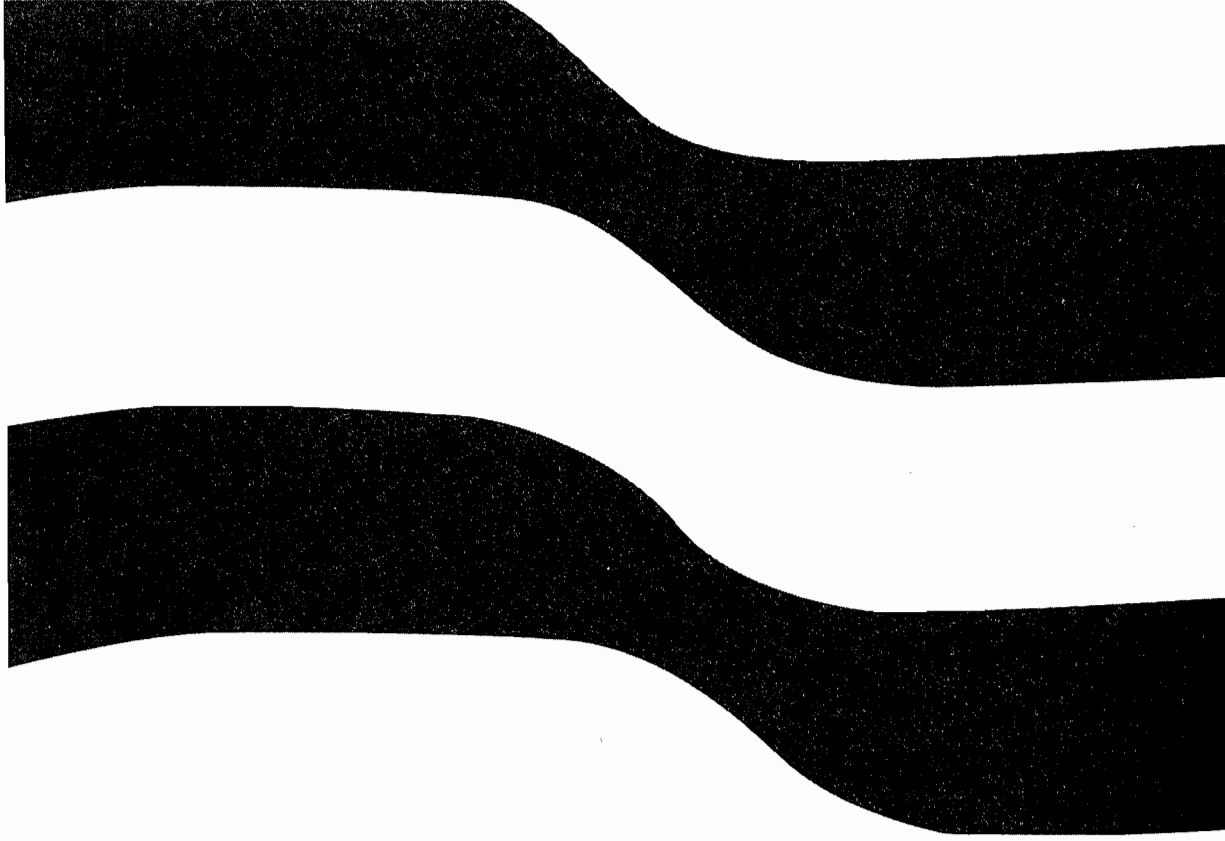
FOURTH EDITION

ECONOMICS

Edwin Mansfield
Nariman Behravesh



ECONOMICS

FOURTH EDITION

U$A

EDWIN MANSFIELD
UNIVERSITY OF PENNSYLVANIA

NARIMAN BEHRAVESH
DRI / McGRAW-HILL

W. W. NORTON AND COMPANY
NEW YORK • LONDON

4th Edition

Printed in the United States of America

The text of this book is composed in Zapf Book
with the display set in Gill Sans
Composition by University Graphics, Inc.
Manufacturing by Quebecor, Hawkins
Book design by Martin Lubin

