

 Kenneth R. Szulczyk

Money, Banking, and International Finance

Money, Banking, and International Finance
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Preface

I taught Money & Banking and International Finance several times, and I converted my lecture notes into a textbook. Consequently, instructors can use this textbook for courses in Money & Banking, or International Finance or some hybrid in between them. Furthermore, financial analysts and economists could refer to this book as a study guide because this book contains concise information, and all facts and analysis are straight to the point, explaining how governments and central banks influence the exchange rates, the interest rates, and currency flows.

The Financial Crisis severely impacted the world's financial markets that are still felt in 2014. I included many examples from the 2008 Financial Crisis, when many U.S. banks and financial institutions teetered on bankruptcy. Unfortunately, the financial crisis has not ended, and it continues affecting the world's economies and financial markets.

1. Money and the Financial System

This chapter introduces the financial system. Students will learn the purpose of financial markets and its relationship to financial institutions. Financial institutions connect the savers to the borrowers through financial intermediation. At the heart of every financial system lies a central bank. It controls a nation's money, and the money supply is a vital component of the economy. Unfortunately, economists have trouble in defining money because people can convert many financial instruments into money. Thus, central banks use several definitions to measure the money supply. Furthermore, if an economy did not use money, then people would resort to an inefficient system – barter. Unfortunately, this society would produce a limited number of goods and services. Nevertheless, money overcomes the inherent problems with a barter system and allows specialization to occur at many levels.

Financial Markets

Money and the financial system are intertwined and cannot be separated. They both influence and affect the whole economy, such as the inflation rate, business cycles, and interest rates. Consequently, consumers, investors, savers, and government officials would make better-informed decisions if they understood how the financial markets and money supply influence the economy.

A **financial market** brings buyers and sellers face to face to buy and sell bonds, stocks, and other financial instruments. Buyers of financial securities invest their savings, while sellers of financial securities borrow funds. A financial market could occupy a physical location like the New York Stock Exchange where buyers and sellers come face-to-face, or a market could be like NASDAQ where computer networks connect buyers and sellers together.

A **financial institution** links the savers and borrowers with the most common being commercial banks. For example, if you deposited \$100 into your savings account, subsequently, the bank could lend this \$100 to a borrower. Then the borrower pays interest to the bank. In turn, the bank would pay interest to you for using your funds. Bank's profits reflect the difference between the interest rate charged to the borrower and the interest rate the bank pays to you for your savings account.

Why would someone deposit money at a bank instead of directly buying securities through the financial markets? A bank, being a financial institution, provides three benefits to the depositor. First, a bank collects **information** about borrowers and lends to borrowers with a low chance of defaulting on their loans. Thus, a bank's specialty is to rate its borrowers. Second, the bank reduces your investment **risk**. Bank lends to a variety of borrowers, such as home mortgages, business loans, and credit cards. If one business bankrupts or several customers do not pay their credit cards, then the default does not financially harm the bank. Bank would earn interest income on its other investments that offset the bad loans. Finally, a bank deposit has liquidity. If people have an emergency and need money from their bank deposits, they can easily convert the bank deposit into cash quickly.

Economists use liquidity to define money. **Liquidity** is people can easily convert an asset into cash with little transaction costs. For example, if you take all your assets and list them in terms of liquidity, then liquidity forms a scale as shown in Figure 1. Cash is the most liquid asset because a person already has money and does not need to convert it to money. Subsequently, a savings account is almost as good as cash because customers can arrive at a bank or ATM and convert their deposits into cash quickly with little transaction costs. Nevertheless, cars and houses are the least liquid assets because owners require time and high-transaction costs to convert these assets into cash.

