CHAPTER 12

Money, Banking, and the Financial System

Introduction This chapter is about money: how it emerged out of a barter economy and the functions it serves. It is also about banking: how it came to exist and how it looks today. Finally, it is about the financial system in the United States; specifically, about what it is and what it does.

12-1 Money: What Is It and How Did It Come to Be?

The story of money starts with a definition and a history lesson. This section discusses what money is and isn't (the definition) and how money came to be (the history lesson).

12-1a Money: A Definition

To the layperson, the words *income*, *credit*, and *wealth* are synonyms for *money*. In each of the next three sentences, the word *money* is used incorrectly; the word in parentheses is the word an economist would use.

1. How much money (income) did you earn last year?
2. Most of her money (wealth) is tied up in real estate.
3. It sure is difficult to get money (credit) in today's tight mortgage market.

In economics, the words *money*, *income*, *credit*, and *wealth* are not synonyms. The most general definition of **money** is any good that is widely accepted for purposes of exchange (payment for goods and services) and the repayment of debt.

Money
Any good that is widely accepted for purposes of exchange and the repayment of debt.

12-1b Three Functions of Money

Money has three major functions; it is a:

1. Medium of exchange.
2. Unit of account.
3. Store of value.

Barter
Exchanging goods and services for other goods and services without the use of money.

Medium of Exchange
Anything that is generally acceptable in exchange for goods and services; a function of money.

Unit of Account
A common measure in which relative values are expressed; a function of money.

Store of Value
The ability of an item to hold value over time; a function of money.

MONEY AS A MEDIUM OF EXCHANGE If money did not exist, goods would have to be exchanged by **barter**, that is, exchanging goods and services for other goods and services without the use of money. If you wanted a shirt, you would have to trade some good in your possession, say, a jackknife, for it. But first you would have to locate a person who has a shirt and who wants to trade it for a knife. In a money economy, searching for a seller is not necessary. You can either (1) exchange money for a shirt or (2) exchange the knife for money and then the money for the shirt. The buyer of the knife and the seller of the shirt do not have to be the same person. Money is the medium through which the exchange occurs; it acts as a **medium of exchange**. As such, money reduces the *transaction costs* of exchanges. Exchange is easier and less time-consuming in a money economy than in a barter economy.

MONEY AS A UNIT OF ACCOUNT A **unit of account** is a common measure in which values are expressed. In a barter economy, the value of every good is expressed in terms of all other goods; there is no common unit of measure. For example, 1 horse might equal 100 bushels of wheat, or 200 bushels of apples, or 20 pairs of shoes, or 10 suits, or 55 loaves of bread, and so on. In a money economy, a person doesn't have to know the price of an apple in terms of oranges, pizzas, chickens, or potato chips, as in a barter economy. A person needs only to know the price in terms of money. And because all goods are denominated in money, determining relative prices is easy and quick. For example, if 1 apple is $1 and 1 orange is 50 cents, then 1 apple is worth 2 oranges.

MONEY AS A STORE OF VALUE The **store of value** function is related to a good's ability to maintain its value over time. This is the least exclusive function of money because other goods—for example, paintings, houses, and stamps—can store value too. At times, money has not maintained its value well, such as during high-inflationary periods. For the most part, though, money has served as a satisfactory store of value. This function allows us to accept payment in money for our productive efforts and to keep that money until we decide how we want to spend it.

12-1c From a Barter to a Money Economy: The Origins of Money

The thing that differentiates man and animals is money.

—Gertrude Stein

At one time, there was trade but no money. Instead, people bartered. They traded 1 apple for 2 eggs, a banana for a peach.

Today we live in a money economy, but how did we move from a barter to a money economy? Did a king or queen issue an edict: "Let there be money"? Actually, money evolved in a much more natural, market-oriented manner.

Making exchanges takes longer (on average) in a barter economy than in a money economy because the *transaction costs* are higher in a barter economy. In other words, the time and effort incurred to consummate an exchange are greater in a barter economy than in a money economy.

In a barter economy, suppose Smith wants to trade apples for oranges. He locates Jones, who has oranges. Smith offers to trade apples for oranges, but Jones tells Smith that she does not like apples and would rather have peaches. Smith must either (1) find someone who has oranges and who wants to trade oranges for apples or (2) find someone who has peaches and who wants to trade peaches for apples, after which he must return to Jones and trade peaches for oranges. Suppose Smith continues to search and finds Brown, who has oranges and wants to trade oranges for (Smith's) apples. In economics terminology, Smith and Brown are said to have a **double coincidence of wants**. Two people have a double coincidence of wants if the first person wants what the second person has and the second person wants what the first person has. A double coincidence of wants is a necessary condition for a trade to take place.

Double Coincidence of Wants
In a barter economy, a requirement, which must be met before a trade can be made. It specifies that a trader must find another trader who at the same time is willing to trade what the first trader wants and wants what the first trader has.

