer's future income or **assets** (any financial claim or piece of property that is subject to ownership). A **bond** is a debt security that promises to make payments periodically for a specified period of



**FIGURE 1** Interest Rates on Selected Bonds, 1950–2008

Sources: Federal Reserve *Bulletin*; [www.federalreserve.gov/releases/H15/data.htm](http://www.federalreserve.gov/releases/H15/data.htm).

time.<sup>1</sup> The bond market is especially important to economic activity because it enables corporations and governments to borrow to finance their activities and because it is where interest rates are determined. An **interest rate** is the cost of borrowing or the price paid for the rental of funds (usually expressed as a percentage of the rental of \$100 per year). There are many interest rates in the economy—mortgage interest rates, car loan rates, and interest rates on many different types of bonds.

Interest rates are important on a number of levels. On a personal level, high interest rates could deter you from buying a house or a car because the cost of financing it would be high. Conversely, high interest rates could encourage you to save because you can earn more interest income by putting aside some of your earnings as savings. On a more general level, interest rates have an impact on the overall health of the economy because they affect not only consumers' willingness to spend or save but also businesses' investment decisions. High interest rates, for example, might cause a corporation to postpone building a new plant that would provide more jobs.

Because changes in interest rates have important effects on individuals, financial institutions, businesses, and the overall economy, it is important to explain fluctuations in interest rates that have been substantial over the past thirty years. For example, the interest rate on three-month Treasury bills peaked at over 16% in 1981. This interest rate fell to 3% in late 1992 and 1993, rose to above 5% in the mid- to late 1990s, fell to below 1% in 2004, rose to 5% by 2007, only to fall to zero in 2008.

Because different interest rates have a tendency to move in unison, economists frequently lump interest rates together and refer to “the” interest rate. As Figure 1 shows, however, interest rates on several types of bonds can differ substantially. The interest

<sup>1</sup>The definition of *bond* used throughout this book is the broad one in common use by academics, which covers both short- and long-term debt instruments. However, some practitioners in financial markets use the word *bond* to describe only specific long-term debt instruments such as corporate bonds or U.S. Treasury bonds.

rate on three-month Treasury bills, for example, fluctuates more than the other interest rates and is lower, on average. The interest rate on Baa (medium-quality) corporate bonds is higher, on average, than the other interest rates, and the spread between it and the other rates became larger in the 1970s, narrowed in the 1990s, and rose briefly in the early 2000s, narrowed again, only to rise sharply starting in the summer of 2007.

In Chapter 2 we study the role of bond markets in the economy, and in Chapters 4 through 6 we examine what an interest rate is, how the common movements in interest rates come about, and why the interest rates on different bonds vary.

## The Stock Market

A **common stock** (typically just called a **stock**) represents a share of ownership in a corporation. It is a security that is a claim on the earnings and assets of the corporation. Issuing stock and selling it to the public is a way for corporations to raise funds to finance their activities. The stock market, in which claims on the earnings of corporations (shares of stock) are traded, is the most widely followed financial market in almost every country that has one; that's why it is often called simply "the market." A big swing in the prices of shares in the stock market is always a major story on the evening news. People often speculate on where the market is heading and get very excited when they can brag about their latest "big killing," but they become depressed when they suffer a big loss. The attention the market receives can probably be best explained by one simple fact: It is a place where people can get rich—or poor—quickly.

As Figure 2 indicates, stock prices are extremely volatile. After the market rose in the 1980s, on "Black Monday," October 19, 1987, it experienced the worst one-day drop in its entire history, with the Dow Jones Industrial Average (DJIA) falling by 22%. From then until 2000, the stock market experienced one of the greatest bull markets in its history, with the Dow climbing to a peak of over 11,000. With the collapse of the high-tech bubble in 2000, the stock market fell sharply, dropping by over 30% by late 2002. It then recovered again and reached the 14,000 level in 2007, only to fall below the 8,000 level early in 2009. These considerable fluctuations in stock prices affect the size of people's wealth and as a result may affect their willingness to spend.

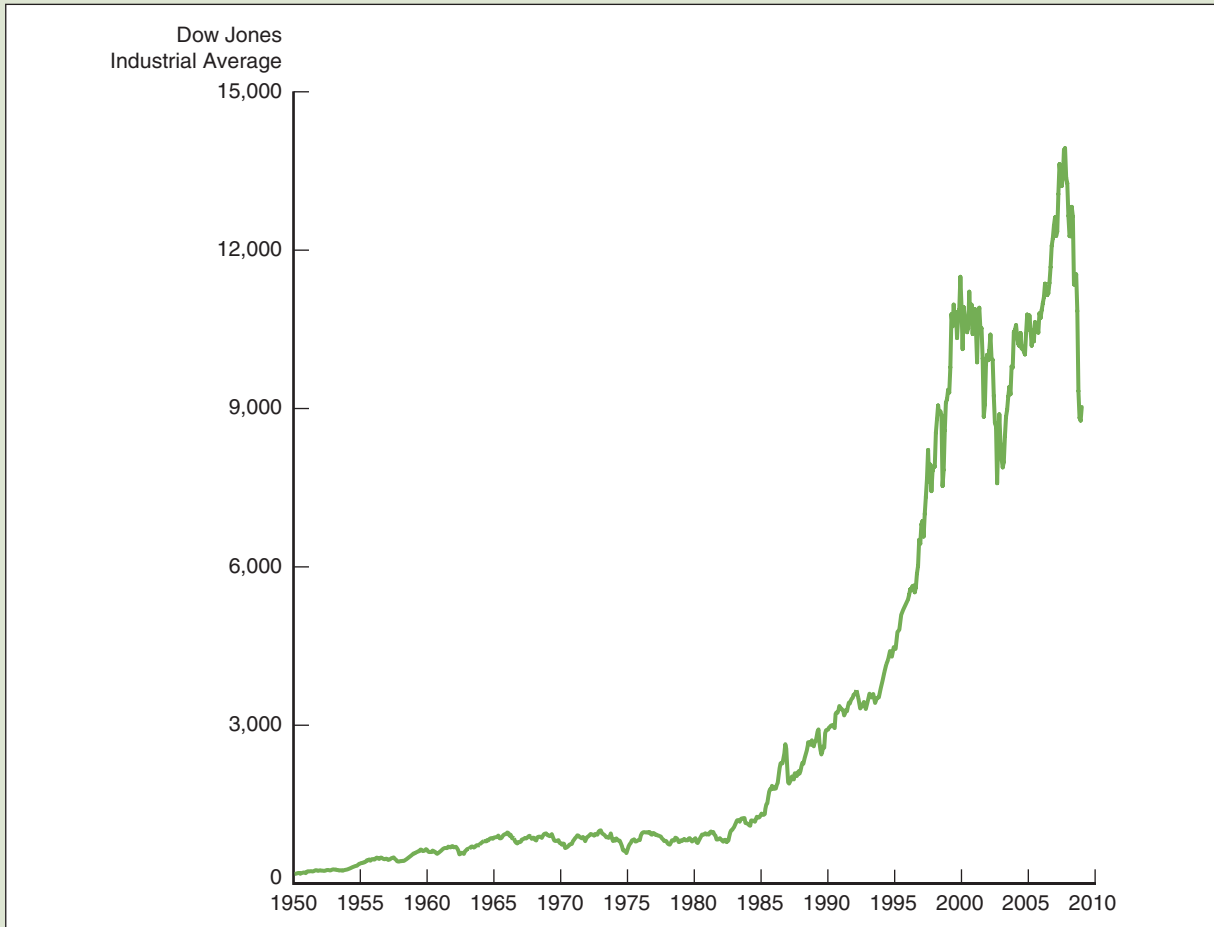
The stock market is also an important factor in business investment decisions, because the price of shares affects the amount of funds that can be raised by selling newly issued stock to finance investment spending. A higher price for a firm's shares means that it can raise a larger amount of funds, which it can use to buy production facilities and equipment.

In Chapter 2 we examine the role that the stock market plays in the financial system, and we return to the issue of how stock prices behave and respond to information in the marketplace in Chapter 7.

