Macroeconomics: Principles, Applications, and Tools

NINTH EDITION

Chapter 13

Money and the Banking System

Pearson

Learning Objectives

13.1 Identify the components of money in the U.S. economy.

13.2 Explain the process of multiple expansion and contraction of deposits.

13.3 Describe the structure of the Federal Reserve.

13.4 Discuss examples of how the Federal Reserve acts during financial crises.

13.1 WHAT IS MONEY?

- **Money**
  Any items that are regularly used in economic transactions or exchanges and accepted by buyers and sellers.

13.1 WHAT IS MONEY?

Three Properties of Money

1. MONEY SERVES AS A MEDIUM OF EXCHANGE

- **Medium of exchange**
  Any item that buyers give to sellers when they purchase goods and services.
- **Barter**
  The exchange of one good or service for another.
- **Double coincidence of wants**
  The problem in a system of barter that one person may not have what the other desires.

PRINCIPLE OF VOLUNTARY EXCHANGE
A voluntary exchange between two people makes both people better off.

13.1 WHAT IS MONEY?

Three Properties of Money

2. MONEY SERVES AS A UNIT OF ACCOUNT

- **Unit of account**
  A standard unit in which prices can be stated and the value of goods and services can be compared.

3. MONEY SERVES AS A STORE OF VALUE

- **Store of value**
  The property of money that holds that money preserves value until it is used in an exchange.

13.1 WHAT IS MONEY?

Different Types of Monetary Systems

- **Commodity money**
  A monetary system in which the actual money is a commodity, such as gold or silver.
- **Gold standard**
  A monetary system in which gold backs up paper money.
- **Fiat money**
  A monetary system in which money has no intrinsic value but is backed by the government.

13.1 WHAT IS MONEY?

Measuring Money in the U.S. Economy

- **M1**
  The sum of currency in the hands of the public, demand deposits, other checkable deposits, and traveler's checks.

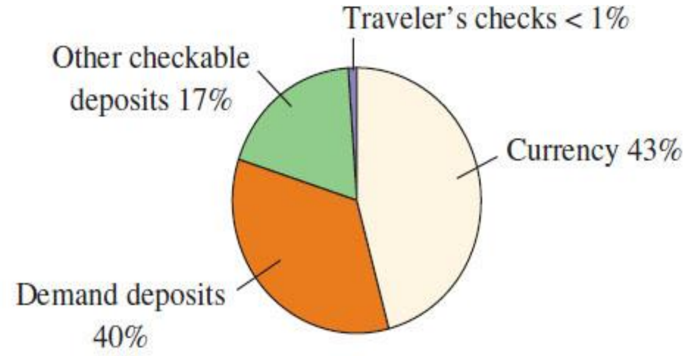
Currency is the largest component of M1, the most basic measure of money.

Demand and other checkable deposits are the next largest components.

TABLE 13.1 Components of M1, February 2015

Currency held by the public	$1,272 billion
Demand deposits	1210 billion
Other checkable deposits	503 billion
Traveler's checks	3 billion
Total of M1	2,988 billion

SOURCE: Board of Governors of the Federal Reserve.

