

Money and Interest

4.1	The Money Supply
4.2	Money Creation and Circulation
4.3	Interest and Interest Rates



skills that pay dividends

Quantitative Skills

The choice of computing methods—from calculators, to cell phones, to spreadsheets, to online services—has made it extraordinarily easy for you to enter data into a computing device and get an answer. Whether doing multiplication to calculate the cost of buying enough pizzas for a Little League team or performing complex analytical functions to determine the economic performance of a business, you can get a machine to provide an answer.

Do people using electronic calculators understand the concepts behind the computations? If electricity failed and batteries were not available, could most people manually calculate the answers? Maybe not, given that the 2006 scores of U.S. students in an International Student Assessment indicated that 15-year-old U.S. students performed less well on math than peers from 23 other countries.

The ability to mentally perform a "ballpark" calculation for financial transactions enables you to think on your feet. You will be able to quickly assess the reasonableness of the results you see on your screen. By having a rough idea of what an answer should be, you can catch errors before they progress very far.

In the banking industry, percentages are used in a variety of ways. Calculations that use percentages include simple interest and mutual fund performance.

Simple interest is calculated by multiplying the beginning amount, or principal, by the interest rate and by the length of the investment. The interest rate is expressed as a percentage. The length of the investment is expressed, in decimal form, in relation to a year. A three-month investment is 25 percent of a year, or 0.25 years. A 21-month investment is 1.75 years.

Mutual funds are comprised of a variety of distinct investments that have various degrees of risk and varying maturity dates. Typically the investments are spread out across a number of different industries to minimize the exposure caused by a downturn in any specific industry. The performance of each investment in each industry contributes to the performance of the fund as a whole.

Mutual funds may express their returns based on the performance of each industry in the fund. For example, the fund may state that 50 percent of its results are based on performance of the airline industry, 30 percent on the performance of the pharmaceutical industry, and 20 percent on the performance of the software industry. Stated another way, half of the fund is invested in the airline industry, a bit less than a third is invested in the pharmaceutical industry, and one fifth of it is invested in the software industry.



Develop Your Skill

Create a quiz on percentages that has ten values and ten percentages to calculate. Exchange papers with classmates and complete the quizzes. Grade the quizzes and see who earned the greatest percentage of correct answers.



4.1

goals

- + Explain how the money supply is measured.
- + Describe the two types of money.

terms

- + money supply
- + liquidity
- + aggregate measures
- + commodity money
- + fiat money
- + fractional reserve system

The Money Supply

Banking Scene

When Elizabeth Axtell paid for her gasoline fill-up, she received a ten dollar bill as change. She happened to notice that on the bill someone had written, "Happy Birthday, Betty!" This greeting on the bill caused her to think of all the places the bill had traveled and all the people who had handled the bill. As she put the bill away, she wondered how much money there is circulating out there at any given moment, and she resolved to learn more about it. How might Elizabeth begin to define "out there"?

WHAT IS THE MONEY SUPPLY? • •

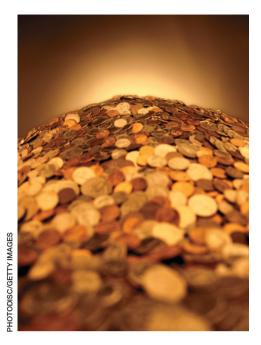
As you learned about the creation of a national currency and problems throughout the nineteenth and early twentieth centuries with the money supply, did you wonder where money comes from? Why can't the government just print more money? What would happen if it did?

The Federal Reserve was established to solve currency problems and manage the money supply. Its adjustments are indirect, and because banks are private institutions, it doesn't simply command the money supply. The Federal Reserve influences the conditions under which banks do business and sees that those banks abide by banking regulations. You may be surprised about what money really is in the United States. You will get a sense of how much money is out there, what it is doing, and how its movements are measured. You will also learn more about how banks and the Federal Reserve work together to create and manage money.

The Concept of Money Supply

Even after state currencies disappeared and a national monetary system was in place, serious problems with the banking system occurred in 1873, 1883, 1893, and 1907, resulting in bank failures and large-scale economic problems. The crisis in 1907 caused Congress to commission a study group, which ultimately led to the establishment of the Federal Reserve.

The source of these problems was the money supply. The money supply is defined as the liquid assets held by banks and individuals. These assets include all the money in circulation as well as money held in banks or in other financial institutions. This money is moving in the economy from



place to place and person to person. The flow of money—and the amount of it flowing—has a direct effect on how the economy performs.