## WHY STUDY FINANCIAL INSTITUTIONS AND BANKING?

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Part 3 of this book focuses on financial institutions and the business of banking. Banks and other financial institutions are what make financial markets work. Without them, financial markets would not be able to move funds from people who save to people who have productive investment opportunities. Thus they play a crucial role in the economy.



**FIGURE 2** Stock Prices as Measured by the Dow Jones Industrial Average, 1950–2008

Source: Dow Jones Indexes: <http://finance.yahoo.com/?u>.

## Structure of the Financial System

The financial system is complex, comprising many different types of private sector financial institutions, including banks, insurance companies, mutual funds, finance companies, and investment banks, all of which are heavily regulated by the government. If an individual wanted to make a loan to IBM or General Motors, for example, he or she would not go directly to the president of the company and offer a loan. Instead, he or she would lend to such companies indirectly through **financial intermediaries**, institutions that borrow funds from people who have saved and in turn make loans to others.

Why are financial intermediaries so crucial to well-functioning financial markets? Why do they extend credit to one party but not to another? Why do they usually write complicated legal documents when they extend loans? Why are they the most heavily regulated businesses in the economy?

We answer these questions in Chapter 8 by developing a coherent framework for analyzing financial structure in the United States and in the rest of the world.

## Financial Crises

At times, the financial system seizes up and produces **financial crises**, major disruptions in financial markets that are characterized by sharp declines in asset prices and the failures of many financial and nonfinancial firms. Financial crises have been a feature of capitalist economies for hundreds of years and are typically followed by the worst business cycle downturns. Starting in August of 2007, the United States economy was hit by the worst financial crisis since the Great Depression. Defaults in subprime residential mortgages led to major losses in financial institutions, producing not only numerous bank failures, but also to the demise of Bear Stearns and Lehman Brothers, two of the largest investment banks in the United States.

Why these crises occur and do so much damage to the economy is discussed in Chapter 9.

## Banks and Other Financial Institutions

**Banks** are financial institutions that accept deposits and make loans. Included under the term *banks* are firms such as commercial banks, savings and loan associations, mutual savings banks, and credit unions. Banks are the financial intermediaries that the average person interacts with most frequently. A person who needs a loan to buy a house or a car usually obtains it from a local bank. Most Americans keep a large proportion of their financial wealth in banks in the form of checking accounts, savings accounts, or other types of bank deposits. Because banks are the largest financial intermediaries in our economy, they deserve the most careful study. However, banks are not the only important financial institutions. Indeed, in recent years, other financial institutions such as insurance companies, finance companies, pension funds, mutual funds, and investment banks have been growing at the expense of banks, so we need to study them as well.

In Chapter 10, we examine how banks and other financial institutions manage their assets and liabilities to make profits. In Chapter 11, we extend the economic analysis in Chapter 8 to understand why financial regulation takes the form it does and what can go wrong in the regulatory process. In Chapter 12, we look at the banking industry; we examine how the competitive environment has changed in this industry and learn why some financial institutions have been growing at the expense of others.

## Financial Innovation

In the good old days, when you took cash out of the bank or wanted to check your account balance, you got to say hello to a friendly human teller. Nowadays you are more likely to interact with an automatic teller machine (ATM) when withdrawing cash, and you can get your account balance from your home computer. To see why these options have developed, in Chapter 12 we study why and how financial innovation takes place, with particular emphasis on how the dramatic improvements in information technology have led to new means of delivering financial services electronically, in what has become known as **e-finance**. We also study financial innovation, because it shows us how creative thinking on the part of financial institutions can lead to higher profits. By seeing how and why financial institutions have been creative in the past, we obtain a better grasp of how they may be creative in the future. This knowledge provides us with useful clues about how the financial system may change over time and will help keep our knowledge about banks and other financial institutions from becoming obsolete.

## WHY STUDY MONEY AND MONETARY POLICY?

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**Money**, also referred to as the **money supply**, is defined as anything that is generally accepted in payment for goods or services or in the repayment of debts. Money is linked to changes in economic variables that affect all of us and are important to the health of the economy. The final two parts of the book examine the role of money in the economy.

### Money and Business Cycles

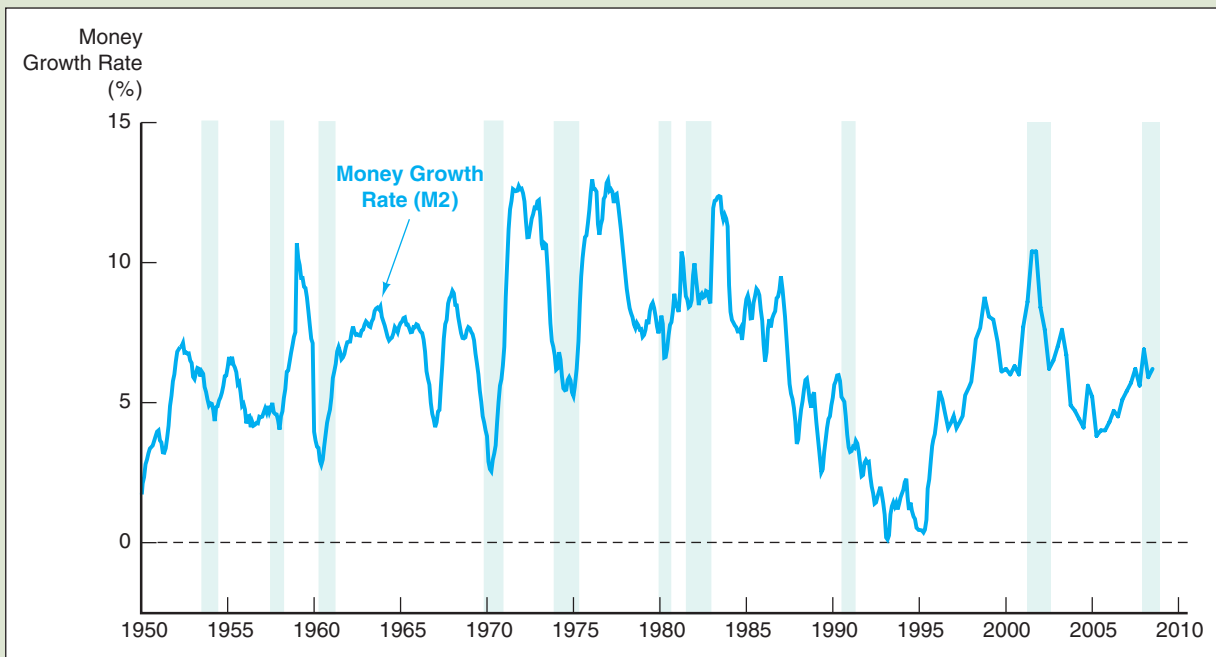
In 1981–1982, total production of goods and services (called **aggregate output**) in the U.S. economy fell and the **unemployment rate** (the percentage of the available labor force unemployed) rose to over 10%. After 1982, the economy began to expand rapidly, and by 1989 the unemployment rate had declined to 5%. In 1990, the eight-year expansion came to an end, with the unemployment rate rising above 7%. The economy bottomed out in 1991, and the subsequent recovery was the longest in U.S. history, with the unemployment rate falling to around 4%. A mild economic downturn began in March 2001, with unemployment rising to 6%; the economy began to recover in November 2001 with unemployment eventually declining to a low of 4.4%. Starting in December 2007, the economy went into recession and the unemployment rate rose to well all over 7%.

Why did the economy expand from 1982 to 1990, contract in 1990 to 1991, boom again from 1991 to 2001, contract again in 2001, recover thereafter, and contract again in 2007? Evidence suggests that money plays an important role in generating **business cycles**, the upward and downward movement of aggregate output produced in the economy. Business cycles affect all of us in immediate and important ways. When output is rising, for example, it is easier to find a good job; when output is falling, finding a good job might be difficult. Figure 3 shows the movements of the rate of money growth over the 1950–2008 period, with the shaded areas representing **recessions**, periods of declining aggregate output. What we see is that the rate of money growth has declined before every recession, indicating that changes in money might be a driving force behind business cycle fluctuations. However, not every decline in the rate of money growth is followed by a recession.