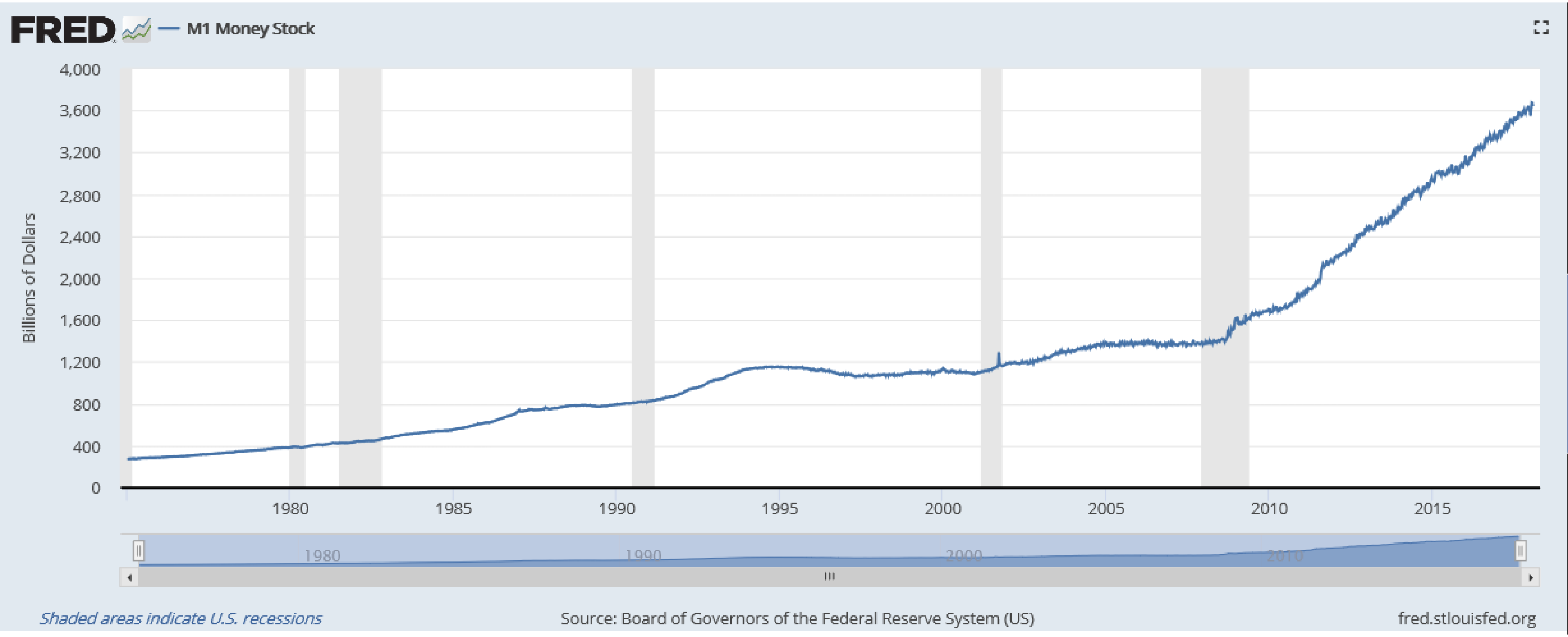


▲ **FIGURE 13.1** Components of M1 for the United States

MyEconLab Real-time data

Currency is the largest component of M1, the most basic measure of money. Demand and other checkable deposits are the next largest components.

SOURCE: Board of Governors of the Federal Reserve.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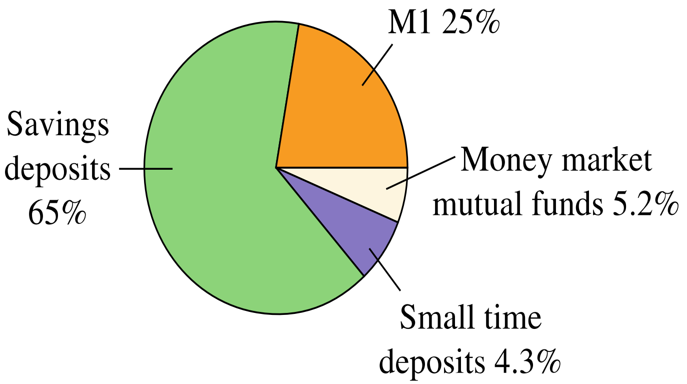
M1 Money Stock
4,000
3,600
3,200
2,800
2,400
2,000
1,600
1,200
800
400
0
Billions of Dollars
1980
1985
1990
1995
2000
2005
2010
2015
Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
fred.stlouisfed.org