The basic idea is simple: if there is too much money around, prices rise to the point of inducing problematic inflation. If there is too little money around, there is not enough to meet needs and a "credit crunch" slows the economy. If the economy slows too much, commerce spirals down, jobs are lost, less and less money moves, and so forth. The trick is to keep the money supply and economy growing at a stable rate

so that wealth spreads, yet without inducing inflation. Unfortunately, there are so many factors in a complex economy that providing steady growth is not easy.

Expanding the Money Supply

Why might extra money in the economy cause inflation? Assume you have an income of \$4,000 per month that meets your basic needs. Suddenly, your income jumps 15 percent to \$4,600. What would you do with the extra money? Most people would probably buy things. That seems good, doesn't it?

Now assume you own an electronics store. If a large rush of customers came in demanding DVD players, how would you respond?

Consider the following questions: What would happen to prices of DVD players? Why? What would happen to the supply of DVD players? What effect might that have on prices? If prices for all goods and services also went up, what would be the net effect on your 15 percent increase in income compared to what it actually buys?

The supply of DVD players will decrease, thus causing prices to rise. If prices for all goods and services go up, the 15 percent increase in income will actually buy less. If this trend continues for a period of time, it can result in inflation.

Measuring the Money

Defining the money supply as all the money in circulation, all the money held by banks, and all the money held by individuals may not be detailed enough to track the ebb and flow of money. Liquidity is a measure of how quickly things may be converted to something of value like cash. Liquidity is variable, depending on the nature of the asset or liability. Your savings account is not as liquid as coins in your pocket, but more liquid than a certificate of deposit that doesn't mature until next June.

interesting facts

As of December 2007, there was about \$828 billion of currency in circulation. About 96 percent of this currency consisted of Federal Reserve notes. The other 4 percent was in the billions of coins moving from place to place.

All the money in all types of accounts is part of the money supply. However, some types of money are more liquid than others. To estimate money's movement, economists and the Federal Reserve use various measures. These measures, called M1, M2, and MZM, take into account various types of money and various circumstances of liquidity.

Measure	Explanation
MI	Money that can be spent immediately. MI includes currency (paper and metallic) and various types of checking accounts, including nonbank travelers' checks, standard checking accounts, and NOW (interest-bearing) accounts.
M2	All the money in MI plus short-term investments, such as small savings accounts (less than \$100,000), money market accounts, and money market mutual funds.
MZM	Money at zero maturity. Represents all available liquid money. It is M2, minus time deposits, and includes all money market funds.

As a result of the Humphrey-Hawkins Act, also known as the Full Employment and Balanced Growth Act of 1978, the FED set semi-annual target rates for the money supply. Investors interpreted these target rates as an indicator of what the FED planned to do with the money supply. For example, if the FED released a low M1, investors might think short-term interest rates would be decreased to increase the money supply. (When consumers earn less return on the money in savings accounts, they may decide to take money from savings and make a purchase. This releases more money into the economy.) As of July 2000, the FED stopped setting target ranges for the money supply.

tech talk



Measuring Nontraditional Forms of Money

How do "electronic money" and automated payment systems affect the money supply and monetary policies? These nontraditional forms can alter the measurement of the money supply, which in turn could shift the way monetary policy is implemented. Most consumer electronic money falls easily into the MI demand-deposit category, and it has already begun to be measured as such. But as these services grow, they may alter the definition of certain monetary instruments. Economists rely less on the MI and M2 measures than they once did, and some think they are relatively unimportant.

Think Critically Why are the MI and M2 measures becoming less important? How does changing technology also alter the Federal Reserve's supervisory task?

Taken together, these aggregate measures, which add up the components of the money supply, are used to estimate the size of the money supply. M1 is sometimes referred to as the "base" money supply. M2 and MZM give some indication of potential demand on the money supply. Historically, it was believed that increasing growth of the money supply accompanied a strengthening economy, while decreasing growth of money implied a slowing economy.

Over time, M1 and M2 became less reliable indicators of financial performance. As financial offer-



ings expanded, with the introduction of products like NOW accounts, the relationship between economic performance and the values of M1 and M2 weakened. NOW accounts allowed consumers to earn interest on service-free checking accounts so long as they maintained a minimum balance. Shifts in the economy, including changes in interest rates, prompted customers to shift their investment strategies. As investments moved from traditional savings accounts to the stock market, the value of M2 decreased. Stocks and bonds are excluded from M2 measurements. Therefore, although consumers still had their money working for them, the value of the money was not reflected in M1 or M2.