We explore how money might affect aggregate output in Chapters 19 through 25 in Part 6 of this book, where we study **monetary theory**, the theory that relates changes in the quantity of money to changes in aggregate economic activity and the price level.

### Money and Inflation

Thirty years ago, the movie you might have paid \$10 to see last week would have set you back only a dollar or two. In fact, for \$10 you could probably have had dinner, seen the movie, and bought yourself a big bucket of hot buttered popcorn. As shown in Figure 4, which illustrates the movement of average prices in the U.S. economy from 1950 to 2008, the prices of most items are quite a bit higher now than they were then. The average price of goods and services in an economy is called the **aggregate price level**, or, more simply, the *price level* (a more precise definition is found in the appendix to this chapter). From 1950 to 2008, the price level has increased more than six-fold. **Inflation**, a continual increase in the price level, affects individuals, businesses, and the government. It is generally regarded as an important problem to be solved and is often at the top of the political and policymaking agendas. To solve the inflation problem, we need to know something about its causes.



**FIGURE 3** Money Growth (M2 Annual Rate) and the Business Cycle in the United States, 1950–2008

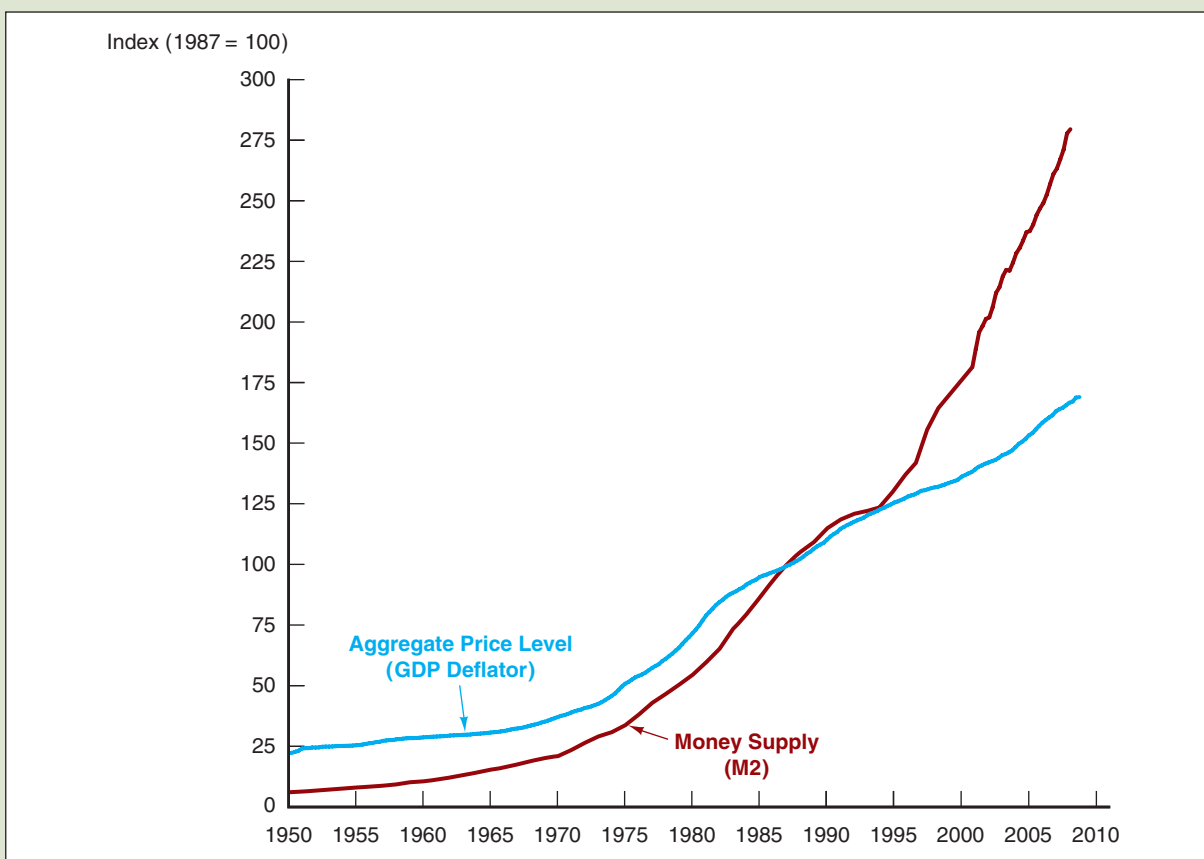
Note: Shaded areas represent recessions.

Source: Federal Reserve *Bulletin*, p. A4, Table 1.10; [www.federalreserve.gov/releases/h6/hist/h6hist1.txt](http://www.federalreserve.gov/releases/h6/hist/h6hist1.txt).

What explains inflation? One clue to answering this question is found in Figure 4, which plots the money supply and the price level. As we can see, the price level and the money supply generally rise together. These data seem to indicate that a continuing increase in the money supply might be an important factor in causing the continuing increase in the price level that we call inflation.

Further evidence that inflation may be tied to continuing increases in the money supply is found in Figure 5. For a number of countries, it plots the average **inflation rate** (the rate of change of the price level, usually measured as a percentage change per year) over the ten-year period 1995–2007 against the average rate of money growth over the same period. As you can see, there is a positive association between inflation and the growth rate of the money supply: The countries with the highest inflation rates are also the ones with the highest money growth rates. Belarus, Brazil, Romania, and Russia, for example, experienced high inflation during this period, and their rates of money growth were high. By contrast, the United Kingdom and the United States had low inflation rates over the same period, and their rates of money growth have been low. Such evidence led Milton Friedman, a Nobel laureate in economics, to make the famous statement, “Inflation is always and everywhere a monetary phenomenon.”<sup>2</sup> We look at money’s role in creating inflation in Chapter 24.

<sup>2</sup>Milton Friedman, *Dollars and Deficits* (Upper Saddle River, NJ: Prentice Hall, 1968), p. 39.



**FIGURE 4** Aggregate Price Level and the Money Supply in the United States, 1950–2008

Sources: [www.stls.frb.org/fred/data/gdp/gdpdef](http://www.stls.frb.org/fred/data/gdp/gdpdef); [www.federalreserve.gov/releases/h6/hist/h6hist10.txt](http://www.federalreserve.gov/releases/h6/hist/h6hist10.txt).

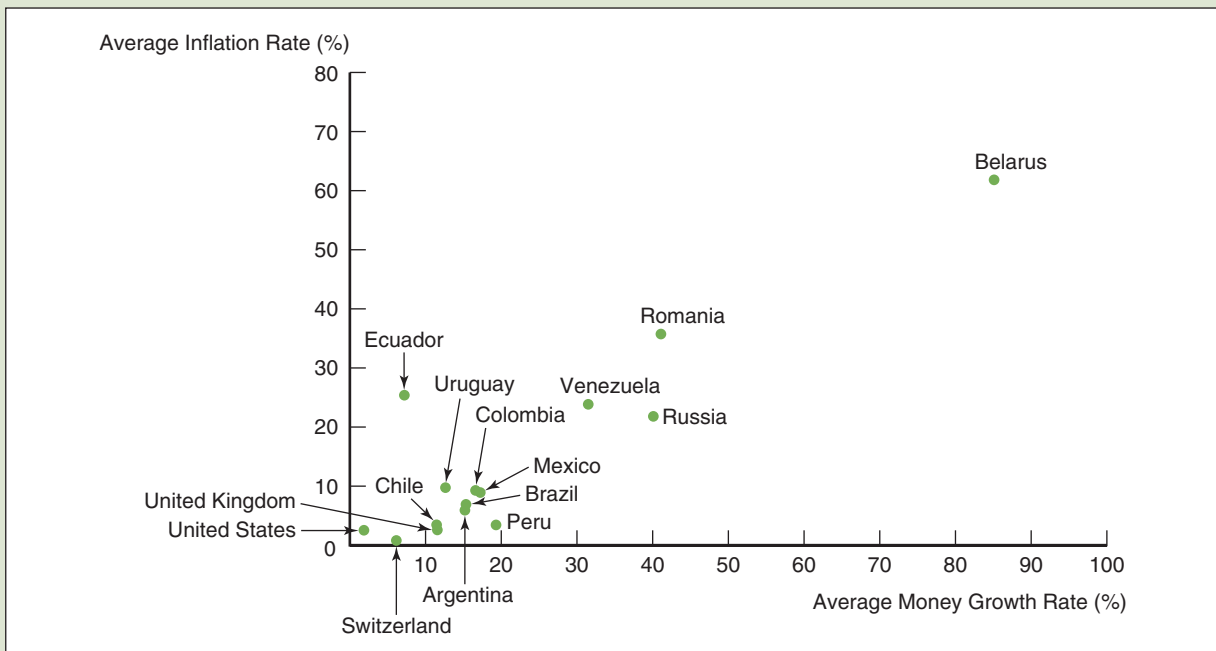
## Money and Interest Rates

In addition to other factors, money plays an important role in interest-rate fluctuations, which are of great concern to businesses and consumers. Figure 6 shows the changes in the interest rate on long-term Treasury bonds and the rate of money growth. As the money growth rate rose in the 1960s and 1970s, the long-term bond rate rose with it. However, the relationship between money growth and interest rates has been less clear-cut since 1980. We analyze the relationship between money and interest rates when we examine the behavior of interest rates in Chapter 5.

