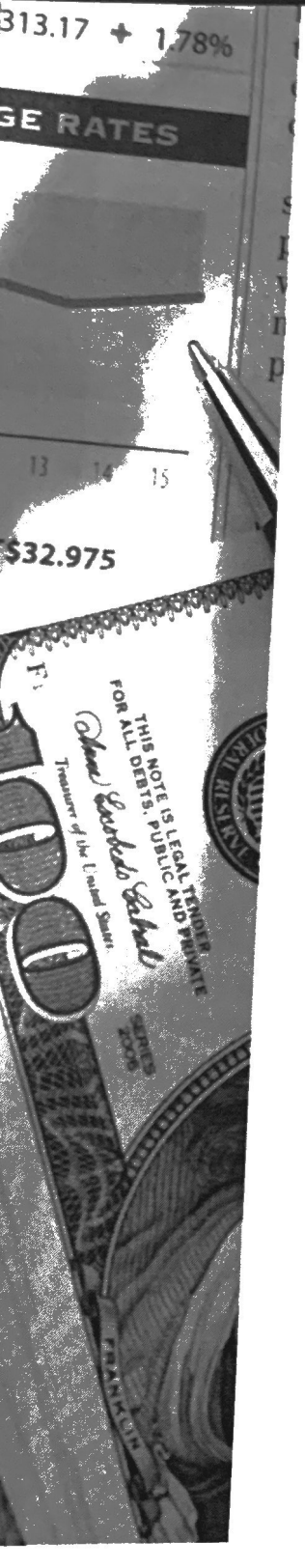
CHAPTER

2

MONEY AND INTEREST RATES



KEY TERMS AND PHRASES

Credit markets
Discount rate of interest
eCommitting™
Federal funds rate
Federal Reserve Bank
Interest
Interest rate indicators
LIBOR
Money
Monetary system
Open market operations
Prime rate
Treasury bill rate
Usury laws

LEARNING OBJECTIVES

At the conclusion of this chapter, students will be able to:

- Discuss the development of the monetary system in the United States
- Explain the importance of the Federal Reserve Bank, including its role in establishing monetary policy within the monetary system of the United States
- Discover the general workings of the U.S. Treasury and the economic effects of borrowing by the government versus those of other sectors of credit users
- Describe the interest rates in several sectors of the investment marketplace
- Define *usury* and explain how it has been regulated over time

INTRODUCTION

When you need a shirt and the only thing you have of value to trade is a goat, you have a problem. The system of barter allows someone with one skill or trade good to purchase by exchanging another good or service; it does not always work very well. Historically, this system dampened the

growth of trade and economies in general. **Money**—symbols of value—succeeded the barter system.

No commodity is more widely used and less understood than money. Most of us know very well what money can do; its value lies primarily in our confidence that other people will accept it in exchange for goods and services. Money has been a part of all known civilizations, functioning as a means to improve on the barter system of trading goods and services among people. Commodities of high intrinsic value, such as precious metals, gemstones, furs, and even salt and spices, have long been used to facilitate trade. In fact, in many areas of the world, people still use such standards for trade. Our modern incarnation of business, however, is supported by the intangible qualities of trust and confidence—the trust and confidence that individuals and nations place in currency and credit lines extended for bonds or other promissory certificates issued under a recognized government's authority. Of course, the confidence placed in a government and its international trading power is indicated by the relative value placed on a nation's money in the realm of international trade.

The **monetary system** used in the United States was molded over many years of practical experience generated by trial and error. The U.S. Constitution contains no provisions to control its development. Monetary policy has been powerfully shaped by political debates taking place during the Civil War, the Great Depression years of the 1930s, and the present Great Recession (also called the Financial Crisis of 2007). In the early years of this country's growth, lacking constitutional guidance, the control of money was considered a right belonging to each state, and the political battles between state's rightists and Federalists were clearly reflected in the development of the monetary system. Two early efforts to create a central national bank failed, and it was not until the Civil War that the federal government actually took over the issuance and control of currency. Prior to that time, individual states authorized their state-chartered banks to perform this function.