A fourth measure of the money supply, M3, was in use from 1971 until March 2006. M3 was the most comprehensive measure of available money and included all the money in M1 and M2 plus large deposits, such as agreements among banks and institutional money market funds. A surge in M3 indicated an excessive amount of money was available. As access to money became easier, costs rose and inflation occurred. Some who study economic trends believe that an unusually rapid growth of M3 was a predicator of a possible depression.

None of these measures is a safe predictor of inflation. Other factors such as supply, demand, labor, resources, and political events also play a role in determining the rate of inflation.



What makes up the money supply? Why do economists use different measurements to track the money supply?

THE NATURE OF MONEY

To understand where the money supply comes from, how it moves, and how banks and the Federal Reserve influence it, you need to understand what money in the United States really is. Although the monetary system has remnants from long ago, it is also a modern "agreement" dating from the 1930s. Two essential ideas dominate the monetary system. One is the idea of *fiat money*, and the other is the idea of a *fractional-reserve system*.

Two Types of Money

Why does money have value? Money is a medium of exchange—something with an agreed-upon value used for trade. Today that agreed-upon value is strictly a convention of the government and has no necessary relationship to the value of gold, silver, bushels of grain, feathers, or any other commodity. A dollar is worth a dollar because everyone agrees that it is, not because it is backed by an amount of precious metal somewhere. Historically, there are two types of monetary systems.

Commodity money is based on some item of value—for example, gold or precious stones. Coins, the oldest form of currency, had some value because of the metal in them. Bank notes were originally issued to represent holdings of precious metal and became the first paper currency. The notes had value because they could be exchanged for an actual amount of a valuable commodity. Although many of the symbolic ideas and concepts associated with commodity money remain in play, commodity money is not generally in use today.

Fiat money is money that is deemed legal tender by the government, and it is not based on or convertible into a commodity. The word *fiat*

refers to any order issued by legal authority, and in the case of money, the authority is the Federal Reserve as created by Congress. Take a look at a dollar bill. It announces that it is a Federal Reserve note. During 2007, it cost about 6.2 cents to produce a dollar bill, and you cannot take Federal Reserve notes to the bank and exchange them for gold or silver. What makes Federal Reserve notes valuable is that they are the only kind of money the government will accept for payment of taxes and for payments of debts related to court actions. They are, in short, the official currency of the United States.

Fiat money makes sense as a medium of exchange. If you and some friends agreed to use certificates you made for value between you, and you all abided by that convention, your currency system would work. Saran might be willing to trade you a DVD for two of the certificates, which you might then give Luisa for an hour of raking leaves. Luisa might use them to buy a basket of flowers from Dawn for Saran, and Dawn might offer you two certificates to care for her dog



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while she's away. As long as you all agree on the relative values, the system works. In the case of the national system, the government enforces what is acceptable currency, and the Federal Reserve, banks, and market influence its value. In any case, there is no longer silver in a quarter, though everyone agrees that it is worth 25 percent of a dollar.

The Fractional-Reserve System

One of the key concepts in understanding how money is created and manipulated arose almost a thousand years ago. Some people say "modern" banking began in England around 1200. At that time, people began to pay goldsmiths to store precious metals safely. The goldsmiths charged a fee for this service. When people left gold or silver, the goldsmiths gave them receipts, indicating that the holder of the receipt had deposited a certain quantity. Soon, people began to use these receipts as a medium of exchange, because trading them was a lot simpler than going to the goldsmith, getting the gold, and giving it to the person owed. It was easier just to give the receipt. These receipts were the first bank notes in England, and became a form of paper currency.

The goldsmiths quickly got into the business of lending the gold and silver they had on deposit, charging interest for the loans. That business was good, so goldsmiths began to pay interest to attract deposits. This business practice initiated the *spread* in banking.

The goldsmiths also noticed something else. Not everyone wanted their gold back at the same time. Therefore, the goldsmiths adopted a fractional-reserve system whereby they needed to keep back, or reserve, only a fraction of the total gold that had been deposited—just enough to cover those who might want to withdraw their gold. They could also lend notes, thus making more money without actually having gold to back it up. The paper notes in circulation eventually exceeded the reserves of gold that the gold-smiths actually held. In effect, money was "created" without changing the amount of gold.