13.1 WHAT IS MONEY?

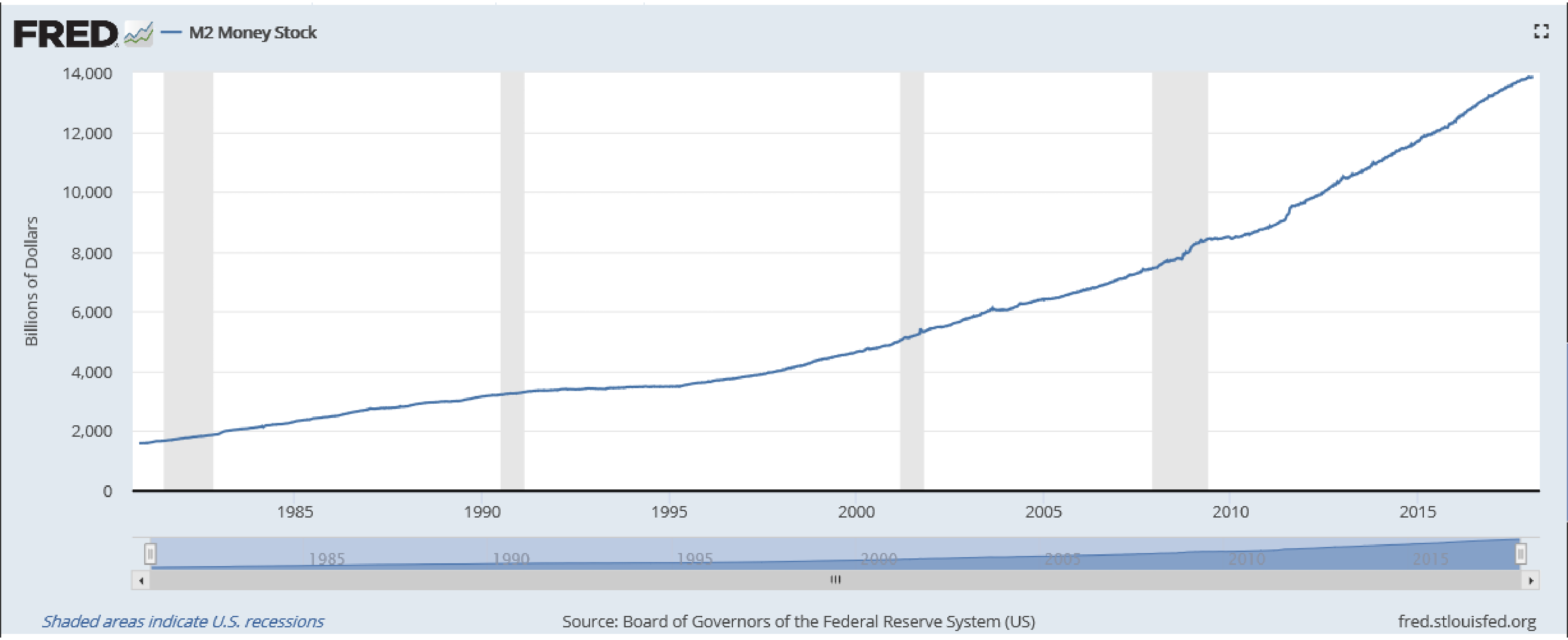
Measuring Money in the U.S. Economy

- **M2**
  M1 plus other assets, including deposits in savings and loans accounts and money market mutual funds.

Savings deposits are the largest component of M2, followed by M1, small time deposits, and money market mutual funds.



▲ **FIGURE 13.2** Components of M2 in the United States


FRED
M2 Money Stock
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Billions of Dollars
1985
1990
1995
2000
2005
2010
2015
Shaded areas indicate U.S. recessions
Source: Board of Governors of the Federal Reserve System (US)
fred.stlouisfed.org

APPLICATION 1

CASH AS A SIGN OF TRUST

APPLYING THE CONCEPTS #1: Why did Greek citizens start holding large amounts of cash in 2015?

There are many reasons to hold some part of your wealth in cash such as for convenience, when making small purchases. But in the case of Greece, increased holding of cash occurred because of widespread fear of a major financial catastrophe.

