Chapter 16 – The Monetary System

# The Meaning of Money

## Definition of money: the set of assets in an economy that people regularly use to buy goods and services from other people.

## The Functions of Money

### Money serves three functions in our economy.

#### Definition of medium of exchange: an item that buyers give to sellers when they want to purchase goods and services.

#### Definition of unit of account: the yardstick people use to post prices and record debts.

#### Definition of store of value: an item that people can use to transfer purchasing power from the present to the future.

### Definition of liquidity: the ease with which an asset can be converted into the economy’s medium of exchange.

#### Money is the most liquid asset available.

#### Other assets (such as stocks, bonds, and real estate) vary in their liquidity.

#### When people decide how to allocate their wealth, they must balance the liquidity of each possible asset against the asset’s usefulness as a store of value.

## The Kinds of Money

### Definition of commodity money: money that takes the form of a commodity with intrinsic value.

### Definition of fiat money: money without intrinsic value that is used as money because of government decree.

### FYI: Cryptocurrencies: A Fad or the Future?

#### Cryptocurrency, such as bitcoin, is a new type of money that exists only in electronic form.

#### Because the value of bitcoin fluctuates wildly and because few retailers accept it in exchange, it is excluded from standard measures of money.

## Money in the U.S. Economy

### The quantity of money circulating in the United States is sometimes called the *money stock*.

### Included in the measure of the money supply are currency, demand deposits, and other monetary assets.

#### Definition of currency: the paper bills and coins in the hands of the public.

#### Definition of demand deposits: balances in bank accounts that depositors can access on demand by writing a check.

### Figure 1 shows the monetary assets included in two important measures of the money supply, M1 and M2.

### FYI: Why Credit Cards Aren’t Money

#### Credit cards are not a form of money; when a person uses a credit card, he or she is simply deferring payment for the item.

#### Because using a debit card is like writing a check, the account balances that lie behind debit cards are included in the measures of money.

### Case Study: Where Is All the Currency?

#### If we divide the amount of outstanding currency in the United States by the adult population, we find that the average adult holds over $6,500 in currency.

#### Of course, most adults carry a much smaller amount.

#### One explanation is that a great deal of U.S. currency may be held in other countries.

#### Another explanation is that large amounts of currency may be held by criminals because transactions that use currency leave no paper trail.

# The Federal Reserve System

## Definition of Federal Reserve (Fed): the central bank of the United States.

## Definition of central bank: An institution designed to oversee the banking system and regulate the quantity of money in the economy.

## The Fed’s Organization

### The Fed was created in 1913 after a series of bank failures.

### The Fed is run by a Board of Governors with up to 7 members who serve 14-year terms.

#### The Board of Governors has a chair who is appointed for a four-year term.

#### The current chair is Jerome Powell.

### The Federal Reserve System is made up of 12 regional Federal Reserve Banks located in major cities around the country.

### One job performed by the Fed is the regulation of banks to ensure the health of the nation’s banking system.

#### The Fed monitors each bank's financial condition and facilitates bank transactions by clearing checks.

#### The Fed also makes loans to banks when they want to borrow.

### The second job of the Fed is to control the quantity of money available in the economy.

#### Definition of money supply: the quantity of money available in the economy.

#### Definition of monetary policy: the setting of the money supply by policymakers in the central bank.

## The Federal Open Market Committee

### The Federal Open Market Committee (FOMC) consists of the members of the Board of Governors and 5 of the 12 regional bank presidents.

### The primary way in which the Fed increases or decreases the number of dollars in the economy is through open market operations (which involve the purchase or sale of U.S. government bonds).

#### If the Fed wants to increase the supply of money, it creates dollars and uses them to purchase government bonds from the public through the nation's bond markets.

#### If the Fed wants to reduce the supply of money, it sells government bonds from its portfolio to the public. Money is then taken out of the hands of the public and the supply of money falls.

# Banks and the Money Supply

## The Simple Case of 100-Percent-Reserve Banking

### Example: Suppose that currency is the only form of money and the total amount of currency is $100.

### A bank is created as a safe place to store currency; all deposits are kept in the vault until the depositor withdraws them.

#### Definition of reserves: deposits that banks have received but have not loaned out.

#### Under the example described above, we have 100-percent-reserve banking.

### The financial position of the bank can be described with a T-account:

|  |  |  |  |
| --- | --- | --- | --- |
| **FIRST NATIONAL BANK** | | | |
| **Assets** | | **Liabilities** | |
| Reserves | $100.00 | Deposits | $100.00 |

### The money supply in this economy is unchanged by the creation of a bank.

#### Before the bank was created, the money supply consisted of $100 worth of currency.

#### Now, with the bank, the money supply consists of $100 worth of deposits.

### This means that, if banks hold all deposits in reserve, banks do not influence the supply of money.

## Money Creation with Fractional-Reserve Banking

### Definition of fractional-reserve banking: a banking system in which banks hold only a fraction of deposits as reserves.

### Definition of reserve ratio: the fraction of deposits that banks hold as reserves.

### Example: Same as before, but First National decides to set its reserve ratio equal to 10% and lend the remainder of the deposits.

### The bank’s T-account would look like this:

|  |  |  |  |
| --- | --- | --- | --- |
| **FIRST NATIONAL BANK** | | | |
| **Assets** | | **Liabilities** | |
| Reserves | $10.00 | Deposits | $100.00 |
| Loans | $90.00 |  |  |

### When the bank makes these loans, the money supply changes.

#### Before the bank made any loans, the money supply was equal to the $100 worth of deposits.

#### Now, after the loans, deposits are still equal to $100, but borrowers now also hold $90 worth of currency from the loans.