Although what the goldsmiths noticed was based on a system of commodity money, some of the same principles apply today. First, even though Federal Reserve notes are fiat money, money is created in more or less the same way. Second, a fractional-reserve system is still in use today, and adjusting its requirements is one way that the Federal Reserve controls the money supply.



What is fiat money? What is meant by fractional reserve?

"communicate"

Interview several people from various walks of life. Ask them what they think makes our money valuable. Write a short report listing the various opinions (right or wrong), and share the ideas with your class.

assessment 4.1

Think Critically

1.	Why are there more elements to the money supply than just the money that is actively circulating?
2.	Why do different parts of the money supply need to be measured differently?
3.	Why must the government enforce the value of fiat money by requiring its use for settling private debts in court or for transactions with the government?
4.	What would have happened to the English goldsmiths if for some reason everyone had wanted their gold back at the same time? What could the goldsmiths have done?
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Make Academic Connections

- 5. **HISTORY** Besides fiat money, the U.S. government has issued other types of money, such as silver certificates. Find out what a silver certificate is, when the last one was issued, and what one is worth today. Record your findings here.
- 6. **Banking Math** The Federal Reserve requires banks to hold a reserve on customer deposits subject to checking. Required in 2007, for example, was a reserve of 3 percent on the first liabilities between \$9.3 million and \$43.9 million and 10 percent on all amounts above that. If a bank had \$91 million in such deposits, what was the amount of required reserves?



Banking Scene

As Elizabeth Axtell pulls away from the gas station, she thinks about how currency circulates. She also begins to wonder more about the origin of money. She knows the government prints it, of course, but under what circumstances? How does the money supply grow? What would you tell her?

How Money Is Created

How money is created and how currency is printed are two different things. The Bureau of Engraving and Printing performs the task of printing currency. No matter how much the Bureau prints, it isn't actually considered part of the money supply until a commercial bank or other financial institution calls for it in exchange for amounts on deposit in the reserve account of the Federal Reserve. Money is actually created by the interaction of the demand for it, banks' use of it, and the Federal Reserve's supply and control of it.

Banks and other financial institutions play a key role in the creation of money by transacting their business. Banks earn much of their profit by lending. The lending function, however, does much more than earn money for the bank and its stockholders. Because of the function of the Federal Reserve and the banking system as a whole, banks actually "create" and circulate money as they do business.

Deposits and Reserves

Your deposits are liabilities for the bank that holds them, because the bank will have to give your money back to you. In order to guarantee that the bank will have money on hand to cover its liabilities, the Federal Reserve requires banks to hold money in reserve. Only a portion of the total amount of deposits is required to be reserved. Primary reserves consist of vault cash (cash on hand) and the required percentage amounts on deposit in the Federal Reserve District Bank. A bank may have other reserves as well, called secondary reserves, including securities the bank purchases from the federal government and deposits that are due from other banks. Secondary reserves are used to meet liquidity needs, which include customer requests for withdrawal amounts and money needed for new loans.



4.2

goals

- Describe how money is created by bank activities.
- + Explain how money circulates in the U.S.

terms

- primary reserves
- + secondary reserves
- + excess reserves
- + multiplier effect

Excess reserves are reserves held by a bank beyond its reserve requirement. Excess reserves, which are amounts that exceed Primary and Secondary reserves, are the resources a bank uses to create money through its business transactions. These excess reserves are amounts for which there is no immediate demand. The bank may go into the Fed Funds market and put them to work overnight by lending them to another institution that has a need for them. Or the bank may purchase a repurchase agreement from the Federal Reserve if the FRB is making such an offer through it's Open Market Operations.

The Multiplier Effect

To understand the role banks play in creating money, consider again the fractional-reserve system. Remember that a bank needs to keep on hand only part of its total liabilities, and that liabilities always exceed reserves. This fractional-reserve system works just as it did for the goldsmiths long ago. Money on deposit, minus the reserve requirement, can be loaned to customers. When it is, new deposits are created. These new deposits go out to customers as loans and create more deposits, thus expanding the amount of money in the system. This phenomenon is called the multiplier effect.

Suppose you deposit \$1,000, and the bank has a 10 percent reserve requirement. That leaves \$900 that may be loaned out to someone. That \$900 may be used to buy something, and the seller will probably end up depositing that \$900 in another bank. (It could be the same one, but use a different one for the sake of the example.) Of the \$900 deposited in the second bank, 10 percent is reserved, leaving \$810, which the second bank will lend and will thus end up deposited in a third bank. Your original \$1,000 deposit has



Banking Math Connection

Calculate the total amount of money "created" from a deposit of \$15,000 as it moves through four cycles of deposit. Assume a reserve rate of 10 percent.