In early 2015, residents began withdrawing funds for fear the country would be forced to abandon the currency, the euro and return to the old currency, the drachma, but at a reduced value.

They feared the banks would simply convert their accounts to the drachma and they would lose value. By withdrawing cash and storing it, they could later use it in other parts of Europe or convert it back to larger amounts of the local currency.

Holding cash was a sign of lack of trust in the overall financial system.

13.2 HOW BANKS CREATE MONEY

A Bank’s Balance Sheet: Where the Money Comes from and Where It Goes

- **Balance sheet**
  An account statement for a bank that shows the sources of its funds (liabilities) as well as the uses of its funds (assets).
- **Liabilities**
  The sources of funds for a bank, including deposits and owners’ equity.
- **Assets**
  The uses of the funds of a bank, including loans and reserves. Assets generate income.
- **Owners’ equity**
  The funds provided to a bank by its owners.

13.2 HOW BANKS CREATE MONEY

A Bank's Balance Sheet: Where the Money Comes from and Where It Goes

- **Reserves**
  The portion of banks' deposits set aside in either vault cash or as deposits at the Federal Reserve.

- **Required reserves**
  The specific fraction of their deposits that banks are required by law to hold as reserves.

- **Excess reserves**
  Any additional reserves that a bank holds above required reserves.

13.2 HOW BANKS CREATE MONEY

A Bank’s Balance Sheet: Where the Money Comes from and Where It Goes

Assets	Liabilities
\$ 200 Reserves	\$2,000 Deposits
\$2,000 Loans	\$ 200 Owners’ equity
Total: \$2,200	Total: \$2,200

▲ **FIGURE 13.3** A Balance Sheet for a Bank

The figure shows a hypothetical balance sheet for a bank holding 10 percent in required reserves, \$200. Banks don’t earn interest on their reserves, so they will usually want to loan out any excess of the amounts they are required to hold. This bank has loaned out all of its excess reserves, \$2,000.

13.2 HOW BANKS CREATE MONEY

Reserve Requirements

Liability Type	Requirement	
	% of liabilities	Effective date
Net transaction accounts [1]		
$0 to $16.3 million[2]	0	1-17-19
More than $16.3 million to $124.2 million[3]	3	1-17-19
More than $124.2 million	10	1-17-19
Nonpersonal time deposits	0	12-27-90
Eurocurrency liabilities	0	12-27-90

