

# **ECONOMICS**

**an  
Introduction  
to Analysis  
and  
Policy**

Seventh Edition

**GEORGE LELAND BACH**



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*Prentice-Hall, Inc., Englewood Cliffs, New Jersey*

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**ECONOMICS**  
An Introduction to Analysis and Policy

George Leland Bach

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# Money, Financial Institutions, and the Federal Reserve

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Without money, our complex exchange economy would grind to a halt. Without financial intermediaries like banks, insurance companies, and savings and loan associations to link savers and investors, the circular flow of income would stagnate. Thus, regulation of the supply of money and of the financial intermediaries provides a major channel for government control of aggregate demand. This chapter explains how our monetary and banking system works. Chapter 13 focuses on monetary policy—on how the monetary authorities can help us achieve stable economic growth without unemployment or inflation.

### **Money and Near-Monies**

Think for a minute about what life would be like under a barter economy. Suppose you have

a pig. But what you really want is a spool of thread, two new shirts, a movie, and a newspaper. You hear that B down the road has made some shirts. But unless B happens to want some pork chops, you're still out of luck. Your neighbor, C, wants a pig, but he has only lumber to trade. If you're lucky, you may be able to get lumber from C and swap that to B for shirts. But it's going to take some fancy haggling to work out a fair trade with such indivisible products, even if you all have a basic desire to swap. But with money as a medium of exchange and as a standard unit for quoting exchange prices, it's easy to avoid this kind of difficulty. Money is a universally accepted unit of purchasing power, freely spendable and easy to store if you want to postpone spending your income.

When you hear the word money, you think of

coins and paper bills. But for hundreds of years cattle served as money in the ancient world. In the late Roman Empire, small, square pieces of leather were used. Two hundred years ago, hides and wampum beads served as money in North America. Only recently has the world widely adopted the coins and paper notes that we now use; and today we are moving away from them to bank checks except for small transactions. Computer entries may be next. Money cannot be defined merely in terms of the substances that we use for it at any time.

A useful definition of money must be based on what money does, not on what it looks like. Actually, around 80 percent of all payments in the United States today are made by bank checks, only about 20 percent by currency (i.e., coins and paper money). We have become so accustomed to using bank checks as money that for practical purposes payment by check is the equivalent of payment by currency, even though the check is a "credit" instrument that is good only if the bank will pay the sum indicated.

Money, therefore, is defined here as the total of currency and bank checking deposits, since these two constitute the nation's generally acceptable media of payment. The top part of Table 12-1 shows the amount of these two major types of money in existence in 1970. It is very important to note that the bulk of our money is bank checking deposits, not currency, and that the great bulk of our payments are made by bank checks.

Only a thin line separates actual money from a variety of "near-monies," shown in the bottom half of the table, that are readily convertible into currency or checking deposits. Bank savings deposits, savings and loan shares, short-term U.S. government securities, U.S. savings bonds redeemable on the owner's demand, and the cash surrender value of insurance policies

**table 12-1**  
**Money and Near-Monies in the United States\***

		In Billions
<b>Money</b>		<b>\$200</b>
Currency	\$ 47	
Checking deposits	159	
<b>Important near-monies</b>		<b>723</b>
Savings deposits	260	
Savings and loan shares	135	
Liquid U.S. government securities	170	
Insurance policies (cash value)	158	

\* As of Jan. 1, 1970. Currency shown is that held by the public outside banks. Only government securities redeemable on demand or due within one year are included. Data from *Federal Reserve Bulletin* and *Life Insurance Fact Book*.

are probably the most important of these near-monies. But there are many more that are only a little less-easily convertible, including the great mass of longer-term government bonds.

Any of these near-monies serves one function of money reasonably well—that of a store of value. In one way, they are better than money, for the holder receives interest on most near-monies and none on money itself. Balanced against this, the near-money must be converted into actual money before it can be spent. This always involves some inconvenience or delay, and sometimes a risk that the near-money can be converted only at a loss—for example, when government securities must be sold before maturity. The factors that induce people and businesses to shift back and forth between money and near-monies often play an important role in determining how well the economic system works.

## **PART A: PRIVATE FINANCIAL INSTITUTIONS AND THE MONEY SUPPLY**

Many kinds of private financial institutions have developed over the years to meet people's

changing needs. Some of these, such as savings and loan associations and insurance companies,

receive long-term savings and channel them on into real investment in buildings, equipment, and the like. Others, such as the ordinary (“commercial”) banks, serve as depositories for both currently used funds and longer-term savings.

### **Banks**

There are now about 14,000 “commercial” banks in the United States, which accept both “savings” (or time) accounts and “checking” (or demand) accounts. The presumption is that savings accounts represent funds put in the bank for relatively long periods of time, while checking deposits are funds that you may want to use promptly. Thus banks generally feel freer to make long-term loans when their savings deposits go up than when their checking accounts increase. Technically, the banks can require depositors to give thirty or sixty days’ notice before withdrawing savings deposits, but they almost never do. Actually, the dividing line between savings and checking deposits is not very sharp once the funds have been deposited in the bank. **But there is one fundamental difference: Checking deposits are spendable money, since depositors can write checks on them. Depositors cannot write checks on savings deposits. A savings deposit can be spent only by withdrawing it in the form of hand-to-hand currency or by transferring it to a checking account.**

Harking back to the circular-income-flow diagram in Figure 5-2, it’s obvious that saved funds have to be matched by equal investment or government spending if money income is to continue to flow smoothly through the economy. Do the financial “intermediaries” succeed in connecting up savers with borrowers who will spend the savings back into the income stream? Sometimes they do, and sometimes they don’t. Often the commercial banks actually increase or decrease the nation’s money supply by their own actions, as we shall see below.

### **Other Financial Intermediaries**

Financial middlemen have grown up to accommodate about every imaginable type of

saver and borrower. Savings and loan associations are much like the savings departments of commercial banks; they draw mainly the savings of lower- and middle-income individuals, make mainly loans for home construction, and have grown enormously since World War II. Life-insurance companies are huge financial intermediaries. Total premiums paid on life-insurance policies and annuities in 1970 were over \$20 billion, of which almost half represented savings—that is, accumulation of reserves by the insurance companies against future policyholder claims. Insurance companies use these funds in many ways—for government bonds, real-estate and business loans, and direct real-estate and business investments.<sup>1</sup> “Consumer finance,” or “sales finance,” companies get most of their funds secondhand from the banks and insurance companies, and then lend these funds directly to consumers at higher rates.

Federal, state, and local governments, though they’re out of place in this section on private institutions, have become important financial middlemen between savers and investors. Whenever governments borrow from private savers to finance their expenditures, they’re behaving much as private financial middlemen do, though the resulting forms of real investment are different—roads, schools, and space missiles, instead of factories and houses.

### **Direct Conversion of Savings**

Often no financial intermediary is involved in the investment of savings. Every year, businesses reinvest billions of dollars of their own earnings in buildings, equipment, and other investment goods. Individuals buy new houses, which are considered a form of investment in the national income accounts. Individual savers also invest directly in new stocks and bonds, leading on toward real investment.