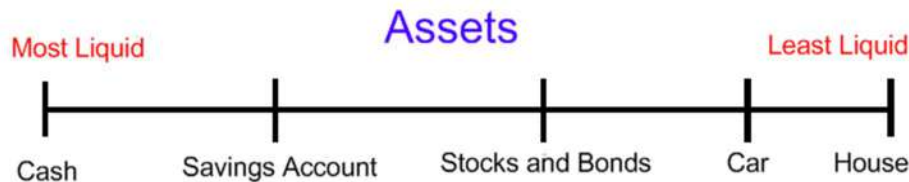


Figure 1. Ranking assets by liquidity

Economists define the **money** or the **money supply** as anything that people pay for goods and services or repay debts. In developing countries, people use cash as money. In countries with sophisticated financial markets like the United States and Europe, the definition of money becomes complicated because money includes liquid assets, such as cash, checking accounts, and savings accounts. People can convert these assets into cash with little transaction costs. Consequently, economists include highly liquid assets in the definitions of money. However, economists never include assets such as houses in the definition of money. Unfortunately, homeowners need time and have high-transaction costs to convert a house into cash. Many homeowners will not sell their homes quickly by selling it for a lower value than the home's market value.

Central Banks

Every country uses money. Therefore, every country has a government institution that measures and influences the money supply. This institution is the **central bank**. For example, the central bank for the United States is the **Federal Reserve System**, or commonly referred to as the "**Fed**." The Federal Reserve regulates banks, grants emergency loans to banks, and influences the money supply. Since the money supply and the financial markets are intertwined, the Fed can influence financial markets indirectly, when it affects the money supply. Therefore, the Fed can indirectly affect the interest rates, exchange rates, inflation, and the output growth rate of the U.S. economy. When the Fed manages the money supply to influence the economy, economists call this **monetary policy**. Consequently, this whole book explains how a central bank can influence the economy and its financial markets. Furthermore, readers can extend this analysis to any central bank in the world.

Central bank influences three key variables in the economy, which are:

Variable 1: Inflation is a sustained rise in the average prices for goods and services of an economy. When a central bank increases the money supply, it can create inflation. For example, if you place \$100 in a shoebox and bury it in your yard for one year. That \$100 loses value over time because, on average, all the prices for goods and services in an economy continually rise every year. If the inflation rate rises 2% per year, then after one year, that \$100 would buy on average, 2% fewer goods and services. Although inflation erodes the value of money, a low inflation rate is not necessarily bad because it might indicate economic growth.

Variable 2: A business cycle means the economy is experiencing strong economic growth, and economists measure the size of the economy by the **Gross Domestic Product (GDP)**. GDP reflects the total value of goods and services produced within an economy for one year. When businesses boost production, they produce more goods and services within the economy. If GDP grows quickly, then the economy experiences a business cycle. Thus, consumers' incomes are rising; businesses experience strong sales and rising profits, and workers can easily find new jobs, which decrease the unemployment rate. However, if the money supply grows too quickly, then inflation can strike an economy with rapidly rising prices.

Variable 3: Interest rates reflect the cost of borrowing money. People borrow money to buy cars, houses, appliances, and computers while businesses borrow to build factories and to invest in machines and equipment, expanding production. Moreover, governments borrow money when they spend more than they collect in taxes. Since economies with complex financial markets create many forms of loans, these loans have different interest rates. Usually economists refer to "the interest rate," because interest rates move together. As a central bank expands the money supply, the interest rates fall, and vice versa, which we prove later in this book. Thus, an increasing money supply causes interest rates to fall in the short run.

One important function of monetary policy is to create economic growth. Unfortunately, the GDP can grow slowly or decrease as businesses produce fewer goods and services within the economy, while consumers' incomes fall or stagnate. When an economy produces fewer goods and services, then unemployed workers have more difficulties in finding jobs. Subsequently the unemployment rate increases, and the economy enters a recession. Unfortunately, if the money supply grows too slowly, or even contracts, it could cause the economy to enter a recession.

Economists calculate both the nominal GDP and real GDP. **Nominal GDP** includes the impact of inflation. For example, if economy experiences inflation, or firms produce more goods and services during a year, then the nominal GDP rises. On the other hand, economists can remove the effects of inflation by calculating **real GDP**. When the real GDP increases, it means firms in society have produced more goods and services while inflation does not affect real GDP. That way, if real GDP is rising, then the public and economists know the economy is expanding, while a decreasing real GDP indicates a society's economy is contracting. Finally, economists define many variables in real or nominal terms, such as interest rates and wage rates, which we explain later in this book.

Barter and Functions of Money

If an economy did not use money, what would it look like? Without money, the buyers would exchange goods with the sellers by exchanging one good for another good, which we call *barter*. Unfortunately, barter has many problems.