## Conduct of Monetary Policy

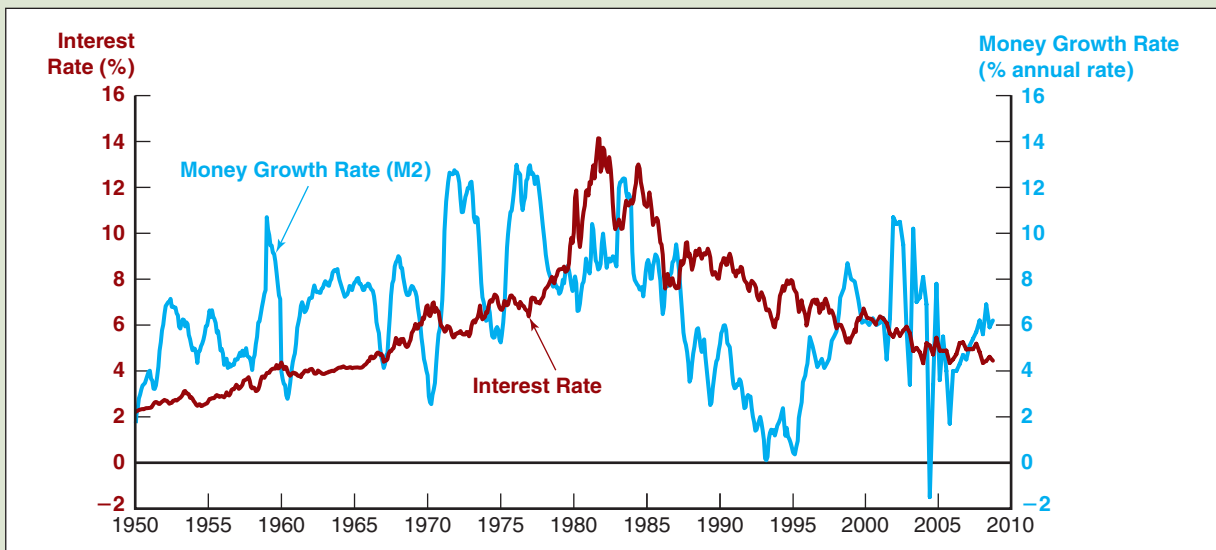
Because money can affect many economic variables that are important to the well-being of our economy, politicians and policymakers throughout the world care about the conduct of **monetary policy**, the management of money and interest rates. The organization responsible for the conduct of a nation's monetary policy is the **central bank**. The





**FIGURE 5** Average Inflation Rate Versus Average Rate of Money Growth for Selected Countries, 1997–2007

Source: International Financial Statistics.



**FIGURE 6** Money Growth (M2 Annual Rate) and Interest Rates (Long-Term U.S. Treasury Bonds), 1950–2008

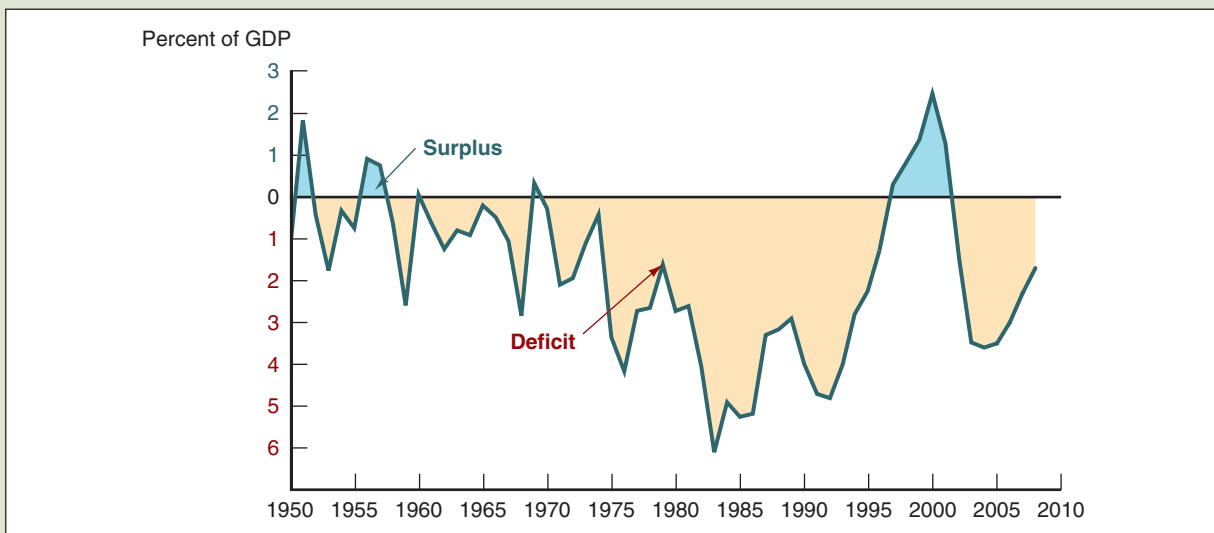
Sources: Federal Reserve *Bulletin*, p. A4, Table 1.10; [www.federalreserve.gov/releases/h6/hist/h6hist1.txt](http://www.federalreserve.gov/releases/h6/hist/h6hist1.txt).

United States' central bank is the **Federal Reserve System** (also called simply **the Fed**). In Chapters 13–16 (Part 4), we study how central banks like the Federal Reserve System can affect the quantity of money and interest rates in the economy and then we look at how monetary policy is actually conducted in the United States and elsewhere.

## Fiscal Policy and Monetary Policy

**Fiscal policy** involves decisions about government spending and taxation. A **budget deficit** is the excess of government expenditures over tax revenues for a particular time period, typically a year, while a **budget surplus** arises when tax revenues exceed government expenditures. The government must finance any deficit by borrowing, while a budget surplus leads to a lower government debt burden. As Figure 7 shows, the budget deficit, relative to the size of the U.S. economy, peaked in 1983 at 6% of national output (as calculated by the **gross domestic product**, or *GDP*, a measure of aggregate output described in the appendix to this chapter). Since then, the budget deficit at first declined to less than 3% of GDP, rose again to 5% by the early 1990s, and fell subsequently, leading to budget surpluses from 1999 to 2001. In the aftermath of the terrorist attacks of September 11, 2001, the war in Iraq that began in March 2003, and the fiscal stimulus package in 2009 the budget has swung back again into deficit. What to do about budget deficits and surpluses has been the subject of legislation and bitter battles between the president and Congress in recent years.

You may have heard statements in newspapers or on TV that budget surpluses are a good thing while deficits are undesirable. We explore the accuracy of such claims in Chapters 9 and 18 by seeing how budget deficits might lead to a financial crisis as they did in Argentina in 2001. In Chapter 24, we examine why deficits might result in a higher rate of money growth, a higher rate of inflation, and higher interest rates.