### **Financial Investment and Real Investment**

In everyday conversation, the term “investment” is used in several different ways. Often it

<sup>1</sup>Total life insurance in force amounted to over \$1.3 trillion.

means financial investment—that is, the process of taking funds and “investing” them in stocks, bonds, or the like. Sometimes it also means “investing” in real assets, like houses, as when you buy a new or used house. Each usage is justified by the dictionary, but it is important to remember that in the national income accounts of economics, harking back to Chapter 5, the term investment is defined specifically to mean real investment in currently produced capital goods—factories, machinery, housing, and the like. Thus, if you buy a government bond, this is often considered investment in the newspapers and everyday conversation, but it is not investment as the economist defines the term. In economics, if I use my savings to build a new house, that’s real investment. But if I buy General Motors stock, that’s only a financial transfer, which passes my savings on to the man who sells me the stock, or to General Motors if it’s new stock issue. The question then is: What does that man, or General Motors, do with the funds? Only when the funds go on into real investment in newly produced capital goods or housing is there investment in the economic sense of the term.

### ***The Supply of Currency (Government-Issued Money)***

Most financial intermediaries take savers’ funds and channel them on toward investment without increasing or decreasing the stock of money. But the commercial banks, unlike others, may actually increase or decrease the stock of money as they make and collect on loans and investments. In fact, the supply of money in our society depends largely on the lending activities of the commercial banks. Most of the rest of Part A of this chapter, therefore, is devoted to an analysis of the way commercial banks operate, and the way they may increase the nation’s money stock through their lending activities.

But first, a brief section on the forces governing the supply of currency—government-issued coins and paper money. Currency makes up only about one-fifth of our money supply, and it

is used primarily to finance small transactions. As a practical matter, whenever you have a bank deposit account, you can readily get currency, merely by writing a check on your account. Indeed, this is the way currency is placed in the hands of the public. Although it is formally issued by the government (mainly the Federal Reserve Banks, to be explained presently), new currency is made available to the general public through providing it to the banks, which in turn pay it out to depositors on demand. In essence, the Federal Reserve always stands ready to print up enough currency to permit the public to get currency in exchange for any deposits it has.

Currency is comprised of Federal Reserve notes (paper money) and coins. Federal Reserve notes totaled \$47 billion and coins \$7 billion on January 1, 1970.<sup>2</sup> Note that paper money is nearly 90 percent of the total.

### **What Determines the Amount of Currency in Circulation?**

What determines the amount of currency outstanding? The answer is, to repeat, the Federal Reserve always prints up enough money to give bank depositors all they want in exchange for their deposits. Thus, it is the stock of bank deposits that basically determines the size of the nation’s money stock. Once the public has deposits, it can obtain more currency at will. If for some reason the public has more currency than it wants to hold, it simply puts the currency back in the bank and receives a deposit in exchange.

Thus, basically, it is the public’s demand for currency that determines how many coins are minted and how much paper money is printed. Remember, though, that although many people think of currency as the main form of money, in fact it plays a minor role in our monetary system. People ordinarily keep about one-fifth of their total money holdings in the form of currency, and about four-fifths in demand deposits. Although this ratio varies from time to time, as a general rule the monetary authorities can pre-

<sup>2</sup>This total includes \$7 billion of currency held in bank vaults, which was not included in Table 12-1.

dict that if households and businesses receive \$100 of additional deposits, they will withdraw about \$20 of it in the form of new currency.

**The Supply of Bank Money:  
Checking Deposits**

**Commercial Banks and the "Creation"  
of Deposits**

Currency is government money issued directly by the Treasury and the Federal Reserve. But the great bulk of our money is not issued by the government at all. Rather, it is provided by the commercial banks in their day-to-day business of making loans and "investments."<sup>3</sup> The distinguishing feature of modern commercial banking is its ability, through making loans and investments, to "monetize" the debts of others, and thereby in effect to create demand deposits (checking accounts) which serve as money.

Thus, the commercial banks (that is, the banks we all know and deal with) in good times generally lend out more than customers have previously deposited. In bad times, they may insist on repayment of the same loans, wiping out the deposits created when the loans were made. Far from being a passive link in the savings-investment process, commercial banks may drastically affect the flow of funds from savers into real investment.

<sup>3</sup>When banks make "investments," these are financial investments in government bonds or other securities. Banks make very few direct *real* investments.

To understand this rather startling statement that commercial banks "create" checking deposits, you need to know something about how a commercial bank works. The easiest way to get this picture is to look at a simplified balance sheet of a bank, and then to trace through a few transactions. This will give you an understanding of the nature of deposits and how they get created.

**The Bank's Balance Sheet**

Banks, like other business institutions, keep a running financial record of what they own and what they owe to other people. What they own and what is owed to them are their "assets." What they owe to other people are their "liabilities." The difference between the two is the "net worth" of the business to its owners, the stockholders. When these three main categories are put together in one statement, they are called a "balance sheet."

A typical bank balance sheet looks like the one below, except that we have omitted a lot of minor items to make the essential categories stand out.

What this balance sheet says is that on June 30, 1971, the bank owned cash of \$400,000, bonds valued at \$800,000, and a building and fixtures valued at \$50,000. In addition, it had loaned out \$400,000 to customers, who owed the money back to the bank. These are its assets.

Offsetting these assets, the bank had deposits of \$1,500,000, partly demand and partly time

<b>Report of Condition</b>			
<b>VICTORY BANK AND TRUST COMPANY</b>			
<b>June 30, 1970</b>			
<b>Assets</b>		<b>Liabilities and Net Worth</b>	
Cash	\$ 400,000	Demand deposits	\$ 900,000
Bonds	800,000	Savings deposits	600,000
Loans outstanding	400,000	Net worth	150,000
Building and fixtures	50,000		
	<u>\$1,650,000</u>		<u>\$1,650,000</u>

deposits. These deposits are liabilities, because they are sums the bank promises to pay to the depositors on demand or on due notice.

The difference between the assets and liabilities is \$150,000, which is the estimated net worth of the bank. Part of this net worth was originally paid in by the stockholders as "capital" when they bought stock to start the bank. The rest is "surplus and undivided profits," which are mainly the profits made by the bank and not paid out to the owners. This breakdown of net worth is not shown on our simplified balance sheet.

### **Potential Creation of Credit by an Individual Bank**

If we make some highly simplified assumptions, the basic operations of the Victory bank are laid bare. Assume for the moment that: (1) the bank is on an isolated island where there are no other banks and no communication with other countries; (2) all payments on the island are made by bank check, and no currency is used by the public (the "cash" item on the balance sheet may, for example, be gold); and (3) there are no laws to control the volume of loans the bank can make.

Suppose now that you, a substantial businessman on the island, go to the banker and ask to borrow \$1,000. Your credit is good, and he agrees to make the loan. What happens to the bank's balance sheet?