Library of Congress Cataloging-in-Publication Data

Mansfield, Edwin.
Economics U$A / Edwin Mansfield, Nariman Behravesh.—4th ed.
p. cm.
Includes index.
ISBN 0-393-96641-0
1. Economics. 2. United States—Economic conditions—1945-
I. Behravesh, Nariman. II. Title. III. Title: Economics USA.
HB171.M325 1995
330—dc20 94-20561
CIP

W. W. Norton & Company, Inc., 500 Fifth Avenue, New York, N.Y. 10110

W. W. Norton & Company Ltd., 10 Coptic Street, London WC1A 1PU

1 2 3 4 5 6 7 8 9 0

THE SAFETY OF THE BANKS

We have just argued that the reserve requirements imposed by the Federal Reserve System exceed what would be required under normal circumstances to ensure the safety of the banks. To support our argument, we might cite some authorities who claim that a bank would be quite safe if it had reserves equal only to about 2 percent of its deposits. Under these circumstances it still would be able to meet its depositors' everyday demands for cash. Obviously this level of reserves is much lower than the legally required level.

■ THE ROLE OF BANK MANAGEMENT

But high reserve requirements will not by themselves ensure bank safety. For example, suppose that a bank lends money to every budding inventor with a scheme for producing perpetual-motion machines, and that it grants particularly large loans to those who propose to market these machines in the suburbs of Missoula, Montana. This bank is going to fail eventually, even if it holds reserves equal to 20 percent—or 50 percent, for that matter—of its demand deposits. It will fail simply because the loans it makes will not be repaid, and eventually these losses will accumulate to more than the bank's net worth. In other words, if the bank is sufficiently inept in making loans and investments, it will lose all the owners' money and some of the depositors' money besides.

The well-managed bank must make sensible loans and investments. In addition, it must protect itself against short-term withdrawals of large amounts of money. Although much-larger-than-usual withdrawals are not very likely to occur, the bank must be prepared to meet a temporary upswing in withdrawals. One way is to invest in securities that can readily be turned into cash. For example, the bank may invest in short-term government securities that can readily be sold at a price that varies only moderately from day to day. Such securities are often referred to as *secondary reserves.*

■ THE ROLE OF GOVERNMENT

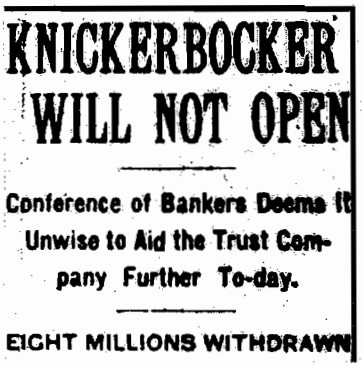
Banks tend to be safer today than they were 75 or 100 years ago. The reason is that the government has put its power squarely behind the banking system. It used to be that "runs" occurred on the banks: depositors, frightened that their banks would fail and that they would lose some of their money, would line up at the teller's windows and withdraw as much money as they could. Faced with runs of this sort, banks were sometimes forced to close because they could not satisfy all demands for withdrawals. Needless to say, no fractional-reserve banking system can satisfy demands for total withdrawal of funds.

CASE STUDY 8.1

The failure of the Knickerbocker Trust in 1907

★★★

The Knickerbocker Trust in New York City was a successful bank at the turn of the century. The Knickerbocker Trust's main branch was at a fashionable Fifth Avenue address, where many well-to-do people (including the writer Mark Twain) kept their accounts. At its downtown office near Wall Street, the Knickerbocker Trust held some of the deposits of large corporations like General Electric and the Pennsylvania Railroad. In turn, the bank made loans to numerous growing businesses. Under its dynamic president, Charles T. Barney, the Knickerbocker held city bonds and invested in the development of the transit system, in new hotels along Fifth Avenue, and in elegant apartment buildings on the Upper West Side. Not all of the bank's loans paid off. But most did, and the bank prospered.