FEDERAL RESERVE BANK SYSTEM

The step that firmly established federal control over the nation's money supply was the creation of the **Federal Reserve Bank**, or "the Fed," in 1913. The Fed became the nation's bank and was given responsibility for handling the country's monetary policies. Its seven-member board of

governors is appointed by the U.S. president; members serve terms of 14 years, thus shielding them from politics—at least in theory.

The chairman of the Federal Reserve Bank Board, chosen from among its members by the nation's president, serves a four-year term, but one that is not concurrent with the presidency. While the chair has only one vote on the board, the authority to influence the selection of the 12 Federal Reserve District presidents adds to the power of that office. The chair also influences the selection of which of the five out of 12 district presidents will sit on the powerful Open Market Committee. (See Figure 2-1 for an illustration of the structure of the Federal Reserve Operations.)

The board is responsible for many other functions, such as overseeing the Truth-in-Lending Act, monitoring the Equal Credit Opportunity Act, and implementing other national credit policies. But it is the Fed's monetary policies that most influence the cost and availability of mortgage money. Its policy of low interest rates from 2001 to 2004 helped fuel

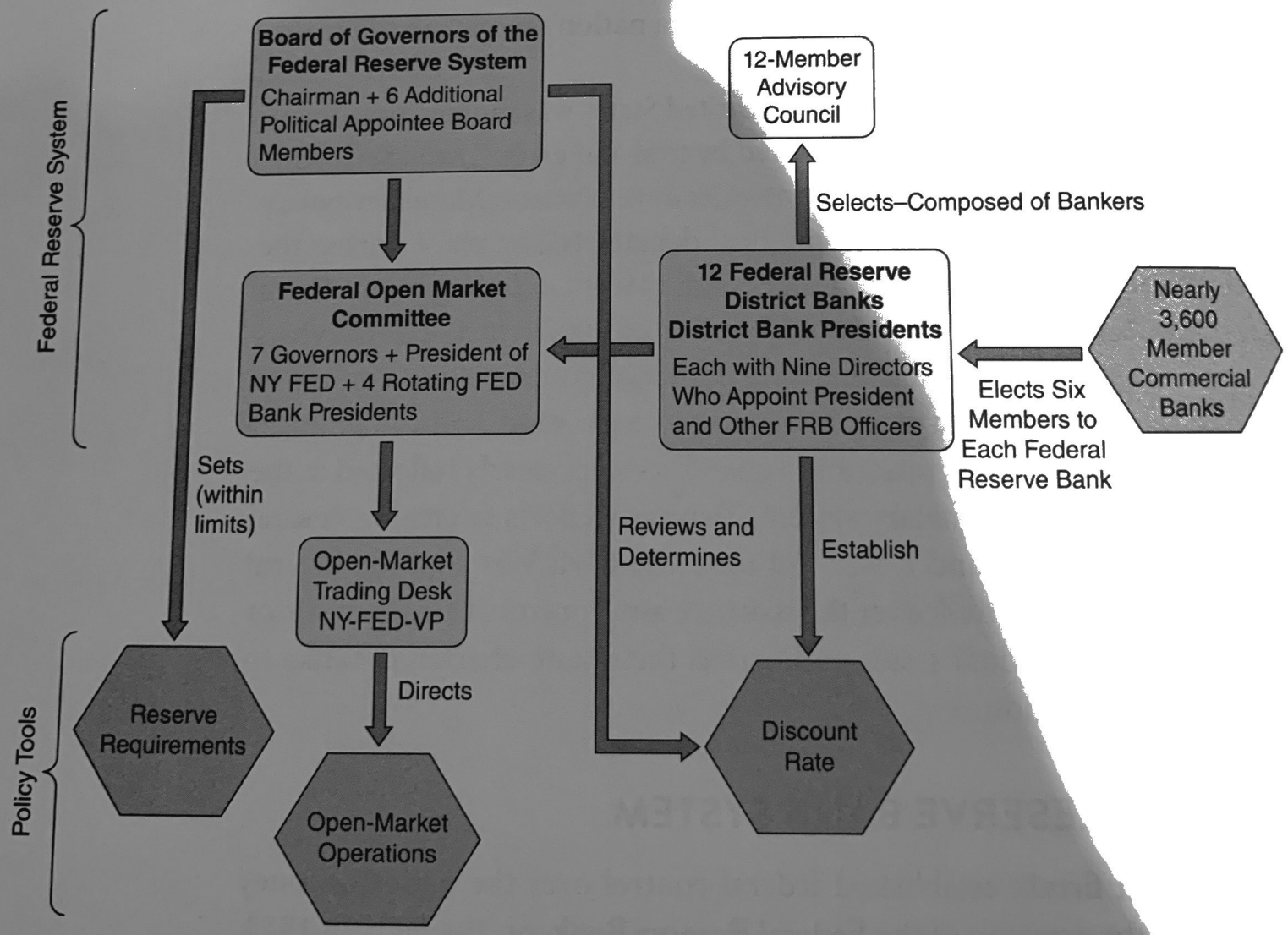


FIGURE 2-1 Flow Chart of Federal Reserve Structure and Operations

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the housing bubble by promoting adjustable rate mortgages and other new alternative mortgage financing, such as option ARMS and interest-only loans. These products were popular until interest rates rose in 2005. The prevalence of these types of loans helped drive up delinquencies, as those who borrowed at two percent eventually had to adjust to a rate of four percent, and saw their mortgage payments double. The Federal Reserve Board has used its monetary policy powers to keep interest rates on mortgages historically low from February 2010 to early 2015.

Monetary Policies

What is it that the Fed controls when deciding the nation's monetary policies? The Fed's underlying mission in setting policies is to maintain a stable and prosperous economy that provides jobs and better living conditions. However, the nation's monetary policies now affect a global economy, and the monetary policies of other nations directly affect those of the United States. So the Fed must function within global constraints.

The Fed uses four basic tools to influence the economy through the nation's monetary system, as follows:

