Money and the Economy

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v2.0

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CHAPTER 1
MONEY—AN OVERVIEW

Overview

The purpose of this chapter is to help students learn the definition of money as a means of exchange. They learn that while various objects (e.g., seashells, cigarettes, precious metals, paper, and checks) have at different times been used as money, most of these do not meet the needs of today's complex economy. Finally, they learn that a scheme devised by London goldsmiths became the model for expanding the money supply through our banking system.

Objectives

Students will:

- realize that, for an object to serve as money, it must be universally acceptable, portable, divisible into smaller units, difficult to duplicate, durable, remain fairly stable in value, and expandable when necessary
- be able to explain the difference between three kinds of money: money with intrinsic value, paper money, and fiat money
- understand how the practice by London goldsmiths of issuing certificates indicating that customers had entrusted them with gold, became the forerunner for the means of expanding the money supply through the banking system.

Strategies

Assuming you have assigned students to read the first chapter of this book, check to see whether they have and have completed the Student Activities. Hold up a dollar bill and ask students why it is literally worth more than the paper it is printed on. Make sure they understand the reason is not "because the government will give you gold or silver in exchange for the bill," or something similar. Have them note that, in essence, the dollar is "fiat money" (i.e., money whose worth is based on government decree) and that the decree is itself inscribed on the bill: "This note is legal tender for all debts, public and private." Review the characteristics that money must have to serve

its purpose in a modern economy. Ask students why a daffodil, an ice cube, a boulder, or any item on the list in the Student Activities isn't suitable today for use as money. Then ask students how American currency serves all of the requirements of a useful currency. Ask a volunteer to explain how certificates that an individual entrusted gold worth £100 at a goldsmith's could serve as a way of expanding the money supply in 17th-century London.[1]

Assign the reading and exercises in Chapter 2.

1. Part of the answer is that the owner of the pawnshop could print more such certificates than he had gold in his shop. He could get away with this as long as not all of the holders of these certificates want to redeem them for gold.

CHAPTER 1

MONEY—AN OVERVIEW

Introduction

It has been said that it does not bring happiness and has been called the root of all evil. In 2007–08, golfer Tiger Woods earned a cool $111 million. When Shaquille O'Neal signed a ten-year contract to play basketball with the Los Angeles Lakers for $120 million, he said it was not for the money. But some people will kill for it, or die without it. Others admit they could not be happy without it.

A $100 bill is sometimes referred to as a "Benjamin."
It is the largest American bill in circulation.

This chapter explains what money really is and what can serve as money in a modern society. You will also become familiar with the history of money. Later chapters describe how banks actually create money without printing it and how the nation's central bank can affect the money supply and why it would want to.

What Money Really Is

It's hard to get and easy to spend. But what is money really? Economists call it **"a means of exchange."** That means, you can:

1. use it to buy things
2. hold on to it, and it will generally keep its value
3. use it as a means of deferred payment (to pay later)
4. use it as a measure of the value of other things

To be useful in a modern society, money must have several characteristics. Among these are:

1. **It must be universally acceptable:** People must be willing to accept it in exchange for goods and services.
2. **It must be portable:** People must be able to take money with them.
3. **It must be divisible into smaller denominations:** $50, $20, $0.50, $0.10, and so on.
4. **It must be difficult to duplicate**—that is, it can't be easily counterfeited.
5. **It must be durable:** The money itself must resist physically breaking down.
6. **It must remain fairly stable in value,** worth about as much today as it was worth last month or even last year.
7. **It must be expandable as needed,** enough to keep up with the increased number of available goods and services.

A Very Brief History of Money

Historians can't pinpoint the day when money first came into use, but one thing is certain: The exchange or trade of goods took place long before people developed money to make this process easier. Even in very primitive societies, Ug the caveman could not always have a disposable stone ax at his side every time he wanted to trade for a mammoth hide. Ug might have exchanged shiny stones or rare seashells (or something else) for the goods he wanted. Gradually, the shells became valuable because members of Ug's traditional society could more easily exchange them for the goods they desired, and thus money was invented. However, no one person patented this invention, and many different societies developed their own forms of money in their own ways. In one of the South Sea islands, huge stones—too heavy for a person to move—were considered the coin of the realm. Some societies consider cattle the basic form of exchange and buy and sell brides

The "Lydian Lion" (c. 600 BCE), considered by many experts to be the first known government-issued coin

with cows. During the 1790s in western Pennsylvania, whiskey served as money. In some World War II prison camps, a rare commodity served as the means of exchange: cigarettes.

As societies became more complex, the creation of money became a deliberate process. The first coins were probably minted in what is today Turkey, some 2600 years ago. Paper money came into use in China in the ninth century CE and was used sporadically for some 600 years before it was abandoned.

The process by which paper currency emerged in the Western Hemisphere may be interesting to some and instructive to others. During the 17th century, some Londoners with gold deposited it with goldsmiths for safekeeping. In exchange for the gold, the goldsmith would give the depositor a receipt. Soon the receipts themselves began to circulate and serve the same purpose as the gold deposits they represented. Goldsmiths eventually realized that people often wouldn't redeem the receipts (turn them in for gold) for years at a time. Cautiously at first, they began to write receipts that didn't have gold backing them up. As long as relatively few people came to reclaim the gold they had deposited, these receipts could expand the money supply and make the goldsmith richer. This practice led to the development of the modern banking system.

Three Kinds of Money

At this point, we should distinguish between three kinds of money: **commodity** money, **representative** money, and **fiat** money. Commodity money has worth because what it's physically made of has a value on the open market. For example, melting down a silver dollar should yield a dollar's worth of silver.[1]

Representative money, often in the form of paper money, carries with it the promise that it can be redeemed for precious metals such as gold or silver. This money is as good as a government's promise to back it up, along with other people's willingness to accept it.

The worth of **fiat money** is established by decree (or fiat). The king, emperor, dictator, or the U.S. government simply declares that something is money and must be accepted. Fiat money is also usually paper money. Take out a dollar or a five-dollar bill from your pocket and you can read the words printed on it, "This note is legal tender for all debts, public or private." It does not say, for example, "This note is redeemable in gold or silver" (and the U.S. government no longer exchanges gold or silver coin for the dollars it prints). Nevertheless, nearly all people or businesses are very happy to be paid for their goods or services with U.S. dollars.

A Short History of Money in the U.S.

In reality, the U.S. operates with a mixture of the three types of money just described. At one time, the U.S. minted gold and silver coins worth intrinsically about the same as what the government printed on the their face. Banks also issued paper, sometimes more than they could back up. As long as only a relatively small number of people at one time came to redeem this paper for gold coins, this system worked.

1. Actually, in 2009, the silver in a silver dollar was worth a little more than five cents.

During the Revolution and the Civil War, the U.S. government issued paper money not backed by gold or any precious metal. In both cases, this money lost its value. The U.S. government retired (redeemed for gold-backed dollars) the paper money from the Revolution at the rate of one dollar in gold for every 40 dollars of paper. The government-issued paper during the Civil War was itself retired several years after the war.

The Great Depression of the 1930s led the U.S. to leave the gold standard, discontinuing the policy of guaranteeing that representative money (i.e., paper money) could be redeemed in gold. However, the government still issued silver certificates. But these were also recalled, and today, the government does not provide gold, silver, or any precious metal in exchange for paper money.

That Americans cannot exchange U.S. dollars for gold or silver does not stop them from accepting them in return for goods and services. Why is that? The answer is that the American dollar has all of the characteristics of money: It has universal value (it's very widely accepted), it's portable (you can carry it around with you), divisible (into denominations from 1¢ to 5¢, 10¢, 25¢, and 50¢, and from $1 to $5, $10, $20, $50, and $100), difficult though not impossible to counterfeit, durable (doesn't wear out quickly), remains stable over time (low inflation), and is expandable when needed (the government can create more).

American dollars, British pounds, European Union euros, and scores of other currencies serve the purpose of money. They all provide a means of exchange and of deferred payment, and serve as a measure of value. So do you really care whether you can exchange dollar bills for gold or silver?

Items That Serve as Money

Forms of money exist other than those just mentioned. Fewer than 30% of monetary transactions in the U.S. are conducted with the paper money in circulation today. Most people pay their bills with a check or credit card, and not money. In fact, the money (actually, the credit) that is in your bank account is considered part of the money supply.

It's easy to see why economists count so-called checkbook money as part of the basic money supply. Most businesses pay their employees by check. Employees deposit most of that money into banks, and pay most of their bills by check. But if checking deposits are counted as money, why aren't credit cards as well? Because credit cards represent loans, not actual money. They should in theory be paid off at the end of the month—and how are they paid? By check.

Economists call other kinds of deposits, money, such as savings accounts—bank accounts that the depositor cannot write checks against. In addition, CDs (certificates of deposit), government bonds, and mutual funds are all considered money.