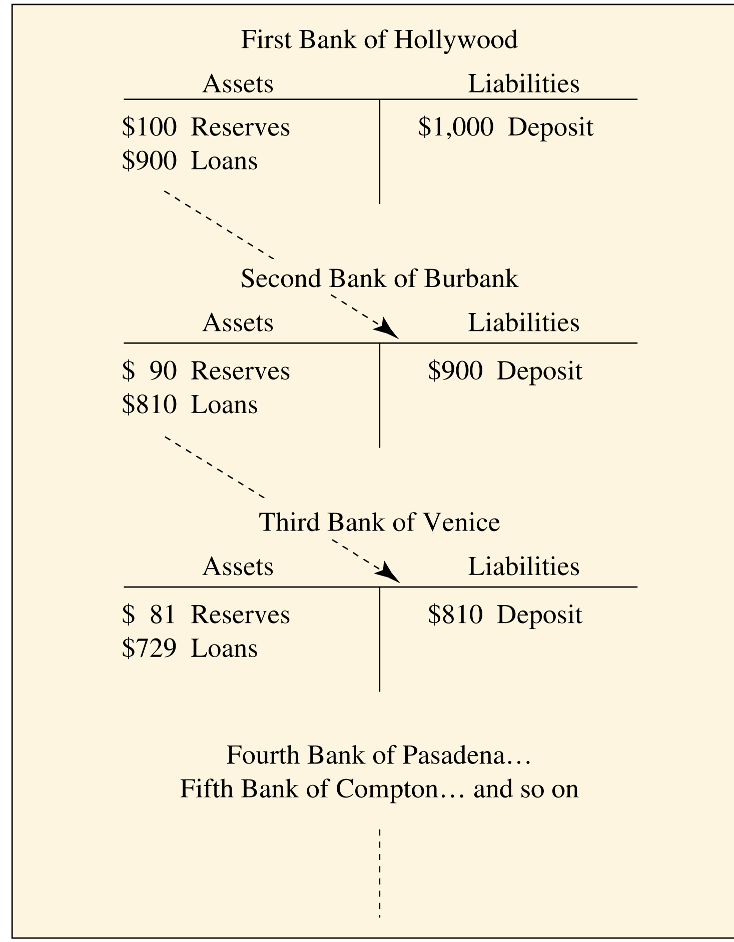
13.2 HOW BANKS CREATE MONEY

How Banks Create Money

- **Reserve ratio**
  The ratio of reserves to deposits.

The figure shows how an initial deposit of $1,000 can expand the money supply. The first three banks in the figure loaned out all their excess reserves and the borrowers deposited the full sum of their loans.

In the real world, though, people hold part of their loans as cash and banks don't necessarily loan out every last dime of their excess reserves. Consequently, a smaller amount of money will be created than what's shown here.



▲ **FIGURE 13.4** Process of Deposit Creation: Changes in Balance Sheets

13.2 HOW BANKS CREATE MONEY

How the Money Multiplier Works

- Money multiplier
  The ratio of the increase in total checking account deposits to an initial cash deposit.

$$\text{total increase in checking account balance throughout all banks} = (\text{initial cash deposit}) \times \frac{1}{(\text{reserve ratio})}$$

How the Money Multiplier Works in Reverse

The money multiplier working in reverse decreases the money supply.

APPLICATION 2

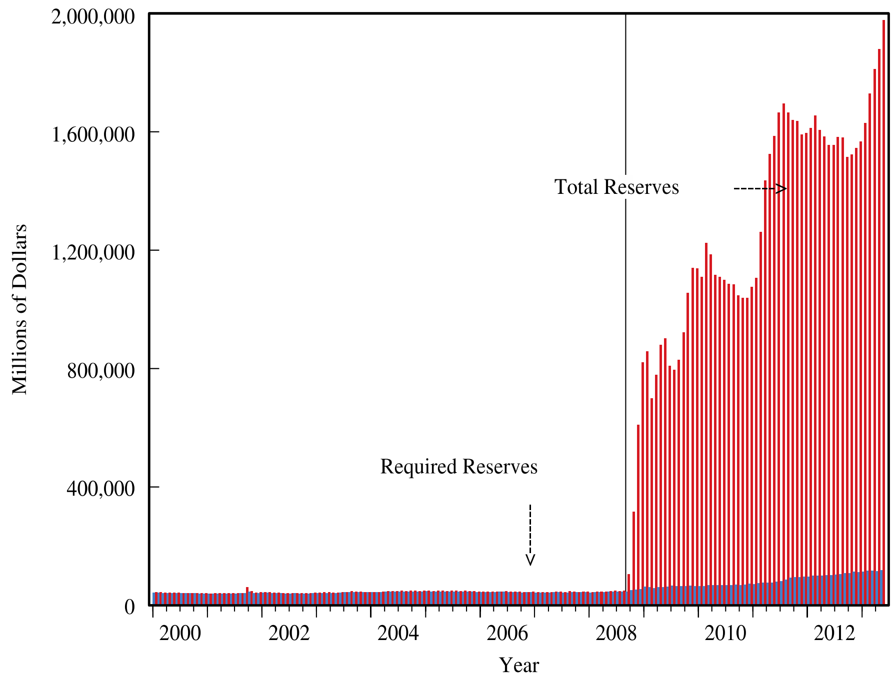
THE GROWTH IN EXCESS RESERVES

APPLYING THE CONCEPTS #2: Why have banks recently started to hold vast amounts of excess reserves?