1. Controlling the amount of money in circulation in the country, called the *money supply*
2. Adjusting the amount of funds available within the commercial banking network as manipulated through its "open market operations"
3. Signaling interest rate movements through changes in its discount rate of interest or in the federal funds rate, which is a short-term (sometimes just overnight) rate that banks charge each other for loans
4. Setting cash reserve requirements for depository institutions

Further explanation of each of these four tools follows, beginning with the most important: decisions about the nation's money supply.

Money Supply

The difficult task faced by the Fed is to create equilibrium so that growth in the nation's money supply is commensurate with growth in its population and productivity. Too much money in circulation can cause destructive inflation, and too little growth in the available money supply

can create damaging recessions or even deflation in the price of assets. But true measures of the amount of money in this country are difficult to determine, which in turn makes sound decisions difficult.

The size of our total money supply—and the enormous economy it serves—makes the problem appear almost beyond comprehension. For clarification, we will use a simplified example. First, remember that the value of money used today is represented by the amount of goods and services that it can buy (or be traded for).

Example

If we have an economy with exactly 10,000 units of goods and services and an amount of money available to purchase these products totaling $1 million, each unit of goods and services is worth $100. By increasing workforce productivity over several years, the economy would have more units of goods and services. Therefore, assume that the growth has created 20,000 units of goods and services for sale, but no increase has been made in the available money. With twice as much to buy for the same amount of money, the price of each unit of goods and services would drop to $50. Stated another way, the value of the dollar would double; it would take only 50 cents to buy what a dollar bought before.

If a different policy were used so that over the same period of time our increased workforce productivity supplied 20,000 units of goods and services, and the money supply was increased to $3 million, then each unit would be worth $150. With so much more money available, the dollar becomes less valuable. It would take $1.50 to buy what formerly cost $1.00—which amounts to a debasement of the value of the currency, a major component of inflation.