However, a distinction is made between money's various forms when accounting for a country's money supply. Currency, checking accounts, and traveler's checks, because they can all be readily used as money and are universally accepted, are classified as one type of money (M1). But depositors can't turn savings deposits into money as easily, nor can holders of most CDs, who incur

a penalty for cashing in early (i.e., before the date of maturity). These are therefore considered a second, broader category of money, M2 (which also includes M1). Bonds, mutual funds, and larger CDs are even less likely to be exchanged for currency at a moment's notice; economists put these in the broadest category, M3 (which also includes M2). While M3 allows for the widest assessment of the money supply, the U.S. central bank, the Federal Reserve, stopped tracking M3 in 2006, saying that M2 alone provided sufficient data. To summarize:

- M1: currency, checking deposits, and traveler's checks
- M2: M1 plus savings accounts, CDs worth less than $100,000
- M3: M2 plus CDs worth over $100,000, government bonds, stocks, and mutual funds
- Credit cards: not money
- Houses, cars, cell phones, etc.: not money

Name: _____ Date: _____

Student Activities

Money—An Overview

A. Money or Not

Which of the criteria for being used as money in a modern society does each of the following not meet? Use each answer only once. The first question is answered for you.

Items that could not be used for money	Why not?
1. Ice cubes	*Not durable*
2. Bowling balls	
3. Rare gems	
4. Whiskey	
5. Sand	
6. Cigarettes	

The criteria are (a) not rare, (b) indivisible into smaller units, (c) not durable, (d) doesn't maintain its value over time, (e) not portable, (f) not expandable, (g) too easy to counterfeit.

B. M1, M2, and M3

Which of the following are M1, M2, M3, or not money at all?

	M1, M2, M3, or not money
1. A credit card's unused balance	
2. A checking account	
3. Stocks and bonds	
4. A savings account	
5. A $100 bill	
6. Antique furniture	

C. Short Essay

In less than 100 words, describe how goldsmiths started issuing what evolved into paper money.

CHAPTER 2

EXPANDING AND CONTRACTING THE MONEY SUPPLY

Overview

Money, as with any commodity, is subject to the laws of supply and demand. If the money supply increases faster than demand does, the value of money goes down; predictably, if the money supply decreases faster than demand, its value goes up. The former, readers are told, results in inflation, while the latter results in deflation.

The money supply can expand through the banking system because banks are allowed to lend out the equivalent of a large percentage of their deposits. The reading uses an example in which all banks lend 80% of an initial deposit, and asks students to suppose that one bank with deposits of $1,000 lends $800. The chapter then explains that the formula for determining how much money the banking system can create with this type of lending is **M = D x (1 ÷ rr)**, wherein **M** is the potential addition to the money supply, **D** is the initial deposit, and **rr** is the reserve requirement (the percentage of deposits the bank must hold, expressed as a decimal). In other words, with a deposit of $1,000 and a 20% reserve requirement…

$$M = 1000 \times (1 \div .2)$$

$$M = 1000 \times 5$$

$$M = 5000$$

… the money supply can expand up to $5,000.

Objectives

Students will:

- learn that an increase in the money supply relative to demand can have an inflationary effect and that a decrease in supply in relationship to demand has a deflationary effect and

- understand that banks can expand the money supply through loans, with the expansion constrained by reserve requirements and deposits.

Strategies

After checking whether students did the reading and activities, explain that money is a commodity like any other that responds to the law of supply and demand. Students should understand that the major cause of inflation (or deflation) is an increase (or decrease) in the money supply relative to the total available goods and services. Proceed by asking students to explain what the variables in **M = D × (1 ÷ rr)** stand for, and give them some examples to solve.

Assign the reading in Chapter 3.

CHAPTER 2

EXPANDING AND CONTRACTING THE MONEY SUPPLY

Introduction

This chapter explains how the banking system in the U.S. can expand the money supply many times the original amount deposited in one bank, as well as shrink it. Subsequent chapters describe how changes in the money supply affect the economy in general by either creating or curbing inflation, or by stimulating or stifling economic growth.

Deflation and Inflation

Think of money as any other commodity affected by the law of supply and demand. What would happen if the demand for money increased (e.g., because of a greater number of things to buy), but the supply of money stayed the same? The price of money would go up—all the dollars in circulation would become more valuable because the things people buy would cost less money. This phenomenon is called "deflation," a general decline in prices of goods and services over a period of time.

On the other hand, suppose that the supply of money increased, but the demand for it didn't. The law of supply and demand says that the price (or value) of money goes down. The declining value of money results in price increases. The term "inflation" is used to describe a general rise in prices and goods and services over a period of time.

In the days when precious metals constituted money, little could be done purposely to control the money supply. Inflation and deflation occurred more or less as the result of chance discoveries of new supplies of these metals. Today, however, most money is created through the banking system. Let us first see how the banking system expands the money supply.

How Banks Create Money

You may remember how goldsmiths helped create money by writing a few extra deposit certificates based on the same amount of gold. This gives you a very rough idea how money is created in the modern banking system.

You've deposited $1,000 in lottery winnings into a savings account at your parents' bank. Banks are by law mandated to keep a certain percentage of their deposits as cash reserves, called the "reserve requirement"; in this example, the reserve requirement is 20%. Say the bank loans 80% of that money ($800) to your teacher to buy a mountain bike. But banks don't really physically lend out its deposits, instead keeping them as the reserves for making loans—otherwise, no new money is created. In this way, the bank has effectively created $800 on top of the initial $1,000. Now assume the bicycle-store owner deposited the $800 in this bank, which lends out 80% of that money ($640) to your friend to repair the engine in her secondhand Chevrolet. The owner of the repair shop in turn deposits the $640 at the same bank. The bank loans 80% of this ($512) to your aunt to landscape her house. She pays the landscaper, who deposits it there as well, and so on. The total deposits at this bank from this chain of transactions equal $2,952 (1000 + 800 + 640 + 512 = 2952), all based on the original $1,000.

If this process were to continue until nothing is left as the basis for new loans (80% of 80% of 80% of…) the original $1,000 deposit would become almost $5,000 in new money created by the banking system. A formula expresses the relationship between bank deposits and the possible creation of new money:

$$\mathbf{M = D \times (1 \div rr)}$$

In this formula, let

- M = money created
- D = deposits
- rr = reserve requirement (expressed as a decimal)

In applying this formula to our case:

$$M = 1000 \times (1 \div .2)$$

$$M = 1000 \times 5$$

$$M = 5000$$

If the reserve requirement were 10% or 25%, rather than the 20% here, it would dramatically affect the creation of money through the banking system. The Student Activities ask you to use the formula above to show how changes in reserve requirements can affect the amount of money in circulation.

Name: _____ Date: _____

Student Activities

Expanding and Contracting the Money Supply

A. Deflation and Inflation

Which of the following are characteristics of deflation or inflation, or would be likely to cause deflation or inflation?

Event	Inflation/deflation
a. When prices go up	
b. When prices go down	
c. When the dollar becomes less valuable	
d. When the dollar becomes more valuable	
e. An increase in banks' reserve requirements	
f. A decrease in banks' reserve requirements	

B. Determining the Theoretical Limit of Monetary Expansion

Determine the final amount to which the money supply can expand in each of the following cases:

1. If D = $1,000 and rr = 20%, M equals what?
   a. $5,000
   b. $50,000
   c. $2,000

2. If D = $1,000 and rr = 25%, M equals what?
   a. $1,250
   b. $4,000
   c. $50,000

3. How much does the amount of money that could be created through the banking system decrease from Problem 1 to Problem 2?

4. Let M = $2000 and rr = 10%. Solve for D.

5. Let M = $5000 and rr = 50%. Solve for D.

6. Let M = $2000 and rr = 33%. Solve for D.

CHAPTER 3
THE CLASSROOM BANKING GAME

Overview

This chapter features the Classroom Banking Game. Student teams are assigned roles as either bankers or borrowers. Bankers lend money to borrowers and accept money deposited in their institutions. Borrowers borrow money and deposit their checks in banks other than the one that lent them the money. The chapter provides detailed instructions to all concerned and supplies templates for accounting statements and checks.

Objectives

Students will:

- participate in a game that simulates banks' expansion of the money supply through loans and deposits and
- use the formula **M = D × (1 ÷ rr)** to calculate how much they can lend or borrow as either bankers or borrowers.

Strategies

Make sure you have sufficient copies of banks' accounting sheets and checks and of borrowers' bank-book sheets for your class before it begins. Assign students the roles of bankers and borrowers: ideally, you should have four "banks" made of student pairs and at least six teams of borrowers. Review the procedures for the game, emphasizing the need for all to record their transactions accurately and to act quickly. Borrowers must sign the backs of their checks when they deposit them. Leave about 15 minutes at the end of class to allow banks to total their deposits and write these figures on the blackboard. Give some kind of special recognition to the bank that has lent out the most money. After adding the deposits, make sure students recognize how much more money than deposits is now in the banking system, compared with when the game began.

Assign the reading and activities in Chapter 4.