On the assets side "Loans Outstanding" go up \$1,000, and on the liabilities side "Demand Deposits" go up the same amount. Remember that all payments are made by check, so you will simply take your loan as an addition to your checking deposit at the bank. Instead of giving you currency, the banker gives you a checking account. The balance sheet still balances, as it always must. But now there is \$1,000 more spendable money (checking deposits) in existence merely as a result of the bank's making a loan to you. There is no change at all in the amount of "cash" in existence. The bank has taken your promise to pay (which could not serve as money) and has given you its promise

to pay on the order of your check (which is widely acceptable money). It has "monetized" your debt.<sup>4</sup>

This result is shown readily by a simplified bank balance sheet (sometimes called a T-account), listing only the changes that take place in this transaction. It shows that loans have increased \$1,000 on the assets side and that deposits have increased \$1,000 on the liabilities side of the balance sheet.

Assets		Liabilities	
Loans	+\$1,000	Deposits	+\$1,000

Chances are you've borrowed the money because you want to spend it. What happens when you do spend it? Say you buy some machinery from John Jones, and write him a check for \$1,000. When Jones presents the check at the bank for payment, \$1,000 is taken out of your account and put in his. Since all payments are made by check, he will not want any currency; he merely wants the \$1,000 in his checking account so he can spend it when he likes. The new \$1,000 of checking deposits has been spent once and is now available for Jones to spend again.

A few days later, Jones buys a new roof for his house, and pays for it with the \$1,000. Then the \$1,000 is transferred again, from Jones's account to the roofer's account. Now the \$1,000 has financed \$2,000 of transactions, and the money is as ready for spending again as if the bank had printed up a thousand one-dollar bills and lent them to you. Obviously the new deposit can be spent over and over as long as it is in existence.

In the meantime, what has been happening on the bank's balance sheet? Nothing. The

<sup>4</sup>Banks ordinarily deduct interest on loans in advance. Thus the bank would give you perhaps \$970 and keep the other \$30 for interest; you would repay the full \$1,000. This process of deducting interest in advance is called "discount" rather than charging "interest." Suppose for simplicity, however, that the bank gives you the full \$1,000.

\$1,000 checking deposit has been moving from one account to another, but the overall totals on the balance sheet remain unchanged. The additional deposit was created by the loan to you. It remains outstanding until the loan is paid off, and may be spent (transferred) any number of times in the meantime.

Some day your loan will come due. If you're a sound businessman, you will have built up your own checking account in preparation for the day by holding on to receipts you get from your customers. On the due date, you go in to see the banker and write him a check for \$1,000 on your own account. He returns your promissory note to you, and the loan is paid off. But look at what this does to the bank's balance sheet.

Loans are down by \$1,000, since the loan to you is paid off. And deposits are down by \$1,000, since you have written a \$1,000 check against your account payable to the bank, and this check is not transferred to any other depositor. Repayment of the loan just reverses the original entries that were made when you borrowed the money. The loan was made by giving you a deposit account to write checks on. Repayment of the loan wipes out that checking account, and at the same time wipes out your debt to the bank. The whole transaction has been perfectly businesslike. It has thousands of counterparts every day in the United States. Yet, in effect, the bank has acted like a little mint, monetizing your debt and creating the checking deposit it lends you, and wiping the deposit out when you repay the loan.

Look at the T-account now. It still shows the + \$1,000 in loans and deposits from the initial loan. But now we add a - \$1,000 for both deposits and loans. The balance sheet is back to its original position, but the economy had an extra \$1,000 of money while the loan was outstanding.

How many other loans can the banker make simultaneously? Obviously, there is no reason why he has to stop with you. Since the public does all its business by check, and since there is no other bank on the island, he need not worry about currency withdrawals or loss of deposits to another bank. It is hard to see what will put a ceiling on the volume of loans the banker can extend. And he could just as well extend credit by buying bonds. Suppose that instead of lending \$1,000 to you he buys a new \$1,000 bond issued by the island government. The bank enters a \$1,000 checking account for the government, which the government can spend when it pleases. The checking deposit is created in exactly the same way, and it stays in existence (however often it is spent) until the bank is repaid for the bond. Since the bank collects interest on every loan or investment made, this looks like a very good thing indeed for the banker and his stockholders.

But it all sounds a little like never-never land. You probably suspect there's a catch in it some place. If people could draw out currency, you say, the banker couldn't go around creating money like that just by writing down entries on his books. And you'd be right—partly right. We need to explore what happens when people can withdraw currency. But before you throw out this simplified example, remember that about 80 percent of all transactions in the United States today are made by bank check. The example is not far off on that score after all.

**Limits to Credit Creation by an Individual Bank**

Why don't banks keep on expanding their loans and earning more interest indefinitely, if all they have to do is create new checking accounts by making entries on their books? Now remove the simplifying assumptions of our island economy, one by one, to get a real-world situation like the one that exists in the United States today. But still assume there is no Federal Reserve to regulate the banks and to provide more currency; the amount is fixed.

Assets		Liabilities	
Loans	+\$1,000	Deposits	+\$1,000
	- 1,000		- 1,000

### Currency Withdrawals

Keep the other assumptions unchanged but assume now that the island's money-using habits are like those in the United States today. The people want to hold about a fifth of their total money supply in the form of currency. Suppose that the bank's "cash" account consists of currency—coins or paper currency originally printed by the government.

Now the banker has to be more careful. His balance sheet shows \$400,000 of cash. If he is reasonably sure that the 4-to-1 ratio between deposits and currency wanted by the public will continue, he can calculate roughly how far he can safely go in extending new credit. Every time he adds \$5 to his deposits the public will withdraw \$1 of it in currency. Thus, he might be safe in expanding his deposits nearly \$2,000,000, of which he would expect to lose about \$400,000 in currency, if he didn't mind seeing his cash account go down to almost zero.

Actually, the banker wouldn't want to run anywhere near that close on his currency lest the bank be unable to meet unexpected depositors' demands and "go broke." Bankers are traditionally conservative people. Nevertheless, the basic relationship of currency to potential credit expansion is clear. Whenever there is a chance of a currency withdrawal, the bank must be sure it has enough currency to meet the requests of depositors. This public demand is typically small relative to the total volume of deposits, but the potential currency demand imposes a real restriction on the bank. After a banker has been in business a while, he develops a pretty good feel for how heavy currency drains will be at different times of the year and under different circumstances, and governs himself accordingly as a normal part of his business operations. But he also usually keeps a good margin of safety.

What if people lose confidence in the bank and all want their money in currency right now? The answer is painfully clear. The depositors who demand the first \$400,000 can be paid off, but the rest are out of luck. In a fractional-reserve banking system—that is, one where the total cash reserves are only a fraction of the system's deposits—the banks cannot pay off all

their depositors in currency, for the simple reason that they don't have that much currency. This fact was faced with painful regularity during past financial crises and depressions in the United States. The worst was in the years 1932–1933. A spreading panic of bank "runs" by people wanting to withdraw their deposits in currency forced the government to close all the banks in the country temporarily to protect them all from bankruptcy. At the end of the "bank holiday," public confidence had been restored enough to permit banks to reopen on a gradual basis.

This situation reemphasizes the basic fact: bank deposits largely represent credit extended through the making of loans and investments by banks, not through the deposit of currency in banks. This is obviously true in the Victory bank, since it has only \$400,000 in cash but deposits of \$1,500,000. It is equally true in the United States today, where the total "cash" reserves of all commercial banks are about \$90 billion and total deposits (demand plus savings) are over \$400 billion.

