

# Economics AP

## Unit 5: Banking and the Creation of Money

Covers Ch 15,16,18

Money and the Banking System	
Money	<p>Set of assets in an economy that people regularly use to buy goods and services from others. Four functions of money</p> <p><b>1) Medium of exchange</b> Anything sellers will readily accept as payment. Without money as a medium, people would have to barter to trade. Money allows people to specialize in specific products and makes trading more efficient.</p> <p><b>2) Unit of accounting</b> The yardstick people use to post prices and record debts. Also called a "standard of value" that measures the value of goods/services in relation to other goods/services.</p> <p><b>3) Store of value/purchasing power</b> Item that people can use to transfer purchasing power from the present to the future. Money from today can be saved to purchase things in the future.</p> <p><b>4) Standard of deferred payment</b> Property of an asset that makes it desirable for use as a means of settling debts maturing in the future.</p>
Barter	Direct exchange of goods/services for other goods/services. Ex: trading cheese for bread. The drawback to bartering is the requirement of "double coincidence of wants"—otherwise, the person would have to make several trades to get what they want (which is obviously inefficient).
Liquidity	the ease with which an asset can be converted into the economy's medium of exchange. Money/cash is the most liquid asset.
Opportunity cost of holding money	The alternative interest yield obtainable by holding some other asset (like a stock or bond).
Transactions accounts	Checking account balances or other account in banks/other financial institutions on which you can easily write checks.
Kinds of money	<p><b>Commodity vs. Fiat money.</b></p> <p>Commodity money is in the form of a commodity with intrinsic value (ex: gold, silver, books)</p> <p>Fiat money is equivalent to money because of government law, and does not have intrinsic value (ex: currency, check deposits). Used in a fiduciary monetary system.</p> <p>Money is accepted in exchange for goods/services because</p> <ol style="list-style-type: none"> <li>1) People have confidence that it can be exchanged later for other goods/services and</li> <li>2) It has a predictable value.</li> </ol>
Money supply	The amount of money in circulation. The two ways to defining and measuring money are the transactions approach and liquidity approach.

## Two Different Approaches to Money

Transactions Approach  M1	Stresses the role of money as a medium of exchange. M1 = money supply, taken as the total value of currency plus checkable deposits plus traveler's checks not issued by banks. M1 = Money Supply = Currency + checkable deposits + traveler's checks	
	Currency	Paper bills/coins in the hands of the public
	Checkable deposits	Deposits in a thrift institution or a commercial bank on which a check may be written.
		Thrift institutions
Traveler's checks	Financial instruments purchased from a bank/nonbanking organization and signed during purchase. Can be used as cash upon a second signature by the purchaser.	
<p>Notes</p> <ul style="list-style-type: none"> <li>- Credit cards are more like a series of small loans and defer (rather than complete) transactions that use money, so they don't count in M1.</li> <li>- Debit cards directly withdraw money from your account and put it in a store's bank account. Debit cards don't create loans, and so they also aren't a type of "money."</li> </ul>		

Liquidity Approach  M2	Stresses the role of money as a temporary store of value Near monies = assets that are almost money. They typically can be easily converted into money without losing value. Ex: time deposits, short-term US government securities M2 = Money Supply = M1 + savings and small-denomination time deposits at all depository institutions + overnight repurchase agreements at commercial banks + overnight Eurodollars held by US residents other than banks at Caribbean branches of member banks + balances in retail money market mutual funds + money market deposit accounts (MMDAs)		
	Savings deposits	interest-earning funds that can be withdrawn at any time without payment of a penalty. Two types: statement and passbook.	
		Statement savings deposit	monthly statement/record of deposits and withdrawals and interest earned during the month (similar to checking account). Can withdraw from statement savings account via mail.
		Passbook savings account	requires owner to present a physical passbook with records of deposits, withdrawals, and interest at the time of each deposit or withdrawal.
Depository institutions			financial institutions that accept deposits from savers and lend those deposits out at interest.
Time deposit	deposit in a financial institution that requires notice of intent to withdraw or must be left for an agreed period; withdrawal prior to end of agreed period may result in penalty.		
Certificate of deposit (CD)	Time deposit with a fixed maturity date offered by banks and other financial institutions.		
Time deposits vs. savings deposits: Savings deposits allow withdrawal of funds without payment of a penalty			

## Two Approaches to Money (Cont)

Liquidity Approach Continued	Repurchase agreement (REPO/RP)	Agreement made by a bank to sell Treasury/federal agency securities to customers. Includes agreement to repurchase them at that price plus accumulated interest. Advantageous because businesses can deposit excess cash in REPOs instead of leaving it in commercial checking accounts that have no interest
	Eurodollar deposits	Value of which is stated in U.S. dollars (instead of local currency) but held in banks outside the U.S., usually in overseas branches of U.S. banks.  <b>Money market mutual funds</b> =Funds of investment companies that obtain funds from public held in common; used to acquire short-maturity credit instruments (like CDs and securities from the U.S. government)
	Money market deposit accounts (MMDAs)	Issued by banks yielding a market rate of interest with a minimum balance requirement and a limit on transactions.