CHAPTER 3

THE CLASSROOM BANKING GAME

Introduction

This chapter contains the directions for and a single copy of each handout needed to play the Classroom Banking Game. Handouts include the checks that borrowers write to banks and the accounting forms on which bankers and borrowers record their transactions. Playing the game will help in understanding how the U.S. banking system creates money and how the Federal Reserve Banks can increase or shrink the money supply.

Directions

1. The teacher will divide the class into pairs and assign roles of either bankers or borrowers. Students will receive copies of checks, bank books, and accounting sheets, as needed.

2. Each bank begins the game with a balance of $1,000.

3. Each bank must quickly lend out 80% of its deposits to borrowers with workable plans for the money and an excellent chance of paying back the loan. Determine this amount by using the formula **M = D× (1 ÷ rr)**.

4. Both bankers and borrowers conduct their transactions by filling out and exchanging checks.

5. Bankers must use accounting sheets to keep a record of each of their transactions and maintain a running account of how much they receive in deposits and lend to borrowers.

6. Each pair of borrowers must immediately deposit its money in any bank other than the one that lent them the money. They also must record their transactions in their bank books.

7. Fifteen minutes before the end of class, bankers report the amount of money in checks that was deposited in each bank. Totals are written on the board.

8. All borrowers should announce their totals as well. Write these on the board.

9. Add up the totals of all banks' deposits and all money to see how much money was actually created from the game's initial deposits.

10. The bank with the most money in deposits, and the borrowers who have borrowed the most money, win.

Student Handouts

The Classroom Banking Game

A. Banks' Accounting Sheets

Name of bank: _____

Run by: _____ and _____ and _____

Deposit	Deposited by (names)	Amount available for lending	Amount lent	Lent to (names)
$1,000	*Teacher*	*$800*		
_____ Total deposits			_____ Total loans	

B. Checks for Bankers to Make Out to Borrowers

Date ________________

Pay to borrower(s):

________________ and ________________ and ________________ $ ___________

Exactly ___________________________________ dollars and _______________ cents

Signed ________________________________

Check only valid if signed by officer of bank. Depositor must sign back of check to deposit.

Date ________________

Pay to borrower(s):

________________ and ________________ and ________________ $ ___________

Exactly ___________________________________ dollars and _______________ cents

Signed ________________________________

Check only valid if signed by officer of bank. Depositor must sign back of check to deposit.

Date ________________

Pay to borrower(s):

________________ and ________________ and ________________ $ ___________

Exactly ___________________________________ dollars and _______________ cents

Signed ________________________________

Check only valid if signed by officer of bank. Depositor must sign back of check to deposit.

Date ________________

Pay to borrower(s):

________________ and ________________ and ________________ $ ___________

Exactly ___________________________________ dollars and _______________ cents

Signed ________________________________

Check only valid if signed by officer of bank. Depositor must sign back of check to deposit.

C. Bank Books for Each Team of Borrowers

Bank Book

Owned by: ____________ and ____________ and ____________

Amount deposited	Deposited in which bank	Total deposits	Amount borrowed	Borrowed from

____________ Total deposits ____________ Total loans

CHAPTER 4
THE FEDERAL RESERVE SYSTEM

Overview

This chapter explains how the Federal Reserve System is structured and how, under the direction of its Board of Governors, it can affect the money supply by changing member banks' reserve requirements, changing the discount and federal funds rates, and purchasing or selling securities on the open market. Each of these actions as well as its effects on the economy are described in some detail.

Objectives

Students will:

- understand how the Federal Reserve System is structured, including the 12 Federal Reserve Banks located in districts around the country, the Board of Governors, and the Federal Open Market Committee and
- explain how the Fed can affect the money supply (and therefore economic growth) by changing the discount rate, federal funds rate, and reserve requirements, and by buying or selling securities on the open market.

Strategies

After you've checked whether students have done the homework, draw a rough map of the U.S. and locate the cities (e.g., Boston, San Francisco) home to Federal Reserve Banks. Review the effects of changing the federal funds rate, the discount rate, and reserve requirements. Once confident that students understand these actions, ask them to share their answers to Student Activity, part B, and give their reasons for each of their choices.

Assign the readings and activities in Chapter 5.

CHAPTER 4

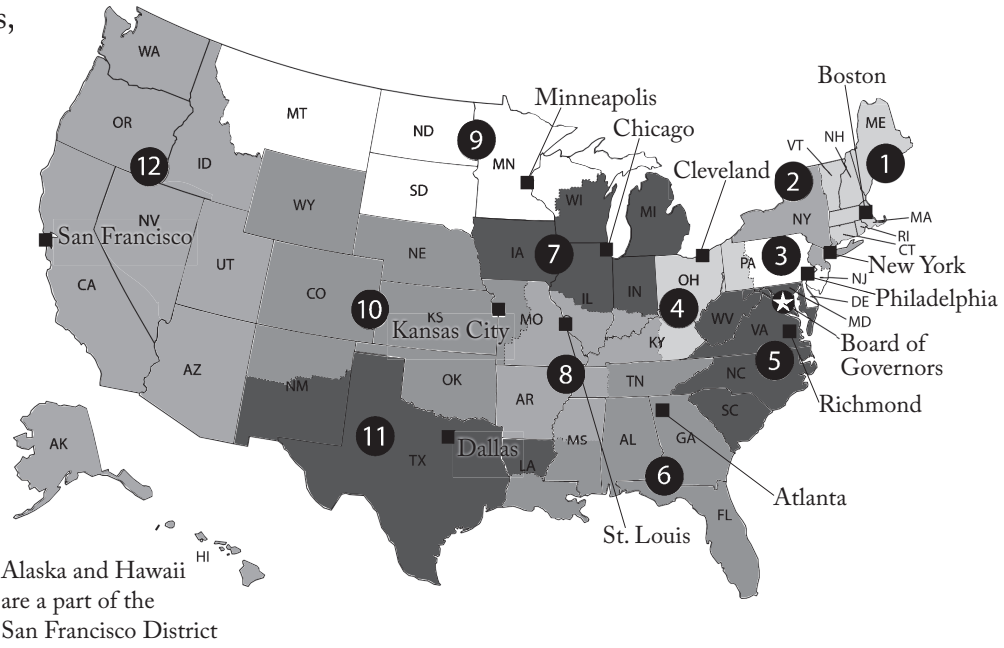
THE FEDERAL RESERVE SYSTEM

Introduction

Between 1836, when President Jackson's veto of the Second Bank of the United States went into effect, and 1913, the U.S. had no central bank. By 1913, the U.S. was the only major industrial nation without one. President Woodrow Wilson had made a campaign promise to create such a system, and Congress complied in 1913 by establishing the Federal Reserve System (frequently referred to as "The Fed"). While there have since been changes made to the way the Fed functions, this lesson addresses how it operates today.

Bankers' Banks

The Federal Reserve System consists primarily of 12 Federal Reserve Banks and a supervising Board of Governors. Each bank is located in a major city in a different region of the country, called "districts": Boston, New York, Philadelphia, Richmond, Atlanta, Cleveland, Chicago, St. Louis, Kansas City, Minneapolis, Dallas, and San Francisco. These banks are not banks that ordinary people can use; rather, they are bankers' banks and their customers are other banks.



Alaska and Hawaii are a part of the San Francisco District

The Federal Reserve Banks are controlled by a congressional creation called the Board of Governors. The board comprises seven members who serve staggered 14-year terms. The president of the U.S. has the authority to appoint board members (with the Senate's consent), though reappointments generally don't depend on the president's political leanings. The president can also appoint one of these members as chairman of the Board of Governors for unlimited four-year terms (also with the Senate's approval). However, the Federal Reserve Board acts independently of the president's wishes. Its decisions cannot be reversed or overruled by either the president or by Congress.

One important function of each Federal Reserve Bank is lending money to the member banks in its district. If a local bank is short on funds, a Federal Reserve Bank can lend it money at a rate of interest called the "discount rate." Member banks can also make overnight loans to one another, but at the "federal funds rate," set by economic conditions that are indirectly affected by other actions of the Federal Reserve Banks.[1] (See also "Open-Market Operations," below.) The Federal Reserve Board can also affect the amount of money in the U.S. money supply by changing reserve requirements and by its open-market operations. Each of these tools has a potentially powerful effect on the money supply and the direction of this nation's economy.

Changing the Discount Rate

The most commonly used tool the Fed uses to affect the money supply is to change the discount rate. The discount rate is the rate of interest that Federal Reserve Banks charge their member banks for borrowing money. By raising this rate, member banks are forced to raise the rate they charge their own customers. With higher rates, people borrow less money from the banks, and the system creates less money. Lowering theses rates causes member banks to charge their customers lower interest on loans, and the system creates more money.