To support a stable pricing structure, a careful balance must be maintained between the nation's money supply and increases in workforce productivity. Failure to do so can result in inflation or recession.

Definition of Money

To better understand how decisions are made on whether or not to increase the available money supply, it is first necessary to define the term "money." The broad definition used by the Fed is that money consists of

those assets that have immediate purchasing power. In this definition, bank deposits are a key factor. A problem arises in that recent banking laws and regulations have altered the way bank accounts can be used. The line between "time deposits" and "demand deposits" is no longer so clear-cut, and some banks allow a savings account to be automatically drawn on to replenish an overdrawn checking account. In a "zero balance" checking account offered to businesses, the checking account is automatically fed daily from the savings account by the amount of checks cleared. The savings account pays interest to the depositor.

Another challenge to the Fed's handling of the money supply in this country is the declining role of commercial banks as the keepers of monetary assets. Today, the assets of all mutual funds have increased to the point where they exceed the total time and savings deposits in the banking system. The measure of money that the Fed uses in making its decisions excludes some money market funds, all individual retirement balances in IRA and Keogh accounts, deposits with nonbank institutions, and some dollar deposits held overseas. Nonbank companies, such as Raymond James, hold customers' deposits and have money market accounts that are not subject to banking regulations. Nor are the deposits insured.

Thus, decisions on money supply must be made using only a partial measure of the total market. Nevertheless, the Fed considers "money supply" to be currency in circulation plus both demand and time deposits within the banking system. To distinguish between some of the differences in the nature of money and to provide a basis for its measurement, the Fed identifies four categories of money, using the letter "M" to signify money, as follows:

M1 Currency in circulation, nonbank travelers' checks, demand deposits in commercial banks, and other checkable deposits at commercial banks and thrift institutions including credit union share drafts accounts. As of November 2014, M1 totaled $2,852 billion, an increase from $1,091 billion at the end of 2000.

M2 The total of M1 plus savings and small-denomination time deposits at all commercial banks and thrift institutions, retail money funds, and institutional money funds (a.k.a. general-purpose money market mutual funds). As of November 2014, M2 totaled $11,562 billion, an increase from $4,896 billion at the end of 2000.

M3 The total of M2 plus large-denomination ($100,000 and over) time deposits at all depository institutions, term Eurodollars held by U.S. residents at foreign and U.S. banks, term repurchase agreements at commercial banks and savings associations, and balances of institutional money market mutual funds. As of November 2014, M3 totaled $16,470 billion[1], an increase from $7,343 billion at the end of 2000. On March 23, 2006, the Federal Reserve Bank stopped calculating M3. In a press release, the Federal Reserve Bank stated that M3 did not appear to convey any additional information about economic activity that was not already embodied in M2, and that it had not played a role in the monetary policy process for many years. Consequently, the board judged that the costs of collecting the underlying data and publishing M3 outweighed the benefits. It took M3 six years to grow by $2,647 billion from 2000 to early 2006; it grew $4,231 billion over the next two years leading up to the financial crisis. Some analysts believe that the repurchase agreements and other derivative instruments might have set off an alarm earlier if they had been followed and regulatory action taken in response. Others speculate that the increases in what the Fed would have reported as M3 might expose the escalation of the United States trade deficit and massive Eurodollar holdings.

MZM The total of M3 plus other liquid assets such as all other money market funds that can be redeemable at par on demand. As of December 8, 2014, MZM totaled $12,887 billion, an increase from $4,659 billion at the end of 2000. MZM is not an official weekly release by the Federal Reserve System as are M1 and M2, but rather a tracking measure developed and reported by the Federal Reserve Bank of St. Louis.