**FIGURE 7** Government Budget Surplus or Deficit as a Percentage of Gross Domestic Product, 1950–2008

Source: [www.gpoaccess.gov/usbudget/fy06/sheets/hist01z2.xls](http://www.gpoaccess.gov/usbudget/fy06/sheets/hist01z2.xls).

## WHY STUDY INTERNATIONAL FINANCE?

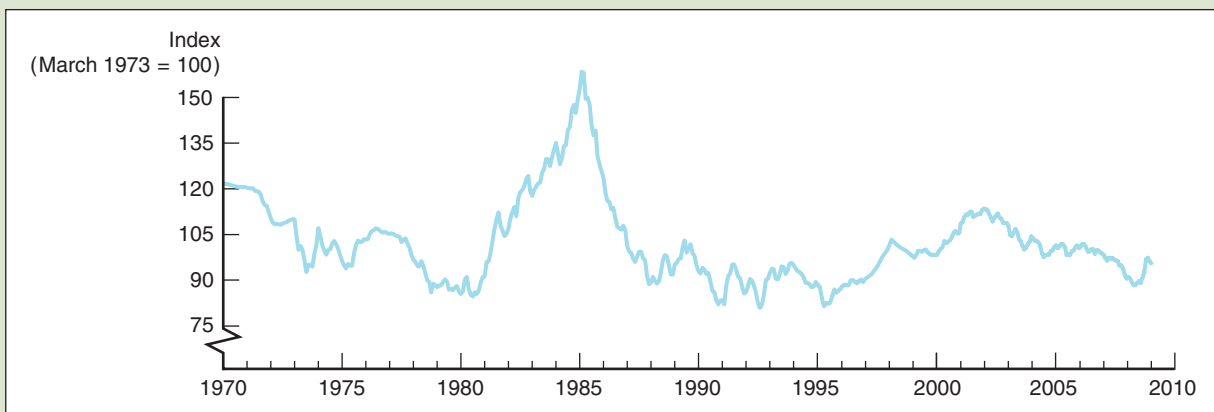
The globalization of financial markets has accelerated at a rapid pace in recent years. Financial markets have become increasingly integrated throughout the world. American companies often borrow in foreign financial markets and foreign companies borrow in U.S. financial markets. Banks and other financial institutions, such as JP Morgan Chase, Citigroup, UBS, and Deutschebank, have become increasingly international, with operations in many countries throughout the world. Part 5 of this book explores the foreign exchange market and the international financial system.

### The Foreign Exchange Market

For funds to be transferred from one country to another, they have to be converted from the currency in the country of origin (say, dollars) into the currency of the country they are going to (say, euros). The **foreign exchange market** is where this conversion takes place, so it is instrumental in moving funds between countries. It is also important because it is where the **foreign exchange rate**, the price of one country's currency in terms of another's, is determined.

Figure 8 shows the exchange rate for the U.S. dollar from 1970 to 2008 (measured as the value of the U.S. dollar in terms of a basket of major foreign currencies). The fluctuations in prices in this market have also been substantial: The dollar's value weakened considerably from 1971 to 1973, rose slightly until 1976, and then reached a low point in the 1978–1980 period. From 1980 to early 1985, the dollar's value appreciated dramatically, and then declined again reaching another low in 1995. The dollar appreciated from 1995 to 2000, only to depreciate thereafter.

What have these fluctuations in the exchange rate meant to the American public and businesses? A change in the exchange rate has a direct effect on American consumers because it affects the cost of imports. In 2001 when the euro was worth around 85 cents, 100 euros of European goods (say, French wine) cost \$85. When the dollar subsequently weakened, raising the cost of a euro near \$1.50, the same 100 euros of



**FIGURE 8** Exchange Rate of the U.S. Dollar, 1970–2008

Source: Federal Reserve: [www.federalreserve.gov/releases/H10/summary/indexbc\\_m.txt/](http://www.federalreserve.gov/releases/H10/summary/indexbc_m.txt/).

wine now cost \$150. Thus a weaker dollar leads to more expensive foreign goods, makes vacationing abroad more expensive, and raises the cost of indulging your desire for imported delicacies. When the value of the dollar drops, Americans decrease their purchases of foreign goods and increase their consumption of domestic goods (such as travel in the United States or American-made wine).

Conversely, a strong dollar means that U.S. goods exported abroad will cost more in foreign countries, and hence foreigners will buy fewer of them. Exports of steel, for example, declined sharply when the dollar strengthened in the 1980–1985 and 1995–2001 periods. A strong dollar benefited American consumers by making foreign goods cheaper but hurt American businesses and eliminated some jobs by cutting both domestic and foreign sales of their products. The decline in the value of the dollar from 1985 to 1995 and 2001 to 2008 had the opposite effect: It made foreign goods more expensive, but made American businesses more competitive. Fluctuations in the foreign exchange markets have major consequences for the American economy.

In Chapter 17 we study how exchange rates are determined in the foreign exchange market in which dollars are bought and sold for foreign currencies.

## The International Financial System

The tremendous increase in capital flows among countries heightens the international financial system's impact on domestic economies. Issues we will explore in Chapter 18 include:

- How does a country's decision to fix its exchange rate to that of another nation shape the conduct of monetary policy?
- What is the impact of capital controls that restrict mobility of capital across national borders on domestic financial systems and the performance of the economy?
- What role should international financial institutions such as the International Monetary Fund play in the international financial system?

## HOW WE WILL STUDY MONEY, BANKING, AND FINANCIAL MARKETS

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This textbook stresses the economic way of thinking by developing a unifying framework to study money, banking, and financial markets. This analytic framework uses a few basic economic concepts to organize your thinking about the determination of asset prices, the structure of financial markets, bank management, and the role of money in the economy. It encompasses the following basic concepts:

- A simplified approach to the demand for assets
- The concept of equilibrium
- Basic supply and demand to explain behavior in financial markets
- The search for profits
- An approach to financial structure based on transaction costs and asymmetric information
- Aggregate supply and demand analysis

The unifying framework used in this book will keep your knowledge from becoming obsolete and make the material more interesting. It will enable you to learn what *really* matters without having to memorize a mass of dull facts that you will forget soon after the final exam. This framework will also provide you with the tools you need to

understand trends in the financial marketplace and in variables such as interest rates, exchange rates, inflation, and aggregate output.

To help you understand and apply the unifying analytic framework, simple models are constructed in which the variables held constant are carefully delineated, each step in the derivation of the model is clearly and carefully laid out, and the models are then used to explain various phenomena by focusing on changes in one variable at a time, holding all other variables constant.

To reinforce the models' usefulness, this text uses case studies, applications, and special-interest boxes to present evidence that supports or casts doubts on the theories being discussed. This exposure to real-life events and empirical data should dissuade you from thinking that all economists make abstract assumptions and develop theories that have little to do with actual behavior.

To function better in the real world outside the classroom, you must have the tools to follow the financial news that appears in leading financial publications such as the *Wall Street Journal*. To help and encourage you to read the financial section of the newspaper, this book contains two unique features. The first is a set of special boxed inserts titled Following the Financial News that contain actual columns and data from the *Wall Street Journal*, which typically appear daily or periodically. These boxes give you the detailed information and definitions you need to evaluate the data being presented. The second feature is a set of special applications titled "Reading the *Wall Street Journal*" that expand on the Following the Financial News boxes. These applications show you how you can use the analytic framework in the book directly to make sense of the daily columns in the United States' leading financial newspaper. In addition to these applications, this book also contains nearly 400 end-of-chapter problems that ask you to apply the analytic concepts you have learned to other real-world issues. Particularly relevant is a special class of problems headed "Using Economic Analysis to Predict the Future." So that you can work on many of these problems on your own, answers to half of them are found at the end of the book. These give you an opportunity to review and apply many of the important financial concepts and tools presented throughout the book.

## Exploring the Web

The World Wide Web has become an extremely valuable and convenient resource for financial research. We emphasize the importance of this tool in several ways. First, wherever we utilize the Web to find information to build the charts and tables that appear throughout the text, we include the source site's URL. These sites often contain additional information and are updated frequently. Second, we have Web exercises to the end of each chapter. These exercises prompt you to visit sites related to the chapter and to work with real-time data and information. We also have Web references to the end of each chapter that list the URLs of sites related to the material being discussed. Visit these sites to further explore a topic you find of particular interest. Website URLs are subject to frequent change. We have tried to select stable sites, but we realize that even government URLs change. The publisher's website ([www.myeconlab.com/mishkin](http://www.myeconlab.com/mishkin)) will maintain an updated list of current URLs for your reference.