Open-Market Operations

The Fed can buy or sell government securities (bonds) on the open market. This may not seem particularly important, but, when the Fed buys bonds, they more or less create money by writing checks to buy them, which has the same effect on the system as printing money. This money is deposited in banks, which can use this money to increase lending. The amount of money available to banks affects the federal funds rate (the rate at which banks lend overnight to one another). The Fed uses open-market operations almost daily to maintain a "target" interest rate. Assuming the reserve requirement to be 20%, a purchase of $1 billion of U.S. bonds allows for an increase in the money supply by $5 billion (according to the formula $\mathbf{M = D \times (1 \div rr)}$, in which M is the money created, D is the amount of deposits, and rr is the reserve requirement).

1. The Federal Open Market Committee comprises the Board of Governors and the presidents of five different regional Reserve Banks chosen on a rotating basis. The FOMC meets eight times a year and sets policy and goals for the Federal Reserve Banks to follow.

If the Fed sells government bonds on the open market, it in effect withdraws the money from the banking system. As a result of the sale of bonds, the money supply in the country may decrease by as much as five times (assuming a reserve requirement of 20%) of the original withdrawal.

Changing Reserve Requirements

The Fed through its Board of Governors has another powerful tool for changing the money supply: raising or lowering reserve requirements. If reserve requirements were raised from 20% to 25%, the member banks could create only four, rather than five, times the money they hold in deposits. This would result in a large contraction of the money supply. If the requirement were reduced from 20% to 10%, the amount of money available for loans could increase from five, to ten times the amount on deposit. Predictably, this would greatly expand the money supply.

The Fed has only changed reserve requirements for its member banks a half-dozen times since the Great Depression. This is because, as shown above, even small changes can drastically effect the total money supply (and therefore the economy). Instead of relying on changing reserve requirements, the Fed adjusts the discount rate, or conducts open-market operations.

Unintended Consequences

Expanding and contracting the money supply does more than cause inflation or deflation: it also affects economic growth. All means of tightening the money supply—open-market operations, raising reserve requirements, and raising the discount or federal funds rate—discourages borrowing. With less to borrow, consumers are likely to buy less. This causes a drop in production and increases unemployment, which further reduces purchases and depresses the economy. On the other hand, attempts to stimulate the economy through lower interest rates and reserve requirements and through purchases of government bonds on the open market, increase the amount of money in circulation and may cause inflation. Thus there are no easy answers as to how the Federal Reserve System should act.

Name: _____ Date: _____

Student Activities

The Federal Reserve System

A. Locate the Federal Reserve Banks

On the map below, locate and identify the 12 cities that are home to Federal Reserve Banks.

B. Steps for Increasing Growth

You are a member of the Fed's Board of Governors at the onset of an economic recession. For each of the three main powers of the Fed, what course of action do you recommend to lessen the effects of the recession: adjusting the discount rate, conducting open-market operations, or changing reserve requirements?

Use of Federal Reserve System to Affect Economy			
Power of Fed	**Change you would recommend**	**Intended effect on growth and prices**	**Possible unintended consequences**
Change discount rate			
Open-market operations			
Change reserve requirements			

Possible answers (use as many times as needed)			
Sell bonds on the open market	Decrease discount rate	Increase money supply	Causes inflation
Buy bonds on the open market	Raise reserve requirements	Decrease money supply	Slows economic growth
Increase discount rate	Lower reserve requirements	Causes deflation	Stimulates economic growth

CHAPTER 5
GROWTH OR STABILITY?

Overview

This chapter covers the quantity theory of money, which describes the relationship between prices, the money supply, and the total value of goods and services—namely, prices go up or down in direct proportion to the amount of money in circulation, and in indirect proportion to the total of the goods and services this money can buy. This relationship can be expressed by the formula **P = MV ÷ T**, in which prices equals the money in circulation, times its velocity (the rate at which money changes hands), divided by the total goods and services this money can buy. Since proponents of the quantity theory tend to consider velocity constant, this chapter does as well. Following the theme of the two previous chapters, this one reviews what inflation and deflation are, what causes them, and who gains and loses from each. The bulk of the chapter explains in greater detail how changing the federal funds rate, discount rate, and open-market operations can affect inflation and economic growth.

Questions for the second day on this chapter provide students with two hypothetical economic situations and questions have them advise the Federal Open Market Committee about what to do on at least one of these situations. In an alternative exercise students are challenged to research basic facts of the current economy, including rate of inflation and unemployment, as well as economic growth. They are then asked to find out what the Federal Open Market Committee has advised the Federal Reserve Banks to do in order to repair the economy.

Objectives

Students will:

- understand the formula **P = MV ÷ T**
- see how actions of the Federal Reserve Banks regarding federal funds, open-market operations, and reserve requirements affect the economy

- discuss what actions the FOMC should advise the Federal Reserve Banks to take to boost an economy apparently on the verge of a recession, and what it should do to deal with higher inflation
- know how the U.S. economy was doing on a given day and what the actual FOMC has established as policy to address current economic problems.

Strategies

Day 1. After determining whether all students have done their homework, ask them to explain the equation **P = MV ÷ T.** Then review part A, question 2, of the Student Activities to reinforce what happens to prices when M increases/decreases and what can be done to increase T. Have students explain how the Fed's changes to the federal funds rate, discount rate, and reserve requirements, and its open-market operations might have the desired effect on prices and total growth. Ask about possible unintended consequences that such changes may cause. When you're certain that students understand these concepts, divide the class into thirds and assign each a different scenario or research activity from Student Activities, part B, for homework.

Day 2. After checking whether students did their homework, ask for student volunteers to present their responses to Scenario 1, in which they as Fed chairman recommend a course of action for the Fed to take, given the relevant data. Encourage other students to ask questions about or challenge the policy suggestions made by the presenters. Repeat with Scenario 2.

End class by asking the third of students who researched current economic conditions to report on economic growth, inflation, unemployment, and poverty today. Ask these students what policies regarding federal funds, open market operations, and reserve requirements the Federal Reserve Banks are following. Leave time for and encourage discussions on this information.

Assign the reading and Activity A (only) in Chapter 5.

CHAPTER 5

GROWTH OR STABILITY?

Introduction

This chapter presents a relatively complicated concept: the quantity theory of money. This theory is based on the law of supply and demand. Remember that when demand for an item is greater, its price goes up. Similarly, money becomes more valuable when it is scarcer, when each dollar is worth more because it will buy more. This increase in value could result from one of two factors: an excess of the goods and services the money might buy, or a shortage of money itself.

The Quantity Theory of Money

Economists tend to express complex ideas in mathematical formulas. One of the more interesting of these is the formula: **P = MV ÷ T**

In which:

- **P** = average price of all monetary transactions
- **M** = amount of money in circulation
- **V** = velocity (rate at which money changes hands)
- **T** = total goods and services

What this formula summarizes is that **prices go up or down in *direct* proportion to the amount of money in circulation, and in *inverse* proportion to the total of the goods and services this money can buy.** In other words, the more money in the economy, the less a dollar is worth, and prices go up; the less money, the more a dollar is worth, and prices fall. The more goods and services available, the lower their prices, making a dollar worth more; prices rise when goods and services are fewer, so a dollar is worth less.

Picture a very small economy that has only $100 in circulation, and in which the value of the goods and services they can buy is $1,000. (You may disregard velocity [V] for reasons explained later.) Suppose the government decides to print another $100, but the total goods and services (T) do not increase. Let's look at the change:

M = 100 and T = 1000:	M = 200 and T = 1000:
P = 100 / 1000 P = 1 / 10 P = .1	P = 200 / 1000 P = 2 / 10 P = .2

P has increased from .1 to .2, which is to say that prices have gone up. Begin again with $100 in circulation and $1000 worth of goods and services. Suppose that T (total goods and services) has grown by $500 but with no change in M:

M = 100 and T = 1000:	M = 100 and T = 1500:
P = 100 / 1000 P = 1 / 10 P = .1	P = 100 / 1500 P = 1 / 15 P = .067

In this case, P has decreased from .1 to .067, meaning that prices have gone down.

What About Velocity?

As stated earlier, velocity (V) is the rate at which money changes hands. Over the long term, the velocity of money changes in sometimes unpredictable ways; over the short term, it fluctuates too rapidly to have lasting effects. Therefore, proponents of the quantity theory of money tend to consider velocity essentially constant and therefore leave it out of the equation. We have followed their example.

Consequences of Using Economic Policy to Stimulate Growth

An important use of monetary policy is to stimulate economic growth. Another is to curb or prevent inflation. The problem faced by policymakers on the Federal Open Market Committee (the Federal Reserve Board of Governors, along with five of 12 Federal Reserve Bank presidents) is that attempts to stimulate economic growth may result in inflation, but efforts to curb inflation may slow economic growth.

In order to stimulate economic growth, the Federal Reserve Board can lower the discount rate, buy securities on the open market, and/or reduce reserve requirements. All three of these policies, as previously explained, will put more money in people's hands. Lower discount and federal funds rates reduce the interest that banks charge consumers and businesses. Therefore consumers are more likely to borrow and spend it on new cars, homes, flatscreen TVs, refrigerators, and the like. Businesses are more likely to borrow money to increase production and perhaps raise wages. All of these actions increase T (total goods and services).