### Legal Reserve Requirements

Suppose now that the islanders get to worrying about whether their bank is sound (or maybe they hear about the way things are done in the United States), and pass a law requiring the bank to hold cash reserves equal to at least 20 percent of its deposits. (Before reading further, ask yourself whether you would favor this law, and why you would or would not.)

This legal requirement puts a real crimp in the bank's expansion possibilities. With \$400,000 of cash, the bank can have only \$2,000,000 of deposits. It already has \$1,500,000, so the limit of its new deposits (credit extension) is \$500,000. The actual working limit is less, because the banker needs to worry about likely currency withdrawals as well as about the legal reserve requirement. Thus, a legal cash-reserve requirement against deposits puts an upper limit on the amount of credit the bank can extend, since new loans or investments mean new deposits.

How many deposits can be supported on any given cash reserve depends on the level of the

reserve requirement. With a 20 percent reserve requirement, the bank legally can have five times as many deposits as it has reserves. If the reserve requirement is 50 percent of deposits, the bank can only have twice as many deposits as it has reserves. If the reserve requirement is 10 percent, deposits can be ten times reserves. In fact, the legal reserve requirement now averages about 15 percent for banks in the United States.

The real function of bank reserve requirements is, thus, to limit the total volume of bank credit that can be extended. Although bank reserve requirements do serve the purpose of protecting the security of customers' deposits to some extent, it should be clear by now that nothing short of 100 percent reserves would guarantee the continuous availability of cash for all depositors. With much smaller cash reserves, the thing that really keeps the banking system solvent is the confidence of the public in each other's checks. So long as nobody wants much more currency than usual, the banks get along fine. But if everyone tried to get currency for his deposits at the same time, the legal reserve requirement would be of only minor help in paying off the depositors. The basic purpose of reserve requirements is to limit the amount of credit the banks can extend, and hence to limit the amount of deposits they can create.

A few institutional details about legal reserve requirements in the United States are worth attention, although they don't change the basic principles stated above.

1. Only "cash" is counted in computing banks' legal reserves. Government securities and other assets may be nearly as liquid as cash, but they are not part of a bank's legal reserve.

2. When a bank has more cash reserves than the law requires it to have, the excess is termed "excess reserves." Whenever a bank has excess reserves, it feels some pressure to expand its loans and investments. Idle reserves earn no interest. Thus, the banker generally tries to keep excess reserves at the lowest level consistent with his liquidity needs and the availability of safe loans and investments.

3. There are different reserve requirements for different banks and for different types of

deposits. Banks that are members of the Federal Reserve system (see Part B of this chapter) have their reserve requirements set by that federal authority. "Nonmember" banks have their requirements set by state laws or state authorities. In either case, reserve requirements are generally higher on demand deposits than on time deposits, and on large city banks than on small country banks.

#### **Adverse Clearing Balances**

Now drop the last special assumption—that there is only one bank—and put the Victory bank in the United States. Here there are lots of other banks in operation, and the Victory bank needs to take this fact into account. If the bank makes loans to its customers, there is a good chance that they will write checks to people who do business elsewhere. And when this happens, the Victory bank has to pay cash to the other bank. This is a most important change in the bank's position.

In a many-bank system, the most important limitation on the power of an individual bank to expand credit to the legal limit permitted by its reserves is the fear that it will lose reserves to other banks. If bank A has to pay cash to bank B when they settle up the checks written back and forth between their customers, we say that bank A has an "adverse clearing balance." And to bank A an adverse clearing balance is just like a currency drain—it takes away cash reserves.

Ordinarily, the checks written against any bank and the checks it has to collect against other banks roughly balance off. You send \$500 to Philadelphia to pay a bill, and your neighbor gets a payment from Philadelphia. But if one bank expands its credit more rapidly than other banks do, it's likely to lose reserves on balance. Recognizing this fact, few bankers would make new loans and investments amounting to anything like \$5,000 on \$1,000 of excess reserves (assuming a 20 percent reserve requirement) unless they had some special reason to suppose that they would not lose reserves through adverse clearing balances. Indeed, bankers ordinarily hesitate to extend new credit much beyond their excess reserves.

To summarize what we have said so far about banks and the supply of money: (1) One function of financial institutions is to channel savings to borrowers. This activity has no direct effect on the volume of money. (2) Commercial banks are distinguished from other savings institutions in that, as a group, they do not simply lend out the money that people have deposited. They actually “create” money by giving borrowers current spending power in exchange for future promises to repay the bank. (3) The power of an individual commercial bank to expand credit on its reserves is limited by (a) legal reserve requirements, (b) the dangers of currency withdrawals by customers, and (c) adverse clearing balances.

#### ***Credit Creation and Contraction by the Banking System***

Any one bank that expands loans when other banks are not expanding is checked by adverse clearing balances. But when we view the banking system as a whole, the limitation imposed by adverse clearing balances disappears. This is because the reserves one bank loses another gains. Since the banking system as a whole loses no reserves through adverse clearing balances, it can create deposits through lending up to the multiple permitted by the legal reserve-requirement ratio, just as could the island bank above. If, for example, the legal reserve requirement against deposits is 20 percent, the banking system can expand deposits up to five times its reserves.

Of course, the banking system faces limitations from the withdrawal of currency by depositors and from increases in reserve requirements, just as did the Victory bank above. For currency withdrawals reduce the volume of total reserves in the banking system. And higher legal reserve requirements reduce the multiple by which deposits can exceed reserves. But the apparent check of adverse clearing balances vanishes when we consider all banks together.<sup>5</sup>

<sup>5</sup>Since the Federal Reserve imposes higher legal reserve requirements against demand deposits than against savings

It is easy to see that adverse clearing balances don't limit the expansion power of the banking system. But since individual banks normally do not lend much beyond their excess reserves, the banking system normally only gradually expands deposits to the legal limit on new reserves.<sup>6</sup>

Sometimes, however, the banking system expands credit very rapidly. For example, during World War II the banking system created \$100 billion of new deposits (money) by purchasing new government securities from the U.S. Treasury. During each “War Loan Drive” the commercial banks bought billions of dollars of new government bonds, and paid for them by giving the government demand deposits to spend. In a War Loan Drive, for example, the banks would buy \$10 billion of new government bonds and a corresponding \$10 billion of new deposits would be created in a single day. The banks would enter \$10 billion of deposits for the U.S. government on their books, with a matching asset of \$10 billion of new bonds they had acquired. The government then spent the money, and the new deposits became part of the money supply for spending and respending. Never before had this country seen such mass creation of deposits, and never before had the process of bank-credit creation been demonstrated with such simplicity.

**The money-creation process works in reverse too. If one dollar of reserves is the basis for five dollars of outstanding bank deposits created by loans and investments, the loss of each dollar of reserves may force contraction of five dollars in deposits. Indeed, if banks are fully “loaned up” to their legal required-reserve limit, loss of reserves must cause a contraction of deposits, and hence of loans and investments.**

Such a contraction is brought about when banks reduce their loans or investments; remember the \$1,000 reduction in deposits

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deposits, the power of the banking system to expand credit depends to some extent on whether the public chooses to hold its deposits in demand or saving accounts.