Solution

The formula for calculating the money available from a deposit is

$$Deposit - Reserve = New Deposit$$

Repeat the operation for each deposit, then total the new deposits.

Deposit 1: $\$15,000 - \$1,500.00 = \$13,500.00 \ 0.10 \times \$15,000 = \$1,500.00$ Deposit 2: $\$13,500 - \$1,350.00 = \$12,150.00 \ 0.10 \times \$13,500 = \$13,500.00$ Deposit 3: $\$12,150 - \$1,215.00 = \$10,935.00 \ 0.10 \times \$12,150 = \$12,150.00$

Deposit 4: \$10,935 - \$1,093.50 = \$9,841.50 $0.10 \times \$10,935 = \$1,093.50$

Total Deposits = \$46,426.50

These four deposits result in the "creation" of more than \$46,000 available for use in the money supply.

resulted in deposits in three separate banks totaling \$2,710. Of this total, \$1,710 was "created" by the transactions.

Now, of course, your bank must have enough total reserves to cover the \$900 check it wrote for the loan when the second bank presents that check for payment. Your bank must also be prepared to give your original \$1,000 back to you if you decide to withdraw it. It may use excess reserves for this money, or money from its cash flow of other business, or it may borrow from the Federal Reserve or other sources. Estimating the amount of reserves needed at a particular point in time is critical to banking, although it is impossible to do so with complete accuracy. The bank can't absolutely know when you will want your money, and it can't absolutely know when someone wants a loan. Banks follow the money supply and the economy as closely as they can in order to anticipate their liabilities and reserve needs. In order for all these transactions to pay off, the bank must be making a solid profit on the money it lends. That \$900 loan and others like it must earn enough income to defray the costs of creating money. Banks that make poor judgments about the type and amount of loans they extend may find themselves in trouble. If enough banks get into trouble, the whole system could be in jeopardy. Overseeing sound banking practices is one of the important functions of the Federal Reserve, as shown by this example.



Why must banks keep money on reserve? What is the multiplier effect?

How Money Circulates •

Banks move money. Not only do they move money, they create it by making deposits in other financial institutions so the monetary system as a whole expands.

Transfers and Circulation

As you considered the multiplier effect in the last section, did you get the sense that there's a lot going on as money moves? If you did, you're right. That simplified example showed only one small deposit at work. It did not consider the millions of customer and commercial transactions taking place every day, nor did it consider transactions flowing from banks and the Federal Reserve that make up the reserves any of the banks were holding. It also did not show the effect of the loans themselves on the economy, what



products might have been purchased with the borrowed money, or what jobs depended upon them, so that the people holding those jobs could also make deposits—and thus fuel more expansion. All these transfers and transactions, as well as simpler movements of currency, such as bills passing as change, constitute the circulation of money.

If you look again at the elements of the money supply, M1, M2, and MZM represent so many potential transactions that the circulation of money is a complex phenomenon. Of course, most large transactions do not actually involve the movement of physical currency. Most, including creation of deposits at banks and at the Fed, involve *ledger entries*. A record of the transaction appears, just as you record your deposits and spending in your checking account. Many of these records are now entirely paperless.

The Fed and Fiat Money

It is important to remember what money is and isn't. When banks "create" money with deposits, it comes from somewhere. Where it comes from is the theoretical idea of the money supply, which is possible because of the fiat system. The Federal Reserve manages this fiat system, and it adjusts required deposits in bank accounts at the Federal Reserve to affect the money supply and banking system accordingly. The Fed has the option of contracting the money supply by raising reserve requirements if the economy seems to be overheating. If banks must hold more in reserve, there is less available to lend. Similarly, by lowering reserve requirements, the Fed expands the money supply by making more money available to create deposits. Although these options are available, the Fed very seldom uses changes in reserve requirement rates to implement monetary policy. Open market operations is the tool used most frequently by the Fed to implement monetary policy. The Fed also influences bank activity by control of interest rates.

flat world...

U.S. Currency Abroad

Of the \$828 billion worth of Federal Reserve notes estimated to be in circulation during 2007, about two-thirds were held by people from abroad. Though their governments have their own money and may not be part of our fiat system, many people around the world use U.S. Federal Reserve notes and coins as a medium

of exchange for both local and international business.

Think Critically Why might U.S. currency be seen as valuable in other countries? Why might people who have no direct business with anyone in the United States value U.S. currency?