#### Therefore, when banks hold only a fraction of deposits in reserve, banks create money.

### Note that, while new money has been created, so has debt. There is no new wealth created by this process.

## The Money Multiplier

### The creation of money does not stop at this point.

### Borrowers usually borrow money to purchase something and then the money likely becomes redeposited at a bank.

### Suppose a person borrowed the $90 to purchase something and the funds then get redeposited in Second National Bank. Here is this bank’s T-account (assuming that it also sets its reserve ratio to 10%):

|  |  |  |  |
| --- | --- | --- | --- |
| **SECOND NATIONAL BANK** | | | |
| **Assets** | | **Liabilities** | |
| Reserves | $9.00 | Deposits | $90.00 |
| Loans | $81.00 |  |  |

### If the $81 in loans becomes redeposited in another bank, this process will go on and on.

### Each time the money is deposited and a bank loan is created, more money is created.

### Definition of money multiplier: the amount of money the banking system generates with each dollar of reserves.



### In our example, the money supply increased from $100 to $1,000 after the establishment of fractional-reserve banking.

## Bank Capital, Leverage, and the Financial Crisis of 2008–2009

### In reality, banks also get funds from issuing debt and equity.

### Definition of bank capital: the resources a bank’s owners have put into the institution.

### A more realistic balance sheet for a bank:

|  |  |  |  |
| --- | --- | --- | --- |
| **MORE REALISTIC NATIONAL BANK** | | | |
| **Assets** | | **Liabilities and Owners' Equity** | |
| Reserves | $200.00 | Deposits | $800.00 |
| Loans | $700.00 | Debt | $150.00 |
| Securities | $100.00 | Capital (owner’s equity) | $50.00 |

### Definition of leverage: the use of borrowed money to supplement existing funds for purposes of investment.

### Definition of leverage ratio: the ratio of assets to bank capital.

#### The leverage ratio is $1,000/$50 = 20.

#### A leverage ratio of 20 means that, for every dollar of capital that has been contributed by the owners, the bank has $20 of assets.

#### Because of leverage, a small change in assets can lead to a large change in owner’s equity.

### Definition of capital requirement: a government regulation specifying a minimum amount of bank capital.

### In 2008 and 2009, many banks realized they had incurred sizable losses on some of their assets.

# The Fed’s Tools of Monetary Control

## How the Fed Influences the Quantity of Reserves

### Open-Market Operations

#### Definition of open-market operations: the purchase and sale of U.S. government bonds by the Fed.

#### If the Fed wants to increase the supply of money, it creates dollars and uses them to purchase government bonds from the public in the nation's bond markets.

#### If the Fed wants to lower the supply of money, it sells government bonds from its portfolio to the public in the nation's bond markets. Money is then taken out of the hands of the public and the supply of money falls.

#### If the sale or purchase of government bonds affects the amount of deposits in the banking system, the effect will be made larger by the money multiplier.

#### Open market operations are easy for the Fed to conduct and are therefore the tool of monetary policy that the Fed uses most often.

### Fed Lending to Banks

#### The Fed can also lend reserves to banks.

#### Definition of **discount rate: the interest rate on the loans that the Fed makes to banks**.

#### A higher discount rate discourages banks from borrowing from the Fed and likely encourages banks to hold onto larger amounts of reserves. This in turn lowers the money supply.

#### A lower discount rate encourages banks to lend their reserves (and borrow from the Fed). This will increase the money supply.

#### In recent years, the Fed has set up new mechanisms for banks to borrow from the Fed.

## How the Fed Influences the Reserve Ratio

### Reserve Requirements

#### Definition of reserve requirements: regulations on the minimum amount of reserves that banks must hold against deposits.

#### This can affect the size of the money supply through changes in the money multiplier.

#### The Fed rarely uses this tool because of the disruptions in the banking industry that would be caused by frequent alterations of reserve requirements. (It is also not effective when banks hold a lot of excess reserves.)

### Paying Interest on Reserves

#### In October of 2008, the Fed began paying banks interest on reserves.

#### The higher the interest rate, the more reserves a bank will want to hold. This will reduce the money multiplier and the money supply.

## Problems in Controlling the Money Supply

### The Fed does not control the amount of money that consumers choose to deposit in banks.

#### The more money that households deposit, the more reserves the banks have, and the more money the banking system can create.

#### The less money that households deposit, the less reserves banks have, and the less money the banking system can create.

### The Fed does not control the amount that bankers choose to lend.

#### The amount of money created by the banking system depends on loans being made.

#### If banks choose to hold onto a greater level of reserves than required by the Fed (called excess reserves), the money supply will fall.

### Therefore, in a system of fractional-reserve banking, the amount of money in the economy depends in part on the behavior of depositors and bankers.

### Because the Fed cannot control or perfectly predict this behavior, it cannot perfectly control the money supply.

## Case Study: Bank Runs and the Money Supply

### Bank runs create a large problem under fractional-reserve banking.

### Because the bank only holds a fraction of its deposits in reserve, it will not have the funds to satisfy all of the withdrawal requests from its depositors.

### Today, deposits are guaranteed through the Federal Depository Insurance Corporation (FDIC).

## The Federal Funds Rate

### Definition of federal funds rate: the short-term interest rate that banks charge one another for loans.

### When the federal funds rate rises or falls, other interest rates often move in the same direction.

### In recent years, the Fed has set a target for the federal funds rate.

## In the News: A Trip to Jekyll Island

### In spite of many examples of its positive effects on the economy, the Fed still faces public scorn and mistrust.

### This *Los Angeles Times* article describes the story of the creation of the Fed and the public’s paranoia associated with the central bank.