<sup>6</sup>For doubters, the appendix to this chapter explains in detail how the banking system can expand deposits fivefold on new reserves, assuming a 20 percent reserve requirement, even though no individual bank ever lends out more than its excess reserves.

when your Victory bank loan was paid off above. If the banks run short of reserves and cannot obtain more, they reduce their deposits by calling in loans as they come due or by selling bonds.

Sometimes, as with credit expansion, credit contraction snowballs in a massive way. In the Great Depression of the early 1930s, for example, nearly one-third of the nation's money supply (mainly demand deposits) was wiped out through the contraction of bank loans and investments. Banks lost reserves as the public withdrew currency in a scare wave, and this forced them to call for payment of loans and sell off their government bonds. Bank deposits plus currency fell from \$46 billion to \$30 billion between 1929 and 1933. Remember that each dollar of currency withdrawn removes the reserve base for several dollars of deposits and loans and investments.<sup>7</sup>

### ***Money and the Creation of Near-Monies***

Only commercial banks can "create" money by monetizing others' debts because by law only banks can hold demand (checking) deposits. But savings deposits, savings and loan shares, and other near-monies are close substitutes for money as a store of purchasing power. And other financial institutions can "create" near-monies, as banks "create" demand deposits. Moreover, by shifting their savings between checking deposits and time deposits at

banks and savings and loan associations, the public can change the amount of checking deposits (money) in existence.

Suppose John Doe, seeing an ad promising 5 percent at a savings and loan association, saves part of his paycheck and buys a \$100 savings and loan share, which is much the same thing as putting a \$100 savings deposit in the savings and loan association. Or he may just withdraw \$100 from his own checking account and transfer it to the S. and L. Either way, he transfers \$100 from a commercial-bank demand deposit to the savings and loan association. Demand deposits are down, S. and L. time deposits are up correspondingly. But the S. and L. association will probably soon redeposit the \$100 in its own checking account at a commercial bank so that it can spend or lend the money itself.

Look now at the results: First, commercial bank reserves and demand deposits are unchanged in total; the S. and L. has returned John Doe's deposit to the commercial bank. But second, John has a fine \$100 money substitute in his savings and loan share; this will presumably decrease the amount of actual money (currency and checking deposits) he needs at any given time to have an adequate margin of liquidity. It thus frees a bigger share of demand deposits for "active" use in making payments for goods and services. Third, the savings and loan association has \$100, most of which it will now feel free to lend out to new borrowers. John's decision to substitute a near-money for actual money in his own financial position has both increased the nation's total supply of money plus near-monies, and increased the total lending power of all financial institutions, since the commercial banks have lost no reserves and the savings and loan association has gained \$100 in additional lending power (less whatever part of the total it feels it must hold as a ready cash reserve).

Thus, we must add to the money-creating powers of the commercial banks a similar power of other financial intermediaries to "create" near-monies, as individuals and businesses transfer money holdings into near-monies. In total, therefore, the power of the financial system to generate money plus near-monies far exceeds its power to create money alone.

<sup>7</sup>In view of the important part bank-credit expansion and contraction play in business cycles, some economists advocate requiring 100 percent reserves behind all bank deposits. They argue that this step would do much to lessen the severity of business fluctuations. They point out that businessmen and others who wish to borrow could continue to do so, through "savings and loan organizations." These organizations would receive savings from the public, but could lend only as much as savers deposited, rather than being able to create money as the banks do at present. The present banks might be split into two parts. One part would act as a storehouse for funds that savers simply wanted to keep idle for checking or other purposes (on which depositors would probably have to pay service charges). The other part would act as a savings and loan organization to receive savings (paying interest on them) and to lend these savings to borrowers at a higher rate of interest.

It is important to see that shifts of deposits between commercial banks and other financial intermediaries can thus influence the size of the money stock and the amount of total deposits supportable on any volume of bank reserves.

The money stock is, therefore, not entirely under the control of the government, although it is clear that by regulating the volume of reserves the government can generally control the volume of deposits that banks create.

## **PART B: | THE FEDERAL RESERVE SYSTEM AND THE MONEY SUPPLY**

The Constitution gives to Congress the power to "coin money and regulate the value thereof." Congress has since delegated most of this power to the Federal Reserve system, which was established in 1914 after years of painful experience with repeated financial crises. The following pages first describe the Federal Reserve system and indicate briefly how it carries out its day-to-day activities. Then we analyze more fully how the Federal Reserve influences interest rates and the supply of money, the "Fed's" main channels for regulating the level of aggregate demand.

### ***The Federal Reserve System***

The Federal Reserve is the major agency established by Congress to provide currency for the nation; to furnish a wide variety of financial services to the government and to the economy; and, most important, to regulate the total amount of money and to maintain "monetary and credit conditions favorable to sound business activity in all fields—agricultural, industrial, commercial."<sup>8</sup>

#### **Organization**

The Federal Reserve system is made up of the following:

1. The Board of Governors.
2. The twelve Federal Reserve banks.
3. The Federal Open Market Committee.
4. The member banks.

<sup>8</sup>*The Federal Reserve System: Its Purposes and Functions* (Board of Governors of the Federal Reserve System), p. 23. This booklet provides an authoritative statement of the aims and operations of the Federal Reserve System.

1. The board of governors is composed of seven members, appointed by the president and confirmed by the Senate. Members are appointed for fourteen years. One term expires every two years, an effort to safeguard the board as far as possible from political pressure groups. In most matters, the board of governors is ultimately responsible for the major policies of the twelve Federal Reserve banks; and, since the Federal Reserve banks in turn supervise and regulate the member banks, ultimate responsibility for the entire system is largely centralized in the board of governors.

2. Each of the twelve Federal Reserve banks serves a certain district in the United States. The banks are located in Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Minneapolis, Kansas City, Dallas, and San Francisco. Each Federal Reserve bank was founded by the sale of stock to member banks, which are required to buy stock. Though technically they are thus privately owned, the Federal Reserve banks are operated in the public interest, not for profit.

3. The Federal Open Market Committee consists of the seven members of the board of governors, plus five of the presidents of the Federal Reserve banks. This twelve-member committee determines the system's policy on open-market operations—that is, the purchase and sale of government securities in the open market. These operations, explained below, are the primary means by which the Federal Reserve authorities attempt to control the volume of bank credit. Although the board of governors does not determine open-market policy independently, its seven members constitute a majority of the Open Market Committee.

4. The member banks include all national banks (chartered by the federal government) in the United States and those state banks that agree to conform to the requirements set up for member banks. In 1967, about 6,000 of the 14,000 commercial banks in the United States were member banks, but the nonmember banks were almost all small ones, holding only about 10 percent of the total deposits of the banking system.

#### Service Functions of the Federal Reserve

Before we turn to the major policy functions of the Fed, its important, though routine, service functions deserve a brief survey.