In a barter economy, some goods are more readily accepted than others in exchange. This characteristic may originally be the result of chance, but when traders notice the difference in marketability, their behavior tends to reinforce the effect. Suppose that, of 10 goods A–J, good G is the most marketable (the most acceptable) of the 10. On average, good G is accepted 5 of every 10 times it is offered in an exchange, whereas the remaining goods are accepted, on average, only 2 of every 10 times. Given this difference, some individuals accept good G simply because of its relatively greater acceptability, even though they have no plans to consume it. They accept good G because they know they can easily trade it for most other goods at a later time (unlike the item originally in their possession). Thus the marketability of good G snowballs. The more people accept good G for its relatively greater acceptability, the greater its relative acceptability becomes, in turn causing more people to accept it.

This is how money evolved. When good G's acceptance evolves to the point that it is widely accepted for purposes of exchange, good G is money. Historically, goods that have evolved into money include gold, silver, copper, cattle, salt, cocoa beans, and shells.

Finding Economics

In a POW Camp You wouldn't think you could find money in a prisoner of war (POW) camp, but you can. During World War II, an American, R. A. Radford, was captured and imprisoned in a POW camp. While in the camp, he made some observations about economic developments, which he later described in the journal *Economica*. He noted that the Red Cross would periodically distribute packages to the prisoners that contained such goods as cigarettes, toiletries, chocolate, cheese, jam, margarine, and tinned beef. Not all the prisoners had the same preferences for the goods. For example, some liked chocolate more than others; some smoked cigarettes, and others did not. Because of their preferences, the prisoners began to trade, say, a chocolate bar for cheese, and a barter system emerged. After a short while, money appeared in the camp, but not U.S. dollars or any other government currency. The good that emerged as money—the good that was widely accepted for purposes of exchange—was cigarettes. As Radford noted, "The cigarette became the standard of value. In the permanent camp people started by wandering through the bungalows calling their offers—'cheese for seven [cigarettes]. …'"

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English and Money

In the world of barter, some goods are more widely accepted than others.

In the world of languages, some languages may be more widely used than others. Today, the most widely used language appears to be English.

English is spoken not only by native English speakers but by many other people around the world. English is the language of computers and the Internet. You can see English on posters everywhere in the world. You can hear it in pop songs sung in Tokyo. English is the working language of the Asian trade group ASEAN (Association of Southeast Asian Nations). It is the language of 98 percent of German research physicists and of 83 percent of German research chemists. It is the official language of the European Central Bank, even though the bank is in Frankfurt, Germany. It is found in official documents in Phnom Penh, Cambodia. Singers all over the world sing in English. Alcatel, a French telecommunications company, uses English as its internal language. By 2050, half the world's population is expected to be proficient in English.

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In a barter economy, if more people accept a good in exchange, then more people will want to accept it. Might the same be true of a language? If more people speak English, then will more non-English-speaking people want to learn English? Just as money lowers the transaction costs of making exchanges, English might lower the transaction costs of communicating.

Is the world evolving toward one universal language, and is that language English?

Thinking like An Economist

The Effects of Self-Interest The statement that people in a barter economy "accept good G because they know they can easily trade it for most other goods at a later time (unlike the item originally in their possession)" brings up the role of self-interest. At some point in time, people in a barter economy simply wanted to make life easier on themselves; they wanted to cut down on the time and energy required to obtain their preferred bundle of goods. In other words, they began to accept the most marketable or acceptable of all goods out of self-interest—a process that eventually led to the creation of money.

12-1d Money, Leisure, and Output

Exchanges take less time in a money economy than in a barter economy because a double coincidence of wants is unnecessary: Everyone is willing to trade for money. The movement from a barter to a money economy therefore frees up some of the transaction time, which people can use in other ways.

To illustrate, suppose making trades takes 10 hours a week in a barter economy, but only 1 hour in a money economy. In a money economy, then, each week has 9 hours that don't have to be spent making exchanges and that people can use for other purposes. Some will use them to work, others will use them for leisure, and still others will divide the 9 hours between work and leisure. Thus, a money economy is likely to have both more output (because of the increased production) and more leisure time than a barter economy. In other words, a money economy is likely to be richer in both goods and leisure than a barter economy.

A person's standard of living depends, to a degree, on the number and quality of goods consumed and on the amount of leisure consumed. We would expect the average person's standard of living to be higher in a money economy than in a barter economy.

Finding Economics

With William Shakespeare in London (1595) It is 1595, and William Shakespeare is sitting at a desk writing the Prologue to *Romeo and Juliet*. Where is the economics?

More specifically, what is the connection between Shakespeare's writing a play and the emergence of money out of a barter economy? In a money economy, individuals usually specialize in the production of one good or service because they can do so. In a barter economy, specializing is extremely costly. For Shakespeare, living in a barter economy would mean writing plays all day and then going out and trying to trade what he had written that day for apples, oranges, chickens, and bread. Would the baker trade two loaves of bread for two pages of Romeo and Juliet? Had Shakespeare lived in a barter economy, he would have soon learned that he did not have a double coincidence of wants with many people and that if he were going to eat and be housed, he would need to spend time baking bread, raising chickens, and building a shelter instead of thinking about *Romeo and Juliet*.