Until September of 2008, banks held few excess reserves so total reserves (in red) were very close to required reserves (in purple).

In response to the financial crisis of 2008, the Fed injected large amounts of reserves into the system and began paying interest on reserves in October.

As a result, excess reserves rose and total reserves now exceed required reserves.



▲ FIGURE 13.5 Required and Total Reserves of Banks

Interest Rates on Reserve Balances for October 22, 2018 Last Updated: October 19, 2018 at 4:30 p.m., Eastern Time	Rates (percent)	Effective Date
Rate on Required Reserves (IORR rate)	2.20	9/27/2018
Rate on Excess Reserves (IOER rate)	2.20	9/27/2018

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13.3 A BANKER’S BANK: THE FEDERAL RESERVE

- **Central bank**
  A banker’s bank: an official bank that controls the supply of money in a country.

- **Lender of last resort**
  A central bank is the lender of last resort, the last place, all others having failed, from which banks in emergency situations can obtain loans.

13.3 A BANKER’S BANK: THE FEDERAL RESERVE

Functions of the Federal Reserve

THE FED SUPPLIES CURRENCY TO THE ECONOMY

Working through the banking system, the Federal Reserve is responsible for supplying currency to the economy.

Although currency is only one component of the money supply, if individuals prefer to hold currency rather than demand deposits, the Federal Reserve and the banking system will facilitate the public’s preferences.

THE FED PROVIDES A SYSTEM OF CHECK COLLECTION AND CLEARING

The Federal Reserve is responsible for making our system of complex financial transactions “work.”

This means that when Paul writes Freda a check, the Federal Reserve oversees the banks to ensure Freda’s bank receives the funds from Paul’s bank.

This is known as *check clearing*. As our economy moves to more electronic transactions, the Federal Reserve provides oversight over these transactions as well.

13.3 A BANKER'S BANK: THE FEDERAL RESERVE

Functions of the Federal Reserve

THE FED HOLDS RESERVES FROM BANKS AND OTHER DEPOSITORY INSTITUTIONS AND REGULATES BANKS

As we have seen, banks are required to hold reserves with the Federal Reserve System. The Federal Reserve also serves as a regulator to banks to ensure they are complying with rules and regulations. Ultimately, the Federal Reserve wants to ensure the financial system is safe.

THE FED CONDUCTS MONETARY POLICY

- **Monetary policy**
  The range of actions taken by the Federal Reserve to influence the level of GDP or inflation.

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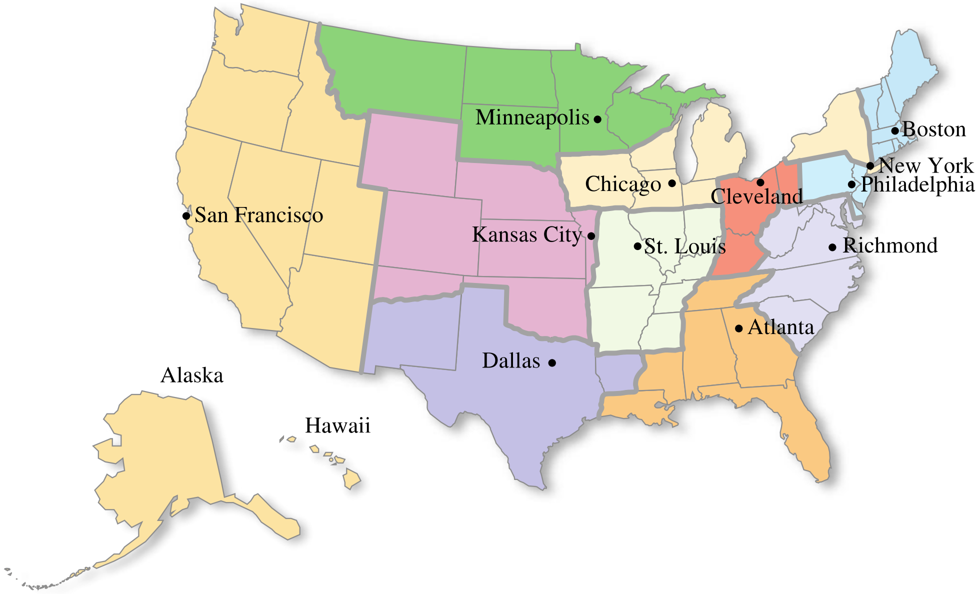
13.3 A BANKER'S BANK: THE FEDERAL RESERVE