KNICKERBOCKER WILL NOT OPEN

Conference of Bankers Deems It Unwise to Aid the Trust Company Further To-day.

EIGHT MILLIONS WITHDRAWN

An opportunity then came along for Charles Barney to make a lot of money if he was willing to take some major risks. Barney had connections with a speculator named Charles Morse. Morse and his partner, Frederick Heinze, formulated a scheme to manipulate the price of copper stock on Wall Street in 1907. The extent of Barney's involvement is debatable, but many believed he made behind-the-scenes arrangements for the Morse-Heinze combine, which, on October 15, 1907, tried and failed to squeeze the copper market, whereupon the syndicate went under. There was no evidence that Barney had overcommitted loans to Morse, but there were rumors to this effect, and Barney, like any banker of the day, realized that gossip could lead to the death of his bank before any facts were proven. He knew that as the word spread that the Knickerbocker was in trouble, the depositors would start a run of withdrawals. Like any banker caught in that situation, Barney also knew that, if he could temporarily pull enough cash together, he might be able to calm his customers. If they were made to believe that the bank could make its payouts, his bank might be saved.

On Sunday, October 20, Charles Barney left his home on Park Avenue to try to borrow the cash he needed. He went to appeal to the only person who could save him: J. P. Morgan. Morgan had helped tide over banks in trouble before, and he was one of the few men who had the reputation and resources to do it. Morgan had been friendly with Barney, and owned some Knickerbocker stock. But Morgan refused even to see him. For Barney, disaster was inescapable. Trying to forestall the rumors, the bank's board of directors on Monday forced Barney's resignation. It didn't help. The run on the Knickerbocker began. On Tuesday morning, bank officials announced they had $8 million cash in their vaults, but most of it was gone before the end of the day. The Knickerbocker closed its doors. Those customers who hadn't withdrawn their money were out of luck for an unforeseeable future. The failure of the Knickerbocker Trust led to doubts about other banks, and snowballed into the Panic of 1907. Realizing that the ensuing bank failures could endanger the entire system—including his own holdings—J. P. Morgan subsequently stepped in, and under his leadership, a large reserve fund was pooled together. But by the time the panic was over, 246 banks had closed, and a disgraced, distraught Charles Barney had killed himself. Ironically, the Knickerbocker Trust was not all that bad a bank—it was to reopen five months later, and depositors got most of their money back.

N.B.

Runs on banks are rare now, for several reasons. One is that the government—including the Federal Deposit Insurance Corporation (FDIC), the Federal Reserve, and other public agencies—has made it clear that it will not stand by and tolerate the panics that used to occur periodically in this country. The FDIC insures the accounts of depositors in practically all banks so that even if a bank fails, depositors will get their money back—up to $100,000. Another reason is that the banks themselves tend to be better managed and regulated. For example, bank examiners are sent out to look over the bankers' shoulders and determine whether they are solvent.

■ PROBLEMS DURING THE NINETIES

Nonetheless, this does not mean that bank regulation has been all that it might be, or that the health of the banking industry has been robust. On the contrary, in early 1991, there were persistent rumors and reports that many huge New York banks, as well as a variety of smaller banks elsewhere, were in serious financial troubles because many of their real estate loans went sour when the real estate market did not live up to expectations. These banks were hurt when, beginning in the 1960s, they started to lose the business of many large firms that began to get funds from foreign banks or from the securities markets because interest rates were lower. Also, some banks had made risky investments in high-yield bonds ("junk bonds") and had made risky loans to developing countries like Argentina and Brazil. While these problems did not mean that your bank deposit was not insured (up to $100,000), it did mean that your bank might fail, with attendant losses to its owners, among others. However, as it turned out, the banks dodged the bullet. Their earnings rose substantially, and by 1994 there was no talk of widespread financial problems among the banks.

HOW BANKS CAN CREATE MONEY

Genesis tells us that God created heaven and earth. Economists tell us that banks create money. To many people, the latter process is as mysterious as the former.