## US Banking Structure

**Federal Reserve System ("The Fed")**=independent central bank of the United States that oversees the banking system; established under the Wilson administration in 1913. The Fed regulates the quantity of money in the economy.

Financial intermediation	Process by which financial institutions accept savings from business/households/and governments and lend the savings to other businesses/households/governments.
Financial intermediaries	institutions that transfer funds between ultimate lenders (savers) and ultimate borrowers.
Liabilities	amounts owed and legal claims against a business/household by nonowners. This serves as the primary source of funds for financial intermediaries.
Assets	amounts owned; items to which a business/household hold legal claim

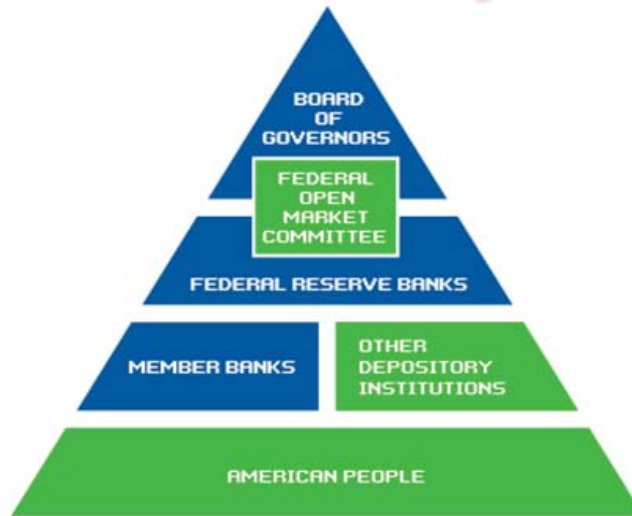
Structure of the Fed is as follows:

<b>Board of Governors</b> runs the Fed and oversees Federal Reserve banks.
<b>Federal Open Market Committee (FOMC)</b> controls monetary policy, regulates banks, and acts as a "banker's bank."
<b>Federal Reserve Banks</b> operate in twelve regions under the general supervision of the Board of Governors in Washington. They furnish currency, handle government debt and cash balances, and more. They are nonprofit and return any extra assets to the U.S. Treasury. Each Federal Reserve bank is run by a regional Board of Directors.

Functions of the Fed:

1) Supplies economy with fiduciary currency.
2) Provides a system for check collection and clearing.
3) Holds depository institutions' reserves.
4) Acts as the government fiscal agent, a.k.a. the government's banker. Also helps the government collect certain tax revenues and helps purchase/sell government securities.
5) Supervises member banks to make sure banks are following government regulations.
6) Acts as the "banker's bank."
7) Regulates money supply.

# The Federal Reserve System



## Money Creation

### Links Between Changes in the Money Supply and Other Economic Variables

- The changes in money supply are directly connected to changes in nominal GDP.
- Rate of money supply growth is also related to rate of inflation.

### The Origins of Fractional Reserve Banking

**Fraction Reserve Banking** - System where banks issue out more money than the bank holds in reserve.

Depository Institutions Reserves	
Type	Description
Legal Reserves	Anything that the law permits them to claim as reserves. Deposits held at the Federal Reserve district banks and vault cash.
Required Reserves	Minimum legal reserves that a depository institution must hold with the Fed. The RR ratio is the percentage of total deposits in forms of deposits or vault cash that a depository institution must hold with the Fed.
Excess Reserves	The difference between Legal and Required Reserves.  Excess Reserves = Legal Reserves - Required Reserves

### The Relationship Between Reserves and Total Deposits

How a Single Bank Reacts to an Increase in Reserves:

**Balanced Sheet** - A statement of assets and liabilities made by any business entity in the end of a period such as a fiscal year. Assets are what is owned and liabilities are what is owed.

To examine the balanced sheet of a single bank after reserves are increase, the following assumptions can be made.

1) The RR ration is 10 percent for all checkable deposits.
2) Checkable deposits are the bank's only liabilities. Reserves in the Fed and loans are the bank's only assets.
3) Any individual bank can lend as much as it want under current market interest rates.
4) Anytime a loan is made, all the money from the loan is put in a checkable account.
5) Depository institutions wish to keep their excess reserves at a zero level since reserves at a Fed bank do NOT earn interest.
6) A depository institution rarely has a net worth of more than a small percentage of its total asset.

Effect on Money Supply: New reserves are not created when checks written are deposited into another bank thus money supply is unaffected by the transfer of money between depository institutions.

## Money Creation (Cont)

### The Fed's Direct Effect on the Overall Level of Reserves

How a change in the level of reserves can affect the total money supply

**Federal Open Market Committee** - The committee controls the Open Market Operations, which is the selling of purchasing of U.S. Gov't securities in an open market by the Fed. FOMC also decides whether the Fed should or should not buy bonds.