However, if the money supply (M) rises faster than T, the results are an increase in P (prices). Inflation hurts all who live on fixed incomes, who are owed money, who have most of their savings in banks, or whose wages don't rise as rapidly as prices.

When the FOMC decides to have the Fed buy bonds on the open market, it in effect pumps more money into the economy. When the Fed sells such securities on the open market, it decreases the amount of money in circulation. Reducing reserve requirements allows banks to lend more money and thus grow the money supply. With reserve requirements increased, banks create less money, slowing the economy down.

The Fed can also attempt to stop inflation. To do this, it has three tools: raising the discount rate, selling bonds on the open market, and raising reserve requirements. All three of these actions can reduce the amount of money created in the economy, at a faster rate than the decrease in the rate of T. Unfortunately, less money in the economy can not only decrease the rate of inflation, but also discourage borrowing, investment, consumption, and economic growth. Low growth rates hurt consumers and businesses and are to be avoided.

Preliminary Considerations

Exercises at the end of this chapter will have you make an important decision, namely, deciding whether to raise or lower the federal funds rate. You know the effect your decision will likely have on the economy, but you may not know what figures are generally considered acceptable regarding inflation, unemployment, and growth.

- **Inflation:** A rate of 2–3% is considered acceptable; higher than 3.5%, worrisome; over 4.5%, a cause for alarm.
- **Unemployment:** Under 4% is considered good; higher than 5.5%, worrisome; over 7%, a cause for alarm.
- **Economic growth:** A negative rate is considered unacceptable; a positive rate of up to 1.5%, worrisome; 2.5%–3.5%, acceptable; over 4% is considered good.

Not all of economics is a science. Reasonable people will differ on most major policy decisions. Your position might be influenced by your personal situation or that of your family—whether you (or they) owe large sums of money, need a job, are owed money, or expect to live on a fixed income.

Name: _____ Date: _____

Student Activities

Growth or Stability?

A. The Quantity Theory of Money

1. Briefly explain the quantity theory of money, and define the variables in the formula **P = MV ÷ T**.

2. Assuming velocity remains constant at 1, show whether prices would go up or down when:

   a. M increases from 1200 to 2400, while T remains at 100,000

   b. T increases from 90,000 to 120,000, while M remains at 1200

   c. M decreases from 200 to 150, while T increases from 2000 to 3000

   d. M increases from 1200 to 1800, while T increases from 120,000 to 180,000

B. Scenarios and Research Activity

You have just been appointed Chairman of the Fed's Board of Governors. As your teacher directs, answer one of the following scenarios or the research activity below.

Scenario 1: The economic data for the last six months are as follows:

Inflation	3.0%
Unemployment	5.5%
Poverty	18.0%
Growth	2.0%
Discount rate	7.0%
Federal funds rate	4.25%
Percentage on fixed incomes (including the elderly)	13.0%

Decide whether you would raise, lower, or maintain the discount rate. Give the reasons for your decision, and describe what effects it may have on the economy in general, on wealthy individuals with large amounts of money in savings accounts, the unemployed, people living on fixed incomes, and people living in poverty. Write a paragraph justifying your actions, and be prepared to defend your position in class.

Scenario 2: The economic data for the last six months are as follows:

Inflation	2.0%
Unemployment	10.5%
Poverty	22.0%
Growth	1.5%
Discount rate	7.0%
Federal funds rate	2.0%
Percentage on fixed incomes (including the elderly)	18.0%

Decide whether you would raise, lower, or maintain the federal funds rate. Give the reasons for your decision, and describe what effects it may have on the economy in general, on wealthy individuals with large amounts of money in savings accounts, the unemployed, people living on fixed incomes, and people living in poverty. Write a paragraph justifying your actions, and be prepared to defend your position in class.

Current Economic Situation

Look up the rate of unemployment and growth for the economy as a whole. Find out the Fed's current federal funds rate, discount rate, and (if possible) recent open-market operations, along with the rate of inflation/deflation. Write a brief report including this information and explaining whether you think the Fed is doing enough to deal with the economic problems facing the nation.

CHAPTER 6
GROSS DOMESTIC PRODUCT

Overview

This chapter introduces students to the concept of Gross Domestic Product as a measure of the size of an economy. The reading explains that GDP comprises consumer spending (C), plus investment spending (Inv), plus government spending (G), plus net exports (exports minus imports, or E – I). It also breaks down each category and provides students with statistics for the first quarter of 2007 and the third quarter of 2009. Student Activities ask students to identify certain activities (such as whether a teacher buying a present for a friend is government or consumer spending). Students are also asked to determine which expenditures contributing to the GDP have increased the most and decreased the most between 2007 and 2009.

Objectives

Students will:

- understand Gross Domestic Product as a measure of an economy's size and
- demonstrate they have learned the components of the formula used to calculate GDP.

Strategies

After determining whether students have done their homework, ask students what the variables in the formula **GDP = C + Inv + G + (E – I)** stand for. Write these categories on the board as headings, asking for subcategories where applicable. Then ask for a few examples of each kind of spending. Have students justify their estimates on what expenditures increased or decreased the most between 2007 and 2009 (accept answers in either dollar amounts or as percentages).

Assign the reading and activities in Chapter 7.

CHAPTER 6

GROSS DOMESTIC PRODUCT

Introduction

A previous chapter used a formula referring to the total worth of goods and services in an economy as T. A more sophisticated term is GDP (Gross Domestic Product), meaning everything produced in a country in a year. The formula most often used by economists to calculate GDP is

$$\mathbf{GDP = C + Inv + G + (E - I)}$$

in which

- **C** = consumer spending
- **Inv** = investment spending
- **G** = government spending
- **(E - I)** = net exports of goods and services (exports minus imports)

Consumer spending comprises the market value of all the goods and services available in an entire year: durable goods, nondurable goods, and services. Durable goods include such items as TVs, washing machines, automobiles, and stoves—things expected to last at least five years. Non-durable goods, such as toothpaste, food, medicines, and clothes, are meant to last much shorter periods of time. The third category, services, includes money spent on car repairs, piano lessons, haircuts, and the like.

Investment spending generally includes spending on buying a home or by businesses on new goods and services. Investment spending comprises three categories: residential, nonresidential, and inventories. Residential spending includes houses and money for building offices and factories. Nonresidential spending is on currently produced items such as machines, tools, and equipment used by workers. Inventories refers to the change in value of goods on hand: on the shelves of stores, in warehouses, or on the assembly line. This may be a negative number if the value of inventories has declined during a given year.

Government spending consists of spending by federal, state, and local governments. Federal expenditures are divided into two categories: defense and non-defense. Government spending includes paying teachers, the police, the president, and members of the armed forces. It includes payments to government contractors who build roads, provide military equipment, dam

rivers, or clean up the environment. However, it does not include spending for Social Security or Medicare (a large part of the budget), because these are considered transfer payments and are not included in national income accounting.

Net exports of goods and services, as the name implies, refers to the difference between exports and imports. If exports exceed imports, net exports is a positive number; if imports exceed exports (as they have the past 20 years or more), net exports is a negative number.

Gross Domestic Product for 2007 (First Quarter) and 2009 (Third Quarter)

Real Gross Domestic Product (Seasonally adjusted at annual rates)	**2007 I**	**2009 III**
Gross domestic product	**13,099,901**	**12,901,504**
Personal consumption expenditures	**9,265,135**	**9,189,042**
Goods	3,253,872	3,105,358
Durable goods	1,183,693	1,071,746
Nondurable goods	2,070,330	2,025,724
Services	6,011,704	6,078,825
Gross private domestic investment	**2,132,609**	**1,456,678**
Fixed investment	2,118,841	1,631,918
Nonresidential	1,489,617	1,288,355
Structures	409,185	400,001
Equipment and software	1,078,058	876,458
Residential	631,743	344,355
Change in private inventories	14,463	-160,215
Net exports of goods and services	**-704,956**	**-330,368**
Exports	1,485,881	1,419,458
Goods	1,026,690	940,667
Services	459,163	477,367
Imports	2,190,837	1,749,826
Goods	1,841,070	1,409,430
Services	349,813	339,512
Government consumption expenditures and gross investment	**2,409,483**	**2,568,630**
Federal	882,766	1,023,528
National defense	594,655	695,156
Non-defense	288,064	328,213
State and local	1,526,487	1,547,954

Name: _____ Date: _____

Student Activities

Gross Domestic Product

1. Define the terms in the formula GDP = C + Inv + G + (E – I), and briefly explain in your own words what each includes.