To see how banks can create money, imagine the following scenario. First, suppose that someone deposits $10,000 of newly printed money in a particular bank, which we'll call Bank A. Second, suppose that Bank A lends Ms. Smith $8,333 and that Ms. Smith uses this money to purchase some equipment from Mr. Jones, who deposits Ms. Smith's check in his account at Bank B. Third, Bank B buys a bond for $6,944 from Ms. Stone, who uses the money to pay Mr. Green for some furniture. Mr. Green deposits the check to his account at Bank C. We assume that the legal reserve requirements are that $1 in reserves must be held for every $6 in demand deposits.

TABLE 8.5
Changes in Bank A's Balance Sheet (Dollars)

	ASSETS		LIABILITIES AND NET WORTH	
Bank receives deposit	Reserves	+10,000	Demand deposits	+10,000
	Loans & investments	No change	Net worth	No change
	Total	+10,000	Total	+10,000
Bank makes loan	Reserves	No change	Demand deposits	+8,333
	Loans & investments	+8,333	Net worth	No change
	Total	+8,333	Total	+8,333
Ms. Smith spends $8,333	Reserves	−8,333	Demand deposits	−8,333
	Loans & investments	No change	Net worth	No change
	Total	−8,333	Total	−8,333
Total effect	Reserves	+1,667	Demand deposits	+10,000
	Loans & investments	+8,333	Net worth	No change
	Total	+10,000	Total	+10,000

■ MONEY CREATION AT BANK A

The first step in our drama occurs when someone deposits $10,000 in newly printed money in Bank A. The effect of this deposit is shown in the first panel of Table 8.5: Bank A's demand deposits and its reserves both go up by $10,000. Now, Bank A can make a loan of $8,333, since this is the amount of its ***excess reserves*** (those in excess of legal requirements). Because of the $10,000 increase in its deposits, its legally required reserves increase by ($10,000/6) or $1,667. (Recall that $1 in reserves must be held for every $6 in deposits.) Thus, if it had no excess reserves before, *it now has excess reserves of $10,000 − $1,667, or $8,333.* When Ms. Smith asks one of the loan officers of the bank for a loan to purchase equipment, the loan officer approves a loan of $8,333. Ms. Smith is given a checking account of $8,333 at Bank A.

The Federal Reserve

How can Bank A get away with this loan of $8,333 without winding up with less than the legally required reserves? The answer is given in the rest of Table 8.5. The second panel of this table shows what happens to Bank A's balance sheet when Bank A makes the $8,333 loan and creates a new demand deposit of $8,333. Obviously, both demand deposits and loans go up by $8,333. Next, look at the third panel of Table 8.5, which shows what happens when Ms.

CASE STUDY 8.2

The savings and loan debacle: Why did it occur and where did the money go?

★★★

The origins of the savings and loan industry go back to the nineteenth century. Responding to the desire of U.S. families to own their own homes, these savings institutions, often relatively small, received modest deposits and lent out the money in the form of long-term mortgages. By 1990 it was estimated that the problems of the savings and loan industry had cost U.S. taxpayers roughly $200 billion. Hundreds of insolvent savings and loan institutions were closed, and since their deposits were insured by the federal government, the taxpayers were stuck with the bill.

What brought on this debacle, and where did all the money go? The responsibility for the crisis lay with many different institutions and resulted from the confluence of a number of trends, some of which had little to do with the savings and loan (S & L) industry itself. One of the foundations of the crisis was laid in the early 1980s when the Fed drove up interest rates to rid the United States of double-digit inflation. This squeezed the profit margins of S & Ls and left many of them insolvent.

Also in the 1980s a wave of deregulation hit financial institutions in the United States. While the federal government led the way, state governments eagerly followed. The result was that S & Ls were allowed to make more risky investments in real estate and junk bonds. This, combined with a rather lax attitude on the part of many regulators, provided a strong temptation for thrift institutions to pursue high-risk strategies.