*Holding Member-Bank Reserves.*  Each member bank must by law keep its legally required reserves on deposit at its Federal Reserve bank.<sup>9</sup> These reserve balances at the Reserve banks are essentially checking accounts that the member banks maintain with the Federal Reserve, just as an individual has a checking account with a commercial bank. A member bank must always keep the reserve required by law, but beyond this requirement it is free to draw on, or add to, its reserve account as it wishes. If it needs currency to pay out to its customers, it simply draws the needed amount from its reserve balance at the Federal Reserve bank. Member banks receive no interest on their reserve balances.<sup>10</sup>

*Furnishing Currency for Circulation.*  All currency in the United States is issued either by the Treasury or by the Federal Reserve banks. Treasury currency—mainly coins—makes up about 10 percent of the total. It is issued by the Treasury but is placed in circulation largely through the Reserve banks and the commercial banks. The Reserve banks themselves issue Federal Reserve notes. These are liabilities of the issuing Federal Reserve bank, and also of

the federal government. Each Federal Reserve note must be backed fully by collateral—gold, government bonds, or other designated acceptable security—but in essence the Fed has unlimited power to issue new Federal Reserve notes if the government agrees.

Furnishing currency for circulation is a continuing operation. New currency is constantly being put into circulation to replace old, worn currency. Currency in circulation grows gradually as the economy grows, and increases temporarily at certain periods of the year, such as Christmas and the Fourth of July, when people and businesses want more hand-to-hand money. Currency is put into circulation very simply. The banks get currency by drawing on their reserve accounts at the Reserve banks and pay out the currency to customers who make withdrawals from their deposit accounts. The Reserve banks always keep large supplies of paper money and coin on hand to meet the needs of member banks. If the public has more currency than it wants, it simply redeposits the currency in commercial banks, which in turn redeposit the excess in their reserve accounts at the Federal Reserve banks.

*Clearing and Collecting Checks.*  Most payments in the United States are made by means of bank checks. And most bank checks drawn on out-of-town banks are “cleared” through the Federal Reserve system to avoid shipping currency. Suppose Jones in Chicago sells a \$100 bill of goods to Smith in Detroit, and Smith pays by a check on his Detroit bank. Jones deposits the check at his bank in Chicago. The Chicago bank sends the check to the Chicago Federal Reserve bank, which increases the reserves of the Chicago bank by \$100 and decreases the reserves of the Detroit bank by \$100. The check is then sent to the Detroit bank, which decreases Smith’s account by \$100. Jones in Chicago has his \$100; Smith in Detroit has \$100 less. And since both banks keep their reserves with the Chicago Federal Reserve bank, the check is cleared simply by increasing the reserve account of the Chicago bank and decreasing the account of the Detroit bank. No

<sup>9</sup>Except for the “vault cash” (currency) which it keeps in its own vaults.

<sup>10</sup>The use of the word “reserve” in banking is quite different from that in ordinary business accounting, as we shall see in the appendix to Chapter 20.

currency has to be shipped around the country.

When Jones and Smith are in different Federal Reserve districts (say Chicago and New York), the process is identical except that the New York and Chicago Federal Reserve banks must settle their accounts. They offset the checks due to each other through an "Interdistrict Settlement Fund."

To give some idea of the magnitude of this clearing function, in 1969 the Federal Reserve system handled 7 billion checks, with a total value of \$3 trillion. This total included many checks on nonmember banks, which are permitted to use the Federal Reserve check-clearing facilities.

*Supervising Member Banks.* Banks in this country are supervised by several authorities. The Federal Reserve supervises all member banks. Other federal and state authorities also supervise banks. The same bank may be subject to supervision by as many as three authorities. Generally these authorities cooperate, but not always.

Each Federal Reserve bank examines the member banks in its own district. The examiners make detailed reports to the Federal Reserve bank on the management, the loans and investments, and the general condition of each member bank. If any member bank refuses to conform to the standards of sound banking practice specified by the Federal Reserve, the board of governors may remove its officers and directors or take away its right to make use of Federal Reserve credit facilities. These sanctions seldom need to be used.

*Fiscal Agent for the Federal Government.* The Federal Reserve banks are bankers for the federal government. They carry most of the government's checking accounts, handle the issue and redemption of government securities, and act as fiscal agent for the government in numerous other ways. The government is continuously receiving tax funds, borrowing, paying out funds for salaries, planes, and so on. It issues and redeems huge volumes of securities. These activities comprise one major part of the Federal Reserve's operating responsibilities.

### ***The Federal Reserve, Interest Rates, and the Supply of Money***

In the United States, the Federal Reserve is the "central bank." Its major job is to maintain monetary conditions that will help achieve a stably growing, prosperous economy.

Federal Reserve control over the supply of money and interest rates is exercised largely by controlling the volume and use of member-bank reserves. Without excess reserves, commercial banks cannot extend more credit. Excess reserves make possible (but do not assure) expansion of bank earning assets and deposits. Thus, Federal Reserve powers are designed largely to provide or reduce excess reserves.

### **The Fundamental Nature of Central Banking**

A Federal Reserve bank is a central bank—a banker's bank. Member-bank reserves are member-bank deposits at the Reserve banks. Thus, Federal Reserve control over the volume of member-bank reserves is, in fact, control over the volume of its own deposits. And the Fed can create or destroy the reserves that provide commercial banks' powers to lend and invest.

Before the establishment of the Federal Reserve as a central bank in 1914, the nation's commercial banks faced periodic crises. Mass currency withdrawals by depositors in times of panic exhausted reserves and forced widespread bank failures, because there was no way to convert good but nonliquid loans into currency on short notice. The Federal Reserve was established largely to remedy this situation. Member-bank reserves were to be held by the Reserve banks, and the Reserve authorities were given power to provide new reserves for member banks in times of need.

The ability to create new bank reserves and to provide liquidity to commercial-bank assets is the distinguishing feature of a true central bank. The Federal Reserve can create new reserves (member-bank deposits) by buying bonds or making loans to member banks, just as member banks create deposits by buying bonds or making loans to businesses and individuals. It does this the same way as commercial banks

extend credit—by giving deposits in exchange for borrowers' promises to repay at a later date. If a member bank wants more reserves (i.e., deposits at the Fed), it can borrow at the Fed, giving its own promise to repay. Or it can sell some of its government bonds to the Fed, receiving reserves (deposits at the Fed) in payment. In either case, the Fed "creates" the new reserves, by giving the member bank a new deposit (reserve) in exchange for the assets it receives from the member bank.

**Main Federal Reserve Powers**

The Fed attempts to control the volume and direction of commercial-bank lending and investing, and hence the volume of bank deposits, through the following seven major channels. The first three (open-market operations, reserve requirements, and the rediscount rate) are aimed largely at controlling the total supply, or "quantity," of credit, through regulating the commercial banks' excess reserves. The others are aimed more at controlling the flow of credit to particular uses, such as speculation. These latter are thus called "selective," or "qualitative," credit controls. In regulating the supply of credit, the Fed also influences interest rates—the "cost" of credit.

**Open-Market Operations**

Purchase and sale of U.S. government securities in the open market is the major device used by the Fed to control the volume of member-bank reserves. By buying "Governments," the Fed increases member-bank reserves; by selling

Governments, it reduces member-bank reserves. To understand how this works, consider first the combined balance sheet of the Federal Reserve banks, shown at the bottom of this page.