2. Label each of the following activities with the applicable GNP categories C, Inv, G, or (E – I):

   a. A person buys a refrigerator for their house _____
   b. A teacher buys a present for a friend _____
   c. The purchase of an illegal drug _____
   d. Policeman's salary _____
   e. Welfare payments _____
   f. The purchase of a used car _____
   g. A tennis pro buys a new racket to use for instructing his clients _____
   h. A businessman buys a machine to produce tires _____
   i. A person uses part of their Social Security check to get a haircut _____
   j. Payment for car repairs _____
   k. EXXON explores for oil _____
   l. An American buys a car made in Japan _____
   m. Person pays to build a new house _____
   n. Salary for a volunteer in the National Guard _____

3. Based on the figures from the GDP chart in the reading, on what group of items (in bold) has spending increased the most and decreased the most between 2007 and third-quarter 2009?

CHAPTER 7
THE CIRCULAR FLOW OF GOODS AND SERVICES

Overview

As implied by the title, this chapter introduces the concept of the economy as a continuous, two-way flow of goods and services, work, and payments from consumers to producers (purchases) and from producers to consumers (wages). This chapter also explains that money is removed from the flow by taxes and savings, which reenter as government spending and investments, respectively. The reading also includes two diagrams of the circular flow, one basic and one indicating taxes, investments, etc.

Objectives

Students will:

- use diagrams to understand the concept of an economy as a flow of goods and services between consumers and producers,
- learn to reconstruct the diagram showing the flow of goods and services, and
- see what specific roles consumers, producers, workers, taxes, government spending, savings, and investments play in the circular flow.

Strategies

After determining whether students have done their homework, draw two widely spaced boxes on the board labeled "Consumers" and "Producers," as with the circular-flow diagram. Begin to reconstruct the diagram part by part, asking students first for the main pieces (consumers, producers, savings, investments, taxes, and government spending), and then for the arrows indicating the flow and their labels. Have students come up with real-life examples of the main pieces as well as of types of transactions that the arrows represent.

CHAPTER 7

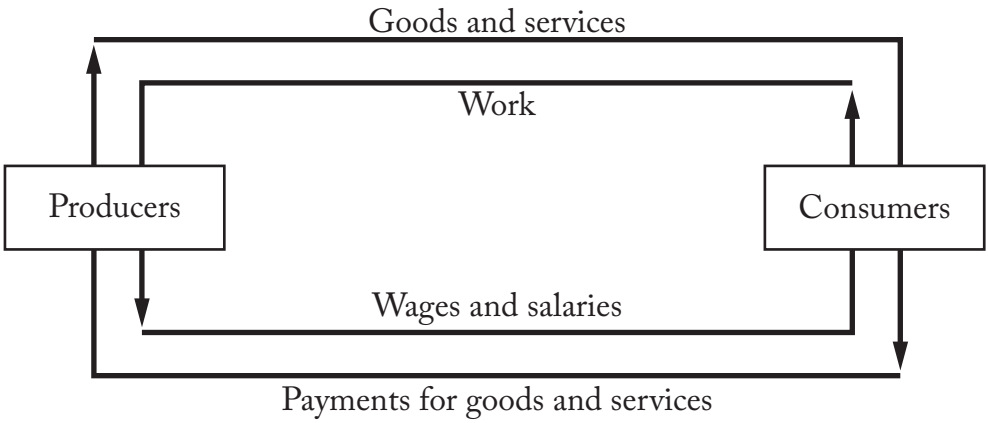
THE CIRCULAR FLOW OF GOODS AND SERVICES

Introduction

Economists have many ways of describing how an economy works. Gross Domestic Product, for example, measures a nation's economy as the sum of consumer, investment, and government spending, plus net exports (exports minus imports). Another way of looking at the whole economy is to diagram the flow of goods and services from producers to consumers. This chapter shows that goods and services move from producers to consumers in exchange for payment, and that consumers work for producers in exchange for wages. You also see how the circular-flow diagram indicates that money is taken out of the economy by savings but is returned through investment, and that taxes also remove money from the economy which is returned through government spending.

Consumers and Producers

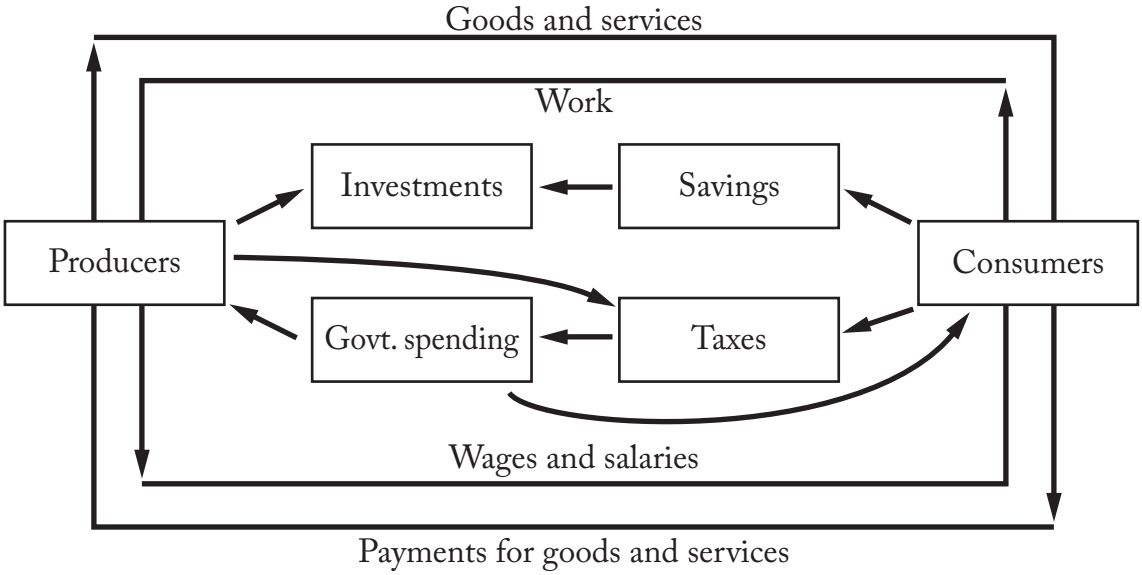
Consumers are the people who purchase goods and services that they want and need from producers. Producers are the factory workers, farmers, and businesspeople who work to combine land, labor, and capital to produce what they think people will want to buy. The following flowchart portrays this relationship:



Savings and Investments, Taxation, and Government Spending

The diagram above is incomplete because it shows only the most elementary movement of goods and services, and work and payment for work. A modern market economy could not work without businesses' and people's withholding some of the money they earn through savings. This money may be deposited in banks, invested in stocks and bonds, and in some cases kept in cookie jars and under mattresses. Some of this money stays out of the economy, but the vast majority of savings finds its way back into the flow of goods and services through investment. Thus savings and investment are also portrayed in the chart showing the flow of goods and services and salaries and wages through the economy.

Federal, state, and local governments remove money from circulation through taxes on income, property, meals at restaurants, cigarettes, and alcohol. The government also taxes businesses. This money finds its way back into the economy when the government spends it. The following chart shows savings coming from consumers and invested by producers, and government removing money through taxation from consumers and producers and then spending it.



Application

The simplified overview of economic activity of a typical market economy provided in this chapter should help you understand how the American economy works. Suppose the entire economy is reduced to one million dollars in currency used yearly to buy one million items selling at a dollar each. As long as consumers buy all the products produced in the country, everything works out. If consumers then removed $100,000 from circulation in the form of savings, and businesses borrowed this amount from the country's banks, the economy would continue to function without any problems. However, if businesses borrowed $200,000 instead of $100,000 saved by consumers, the economy would no longer be balanced. Unless there is growth in the number of units produced, the extra money in the supply causes inflation (as shown by the

formula, P = M/T). Similarly the federal government can actually spend more money than it collects in taxes and also cause the amount of money in circulation to increase faster than the total increase in goods and services (T). With more money chasing the same amount of goods, each dollar is worth less than before, prices rise, and the economy faces inflation.

If governments and/or investors spend less than the amount saved by consumers and collected in taxes, money is withdrawn from the circular flow of goods and services. This tends to lead to an increase in the value of each dollar, and deflation

Name: _____ Date: _____

Student Activities

The Circular Flow of Goods and Services

A. Multiple-Choice

1. How does the government's spending less money than it collects in taxes affect the economy, if not spending the money does not affect growth?

   a. It will cause prices to rise.

   b. It will cause prices to fall.

   c. Neither a nor b

2. How does investors' spending more money than was saved affect the economy, if spending the money does not affect growth?

   a. It will cause prices to rise.

   b. It will cause prices to fall.

   c. Neither a nor b

3. How will investors spending less money than was saved affect the economy, if reduced spending does not affect growth?

   a. It will cause prices to rise

   b. It will cause prices to fall

   c. Neither a nor b

4. If an economy with full employment faces a high risk of inflation, which of the following policies should the federal government pursue?

   a. Spend more money than it collects in taxes

   b. Spend less money than it collects in taxes

   c. Reduce taxes

   d. Raise taxes

   e. Both b and d

5. Explain your reasoning for each answer you gave in questions 1–4.

   a.

   b.

   c.

   d.