### A Sample Transaction -

The Fed		Bank	
Assets	Liabilities	Assets	Liabilities
+\$100,000 U.S. government securities	+\$100,000 Depository institution reserves	+\$100,000 Reserves	+\$100,000 Checkable deposit owned by bond dealer

### Sale of a \$100,000 U.S. Government Security by the Fed

The Fed		Bank	
Assets	Liabilities	Assets	Liabilities
-\$100,000 U.S. government securities	-\$100,000 Depository institution reserves	-\$100,000 Reserves	-\$100,000 Checkable deposit balances

### Money Expansion by the Banking System

#### Fed Purchases of U.S. Government Securities

- Assume the Fed purchases a \$100,000 U.S. Government securities from a bond dealer, who deposits it in bank

Bank 1 (Initial)			
Assets		Liabilities	
Total Reserves	\$200,000	Checkable Deposits	\$1,100,000
Required reserves	\$110,000		
Excess Reserves	90,000		
Loans	\$900,000		
<b>Total</b>	<b>\$1,100,000</b>	<b>Total</b>	<b>\$1,100,000</b>

Effects on money supply: Money supply is immediately increased by \$100,000 because the checkable deposits are held by public and bond dealers are part of the public and thus part of the money supply

Bank 1 (After loaning out the non-interest-bearing excess reserves)			
Assets		Liabilities	
Total Reserves	\$200,000	Checkable Deposits	\$1,100,000
Required reserves	\$110,000		
Excess Reserves	0		
Loans	\$990,000		
<b>Total</b>	<b>\$1,100,000</b>	<b>Total</b>	<b>\$1,100,000</b>

Bank 2 (People who borrowed the \$90,000 and will get deposited in another bank)			
Assets		Liabilities	
Total Reserves	+\$90,000	New Checkable Deposits	+\$90,000
Required reserves	\$9,000		
Excess Reserves	+\$81,000		
<b>Total</b>	<b>+\$90,000</b>	<b>Total</b>	<b>+\$90,000</b>

Bank 2 (Excess reserves of \$81,000 is loaned)			
Assets		Liabilities	
Total Reserves	\$9000	Checkable Deposits	\$90,000
Required reserves	\$9,000		
Excess Reserves	0		
Loans	+\$81,000		
<b>Total</b>	<b>\$90,000</b>	<b>Total</b>	<b>\$90,000</b>

## The Money Multiplier

Potential Money Multiplier =  $1/RR$   
 Actual change in money supply = actually money multiplier x change in excess reserves  
Forces that Reduce the Money Multiplier

Leakage	
Type	Descriptions
Currency Drains	When there is more deposits, people want to hold on to more currency. Currency in wallets remains outside of the banking system. The greater the amount of cash leakage, the smaller the multiplier becomes.
Excess Reserves	If depository institutions keeps the excessive reserves. The larger the excess reserve, the smaller the multiplier becomes.

## Discount Rate

The interest rates that the Federal Reserve charges for loans on reserves to other reserves.

Federal funds market	A market where banks borrow Federal Reserve from each other.
Federal funds rate	The interest rate of banks borrowing Federal Reserve from each other.
Federal Deposit Insurance Corporation (FDIC)	Agency created to insure deposits that are put in banks by people.
Bank runs	Many people trying to take their deposits out of banks because they fear they might close down.
Asymmetric information	Transactions where one side has more information cause an imbalanced advantage to the side with more information. IE: Borrowers have more info because they know what they are investing thus have more understanding of the risk.
Adverse selection	Asymmetric information before the transaction even starts causes undesirable results for the party who is ignorant. IE: A borrower who is known to not pay back debt would be bad for the lender.
Moral Hazard	- Borrowers might use the money in activities that are of great risk because they will gain the difference. This is best exemplified by the phenomenon of banks investing in high risk activities because the FDIC covers for the depositors. This results in losses for the FDIC and taxpayers.

## Rational Expectations Hypothesis

People use past mistakes/successes along with their judgment to choose economic solutions.

Two prerequisites:

- 1) The individual base expectations of market on all past and present information.
- 2) These expectations include how well the individual understand economics.

## The New Classical Model

This economic theory uses the original principles of the Classical Model plus the rational expectations hypothesis and assuming there is competition in all markets. (Laissez-faire)

Unexpected rise in AD	Will be the same as Classical Model, causing a short-run increase in real GDP and Price level.
Expected rise in AD	This assumes that consumers already know that prices will increase, so they will not wait for it to actually happen before taking action. This will cause the AS (consumer wages) to rise with the AD thus increasing Price Level but keeping the Real GDP at the constant LRAS line.
Policy irrelevance proposition	Any new policy created will have no effects on the Real GDP because if it's anticipated, Real GDP will just stay the same and even if it is unexpected, Real GDP will move back to the LRAS in the long run.

## Problems with New Classical

Two problems mainly

The Federal Reserve does not tell the people everything. They usually just give a general outline. Firms and individuals try to predict their actions but in the end, this theory just assumes that people do not make the same mistake again.

People do not know everything and not everyone will have the same experiences. This again ties in with the first problem. Every time there is a policy change, the Real GDP will rise but not rise as much and as always will return to the LRAS in the long run.