The Structure of the Federal Reserve

- **Federal Reserve Bank**
  One of 12 regional banks that are an official part of the Federal Reserve System.

The 12 Federal Reserve Banks are scattered across the United States.

These district banks serve as a liaison between the Fed and the banks in their districts. Hawaii and Alaska are in the twelfth district, which is headquartered in San Francisco.



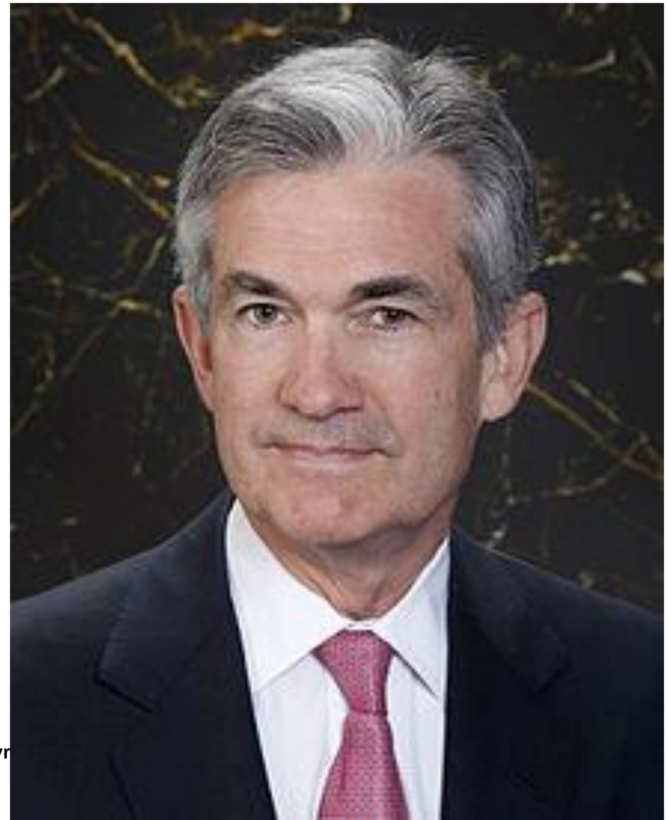
▲ FIGURE 13.6 Locations of the 12 Federal Reserve Banks

13.3 A BANKER'S BANK: THE FEDERAL RESERVE

The Structure of the Federal Reserve

- **Board of Governors of the Federal Reserve**
  The seven-person governing body of the Federal Reserve System in Washington, D.C.

- **Federal Open Market Committee (FOMC)**
  The group that decides on monetary policy: It consists of the seven members of the Board of Governors plus 5 of 12 regional bank presidents on a rotating basis.