B. Charting

Draw the second circular-flow chart from the reading. In addition to including producers and consumers, be sure to incorporate investment, savings, taxes, and government spending, and to clearly show how taxes and savings are returned to the flow of goods and services.

CHAPTER 8
UNIT REVIEW

Overview

This chapter reviews the major topics and concepts that students should take away from each chapter of the unit. Student handouts include first a brief review of each chapter and then written questions on the main topics. You may wish to give students only some of the questions (provided below), depending on how much of the book you have covered or wish to test them on.

Objectives

Students will:

- understand the main economics topics and concepts covered in this book,
- prepare to answer several written questions concerning these topics and concepts, and
- help one another review these concepts in small groups.

Strategies

Divide students into groups of four students or fewer. Distribute copies of review questions to students and move from group to group, helping them review for the test (in theory to be administered the next day) by answering the questions. If time is tight, give only a few questions to each group, but leave time for classroom discussion of each question before the end of class.

Alternatively, you may skip the review session if your class has demonstrated sufficient learning.

Review Questions

1. How does the U.S.'s (a) currency and (b) banking system meet the needs that money must serve in a modern economy?

2. Using your own examples, explain how money can expand through the banking system. Show how the formula **M = D × (1 ÷ rr)** is used to calculate how much money can be created out of an initial deposit of $10,000.

3. Name five of the 12 cities where Federal Reserve Banks are located, and describe the makeup of the Federal Open Market Committee.

4. Name and describe each of the three actions the Fed can take to increase or decrease the money supply and therefore affect economic growth. Show how each action may have harmful unintended consequences.

5. Explain the meaning of the formula **P = MV ÷ T** and what happens to prices when M goes up faster than T, at the same rate as T, and slower than T.

6. If both unemployment and inflation are at unacceptably high rates and you had control of the Fed, what would you do about changing (or leaving alone) the federal funds rate? Explain your decision, including your reasoning and the desired results, as well as possible negative effects your move may cause.

7. Explain the variables in the formula **GNP = C + Inv + G + (E – I)**. List the three subcategories of spending under C, Inv, and G, and provide an example of each.

8. Draw the circular-flow diagram of goods and services. Label producers and consumers, goods and services, payments for goods and services, work, and wages, and draw arrows showing the direction of flow. Also include and label the two ways that money flows out of the system and the two ways it is returned.

CHAPTER 8

UNIT REVIEW

Money: An Overview

Money is a means of exchange, and may or may not have intrinsic value. For any commodity to be used as money in an industrialized society such as ours, it must be difficult to duplicate, relatively rare, durable, portable, divisible, and expandable as needed but relatively stable in value. U.S. currency consisting of bills and coins, and the money deposited in banks have all these characteristics.

Expanding the Money Supply

Money expands through the banking system because banks can create money based on their deposits. In the form of checks or currency, this money can be deposited in other banks that, in turn, can create money based on its deposits. The formula for expressing the relationship between the amount of money that can be created out of deposits in a banking system is **M = D × (1 ÷ rr)**; that is, money created equals deposits multiplied by one over the reserve requirement (expressed as a decimal). For example, if deposits = $3000 and rr = .3, money created = $10,000.

The Classroom Banking Game

This simulation provides a concrete example of how money expands through the banking system as students play the roles of bankers, and borrowers who deposit the money lent them by other banks.

The Federal Reserve System

The Federal Reserve Act of 1913 established the Federal Reserve System (a.k.a., "The Fed"), which has a Federal Reserve Bank centered in 12 financial districts all over the country. Each member of the seven-member supervisory Board of Governors is appointed by the U.S. president (with the Senate's consent) and serves a 14-year term; from among these members, the president appoints the Chairman of the Federal Reserve to unlimited four-year terms. Through

the Federal Open Market Committee, Federal Reserve banks establish and implement policies regarding open-market operations, discount rates and federal funds rates, and reserve requirements. Actions undertaken according to these policies affects the money supply as a whole, by either increasing or decreasing it. The Fed alters policy to either stimulate economic growth or to curb inflation, but may have unintended effects. (Later chapters in this book explain how each of the policies—open-market operations, changing the federal funds rate, and adjusting the reserve requirements—can change the amount of money in circulation and affect GDP.)

Growth or Stability?

P = MV ÷ T is a formula economists use to explain the relationship between the amount of money in circulation (M), its velocity (V), and the total value of goods and services (T) to prices (P). With all else being equal, M has a direct relationship to prices, meaning that an increase in M results in an increase in prices. T has an inverse relationship to prices, in that a rise in T causes prices to fall. All things are not always equal, however, because making more money available can, for example, increase the amount of total goods and services.

It's important to consider how any additions to the money supply affect prices and total goods and services. If the money supply increases faster than total goods and services, inflation causes prices to rise. Inflation hurts people living on fixed incomes, whose wages do not increase as rapidly as prices, and who have money in savings accounts or bonds. Inflation helps people who owe money by allowing them to pay their debts with less valuable money. Rapid inflation can pose a great danger to the overall economy.

Deflation, the opposite of inflation, occurs when the money supply contracts more quickly than total goods and services, causing prices to go down. This helps people holding money in savings, on fixed incomes, and who had lent money when it was less valuable.

The Fed's ideal in crafting monetary policy is to have enough money in the system to keep interest rates low, which encourages investment and spending by making borrowing money cheaper; however, the Fed must simultaneously control inflation by modulating the creation of new money without hurting economic growth.

Gross Domestic Product

Gross Domestic Product is a measure of the value of an economy, and is commonly expressed by the formula, GDP = C + Inv + G + (E - I): consumer spending plus investment spending, plus government spending, plus net exports (exports minus imports). Consumer spending is broken down into durable goods, nondurable goods, and services; investment spending comprises residential, nonresidential, and inventories; and government spending includes Federal (defense and nondefense), and state and local spending. In the U.S., imports vastly exceed exports and contribute to lowering GDP.

The Circular Flow of Goods and Services

The economy can be described as a circular flow in both directions: goods and services from producers are traded for money from consumers, and work by consumers is exchanged for wages by producers. This flow is interrupted by savings and by government taxation, which take money out of the economy that is returned through investment and government spending, respectively.

Name: _____ Date: _____

Student Questions

Unit Review

1. How does the U.S.'s (a) currency and (b) banking system meet the needs that money must serve in a modern economy?

2. Using your own examples, explain how money can expand through the banking system. Show how the formula **M = D × (1 ÷ rr)** is used to calculate how much money can be created out of an initial deposit of $10,000.

3. Name five of the 12 cities where Federal Reserve Banks are located.

4. Name and describe each of the three actions the Fed can take to increase or decrease the money supply and therefore affect economic growth.

5. Explain the meaning of the formula **P = MV ÷ T** and what happens to prices when M goes up faster than T, at the same rate as T, and slower than T.

6. If both unemployment and inflation are at unacceptably high rates and you had control of the Fed, what would you do about changing (or leaving alone) the federal funds rate? Explain your decision, including your reasoning and the desired results, as well as possible negative effects your move may cause.

7. Explain the variables in the formula **GNP = C + Inv + G + (E – I)**. List the three subcategories of spending under C, Inv, and G, and provide an example of each.

8. Draw the circular-flow diagram of goods and services. Label producers and consumers, goods and services, payments for good and services, work, and wages, and draw arrows showing the direction of flow. Also include and label the two ways that money flows out of the system and the two ways it is returned. (Use the back of your paper if necessary.)

ANSWER KEY

Chapter 1

Money—An Overview

A. Money or Not Answers, p. 8

Which of the criteria for being used as money in a modern society does each of the following **not** meet? Use each answer once. The first question is answered for you.

Items that could not be used for money	Why not?
1. Ice cube	*Not durable*
2. Bowling ball	*Not portable*
3. Rare gems	*Not expandable*
4. Whiskey	*Easy to counterfeit (easy to water down)*
5. Sand	*Not rare*
6. Cigarette	*Don't maintain value (go stale over time)*

Note: Teachers may accept any reasons that are well-argued and not used twice.

B. M1, M2, and M3 Answers, p. 8

Which of the following are M1, M2, M3, or not money at all?

	M1, M2, M3, or not money
1. A credit card's unused balance	*Not money*
2. A checking account	*M1*
3. Stocks and bonds	*M3*
4. A savings account	*M2*
5. A $100 bill	*M1*
6. Antique furniture	*Not money*

Chapter 2

Expanding and Contracting the Money Supply

A. Deflation and Inflation Answers, p. 13

Which of the following are characteristics of inflation or deflation, or would be likely to cause inflation or deflation?