When investor confidence is shaken because of the perception of a high degree of turmoil in the economy, the Fed can take steps beyond adjusting both the reserve requirements and interest rates.

In March 2008, the Fed took the unusual step of facilitating the sale of Bear Stearns to J.P. Morgan Chase. By providing up to \$30 billion dollars in financing for Bear Stearns' hard-to-move assets, like securities based on mortgages, the Fed helped the sale go through. In this particular transaction, the Fed agreed that if the value of the hard-to-move assets declined, then the Fed would incur the loss. This guarantee shielded the buyer, J.P. Morgan Chase, from exposure to loss from the hard-to-move assets. This financial protection from loss helped the deal go through.

Because Bear Stearns was such a large player in financial markets, and because of the potential ripple effect to other financial entities if Bear Stearns went under, the Fed took this action to try to stabilize the economy. A stable economy helps keep the money supply balanced.

Money as an IOU

Did you know that you hold an IOU from the government? A dollar bill in your hands represents an obligation of the government to provide something



of value to you. Because it is fiat money, the government promises not a quantity of gold, but a pledge that the note will be good in the United States. The thing of value being provided to you is the guarantee that it will be accepted for payment of taxes and settlement of debts.

Because money is an IOU in this way, it is also a liability on the Federal Reserve's books. When the Federal

Reserve makes a loan and thus creates a deposit in a bank's account at the Reserve, it has "created" more currency (and may call for actual paper money to support it). Required by law to balance the books, the Fed buys and holds treasury securities from the government itself as pledge against the IOUs it has issued. These securities are what back your currency, although they would be paid in Federal Reserve notes. Because the fiat money system is a closed system, the full faith and credit of the U.S. government is what actually backs your bill. As long as the government is operating and able to maintain the system, its IOU to you (its money) will be a valuable medium of exchange.



What circulates money in the United States? What backs the currency in circulation in the United States?

assessment 4.2

Think Critically

I lillik Cittically		
1.	Why can't banks and the Federal Reserve just create money at will so that all people will have what they need?	
2.	Why do some people say that money is "borrowed into existence?"	
3.	Why is the stability of the U.S. government such a large factor in the monetary system?	
	BANKING MATH Revisit the Banking Math Connection on page 106. Recalculate the amount of new deposits created as a result of an original deposit of \$15,000, and a required reserve rate of 12 percent instead of 10 percent. How much less money does this reserve rate create in deposits? Why would making such a change slow the economy?	
5.	BIOGRAPHY Other factors influence the money supply as well, including government actions and policies. Two giants in economics, John M. Keynes and Milton Friedman, had differing opinions. Choose one of these men and write a one-page biographical sketch, outlining his principal ideas.	

6. **COMMUNICATION** With a classmate, discuss ways that the information in this chapter has changed your understanding of currency. Summarize

your discussion.



Interest and Interest Rates

4.3

Banking Scene

When Elizabeth Axtell bought her car, she shopped for a loan as well as a vehicle. Most car dealers finance through a bank or through the carmaker's financial company, and rates should be compared. A week after selecting her rate, she saw that the rate had jumped. Though she felt satisfied with the deal she got, she wondered why interest rates change.

goals

- + List factors that affect interest rates.
- + Explain which factors the Federal Reserve affects.

terms

- + federal funds rate
- + discount rate
- + prime rate

INTEREST RATES AND BUSINESS®

In the discussion of how money is created to expand the economy, little mention of interest rates has appeared. Yet interest rates are the primary way banks make money and the focal point of almost everything they do. Bankers are not creating money purely from the goodness of their hearts. Banks are businesses, and businesses depend on profit to survive. The money supply and the economy are linked closely to interest rates. Generally, when rates are high, money is said to be "tight" and business tends to slow, because it costs more to acquire capital. When rates drop, more credit is accessible, and the economy tends to gather speed. Interest rates play a critical role in determining what the economy is doing.



NETBookmark

In an ongoing effort to stimulate the economy in the wake of the mortgage crisis, the Fed lowered the federal funds target rate seven times between June 2006 and April 2008. Access www.cengage.com/school/pfinance/banking and click on the link for Chapter 4. Visit the Federal Reserve site and review whether the federal funds rate is increasing or decreasing. Is the rate trend (either increasing or decreasing) having the intended effect on the economy? Given the current state of the economy, do you think the next rate move will be increasing or decreasing?

www.cengage.com/school/pfinance/banking

Factors Affecting Interest Rates

Contrary to what many people believe, the Federal Reserve does not decide interest rates. Its actions influence them, and the Fed does indeed attempt to nudge rates up or down in the interest of its monetary policy, but forces that determine interest rates are not completely under the Fed's control.