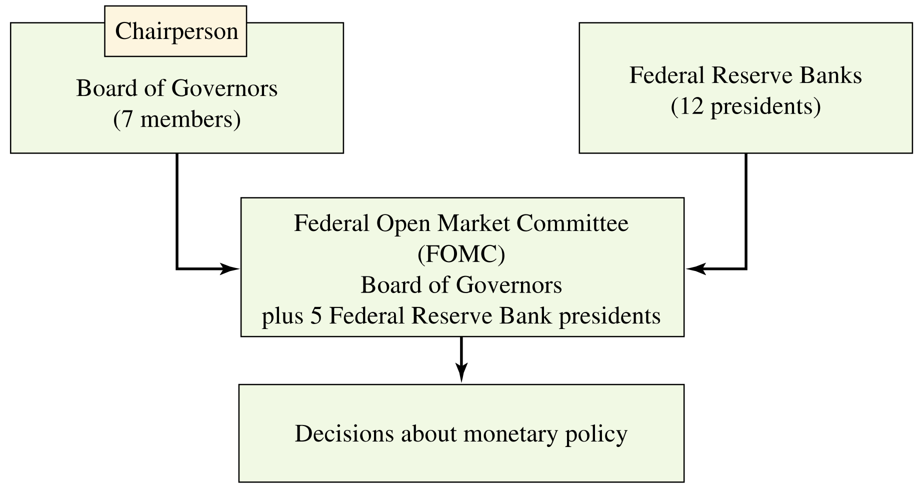


13.3 A BANKER'S BANK: THE FEDERAL RESERVE

The Structure of the Federal Reserve

The Federal Reserve System in the United States consists of the Federal Reserve Banks, the Board of Governors, and the Federal Open Market Committee (FOMC).

The FOMC is responsible for making monetary policy decisions.



▲ **FIGURE 13.7** The Structure of the Federal Reserve System

The Independence of the Federal Reserve

Countries differ in the degree to which their central banks are independent of political authorities. In the United States, the chairperson of the Board of Governors is required to report to Congress on a regular basis, but in practice, the Fed makes its own decisions and later informs Congress what it did.

APPLICATION 3 13.4 WHAT THE FEDERAL RESERVE DOES DURING A FINANCIAL CRISIS

STRESS TESTS FOR THE FINANCIAL SYSTEM

APPLYING THE CONCEPTS #3: How do policymakers use stress tests to safeguard the financial system?

After the severe financial crisis of 2008, policymakers began searching for tools to make sure that banks and financial institutions could survive future shocks.

The tool the came up with was the Stress Test; here is how it works.

The banks had to develop models to determine what would happen if there were a major economic change such as a sharp rise in interest rates, a major drop in GDP, or a substantial increase in unemployment.

The banks are suppose to have enough capital or owners equity to survive such conditions. The banks report the results of the test to the Fed, who evaluates the results along with the models, as well as some of their own information.

APPLICATION 4 13.4 WHAT THE FEDERAL RESERVE DOES DURING A FINANCIAL CRISIS

COPING WITH THE FINANCIAL CHAOS CAUSED BY THE MORTGAGE CRISIS

APPLYING THE CONCEPTS #4: How did the Fed successfully respond to the collapse of major financial institutions in 2008?

Sunday, March 16, 2008, was not a peaceful day for the Board of Governors. Over the prior week, Bear Stearns had gone into full collapse.

The Fed feared that a complete collapse of Bear Stearns would devastate the financial system and cause a global panic, effectively causing a “run” in the financial markets.

Unfortunately, Bear Stearns was only an early symptom of a problem that increased in severity over the coming months. By September and October of 2008, the mortgage crisis had effectively spilled over into the world’s financial markets.

As the crisis continued, the Fed continued to develop new programs.

- It announced that it would now purchase the short-term debt of corporations.
- It also began a program to extend loans to money market funds, some of which had come under financial pressure.
- Finally, it began to pay interest on reserves held at the Fed.

Only time will tell whether these changes will become permanent tools of the Fed or will fade away when the crisis recedes.

Learning Objectives

13.1 Identify the components of money in the U.S. economy.

13.2 Explain the process of multiple expansion and contraction of deposits.

13.3 Describe the structure of the Federal Reserve.

13.4 Discuss examples of how the Federal Reserve acts during financial crises.

KEY TERMS

Assets
Balance sheet
Barter
Board of Governors of the Federal Reserve
Central bank
Commodity money
Double coincidence of wants
Excess reserves
Federal Open Market Committee (FOMC)
Federal Reserve Bank
Fiat money
Gold standard
Lender of last resort
Liabilities
M1
M2
Medium of exchange
Monetary policy
Money
Money multiplier
Owners' equity
Required reserves
Reserve ratio
Reserves
Store of value
Unit of account

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Questions?

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