A cursory analysis of the growth in money supply between 2000 and 2014, as indicated in the preceding figures, shows a 161% increase in M1 but a 177% increase in MZM. Overall, the Fed maintained a fairly stable rein on the money supply until 2001, but then allowed it to increase at a fairly fast pace, with the largest increases coming in 2008 and continuing

[1]Though M3 is no longer tracked by the Federal Reserve Bank, there are still estimates produced by various private institutions. The starting figure came from the Federal Reserve Bank; the ending figure was obtained at http://www.explistats.com, accessed Dec. 19, 2014.

through August of 2014 to offset the effects of the recent financial crisis, including the high levels of deficit spending.

Management of the Money Supply

The amount of money available in the United States is controlled by the Federal Reserve Bank Board. It operates through a system of 12 districts, each with some branch Federal Reserve Banks to facilitate local operations. The system works with the approximately 8,800 commercial banks that handle most of the cash transfers in the country. The Fed's Open Market Committee, comprising seven governors and five of the 12 Federal Reserve District presidents, meets each month. At these meetings, the committee reviews monetary aggregates, examines the influence of current interest rates, and considers the state of the economy. Then it makes a decision on whether or not an increase in the available money supply is justified.

To increase the supply of money, the Fed simply creates additional money and uses it to purchase U.S. Treasury securities on the open market. In a sense, the Fed writes "hot checks" to buy government securities. Of course, the checks are not actually "hot" because the Fed clears them through its own bank. And in fact, no actual checks are written; the Fed grants a credit to the U.S. Treasury bank account in exchange for Treasury securities. This authority to create money, backed only by government promises, gives the Fed tremendous influence in financial markets. Obviously, an influx of new money creates an increase in the money supply, which is expected to lower interest rates and thus give the economy a lift—although in practice, this strategy does not always work.

Open Market Operations

Another tool the Fed can use to influence the economy is called **open market operations**. Because it has access to a large supply of both government bonds and cash, the Fed can move these assets in and out of the banking system at any time it deems desirable. If the Fed decides the economy needs slowing down, it can issue an order—through a limited group of approved investment bankers who must be qualified and capable—to sell some of the Fed's supply of government bonds. These bonds are purchased by investors throughout the country, and the money to buy them is

withdrawn from various banks, sent to the Fed in payment for the bonds, and locked away in the Federal Reserve. Therefore, the cash is no longer available for banks to use in making further loans. Alternatively, if the Fed decides it is necessary to speed up the economy, it can buy government bonds, thus increasing the cash available to banks. The increased cash is meant to enhance banks' ability to make more loans, thus improving business activity.

Open market operations can be used to influence interest rates in the short term. For example, it takes about $1 billion in bond purchases on the New York market to lower effective interest rates about one-quarter percent. However, many other factors influence interest rates over the long term, such as supply and demand for money, foreign money markets, government taxing and spending policies, and investors' perceptions of the general health of the economy. By keeping interest rates low during the recent financial crisis, the Fed caused many adjustable rate mortgage holders' payments to go down instead of up.

Discount Rate of Interest

A third tool that the Fed can use is changing its **discount rate of interest.** Commonly called the "discount rate," it is that rate charged by the Fed to depository institutions that are eligible to borrow from it. This tool is probably the Fed's most widely publicized means of economic influence because it is the easiest for the general public to recognize and understand. Yet in practice, it is the least effective, as a change in the discount rate is not a critical factor in the banking industry because it does not represent a cost of funds. Even though an institution is eligible to borrow from the Fed, this money cannot be used as a source of capital. The purpose of such loans to depository institutions is to provide a cushion when unanticipated needs for cash arise. Thus the Fed's discount rate of interest is more of a signal to the banking community than a true cost of funds.