Market forces determine most interest rates. Banks are free to charge whatever rates they want for most of their transactions with customers (within legal limits), but it is a balancing act. Setting a higher rate for a loan does bring in more income, but it also tends to drive away business. Banking is more fiercely competitive than ever, and the lower the rate banks can charge, the more customers they are likely to have.

The economic conditions at large help determine interest rates too. If the demand for capital is high, interest rates tend to rise like any other prices. If they rise too far, demand falls off. The inflation

outlook influences rates as well, as both savers and investors look for higher rates when they fear that inflation will erode the value of what they earn. Bankers are no different from any other investors in this regard.



Ethics in Action

One of the regulatory duties of the Federal Reserve is to monitor banks' compliance with the Community Reinvestment Act (CRA) of 1977. The CRA was a response to *redlining*, a practice by which some banks refused to lend money in low-income areas, although accepting deposits.

3

Think Critically

Should the Federal Reserve be an agency of social policy? Should a bank be free to choose where and with whom it does business?

The cost of money itself is a factor, and here the Federal Reserve's monetary policy matters. The Federal Reserve impacts two rates.

The federal funds rate is the amount of interest charged for short-term, interbank loans. The Fed influences the federal funds rate by setting a target rate. If the banks are selling federal funds for a rate that is in excess of the target, the FRB Open Market Operations will enter the market and sell repurchase agreements for U.S. Government securities that it owns at a higher rate. This action reduces the ability of banks to create money.

Banks are constantly monitoring and adjusting their reserves to make sure they can cover their liabilities, both those required by the Federal Reserve and those that occur in day-to-day banking. They often borrow or lend funds to each other to make those adjustments.

The discount rate is the interest rate that the Federal Reserve sets and charges for loans to member banks. The Fed controls the discount rate. This rate is not to be confused with the prime rate, which is the rate that banks charge their best and most reliable customers. The prime rate is usually the same among major banks, and movement in it often follows movement of the discount rate, but they are not the same thing.

Changes in these rates affect the amount of money banks are willing to borrow to maintain reserves. If rates rise, it discourages borrowing, so lending activity slows. When rates fall, banks may feel safe to lend more to earn more. The goal of these rates is to implement monetary policy by affecting reserves, which in turn affect the money supply, which affects the economy.



What interest rates does the Federal Reserve control or affect?



MONETARY POLICY AND INTEREST RATES

The goals of the Federal Reserve's monetary policy are to maintain economic growth, to stabilize prices, and to help international payments flow. Adjusting reserves, setting the discount rate, and influencing the federal funds rate are its tools for achieving policies.

The Federal Reserve sets the discount rate, but it only influences the federal funds rate. Using open market operations, the Fed buys and sells government securities, paying for them by making a deposit in the selling bank's Federal Reserve account. When it sells the securities to commercial banks, it withdraws their cost from the commercial bank's account at the Federal Reserve. In this way, reserves are increased or decreased, affecting the rate that banks charge each other for interbank loans. The Federal Reserve may buy or sell securities to yield a higher rate than the federal funds rate in order to achieve its goals, without taking gain or loss into consideration.



How does the Federal Reserve influence the federal funds rate?

assessment 4.3

Think Critically

- 1. Why do you think so many people believe that the Federal Reserve controls interest rates?
- 2. Why does the prime rate so often move up or down with the discount rate?
- 3. Why would it not be a good idea if the government completely controlled the money supply?
- 4. How does the Fed's use of open market operations reflect a free-enterprise economy?

Make Academic Connections

- 5. **COMMUNICATION** Poll people outside your class to see what they think is the dominant factor affecting interest rates. Make a table that shows your survey results. What percentage of the total number of people you poll thinks the government sets interest rates?
- 6. **PROBLEM SOLVING** Visit the St. Louis Federal Reserve Bank's web site listing of prime interest rates from 1929 to the present located at www. stls.frb.org/fred/data/irates/prime. Make a graph showing average interest rates for five-year periods. What might you infer about the economy at various times from the data on your graph?



chapter 4 assessment

Chapter Summary

4.1 The Money Supply

- A. The money supply consists of liquid assets held by banks and individuals. The supply includes money in circulation and money held by banks and other financial institutions. Various measures track the money supply.
- B. The United States uses a fiat system of money in which the value of money is declared and guaranteed by the government. The system still operates on a fractional-reserve system, left over from commodity money systems.