## Collecting and Graphing Data

The following Web exercise is especially important because it demonstrates how to export data from a web site into Microsoft® Excel for further analysis. We suggest you work through this problem on your own so that you will be able to perform this activity when prompted in subsequent Web exercises.

## WEB EXERCISES

You have been hired by Risky Ventures, Inc., as a consultant to help the company analyze interest-rate trends. Your employers are initially interested in determining the historical relationship between long- and short-term interest rates. The biggest task you must immediately undertake is collecting market interest-rate data. You know the best source of this information is the Web.

1. You decide that your best indicator of long-term interest rates is the ten-year U.S. Treasury note. Your first task is to gather historical data. Go to [www.federalreserve.gov/releases/H15/](http://www.federalreserve.gov/releases/H15/). The site should look like Figure 9. At the top click on Historical data. Now scroll down to “Treasury constant maturities” and click on the Annual tag to the right of the 10-year category.

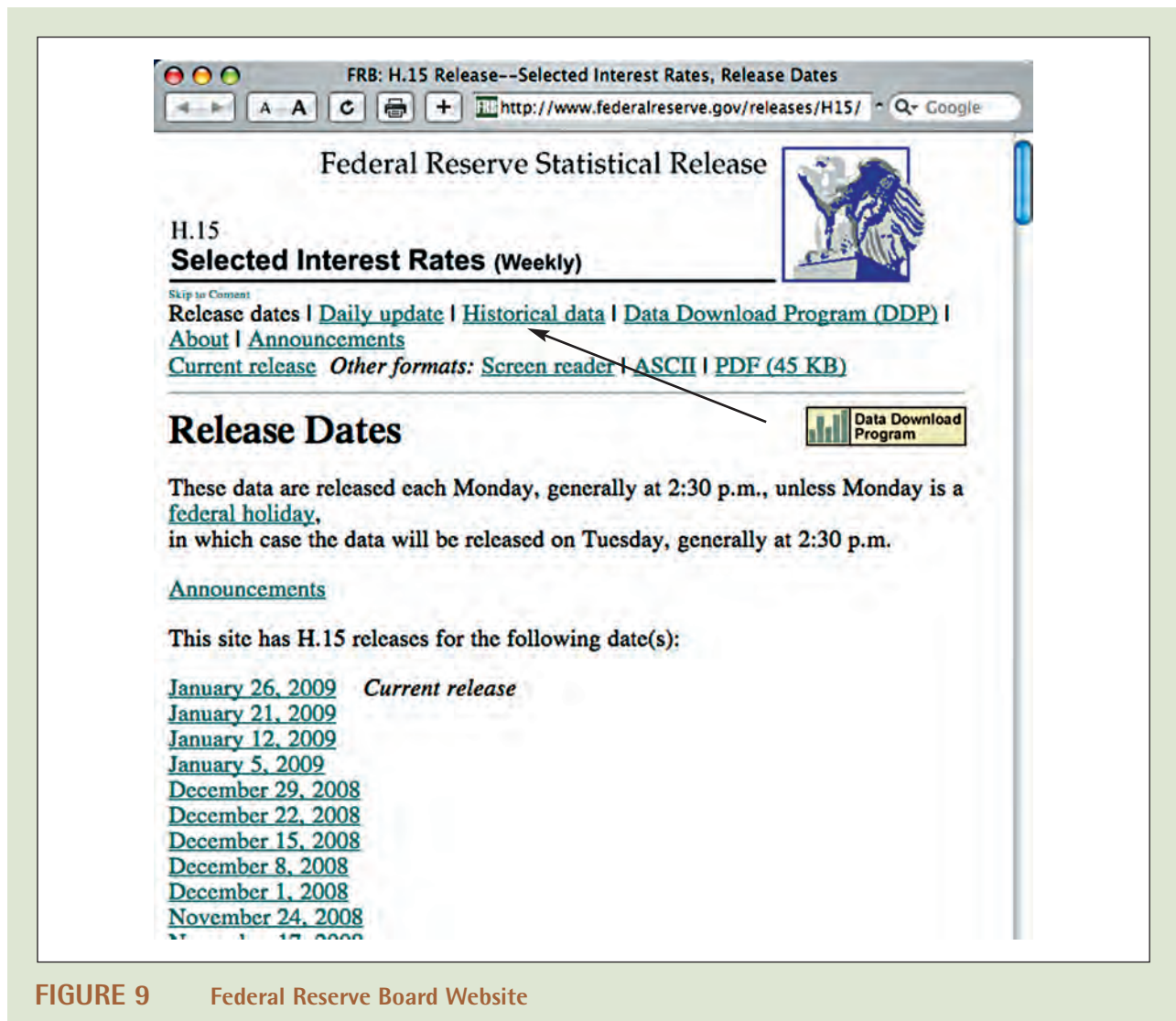
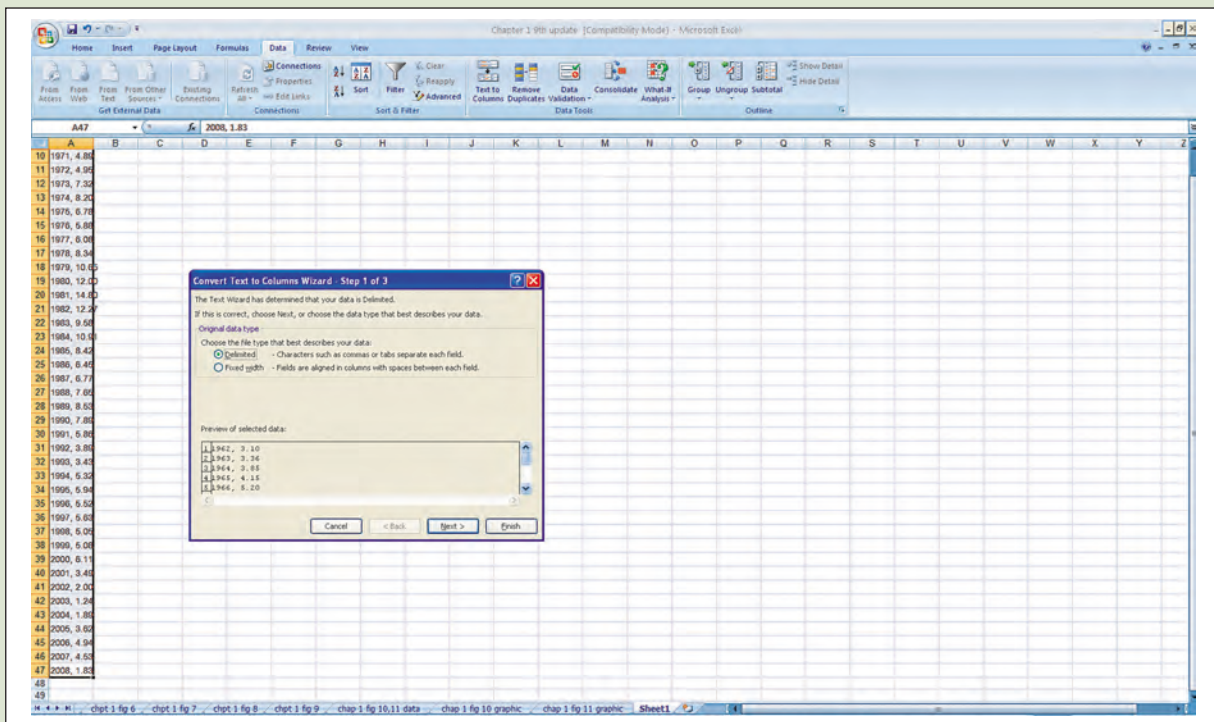