This shows the two big assets of the Federal Reserve banks, gold and government securities. The offsetting major liabilities are member-bank deposits and Federal Reserve notes. It is essential to remember that the "cash reserves" shown on commercial-bank statements are mainly not actual currency but are instead deposits held at the Federal Reserve banks.

1. The Federal Reserve can create new reserves for the commercial banks by buying government bonds in the open market—thereby stimulating the commercial banks to make new loans and investments. If the Federal Reserve wants to encourage more bank loans, it goes into the open market and buys \$1,000 worth of U.S. government bonds, say from a commercial bank.<sup>11</sup> To pay for these bonds, it simply gives the bank a \$1,000 deposit credit (new reserve balance) at the Federal Reserve. The commercial bank has \$1,000 of new reserves, and they are all excess reserves, since its deposits have not been changed by the transaction. The Federal Reserve has created a \$1,000 member-bank deposit (reserve account) against the government bond. Since the commercial banks now have \$1,000 of new excess reserves, they are in a position to expand their loans by four or

<sup>11</sup>Remember that the Fed, while part of the government, is quite separate from the U.S. Treasury. The Fed does not issue any bonds itself, but merely buys and sells government bonds that have been issued previously by the Treasury.

FEDERAL RESERVE BANKS			
April 30, 1970			
(In Billions of Dollars)			
Gold	\$11	Member-bank deposits	\$23
U.S. securities	<u>56</u>	Federal Reserve notes	<u>47</u>
	\$67*		\$70*

\*Does not balance because minor items are omitted.

five times that amount, depending on legal reserve requirements.<sup>12</sup>

Consider the T-accounts for the commercial and the Federal Reserve bank. They show the \$1,000 addition to excess reserves on the books of both the Fed and the commercial bank.

Commercial Bank			
Cash	+\$1,000		
Bonds	- 1,000		

  

Federal Reserve Bank			
Bonds	+\$1,000	Member-bank deposits	+\$1,000

Does all this seem a little like black magic—new commercial-bank reserves created out of nowhere by the Federal Reserve banks, reserves which in turn can provide the basis for a much larger amount of commercial-bank deposits, also created out of nowhere? In a sense, it is. But each dollar of new member-bank reserves at the Fed is matched by a newly acquired government bond, and each new deposit at the commercial bank will be matched by a borrower's promise to repay. There is no magic. But through this process the Fed is able to "create" new member-bank reserves, which are often called "high-powered money," since they can in turn serve as the reserves behind a larger volume of newly created deposits at commercial banks.

Is there a limitation on how many new reserves the Federal Reserve can create in this way? No direct limit. Until 1968 the Fed was required to have a 25 percent gold reserve against member-bank deposits and Federal Reserve notes respectively, but now there is no such requirement. Fundamentally, the reserve-creating powers of the Fed are now limited only by the good judgment of the Federal Reserve

<sup>12</sup>There is substantially, but not quite, the same effect if the Fed buys the bond from a business or individual. Trace through the effect for yourself. Section (2) below will suggest the analysis if you need help.

authorities, and by the discretion of Congress, which can repeal or alter the Fed's powers any time it wishes. Thus, control over the nation's money supply is ultimately subject to the control of the democratic process, just as are other government powers.<sup>13</sup>

How effective is the Federal Reserve in lowering interest rates and stimulating new commercial-bank loans when it provides new reserves? More reserves push a banker to extend new credit, for no banker likes to lose the interest he might earn on idle reserves. In those rare cases where excess reserves are already large because bankers don't see any "sound" borrowers looking for loans, still more excess reserves may not help much. But don't forget that banks can also buy government bonds. If their excess reserves are increased when no desirable loans are available, they may increase the volume of deposits by buying up government bonds. Bankers do vary the amount of excess reserves they wish to hold under different circumstances. But history suggests that with rare exceptions commercial bankers have increased their loans and investments about as far as their excess reserves permit. The big exception was the depression of the 1930s, when the commercial banks held billions of dollars of excess reserves for nearly a decade.

Note that the Fed's open-market purchases also directly push down interest rates on government securities. Fed purchases will tend to bid up the prices of bonds, which is equivalent to forcing down the interest yield on the bonds. (See the footnote on page 107 if you don't remember why.) Since lower interest rates also help to stimulate the economy, open-market purchases are a two-pronged weapon against recession.

2. When the Open Market Committee wants to decrease member-bank reserves, it sells government securities in the open market to whoever bids for them—individuals, businesses, or banks. This reduces commercial-bank reserves when the Federal Reserve is paid for the bonds. Consider how.

<sup>13</sup>As a practical matter, international balance-of-payments problems may constrain the Fed's use of its powers, as we shall see in Part Six.

If a member bank buys the bond, it pays by giving \$1,000 of its reserves to the Federal Reserve; on the member bank's balance sheet, "cash" goes down and "bonds" go up by \$1,000. Thus, the bank loses a full \$1,000 of excess reserves, since its deposits remain unchanged. If a business or individual buys the bond from the Reserve, the effect is almost the same. He pays by a check on his bank. His bank's reserves are reduced by \$1,000 when the Federal Reserve presents the check for collection. The member bank's deposits also drop by the \$1,000 transferred from the bond buyer's account to the Federal Reserve. Since the bank loses \$1,000 in both deposits and reserves, its required reserves are \$200 lower but its excess reserves drop by \$800. Excess reserves contract a little less than in the bank-purchase case, but the general effect is similar.

If the bank buys the bonds, the T-account entries at the commercial bank are as shown above the dotted line. If an individual buys it, the entries are as shown below the dotted line.<sup>14</sup>

Cash	— \$1,000		
Bonds	+ 1,000		
.....			
Cash	— 1,000	Deposits	— \$1,000

Federal Reserve open-market sales can limit bank-credit expansion when they reduce excess reserves to low levels. The Federal Reserve might face a problem if banks had large excess reserves on hand, for the banks could then lose reserves and still have an adequate base for new loans and investments. But in recent decades excess reserves have been small, and the Fed has had plenty of government bonds to absorb all the excess reserves of the banking system if it wants to.

#### Rediscount Rate Changes

When a member bank runs short of reserves, it may borrow from its Federal Reserve bank,

<sup>14</sup>If the buyer pays in currency, he reduces the amount of currency in circulation, also a reduction in the money stock. But payment in currency is very unusual.

just as you and I borrow at a commercial bank. In such a case the member bank could "rediscount" notes. The member bank has made loans to customers against customers' promises to repay, called "notes," or "commercial paper." It can "rediscount" these notes with its Federal Reserve bank—that is, it can use the note as collateral to borrow additional reserves. The rate of interest, or discount, charged by the Federal Reserve to member banks is called the "rediscount rate." Or member banks may borrow using government securities as collateral. In rediscounting, the initiative is in the hands of the commercial banker to increase his reserves, while open-market operations are at the discretion of the Fed.