Problem 1: Barter suffers from a *double coincidence of wants*. For example, if you produce shoes and want to drink a Coca-Cola, then you search for a person who produces Coca-Cola and needs shoes. Thus, you need to search for a person who wants the opposite of you, which could take a long time.

Problem 2: Many goods, like fruits and vegetables, deteriorate and rot over time. Growers of perishable goods could not store their purchasing power. They would need to exchange their products for goods that would not perish quickly if they want to save.

Problem 3: Products and services do not have a common measurement for prices. For instance, if a store stocked 1,000 products and money circulated with this economy, subsequently, this store would have 1,000 price tags. Then customers can compare products easily. With barter and no money, this same store would have 499,500 price exchange ratios as calculated in Equation 1. Variable E indicates the number of price ratios while n is the number of products produced in a barter system.

$$E = \frac{n(n-1)}{2} = \frac{1,000 \cdot 999}{2} = 499,500 \quad (1)$$

A price ratio shows the amount of one good that buyers and sellers exchange for another good, and we show examples of price ratios in Figure 2. For example, a person could exchange one apple for 3 bananas or two Coca-Colas.

1 apple = 3 bananas
 2 Coca-Colas = 1 apple
 .
 .
 1 cup of coffee = 1 Coca-Cola

Figure 2. Examples of price ratios

Problem 4: Business people would have trouble writing contracts for future payments of goods and services under a barter system. Consequently, a barter society would produce a limited number of goods and services.

Money eliminates many problems with barter and has four functions. First function of money is a *medium of exchange* because people use money to pay for goods and services and repay debts. Medium of exchange function promotes efficiency and specialization. For example, the author teaches economics. Under a barter system, the author would search a market extensively to find a person who would exchange goods and services that the author needs. In

the author's case, he could experience considerable search costs for people wanting economics instruction. With money, the author does what he does best and teaches for money. Then he takes this money to the market and buys goods and services that he wants. This function of money allows the *specialization of labor* to occur and eliminates the problem of double coincidence of wants under a barter system.

Second function of money is a *unit of account*. Money conveniently allows people to place specific values on goods and services. For example, a two-liter of Coca-Cola costs \$0.89 while Pepsi costs \$0.99. Thus, customers can compare products' prices easily. This function is extremely important for businesses because business people place values on buildings, machines, computers, and other assets. Then they record this information into financial statements. Subsequently, investors read the financial statements and gauge which companies are profitable. Finally, this function of money eliminates the massive number of price exchange ratios that would occur under a barter system.

Third function of money is the *store of value*. Money must retain its value. For example, if a two-liter of Coca-Cola costs \$0.99 today, then it should cost \$0.99 tomorrow. Unfortunately, inflation erodes the "store of value" of money. As the price level increases, the value of money decreases because each unit of money buys fewer goods and services. Inflation causes consumers to lose their *purchasing power* over time. If the inflation rate becomes too high, then money as a "medium of exchange" breaks down too. In countries with high inflation rates, people resort to barter and immediately exchange their local money for stable money, such as euros or U.S. dollars. However, people must use money as a medium of exchange because government laws legally require people to accept money as a means of payment to repay a debt or to pay taxes. The legal requirement is "*legal tender*." On the other hand, bank checks are not legal tender, and people and businesses can reject checks as payment.

Fourth and final function of money is the *standard of deferred payment*. This function combines the "medium of exchange" and "unit of account" of money because contracts state debts in terms of a "unit of account" and borrowers repay using the "medium of exchange." Hence, this function of money is extremely important for business transactions that occur in the future. Businesses and people can borrow or lend money based on future transactions that create the financial markets.

Money needs six desirable properties for people and businesses to use money, which are:

1. **Acceptable:** Businesses and public accept money as payment for goods and services. People must trust money in order to accept it for payment.
2. **Standardized quality:** Same units of money must have the identical size, quality, color, so people know what they are getting. If a government issued money in different sizes and colors, how would people determine whether bills are legitimate or counterfeit?
3. **Durable:** Money must be physically sturdy, or it might lose its value quickly as it degrades and falls apart. In some countries, people do not accept torn, ripped, or faded money.

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