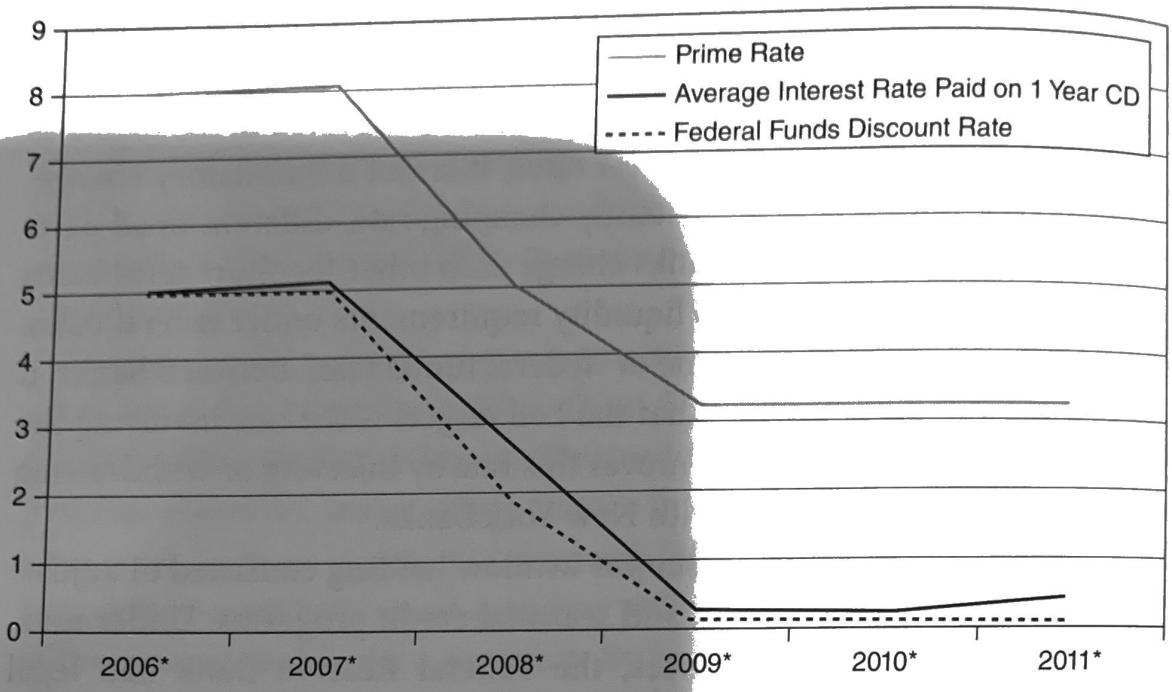
By increasing the discount rate, the Fed signals to all lenders that an increase in rates is in order. The immediate effect of such an increase is almost always an increase in most institutions' **prime rate** of interest—the rate on which a bank bases its charges to borrowers. Conversely, a reduction in rates signals a lowering of all interest rates. In practice, the signal may or may not be heeded by lenders, who remain free to adjust their rates as they see fit.

As indicated earlier in this chapter, more recently the Fed has been acting to change the **federal funds rate** rather than to change the discount rate of interest. While any such change is widely reported in the media as an increase, or decrease, in interest rates, it is not a mandatory change. The federal funds rate is a constantly changing rate, different in all parts of the country, as it is what banks charge each other for short-term loans that enable a bank to meet its liquidity requirements under federal rules. Thus, it has picked up the name of "federal funds rate." Between banks, it is a negotiated rate. The rate that the Fed targets is the one involving the big New York banks. The Fed moves this rate by injecting or withdrawing cash from its large deposits with New York banks.

Prior to January 2003, discount window lending consisted of adjustment credit, extended credit, and seasonal credit programs. Under unusual and exigent circumstances, the Federal Reserve Bank had legal authority to advance credit to individuals, partnerships, and corporations that were not depository institutions, following consultation with the Board of Governors of the Federal Reserve System. To advance this credit, the Federal Reserve Bank had to determine that credit was not available from other sources and that failure to provide credit would adversely affect the economy. Emergency credit, authorized under section 13(3) of the Federal Reserve Act, had not been used since the 1930s, but it was initiated again in response to the recent financial crisis, and several special emergency credit facilities were created in 2008 and 2009. By keeping the federal discount rate at historically low levels since 2009, the Fed has kept the cost of mortgage funding low. This allows those with fixed rate or adjustable rate mortgages who experienced upward rate adjustments in 2007 and 2008 to refinance or see their rate adjustments decline over time.