In the mid-1980s the energy bust unmasked the bad investments of many Texas S & Ls. Likewise the bursting of the real estate bubble in New England and California in the late 1980s exposed the shakiness of the S & Ls in those areas as well. Finally, partisan politics and the inability of Congress to quickly enact an S & L bailout plan compounded the problem and raised the price tag of the eventual rescue package.

The S & L scandal was one of the biggest transfers of wealth in U.S. history. Only about 10 percent of the money ended up in the hands of crooks. Most of the money traveled over perfectly legal routes to homeowners, landowners, big savers, investment bankers, and Wall Street investors. Homeowners were among the largest group benefiting from the transfer of wealth. They received as much as 15 percent of the total, or $30 billion, in the form of low mortgage rates. Many S & Ls ended up paying higher rates for deposits than they were receiving for mortgages and were thus caught in a profits squeeze.

Another group that benefited in a big way were landowners and developers who got about $40 billion as a result of the high-risk real estate deals that many of the thrifts financed in the 1980s. Perhaps another $15 billion ended up being squandered by the S & Ls themselves.

Finally, by failing to face up to the crisis and by not implementing an aggressive bailout plan soon enough, politicians in Washington greatly added to the final cost. By some estimates the costs of this delay and the government's administrative tab will add as much as $60 billion to the eventual price tag.

N.B.

Smith spends the $8,333 on equipment. As pointed out above, she purchases this equipment from Mr. Jones. Mr. Jones deposits Ms. Smith's check in his account in Bank B, which presents the check to Bank A for payment. After Bank A pays Bank B (through the Federal Reserve System), the result—as shown in the third panel—is that Bank A's deposits go down by $8,333, since Ms. Smith no longer has the deposit. Bank A's reserves also

go down by $8,333, since Bank A has to transfer these reserves to Bank B to pay the amount of the check.

As shown in the bottom panel of Table 8.5, the total effect on Bank A is to increase its deposits by the $10,000 that was deposited originally and to increase its reserves by $10,000 minus $8,333, or $1,667. In other words, reserves have increased by one-sixth as much as demand deposits. This means that Bank A will meet its legal reserve requirements.

It is important to recognize that Bank A *has now created $8,333 in new money.* To see this, note that Mr. Jones winds up with a demand deposit of this amount that he didn't have before; this is a net addition to the money supply, since the person who originally deposited the $10,000 in currency still has his or her $10,000, although it is in the form of a demand deposit rather than currency.

■ MONEY CREATION AT BANK B

The effects of the $10,000 deposit at Bank A are not limited to Bank A. Instead, as we shall see, other banks can also create new money as a consequence of the original $10,000 deposit at Bank A. Let's begin with Bank B. Recall from the previous section that the $8,333 check made out by Ms. Smith to Mr. Jones is deposited by the latter in his account at Bank B. This is a new deposit of funds at Bank B. As pointed out in the previous section, Bank B gets $8,333 in reserves from Bank A when Bank A pays Bank B to get back the check. Thus the effect on Bank B's balance sheet, as shown in the first panel of Table 8.6, is to increase both demand deposits and reserves by $8,333.

Bank B is in much the same position as Bank A was when the latter received the original deposit of $10,000. Bank B can make loans or invest-

TABLE 8.6
Changes in Bank B's Balance Sheet (Dollars)

	ASSETS		LIABILITIES AND NET WORTH	
Bank receives deposit	Reserves	+8,333	Demand deposits	+8,333
	Loans & investments	No change	Net worth	No change
	Total	+8,333	Total	+ 8,333
Bank buys bond	Reserves	No change	Demand deposits	+6,944
	Loans & investments	+6,944	Net worth	No change
	Total	+6,944	Total	+6,944
Mr. Green deposits money in Bank C	Reserves	−6,944	Demand deposits	−6,944
	Loans & investments	No change	Net worth	No change
	Total	−6,944	Total	−6,944
Total effect	Reserves	+1,389	Demand deposits	+8,333
	Loans & investments	+6,944	Net worth	No change
	Total	+8,333	Total	+8,333