In a barter economy, trade is difficult; so people produce for themselves. In a money economy, trade is easy, and so individuals produce one thing, sell it for money, and then buy what they want with the money. A William Shakespeare who lived in a barter economy no doubt spent his days very differently from the William Shakespeare who lived in England in the sixteenth century. Put bluntly: Without money, the world might never have enjoyed *Romeo and Juliet*.

12-2 Defining the Money Supply

If money is any good that is widely accepted for purposes of exchange, is a $10 bill money? Is a dime money? Is a checking account or a savings account money? What constitutes money? In other words, what is included in the money supply? Two frequently used definitions of the money supply are M1 and M2.

21-2a M1

M1 is sometimes referred to as the *narrow definition of the money supply* or as *transactions money.* It is money that can be directly used for everyday transactions—to buy gas for the car, groceries to eat, and clothes to wear. **M1** consists of currency held outside banks (by members of the public for use in everyday transactions), checkable deposits, and traveler's checks.

M1
Currency held outside banks plus checkable deposits plus traveler's checks.

$$\text{M1} = \text{Currency held outside banks} + \text{Checkable deposits} + \text{Traveler's checks}$$

A couple of the components of M1 have specific definitions:

- **Currency** includes coins minted by the U.S. Treasury and paper money. About 99 percent of the paper money in circulation is in the form of **Federal Reserve notes** issued by the Federal Reserve District Banks (the Fed).

Currency
Coins and paper money.

Federal Reserve Notes
Paper money issued by the Federal Reserve.

Checkable Deposits
Deposits on which checks can be written.

- **Checkable deposits** are deposits on which checks can be written. Demand deposits, which are checking accounts that pay no interest, are one kind of checkable deposit. Two others are NOW (negotiated order of withdrawal) and ATS (automatic transfer from savings) accounts, which do pay interest on their balances.

In June 2012, checkable deposits equaled $1,198 billion, currency held outside banks equaled $1,041 billion, and traveler's checks were $4 billion. M1, the sum of these figures, was $2,243 billion.

12-2b Money Is More Than Currency

Most laypersons hear the word *money* and think of currency—paper money (dollar bills) and coins. For example, if a thief stops you on a dark street at night and demands, "Your money or your life," you can be sure he wants your currency. People often equate money and currency. To an economist, though, money is more than just currency. According to the M1 definition, money is currency, checkable deposits, and traveler's checks.(However, if robbed by a thief, an economist would be unlikely to hand over her currency and then write a check too.)

M2
M1 plus savings deposits (including money market deposit accounts) plus small-denomination time deposits plus money market mutual funds (retail).

12-2c M2

M2 is commonly referred to as the *broad definition of the money supply.* **M2** is made up of M1 plus savings deposits (including money market deposit accounts), small-denomination time deposits, and money market mutual funds (retail).

M2 = M1
+ Savings deposits (including money market deposit accounts)
+ Small-denomination time deposits
+ Money market mutual funds (retail)

Savings Deposit
An interest-earning account at a commercial bank or thrift institution. Normally, checks cannot be written on savings deposits, and the funds in a savings deposit can be withdrawn at any time without a penalty payment.

Time Deposit
An interest-earning deposit with a specified maturity date. Time deposits are subject to penalties for early withdrawal, that is, withdrawal before the maturity date. Small-denomination time deposits are less than $100,000.

Money Market Deposit Account (MMDA)
An interest-earning account at a bank or thrift institution, for which a minimum balance is usually required and most of which offer limited check-writing privileges.

Money Market Mutual Fund (MMMF)
An interest-earning account at a mutual fund company, for which a minimum balance is usually required and most of which offer limited check-writing privileges. Only retail MMMFs are part of M2.

Again, several components of M2 need to be defined:

- A **savings deposit**, sometimes called a *regular savings deposit,* is an interest-earning account at a commercial bank or thrift institution. (Thrift institutions include savings and loan associations, mutual savings banks, and credit unions.) Normally, checks cannot be written on savings deposits, and the funds in savings deposits can be withdrawn at any time without a penalty payment.
- A **time deposit** is an interest-earning deposit with a *specified maturity date.* Time deposits are subject to penalties for early withdrawal, that is, withdrawal before the maturity date. Small-denomination time deposits are less than $100,000.
- A **money market deposit account (MMDA)** is an interest-earning account at a bank or thrift institution, and usually a minimum balance is required. Most MMDAs offer limited check-writing privileges. For example, the owner of an MMDA might be able to write only a certain number of checks each month, and/or each check may have to be above a certain dollar amount (e.g., $500).
- A **money market mutual fund (MMMF)** is an interest-earning account at a *mutual fund company.* Usually, a minimum balance is required for an MMMF account, and most offer limited check-writing privileges. MMMFs held by large institutions are referred to as institutional MMMFs. MMMFs held by all others (e.g., by individuals) are referred to as retail MMMFs. Only retail MMMFs are part of M2.

In June 2012, M2 was $9,867 billion.