The Dodd-Frank Act changed the Federal Reserve's authority to lend under unusual and exigent circumstances. Federal Reserve Banks now can no longer extend credit to an individual, partnership, or corporation other than through a "program with broad-based eligibility." Such emergency facilities can only be created with prior approval of the Treasury Secretary, and must be used for the purposes of providing liquidity to the financial system and not to aid a failing financial institution.

Figure 2-2 is an example of how an adjustment of the discount rate of interest by the Federal Reserve Bank can impact short-term credit costs for prime borrowers and the cost of short-term deposits—another key cost that drives financial institutions' profits.



*Source: Board of Governors Federal Reserve Bank

FIGURE 2-2 History of How Federal Reserve Changes in Federal Discount Rate Influences Short-Term Borrowing and CD Rates

Reserve Requirements

The fourth tool available to the Fed is control of the reserves that must be set aside (unavailable for loans) by all federally insured depository institutions. These institutions must maintain certain cash reserves on deposit with the Fed—reserves that pay no interest. This practice allows the banking system to borrow its own non-interest-bearing deposits from the Fed at the discount rate of interest. The Federal Reserve can be a very profitable operation for the government. In October 2006, the Financial Services Regulatory Relief Act was passed, allowing the Fed to pay interest on bank reserves held. The law became in force in 2008 and was fully implemented in late 2011. Recent developments include the Federal Open Market Committee Policy Normalization Principles and Plans, created on September 17, 2014. During monetary policy normalization, the Federal Reserve intends to move the federal funds rate into the target range set by the FOMC primarily by adjusting the interest rate it pays on excess reserve balances. The reserve held by the Fed represents a cushion, a back-up for the banking system to use on short-term loans that allows an eligible institution greater flexibility in meeting unexpected demands for funding. All such loans must be fully collateralized by the borrowing institutions.

The Garn-St. Germain Act of 1982 exempted the first $2 million of reservable liabilities from reserve requirements. Today, these liabilities are established by the Monetary Control Act and the Garn-St. Germain Act, and must be based on the following criteria:

- Total transaction accounts consist of demand deposits, automatic transfer service (ATS) accounts, NOW accounts, share draft accounts, telephone or preauthorized transfer accounts, ineligible bankers' acceptances, and obligations issued by affiliates maturing in seven days or less.
- Net transaction accounts are total transaction accounts less amounts due from other depository institutions and less cash items in the process of collection. These are referred to as "liabilities" since they are owed by the depository institution to their depositors.

The reserve requirement in place as of January 22, 2015, for those defined financial depository institutions is 14.5% for liabilities in excess of $103.6 million, 3% for those liabilities from $79.5 million to $103.6 million, and 0% on the balance below $12.4 million. The Fed made no change in the reserve requirement for 12 years running; then on April 2, 1992, it lowered the rate on over-$25 million demand deposits from 12% to 10% during the recession. The decrease in the reserve requirement brought a release of $8 to $9 billion in additional cash into the banking system with the expectation that it would spur the economy with minimal effect on inflation. When the economy recovered, the reserve requirement—the easing of which had allowed an increase in the money supply multiplier effect—was not increased to its previous levels; this decision was made as a way to control the growth of credit as the economy picked up in the late 1990s. In October 2008, the Federal Reserve Board established the interest rates on required reserve balances and excess balances.

THE UNITED STATES TREASURY

While the Federal Reserve Bank Board holds responsibility for the amount of money circulating in the country, the United States Treasury is responsible for raising the cash to pay the government's bills. How the Treasury decides to handle this requirement can easily upset the Fed's best-laid plans.