ments equal to its excess reserves, which are $6,944. (The way we derive $6,944 is explained in the footnote below.)[4] Specifically, it decides to buy a bond for $6,944 from Ms. Stone and credits her checking account at Bank B for this amount. Thus, as shown in the second panel of Table 8.6, the effect of this transaction is to increase Bank B's investments by $6,944 and to increase its demand deposits by $6,944. Ms. Stone writes a check for $6,944 to Mr. Green to pay for some furniture. Mr. Green deposits the check in Bank C. Bank B's demand deposits and its reserves are decreased by $6,944 when it transfers this amount of reserves to Bank C to pay for the check. When the total effects of the transaction are summed up, Bank B, like Bank A, continues to meet its legal reserve requirements, since, as shown in the bottom panel of Table 8.6, the increase in reserves ($1,389) equals one-sixth of its increase in demand deposits ($8,333).

Bank B has also created some money—$6,944, to be exact. Mr. Green has $6,944 in demand deposits that he didn't have before; this is a net addition to the money supply, since the person who originally deposited the currency in Bank A still has his or her $10,000, and Mr. Jones still has the $8,333 he deposited in Bank B.

■ THE TOTAL EFFECT OF THE ORIGINAL $8,333 IN EXCESS RESERVES

How big an increase in the money supply can the entire banking system support as a consequence of the original $8,333 of excess reserves arising from the $10,000 deposit in Bank A? Clearly, the effects of the original injection of excess reserves into the banking system spread from one bank to another, since each bank hands new reserves (and deposits) to another bank, which in turn hands them to another bank. For example, Bank C now has $6,944 more in deposits and reserves and so can create $5,787 in new money[5] by making a loan or investment of this amount. This process goes on indefinitely, and it would be impossible to describe each of the multitude of steps involved. Fortunately, it isn't necessary to do so. We can figure out the total amount of new money the entire banking system can support as a consequence of the original excess reserves at Bank A without going through all these steps. *When the process works itself out, the entire banking system can support $50,000 in new money as a consequence of the original injection of $8,333 of excess reserves.*[6]

[4]Since Bank B's deposits increase by $8,333, its legally required reserves increase by ($8,333/6), or $1,389. Thus $1,389 of its increase in reserves is legally required, and the rest ($8,333 − $1,389 = $6,944) is excess reserves.

[5]Why $5,787? Because it must hold ($6,944/6) = $1,157 as reserves to support the new demand deposit of $6,944. Thus it has excess reserves of $5,787, and it can create another new demand deposit of this amount.

[6]The proof of this is as follows. The total amount of new money supported by the $8,333 in excess reserves is $8,333 + $6,944 + $5,787 + ⋯, which equals $8,333 + 5/6 × $8,333 + (5/6)² × $8,333 + (5/6)³ × $8,333 + ⋯, which equals $8,333 × (1 + 5/6 + (5/6)² + (5/6)³ + ⋯) = $8,333 × $\left(\frac{1}{1 - 5/6}\right)$ = $50,000, since $1 + 5/6 + (5/6)^2 + (5/6)^3 + \cdots = \left(\frac{1}{1 - 5/6}\right)$.

EXPLORING FURTHER:

A GENERAL PROPOSITION CONCERNING THE EFFECT OF EXCESS RESERVES

In general, *if a certain amount of excess reserves is made available to the banking system, the banking system as a whole can increase the money supply by an amount equal to the amount of excess reserves multiplied by the reciprocal of the required ratio of reserves to deposits.* In other words, to obtain the total increase in the money supply that can be achieved from a certain amount of excess reserves, multiply the amount of excess reserves by the reciprocal of the required ratio of reserves to deposits—or, what amounts to the same thing, *divide the amount of excess reserves by the legally required ratio of reserves to deposits.*

Let's apply this proposition to a couple of specific cases. Suppose that the banking system gains excess reserves of $10,000 and that the required ratio of reserves to deposits is 1/6. To determine how much the banking system can increase the money supply, we must divide the amount of the excess reserves, $10,000, by the required ratio of reserves to deposits, 1/6, to get the answer: $60,000. Now suppose that the required ratio of reserves to deposits is 1/10. By how much can the banking system increase the money supply? Dividing $10,000 by 1/10, we get the answer: $100,000. Note that the higher the required ratio of reserves to deposits, the smaller the amount by which the banking system can increase the money supply on the basis of a given amount of excess reserves. More will be said about this in the next chapter.