Event	Inflation/deflation
a. When prices go up	*Inflation*
b. When prices go down	*Deflation*
c. When the dollar becomes less valuable	*Inflation*
d. When the dollar becomes more valuable	*Deflation*
e. An increase in banks' reserve requirements	*Deflation*
f. A decrease in banks' reserve requirements	*Inflation*

B. Determining the Theoretical Limit of Monetary Expansion Answers, pp. 13–14

1. D = $1,000 and rr = 20%; M = $5,000

2. D = $1,000 and rr = 25%; M = $4,000

3. Decrease by $1,000

4. If M = $2,000 and rr = 10%, solve for D; D = $200

5. If M =$5,000 and rr= 50%, solve for D: D = $2,500

6. If M =$2,000 and rr= 33%, solve for D; D = $660

Note: In some editions of the book, questions 4–6 mistakenly gave the value of M and asked students to solve for M. Students should have been asked to solve for D.

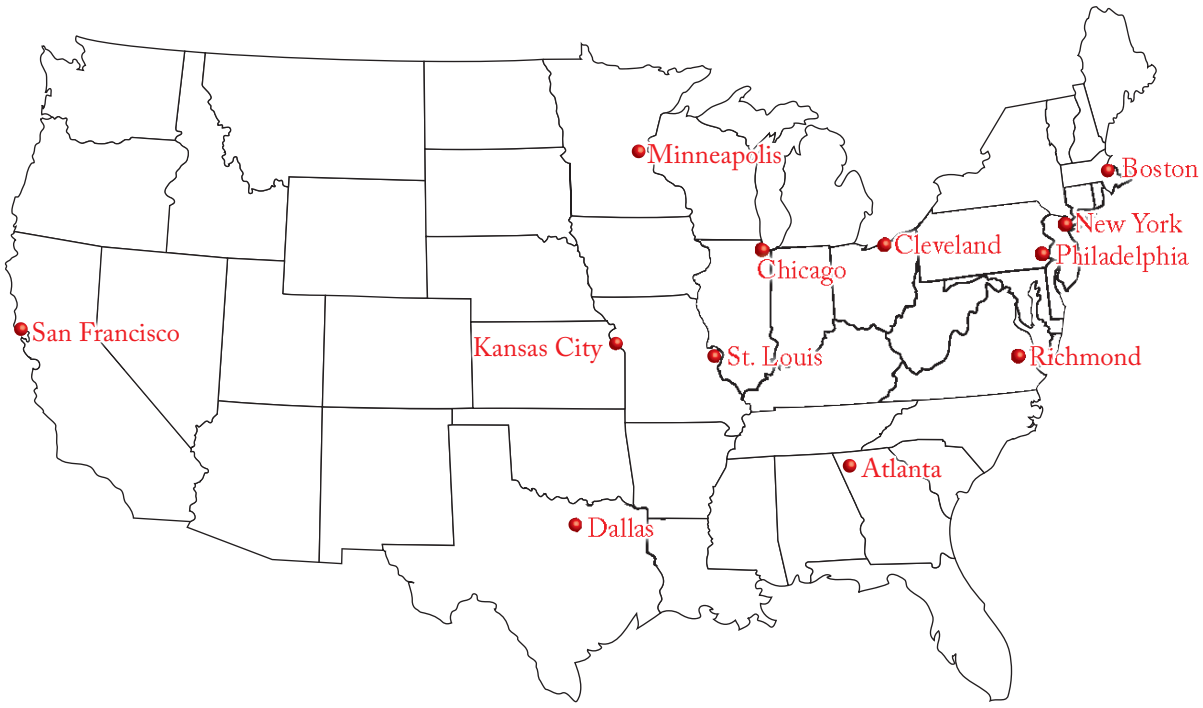
Chapter 4

The Federal Reserve System

A. Locate the Federal Reserve Banks Answer, p. 30

See the following website, or similar online maps: http://www.federalreserveonline.org/.

The 12 cities are Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Minneapolis, Kansas City, Dallas, and San Francisco.



B. Steps for Increasing Growth Answers, pp. 30–31

You are a member of the Fed's Board of Governors at the onset of a recession. For each of the three main powers of the Fed—adjusting the discount rate, conducting open-market operations, and changing reserve requirements—what course of action do you recommend to lessen the effects of the recession?

Use of Federal Reserve System to Affect Economy			
Power of Fed	**Change you would recommend**	**Intended effect on growth and prices**	**Possible unintended consequences**
Change discount rate	*Decrease the discount rate*	*Stimulate economic growth*	*Cause inflation*
Open-market operations	*Buy bonds on the open market*	*Stimulate economic growth*	*Cause inflation*
Change reserve requirements	*Lower reserve requirements*	*Stimulate economic growth*	*Cause inflation*

Chapter 5
Growth or Stability?

A. The Quantity Theory of Money Answers, p. 38

1. According to the quantity theory of money, the supply of money has a direct proportional effect on the average price of goods and services. For example, if the money supply increases, prices will increase proportionally. The equation P = MV ÷ T defines the average price of all monetary transactions (P) as the amount of money in circulation (M) multiplied by the

velocity of money (V, a measure of how rapidly money circulates) and divided by the total amount of goods and services (T). Because V generally remains constant, there is a direct relationship between the amount of money in circulation and prices, and there is an inverse relationship between the amount of money in circulation and the total amount of goods and services (T) the money can buy. In short, an increase in money not matched by an increase in total goods and services will result in inflation (increases in prices), and an increase in total goods and services not matched by an increase in money will result in deflation or lower prices.

2. a. When money increases from 1200 to 2400 and T remains at 100,000, prices (P) will increase.

P = M ÷ T	**M = 1,200**	**T = 100,000**	**P = .012**
P = M ÷ T	**M = 2,400**	**T = 100,000**	**P = .024**

2. b. If total goods and services increase from 90,000 to 120,000 and money remains constant at 1200, prices will decrease.

P = M ÷ T	**M = 1,200**	**T = 90,000**	**P = .0133**
P = M ÷ T	**M = 1,200**	**T = 120,000**	**P = .01**

2. c. With money decreasing by 25% from 200 to 150 and T increasing by 50% from 2000 to 3000, prices will decrease.

P = M ÷ T	**M = 200**	**T = 2,000**	**P = .1**
P = M ÷ T	**M = 150**	**T = 3,000**	**P = .05**

2. d. With money increasing from 1200 to 1800 while T increases from 120,000 to 180,000, prices will stay the same.

P = M ÷ T	**M = 1,200**	**T = 120,000**	**P = .01**
P = M ÷ T	**M = 1,800**	**T = 180,000**	**P = .01**

Chapter 6
Gross Domestic Product

Gross Domestic Product Answers, p. 45

1. Define the terms in the formula GDP = C + Inv + G + (E-I), and briefly explain what each includes.

   GDP is short for Gross Domestic Product, the total amount of goods and services an economy produces in a year. C stands for consumer spending, Inv for investment spending, G for government spending, and E-I for exports minus imports. The Gross Domestic Product, therefore, is defined as the sum of all consumer spending, investment spending, government spending, and net exports of goods and services (as offset by imports).

2. For each of the following activities, tell whether it fits the category C, Inv, G, or E-I.

a. A person buying a refrigerator **Consumer spending**	h. A businessman buying a machine to produce tires **Investment spending**
b. A teacher buying a present for a friend **Consumer spending**	i. A person using part of a Social Security check to get a haircut **Consumer spending**
c. Purchase of an illegal drug **Illegal goods are not counted (this answer is not covered in the text)**	j. Payment for car repairs **Consumer spending**
d. A policeman's salary **Government spending**	k. EXXON exploring for oil **Investment spending**
e. Welfare payments **Government spending**	l. American buying a car made in Japan **Import spending**
f. Purchase of a used car **Secondhand goods are not counted (this answer is not covered in the text)**	m. Person paying to build a new house **Investment spending**

g. A tennis pro buying a new racket to help instruct his clients **Investment spending**	n. Salary for a National Guard volunteer **Government spending**

3. Based on figures from the chart on page 42, what item has increased the most, and what has decreased the most?

   The biggest increase was in net exports of goods and services, and the largest decrease was in gross private domestic investment.

Chapter 7

The Circular Flow of Goods and Services

A. Multiple-Choice Answers, pp. 52–53

1. If growth stays unchanged when the government spends less money than it collects in taxes, will prices go up, down, or neither? Prices will fall **(b)** because there will be a decrease in the amount of money in circulation.

2. If growth stays unchanged when investors spend more money than consumers saved, will prices go up, down, or neither? Prices will rise **(a)** because the amount of money in circulation will increase while total goods and services stay the same.

3. If growth stays unchanged when investors spend less money than consumers saved, will prices go up, down, or neither? Prices will fall **(b)** because the amount of money in circulation will decrease while total goods and services stay the same.

4. If an economy with full employment faces a high risk of inflation, the federal government **(b)** should spend less money than it collects in taxes to reduce the supply of money.

Chapter 8
Unit Review

The chapter contains no questions that have specific answers. For your convenience, however, here are the "three subcategories of spending under C, Inv, and G" referred to in question 7:

C: durable, nondurable, and service

Inv: residential, nonresidential, and inventories

G: federal, state, and local