In the simplest terms, the money to pay the government's obligations comes from three sources: tax revenues, borrowed funds, and printing

money. If the government lives within its income, tax revenues are sufficient to pay all obligations. When it spends more money than it raises in taxes, however, the additional money must either be borrowed or printed. This crucial decision whether or not to borrow rather than print more money rests primarily with the Treasury. However, to pay for overspending by printing additional money is a choice that requires the consent of the Federal Reserve's Board of Governors. The reason is that the Fed, with its "open-ended checking account," is the only entity with the power to create money by purchasing government securities issued by the Treasury. It is this authority to create money based solely on Treasury securities that gives the Fed its tremendous aura of power. Currently, the power to actually print currency and mint coins rests with two departments of the Treasury: the Bureau of Engraving and Printing prints currency, and the U.S. Mint produces coins. While relegated to minting coins like the pennies, nickels, dimes and quarters we use every day, the U.S Mint was one of the first and more important agencies of the U.S. Government, demonstrated by the fact that the first U.S. Mint building was the first federal building erected by the U.S. Government under the Constitution.

However, if the Treasury opts to borrow money rather than printing it to pay for deficit spending, it can do so without the Fed's approval. Treasury borrowing is accomplished through periodic sales of government bonds, notes, and bills to the general public at open auctions. Since both procedures—printing and borrowing money—require the issuance of government bonds, the only limit is the national debt ceiling established by Congress. In practice, this is little hindrance, as the debt ceiling is raised periodically to accommodate such overspending as Congress deems necessary.

The politically less obvious method of covering deficit spending is for the Fed to agree to an increase in the money supply. By printing more money to cover the deficit (a practice known as *monetizing* the debt), the need to borrow money from the general public is reduced. When government securities are sold to the Fed for the purpose of increasing the money supply, the Fed holds the securities off the market in reserve. The down side to this practice is that an increase in the money supply in excess of the country's growth rate is certain to cause an increase in the rate of inflation because excessive increases in the money supply debase the value of the currency. But an increase in inflation is not an immediate result of printing more money, and it is much less obvious to the average citizen; in a period of negative economic growth, printing money may be a good idea

as long as when growth resumes, excess money is slowly withdrawn from the economy to reduce its inflationary effects.

Politicians generally prefer that the Fed be more accommodating with its approval of money aggregate increases, particularly in election years. The popular political call to the Fed to "lower interest rates" (translation: to create more money) is really a call for an increase in the money supply with little mention of the fact that such an action can debase the nation's currency. In the late 1990s, the government seemed to be running a surplus, which had substantially reduced the amount of borrowing necessary to lower competitive demand for longer-term money and fuel lower mortgage rates. Many felt the search for high-quality yields propelled the demand for highly rated mortgage securities, and that the subsequent formation of new, creative mortgage-backed securities, collateralized debt obligations, and financial derivatives, combined with lax and poorly funded regulatory oversight, led to the recent financial market meltdown.

From the viewpoint of the real estate industry, borrowing by the government to pay its obligations competes directly with the demand for mortgage money. Any increase in demand can easily increase the cost of money. In this sense, increasing the money supply rather than borrowing money may hold interest costs lower for mortgages, but always at the risk of a growing rate of inflation and higher rates later on. It is not an easy trade-off. Some industries, including real estate, have found that short-term benefits can be derived from an inflationary trend.

INTEREST RATES

How are interest rates determined? While the Fed has substantial influence on short-term rates, long-term rates follow additional influences.

Interest is the cost of using another's money, and that cost reflects supply and demand factors somewhat similar to the way commodity prices do. However, fluctuations in the cost of money differ from those of commodities in that demand does not always respond to a change in price. If, for instance, sugar, oil, or copper decline in price, the tendency is for demand to increase. Housing follows a similar pattern, primarily because borrowed money has become an integral and major part of the housing cost. If borrowing costs decrease, the cost of housing is reduced, with an obvious increase in the potential market. However, if money goes down in price, many other kinds of demand may not respond at all because additional factors influence money.