FIGURE 9 Federal Reserve Board Website



**FIGURE 10** Excel Spreadsheet with Interest-Rate Data

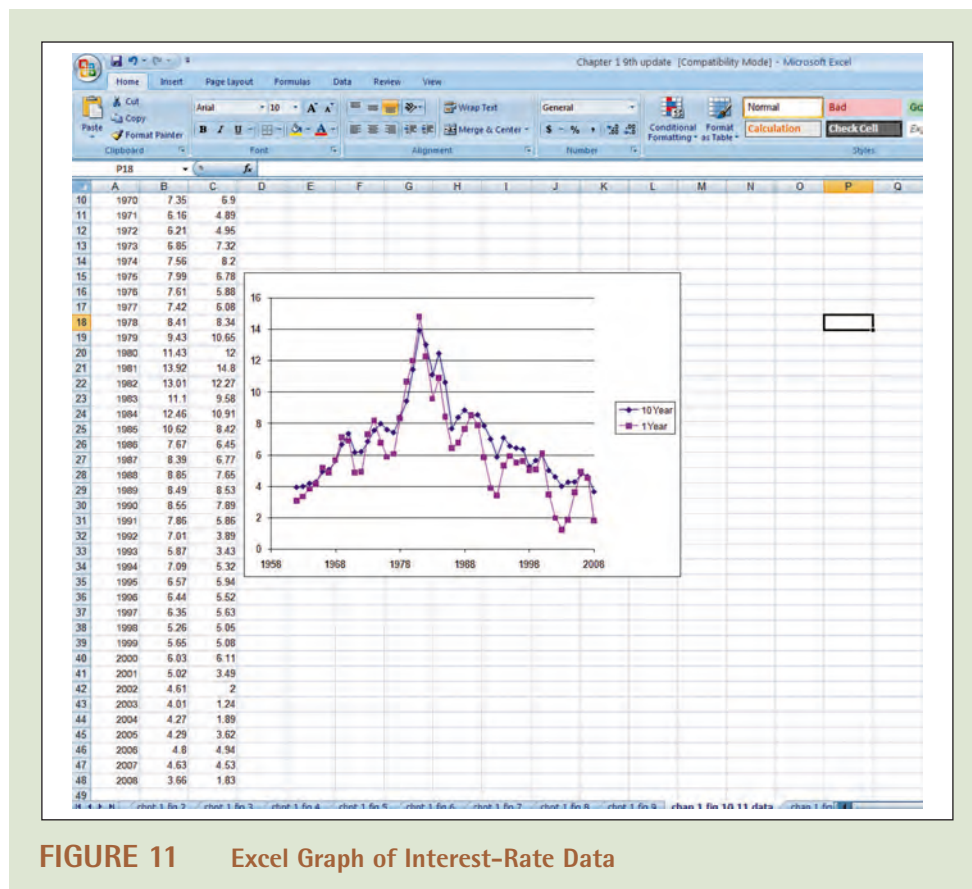
- Now that you have located an accurate source of historical interest rate data, the next step is getting it onto a spreadsheet. You recall that Excel will let you convert text data into columns. Begin by highlighting the two columns of data (the year and rate). Right-click on the mouse and choose COPY. Now open Excel and put the cursor in a cell. Click PASTE. Now choose DATA from the tool bar and click on TEXT TO COLUMNS. Follow the wizard (Figure 10), checking the fixed-width option. The list of interest rates should now have the year in one column and the interest rate in the next column. Label your columns.

Repeat the preceding steps to collect the one-year interest rate series. Put it in the column next to the ten-year series. Be sure to line up the years correctly and delete any years that are not included in both series.

- You now want to analyze the interest rates by graphing them. Again highlight the two columns of data you just created in Excel. Click on the charts icon on the toolbar (or INSERT/CHART). Select scatter diagram and choose any type of scatter diagram that connects the dots. Let the Excel wizard take you through the steps of completing the graph (see Figure 11).

## CONCLUDING REMARKS

The topic of money, banking, and financial markets is an exciting field that directly affects your life—interest rates influence earnings on your savings and the payments on loans you may seek on a car or a house, and monetary policy may affect your job



**FIGURE 11** Excel Graph of Interest-Rate Data

prospects and the prices of goods in the future. Your study of money, banking, and financial markets will introduce you to many of the controversies about the conduct of economic policy that are hotly debated in the political arena and will help you gain a clearer understanding of economic phenomena you hear about in the news media. The knowledge you gain will stay with you and benefit you long after the course is done.

## SUMMARY

1. Activities in financial markets have direct effects on individuals' wealth, the behavior of businesses, and the efficiency of our economy. Three financial markets deserve particular attention: the bond market (where interest rates are determined), the stock market (which has a major effect on people's wealth and on firms' investment decisions), and the foreign exchange market (because fluctuations in the foreign exchange rate have major consequences for the U.S. economy).
2. Banks and other financial institutions channel funds from people who might not put them to productive use to people who can do so and thus play a crucial role in improving the efficiency of the economy.
3. Money appears to be a major influence on inflation, business cycles, and interest rates. Because these economic variables are so important to the health of the economy, we need to understand how monetary policy is and should be conducted. We also need to study government fiscal policy because it can be an influential factor in the conduct of monetary policy.




4. This textbook stresses the economic way of thinking by developing a unifying analytic framework for the study of money, banking, and financial markets using a few

basic economic principles. This textbook also emphasizes the interaction of theoretical analysis and empirical data.

## KEY TERMS

- |                             |   |                            |
|-----------------------------|---|----------------------------|
| aggregate income, p. 21     | e-finance, p. 7                         | inflation rate, p. 9       |
| aggregate output, p. 8      | Federal Reserve System (the Fed), p. 12 | interest rate, p. 4        |
| aggregate price level, p. 8 | financial crises, p. 7                  | monetary policy, p. 10     |
| asset, p. 3                 | financial intermediaries, p. 6          | monetary theory, p. 8      |
| banks, p. 7                 | financial markets, p. 3                 | money (money supply), p. 8 |
| bond, p. 3                  | fiscal policy, p. 12                    | recession, p. 8            |
| budget deficit, p. 12       | foreign exchange market, p. 13          | security, p. 3             |
| budget surplus, p. 12       | foreign exchange rate, p. 13            | stock, p. 5                |
| business cycles, p. 8       | gross domestic product, 12, 21          | unemployment rate, p. 8    |
| central bank, p. 10         | inflation, p. 8                         |                            |
| common stock, p. 5          |   |                            |

## QUESTIONS AND PROBLEMS

All questions and problems are available in  at [www.myeconlab.com/mishkin](http://www.myeconlab.com/mishkin).

- Has the inflation rate in the United States increased or decreased in the past few years? What about interest rates?
- If history repeats itself and we see a decline in the rate of money growth, what might you expect to happen to
  - real output?
  - the inflation rate?
  - interest rates?
- When was the most recent recession?
- When interest rates fall, how might you change your economic behavior?
- Can you think of any financial innovation in the past ten years that has affected you personally? Has it made you better off or worse off? Why?
- Is everybody worse off when interest rates rise?
- What is the basic activity of banks?
- Why are financial markets important to the health of the economy?
- What is the typical relationship between interest rates on three-month Treasury bills, long-term Treasury bonds, and Baa corporate bonds?
- What effect might a fall in stock prices have on business investment?
- What effect might a rise in stock prices have on consumers' decisions to spend?
- How does a fall in the value of the pound sterling affect British consumers?
- How does an increase in the value of the pound sterling affect American businesses?
- Looking at Figure 8, in which years would you have chosen to visit the Grand Canyon in Arizona rather than the Tower of London?
- When the dollar is worth more in relation to currencies of other countries, are you more likely to buy American-made or foreign-made jeans? Are U.S. companies that manufacture jeans happier when the dollar is strong or when it is weak? What about an American company that is in the business of importing jeans into the United States?

## WEB EXERCISES

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- In this exercise we will practice collecting data from the Web and graphing it using Excel. Use the example on page 18 as a guide. Go to [www.forecasts.org/data/index.htm](http://www.forecasts.org/data/index.htm), click on “Stock Index Data” at the top of the page, then choose the U.S. Stock Indices—Monthly option. Finally, choose the Dow Jones Industrial Average option.
  - Using the method presented in this chapter, move the data into an Excel spreadsheet.
  - Using the data from part a, prepare a graph. Use the graphing wizard to properly label your axes.
- In Web Exercise 1 you collected and graphed the Dow Jones Industrial Average. This same site reports forecast values of the DJIA. Go to [www.forecasts.org/data/index.htm](http://www.forecasts.org/data/index.htm) and click on “FFC Home” at the top of the page. Click on the Dow Jones Industrial link under Forecasts in the far left column.
  - What is the Dow forecast to be in six months?
  - What percentage increase is forecast for the next six months?