The Fed raises the rediscount rate to discourage member-bank borrowing and lowers the rate to encourage it. But few bankers like to borrow, and most borrow only when they badly need to in order to get additional reserves. Moreover, the Fed discourages member-bank borrowing except on a temporary basis. Thus, the rediscount rate is of relatively minor direct importance. But changes in the rediscount rate have an important psychological effect on the banking and business communities because they are viewed as evidence of the Fed's general position on monetary expansion or restraint.<sup>15</sup>

#### Changes in Member-Bank Reserve Requirements

In 1933, a drastic new power was given to the Board of Governors—the power to raise and lower legal reserve requirements for member banks. Reserve requirements against demand deposits can be varied between 10 and 22 percent for city banks and 7 and 14 percent for country banks, and against time deposits between 3 and 6 percent for all banks.

By raising reserve requirements, the Board wipes out member banks' excess reserves and

<sup>15</sup>Sometimes you see the term "free reserves." These are excess reserves less commercial-bank borrowing from the Fed. Since each commercial bank must repay its borrowing promptly, many experts believe that free reserves are better than excess reserves as an indication of commercial banks' ability to extend new credit. When free reserves are negative, they are called "net borrowed reserves."

directly restricts credit expansion. Suppose a member bank has \$1,000,000 deposits and \$200,000 reserves, and the required legal reserve ratio is 16 percent. It has a comfortable \$40,000 of excess reserves. If the Board raises the legal requirement to 20 percent, the reserve required jumps to \$200,000 and the bank's excess reserve is wiped out. Conversely, lowering legal reserve requirements increases excess reserves.

Changing reserve requirements is a relatively heavy, blunt tool of credit control, compared with the gradual, flexible way open-market operations can be used. Thus, the Reserve authorities change reserve requirements only infrequently, depending instead primarily on open-market operations.

#### "Selective" Credit Controls

The preceding general controls over bank reserves are often called "indirect" or "quantitative" controls, since they only control the total volume of bank lending, the level of interest rates, and the stock of money. They leave the private banker free to allocate his funds as he wishes among different borrowers. In addition, the Fed has smaller "direct," or "selective," controls over particular bank loans and uses to which bank credit is put. These permit the Fed to influence directly the uses of bank credit. Many economists question the effectiveness of such controls, because money, once created, flows freely from one sector of the economy to the other, and it is very difficult to control any one sector by limiting lending directly to it. But such selective controls may have important temporary effects.

*Maximum Interest Rates on the Deposits.* The Fed has the power to set maximum interest rates on different classes of deposits, and other regulatory agencies have similar powers over other financial intermediaries, such as the savings and loan associations. By setting different ceilings on interest rates at different institutions, the bank supervisors can significantly influence their relative competitive positions, and thus indirectly influence where savers' funds go.

For example, in the 1960s, the S. and L.'s bid many deposits away from the commercial banks, and channeled these funds into mortgages to finance home building, especially in the West. Originally, there were no governmental ceilings on the rates that S. and L.'s could pay their depositors, but commercial banks had maximum rates on their savings deposits. In the mid-1960s, the Fed raised the maximum rates that commercial banks might pay, and thus permitted them to bid deposits back away from the S. and L.'s. This channeled funds away from the housing industry toward the broader uses made by commercial banks of their lending power. Rate ceilings were also used to affect the competitive power of big U.S. commercial banks vis-à-vis European capital markets.

Once detailed direct controls are instituted that influence the competitive position of different financial institutions, difficult questions of equity arise, and there is an unfortunate tendency for such direct controls to proliferate. Many economists argue that interest-rate ceilings do more harm than good. We shall return to the issue in the next chapter.

*Control of Stock-market Credit: Margin Requirements.* Often customers buy stocks and bonds "on margin." That is, they pay the broker a cash "margin" (down payment) and borrow the rest of the purchase price from the broker, leaving the newly purchased securities as collateral for the loan. The broker, in turn, typically borrows from commercial banks what the security buyer does not put up as margin (cash). The smaller the margin required, the more the buyer can borrow of the purchase price. If margin requirements are raised, therefore, the use of bank credit for purchasing securities is restricted. If margin requirements are lowered, it becomes easier to buy securities on credit.

The Fed has power to set minimum margin requirements for dealings on the major securities exchanges, ranging up to 100 percent cash payments. In the wild stock-market speculation of the late 1920s, most stock was bought on margins of 10 percent or less, so speculators found it easy to bid up prices on borrowed money. Now, with margin requirements much

higher, most stock is bought with full cash payment, or with relatively little borrowing. Most economists believe that Federal Reserve margin requirements exercise a healthy restraint on speculative stock purchases under boom conditions.

*“Direct Pressure” or “Moral Suasion.”* When the Fed wants to discourage bank lending, it may use “direct pressure,” or “moral suasion,” on the bankers. Bank examiners may be instructed to tighten up their requirements for “good” loans and investments. Reserve officials may frown when member banks come to the discount window for temporary loans. They may also make public statements warning against inflation and overexpansion of credit. In extreme cases, the Reserve banks may simply refuse to lend to offending member banks. There is not much evidence that such moral suasion is very effective. There is even less hope that it can do anything to persuade bankers to make more loans in hard times.

*Consumer-Credit Controls.* During World War II and in the Korean War, the Fed was temporarily given power to regulate consumer credit (on installment purchases and charge accounts) and real-estate credit. On both housing and consumer credit, the Fed imposed minimum down payments and maximum repayment periods. Raising down payments made it hard to buy without cash in hand; shortening the total payment period increased the monthly payment required.

The wartime goal was partly to restrain inflationary consumer demand, partly to divert demand away from the durables that competed directly with war production. But many people objected, especially the lower-income groups who couldn't afford to pay cash for everything. Why, they asked, should the few cars and refrigerators go exclusively to the rich? In wartime, shouldn't rationing or some other equitable system of distributing scarce goods be adopted, rather than merely shutting out the poor by imposing drastic controls on borrowing? Such consumer-credit controls lasted through the war and as long afterward as infla-

tionary pressure continued strong. But in 1952, Congress eliminated them, and repeatedly has refused to restore them in spite of requests from both the Board and the president for reinstatement at least on a “standby” basis.

### **Conclusion**

In perspective, The Fed has enormous powers to check any credit expansion—indeed, to force mass contraction—if it chooses to use them. By dumping all its \$56 billion of government securities on the market and by raising reserve requirements to their legal limits, the Fed could bring on a massive deflation sure to send the entire economic system into chaos. Of course, the Federal Reserve officials would never consider such a foolish action. But this points up the great power inherent in the Federal Reserve's restrictive measures. The main problem is to use the existing controls effectively, not to seek more powerful weapons.

The Fed's ability to stimulate bank lending is also great and it has substantially unlimited power to create new reserves through open-market operations. But success on the expansion side is less sure. Banks need not necessarily make new loans in recession merely because they receive new excess reserves. By flooding the banking system with excess reserves, the Fed can almost surely expand the nation's money stock, since the banks will buy government securities even if they won't lend to business concerns and consumers. But if direct loans to business and consumers are needed to stimulate investment and consumption, the problem may be a tough one. And, as Chapter 9 indicated, even if deposits are expanded, the public may choose to convert its new demand deposits into money substitutes like savings deposits or bonds, rather than spending new funds on goods and services.

But even with these limitations, the Fed's powers are great. The real issue is how to use these powers most effectively to achieve a stably growing, high-employment economy without inflation. This is the task of monetary policy, to which we now turn in Chapter 13.