4.2 Money Creation and Circulation

- A. Banks use their excess reserves to create money. By loaning the money not required to be reserved, new deposits are created. The multiplier effect expands the amount of money in the money supply.
- B. Money circulates by means of the millions of transfers associated with the various elements of the money supply that occur daily, including consumer transfers, interbank transfers, and Federal Reserve-to-bank transfers.

4.3 Interest and Interest Rates

- A. Market factors control interest rates, although the Federal Reserve influences them.
- B. Federal Reserve activities affect the cost of money to banks, thus affecting the size of reserves and the money supply.

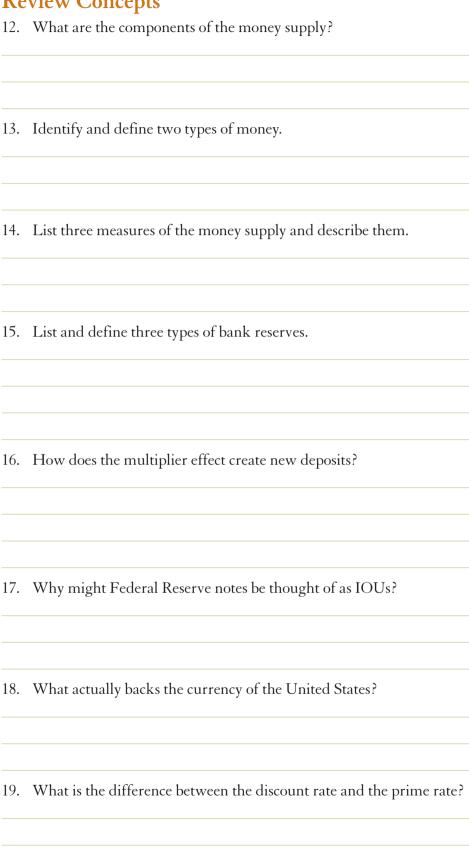
Vocabulary Builder

Choose the term that best fits the definition. Write the letter of the answer in the space provided. Some terms may not be used.

- ____ 1. Liquid assets held by banks and individuals
 - _ 2. Interest rate that the Fed charges for loans to member banks
 - 3. Currency based on some item of value, such as gold or precious stones
- ___ 4. Tools used to estimate the size of the money supply
- _ 5. Interest rate banks charge their best and most reliable customers
- Cash on hand, deposits due from banks, and the percentage required by the Federal Reserve System
 - 7. Phenomenon that creates new deposits from lending
- 8. Interest charged for short-term, interbank loans
 9. Practice of reserving only part of a deposited quantity
- 10. Money deemed legal tender by the government, but not based on or convertible into a commodity
 - 11. Measure of how quickly things may be converted to something of value like cash
- a. aggregate measures b. commodity money c. discount rate d. excess reserves e. federal funds rate f. fiat money fractional-reserve system h. liquidity i. money supply multiplier effect k. primary reserves prime rate m. secondary

reserves

Review Concepts







20.	What factors determine interest rates?
21.	How do interest rates influence the quantity of money available in the economy?
Αμ	oply What You Learned
22.	Why is an expanding money supply generally a good thing?
23.	What are the dangers of a money supply that expands too rapidly?
24.	Under what circumstances is it a good idea to contract the money supply?
25.	What are the dangers of contracting the money supply too much?
26.	How does adjusting the reserve requirements cause the money supply to expand or contract?

27.	Why would a booming economy affect the demand for money?
28.	Why do banks want interest rates to remain low?
Ma	ake Academic Connections
29.	BANKING MATH Calculate the total amount of money "created" from a deposit of \$10,000 as it moves through three further cycles of deposit. Assume a reserve rate of 8 percent.
30.	HISTORY Many people objected strongly when the United States adopted a fiat money system (and some still object today). Learn more about the gold standard and how it established currency values. Write a one-page summary of what you learn.
31.	COMMUNICATION If economics is a science, and economic data are measurable, why is there so much disagreement about the best way to handle the economy? Collect statements from ten people about the best thing that could be done to help the economy and why their ideas would help. Which of them seem to make the most sense to you and why?
32.	ECONOMICS Find current information about the money supply at www.federalreserve.gov/releases/H6/Current/. Examine this data and draw conclusions about the growth of the money supply. Do your conclusions seem to match the current state of the economy?