## WEB REFERENCES

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[www.federalreserve.gov/releases/](http://www.federalreserve.gov/releases/)

Daily, weekly, monthly, quarterly, and annual releases and historical data for selected interest rates, foreign exchange rates, and so on.

<http://stockcharts.com/charts/historical/>

Historical charts of various stock indexes over differing time periods.

[www.federalreserve.gov](http://www.federalreserve.gov)

General information, monetary policy, banking system, research, and economic data of the Federal Reserve.

[www.bls.gov/data/inflation\\_calculator.htm](http://www.bls.gov/data/inflation_calculator.htm)

Calculator lets you compute how the dollar’s buying power has changed since 1913.

[www.kowaldesign.com/budget/](http://www.kowaldesign.com/budget/)

This site reports the current federal budget deficit or surplus and how it has changed since the 1950s. It also reports how the federal budget is spent.

[www.brillig.com/debt\\_clock/](http://www.brillig.com/debt_clock/)

National debt clock. This site reports the exact national debt at each point in time.



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- Click on “Take a Test” and select Sample Test A for this chapter.
- Take the diagnostic test. MyEconLab will grade it automatically and create a personalized Study Plan so you see which sections of the chapter you should study further.
- The Study Plan will serve up additional practice problems and tutorials to help you master the specific areas on which you need to focus. By practicing online, you can track your progress in the Study Plan.
- After you have mastered the sections, go to “Take a Test” and select Sample Test B for this chapter. Take the test and see how you do!

# I

## Defining Aggregate Output, Income, the Price Level, and the Inflation Rate

Because these terms are used so frequently throughout the text, we need to have a clear understanding of the definitions of *aggregate output*, *income*, the *price level*, and the *inflation rate*.

### AGGREGATE OUTPUT AND INCOME

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The most commonly reported measure of aggregate output, the **gross domestic product (GDP)**, is the market value of all final goods and services produced in a country during the course of the year. This measure excludes two sets of items that at first glance you might think it would include. Purchases of goods that have been produced in the past, whether a Rembrandt painting or a house built twenty years ago, are not counted as part of GDP, nor are purchases of stocks or bonds. None of these enter into GDP because they are not goods and services produced during the course of the year. Intermediate goods, which are used up in producing final goods and services, such as the sugar in a candy bar or the energy used to produce steel, are also not counted separately as part of GDP. Because the value of the final goods already includes the value of the intermediate goods, to count them separately would be to count them twice.

**Aggregate income**, the total income of *factors of production* (land, labor, and capital) from producing goods and services in the economy during the course of the year, is best thought of as being equal to aggregate output. Because the payments for final goods and services must eventually flow back to the owners of the factors of production as income, income payments must equal payments for final goods and services. For example, if the economy has an aggregate output of \$10 trillion, total income payments in the economy (aggregate income) are also \$10 trillion.

### REAL VERSUS NOMINAL MAGNITUDES

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When the total value of final goods and services is calculated using current prices, the resulting GDP measure is referred to as *nominal GDP*. The word *nominal* indicates that values are measured using current prices. If all prices doubled but actual production of goods and services remained the same, nominal GDP would double even though people would not enjoy the benefits of twice as many goods and services. As a result, nominal variables can be misleading measures of economic well-being.

A more reliable measure of economic production expresses values in terms of prices for an arbitrary base year, currently 2000. GDP measured with constant prices is referred to as *real GDP*, the word *real* indicating that values are measured in terms of fixed prices. Real variables thus measure the quantities of goods and services and do not change because prices have changed, but rather only if actual quantities have changed.

A brief example will make the distinction clearer. Suppose that you have a nominal income of \$30,000 in 2010 and that your nominal income was \$15,000 in 2000. If all prices doubled between 2000 and 2010, are you better off? The answer is no: Although your income has doubled, your \$30,000 buys you only the same amount of goods because prices have also doubled. A real income measure indicates that your income in terms of the goods it can buy is the same. Measured in 2000 prices, the \$30,000 of nominal income in 2010 turns out to be only \$15,000 of real income. Because your real income is actually the same in the two years, you are no better or worse off in 2010 than you were in 2000.

Because real variables measure quantities in terms of real goods and services, they are typically of more interest than nominal variables. In this text, discussion of aggregate output or aggregate income always refers to real measures (such as real GDP).

## AGGREGATE PRICE LEVEL

In this chapter, we defined the aggregate price level as a measure of average prices in the economy. Three measures of the aggregate price level are commonly encountered in economic data. The first is the *GDP deflator*, which is defined as nominal GDP divided by real GDP. Thus, if 2010 nominal GDP is \$10 trillion but 2010 real GDP in 2000 prices is \$9 trillion,

$$\text{GDP deflator} = \frac{\$10 \text{ trillion}}{\$9 \text{ trillion}} = 1.11$$

The GDP deflator equation indicates that, on average, prices have risen 11% since 2000. Typically, measures of the price level are presented in the form of a price index, which expresses the price level for the base year (in our example, 2000) as 100. Thus the GDP deflator for 2010 would be 111.

Another popular measure of the aggregate price level (which officials in the Fed frequently focus on) is the *PCE deflator*, which is similar to the GDP deflator and is defined as nominal personal consumption expenditures (PCE) divided by real PCE.

The measure of the aggregate price level that is most frequently reported in the press is the *consumer price index (CPI)*. The CPI is measured by pricing a “basket” of goods and services bought by a typical urban household. If, over the course of the year, the cost of this basket of goods and services rises from \$500 to \$600, the CPI has risen by 20%. The CPI is also expressed as a price index with the base year equal to 100.

The CPI, the PCE deflator, and the GDP deflator measures of the price level can be used to convert or deflate a nominal magnitude into a real magnitude. This is accomplished by dividing the nominal magnitude by the price index. In our example, in which the GDP deflator for 2010 is 1.11 (expressed as an index value of 111), real GDP for 2010 equals

$$\frac{\$10 \text{ trillion}}{1.11} = \$9 \text{ trillion in 2000 prices}$$

which corresponds to the real GDP figure for 2010 assumed earlier.

## GROWTH RATES AND THE INFLATION RATE

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The media often talk about the economy's growth rate, and particularly the growth rate of real GDP. A growth rate is defined as the percentage change in a variable, i.e.,

$$\text{growth rate} = \frac{x_t - x_{t-1}}{x_{t-1}} \times 100$$

where  $t$  indicates today and  $t - 1$  a year earlier.

For example, if real GDP grew from \$9 trillion in 2010 to \$9.5 trillion in 2011, then the GDP growth rate for 2011 would be 5.6%:

$$\text{GDP growth rate} = \frac{\$9.5 \text{ trillion} - \$9 \text{ trillion}}{\$9 \text{ trillion}} \times 100 = 5.6\%$$

The inflation rate is defined as the growth rate of the aggregate price level. Thus, if the GDP deflator rose from 111 in 2010 to 113 in 2011, the inflation rate using the GDP deflator would be 1.8%:

$$\text{inflation rate} = \frac{113 - 111}{111} \times 100 = 1.8\%$$

If the growth rate is for a period less than one year, it is usually reported on an annualized basis; that is, it is converted to the growth rate over a year's time, assuming that the growth rate remains constant. For GDP, which is reported quarterly, the annualized growth rate would be approximately four times the percentage change in GDP from the previous quarter. For example, if GDP rose  $\frac{1}{2}\%$  from the first quarter of 2010 to the second quarter of 2010, then the annualized GDP growth rate for the second quarter of 2010 would be reported as 2% ( $= 4 \times \frac{1}{2}\%$ ). (A more accurate calculation would be 2.02%, because a precise quarterly growth rate should be compounded on a quarterly basis.)