In reality, an increase in reserves generally affects a great many banks at about the same time. For expository purposes, it is useful to trace through the effect of an increase in the reserves of a single bank—Bank A in our previous case. But usually this is not what happens. Instead, lots of banks experience an increase in reserves at about the same time. Thus they all have excess reserves at about the same time, and they all make loans or investments at about the same time. The result is that when the people who borrow money spend it, each bank tends both to gain and to lose reserves. On balance, each bank need not lose reserves. In real life the amount of bank money often *expands simultaneously* throughout the banking system until the legally required ratio of deposits to reserves is approached.

■ THE EFFECT OF A DECREASE IN RESERVES

Up to this point, we have been talking only about the effect of an increase in reserves. What happens to the quantity of money if reserves decrease?

In general, if the banking system has a deficiency of reserves of a certain amount, the banking system as a whole will reduce demand deposits by an

amount equal to the deficiency in reserves multiplied by the reciprocal of the required ratio of reserves to deposits.

In other words, to obtain the total decrease in demand deposits resulting from a deficiency in reserves, *divide the deficiency by the legally required ratio of reserves to deposits.* Although there is often a simultaneous contraction of money on the part of many banks (just as there is often a simultaneous expansion), this doesn't affect the result.

Let's apply this proposition to a particular case. Suppose that the banking system experiences a deficiency in reserves of $8,333 and that the required ratio of reserves to deposits is 1/6. Applying this rule, we must divide the deficiency in reserves, $8,333, by the required ratio of reserves to deposits, 1/6, to get the answer, which is a $50,000 reduction in demand deposits. Note that the effect of a $1 deficiency in reserves is equal in absolute terms to the effect of $1 in excess reserves.[7]

REVIEW AND PRACTICE

■ SUMMARY

1 Money performs several basic functions. It serves as a medium of exchange, a standard of value, and a store of value. The money supply, narrowly defined, is composed of coins, currency, demand deposits, and other checkable deposits. Economists include demand (and other checkable) deposits as part of the money supply because you can pay for goods and services about as easily by check as with cash.

2 Besides this narrow definition of money, broader definitions include savings and time deposits (and money market mutual fund shares and money market deposit accounts). It is not easy to draw a line between money and nonmoney, since many assets have some of the characteristics of money.

3 Commercial banks have two primary functions. First, they hold demand (and other checkable) deposits and permit checks to be drawn on them. Second, they lend money to firms and individuals. Most of our money supply is not coin and paper currency, but bank money—demand (and other checkable) deposits. This money can be created by banks.

4 The Federal Reserve System requires every commercial bank (and other thrift institutions with checkable deposits) to hold a certain percentage of its deposits as reserves. The major purpose of these legal reserve requirements is to control the money supply.

5 Banks tend to be safer than they were 75 or 100 years ago, in part because of better management and regulation as well as the government's stated willingness to insure and stand

[7]The results set forth in this chapter are based on a number of simplifying assumptions. We assume that when excess reserves are made available to the banking system, there is no withdrawal of part of them in the form of currency and that when deficiencies in reserves occur, no currency is deposited in banks. If such changes in the amount of currency take place, the change in demand deposits will equal the excess reserves left permanently with the banking system divided by the legally required ratio of reserves to deposits. Also, we assume that banks want to hold no excess reserves. Clearly, an injection of excess reserves or a deficiency of reserves will not have their full, or maximum, effect on demand deposits if the banks do not lend and invest as much as possible.