

Unit Four, Day One (pages 926-931)

Money has been around forever.

Barter system: Problem with Barter system is **double coincidence of wants**.

Double coincidence of wants:

There are *three functions of money*

1) Medium of Exchange: It must be able to be used to buy goods and services.

That way I do not have to trade lawn mowers for hamburgers.

2) Measure of Value: It must be capable of being a measurement as to the relative worth of a good or service.

Which is worth more a lawn mower or a hamburger?

3) Store of Value: You can hold it without worrying about it spoiling.

There are *three definitions of money*

1) $M1 = \text{Currency} + \text{Checkable Deposits}$

2) $M2 = M1 + \text{savings accounts} + \text{small time deposits} + \text{money market deposit accounts} + \text{money market mutual funds}$

3) $M3 = M1 + M2 + \text{large time deposits}$

M1 = Currency + Checkable Deposits

Currency: Coins and Paper Money

Coins – the value of the metal is irrelevant because the coin itself is a holder of value

Paper money – the value of the paper is irrelevant because the paper itself is a holder of value

Checkable Deposits: (the largest component of M1 – around 70%)

Checking accounts are a way of transferring money from one account to another. They can be easily converted into liquid cash.

Huge point regarding M1 – It must be in the hands of individuals!

M2 = M1 + savings accounts + small time deposits + money market deposit accounts + money market mutual funds

Savings accounts: you can readily convert this to cash. (Sometimes called near money).

Why is this not considered part of M1?

Time deposits: money that can only be gotten when they mature (certificates of deposit, CDs, of less than \$100,000...)

Money Market Deposit Accounts: you buy shares (deposit) in a money market. This money is then used by the bank to make large loans. You get a larger rate of return.

Money Market Mutual Funds: This money you use to buy short-term securities such as T bills (treasury bills).

Highly stable and insured by the government. Yield over the short term.

M3 = M1 + M2 + large time deposits

Large Time deposits: These are usually held by business.

*This is the least liquid form of money in a modern economy.

For the most part M1 is a good definition of money and what we will rely on for the remainder of this course. Rarely (and always with notice) we will use M2. Even more infrequently we will use M3 (largely because it lacks specificity). No matter what the definition the models we have discussed thus far are sound.

**Credit cards are not included because they do not represent money. Instead, they are short term loans from the creditor.*

Equation of Exchange – Quantity Theory of Money

$$MV = PQ$$

M = supply of money

V = velocity of money (number of times a year that a dollar is spent on final G & S)

P = price level (average price of each unit of output)

Q = physical volume of G & S produced.

MV is the amount spent by consumers. This is the same as the total C + I + G + Xn

$$MV = C + I + G + XN$$

PQ is the amount received by sellers. This is the same as nominal GDP (current output at current prices)

$$PQ = \text{Nominal GDP}$$

What happens if M changes? When M increases you have to look to see if the economy is in full capacity. If it is not, then Q increase (increase in quantity produced). If it is then P increases (increase in price level, i.e. inflation).

One argument about V is that it is determined by people's willingness to hold money in a non-interest bearing form (in their mattress, so to speak). If the interest rates go way up people are willing to hold less money (because they'll borrow less they'll have to spend their capital). This means that the money they are holding must turn over quicker so V increases.

V is actually fairly stable.

Unit Four, Day Two/Three (pages 932-955)

Balance Sheet: a statement of assets and claims summarizing the financial position of a firm or bank at **some point in time**.

A balance sheet must always balance. Every asset is claimed by someone. Assets must always equal the sum of net worth and liabilities.

Net Worth: the claims of the owners against the firm's assets.

Liabilities: claims of the non-owners.

$$\text{Assets} = \text{net worth} + \text{liabilities}$$

The Story of How Banks Create Money

In the beginning people would not want to carry around large sums of gold. They would therefore bring the gold to goldsmiths who would issue them receipts. Eventually people found it easier to trade receipts rather than gold. They knew that they could get the gold if they wanted to. The receipt was backed by gold.

Soon the goldsmiths saw that more gold was deposited than taken out (because people were trading receipts instead of gold). They decided to issue receipts that were not backed by gold. They did this in the form of loans.

The fractional reserve system of banking was started. Only a fraction of the receipts were covered with gold.

The goldsmiths created money. Today the same thing occurs. Banks make loans based on an amount that the Federal Reserve requires them to keep in reserve.

Let's start a bank:

We start by selling stock in our bank so that we can get cash. We will sell \$250,000. The cash we get is an asset. Yet we owe people for that cash. This makes it a liability.

Assets	Liabilities and Net Worth
Cash 250,000	Owners' Equity 250,000

We will now build a \$220,000 building and buy \$30,000 in equipment. These are assets. Remember we must balance – \$250,000 in cash becomes building and fixtures but remains an asset.

Assets	Liabilities and Net Worth
Building and Fixtures 250,000	Owners' Equity 250,000

As a bank we will make loans and accept deposits. Let's start by taking in \$100,000 in deposits.

Why is the \$100,000 added to both sides of our balance sheet?

Assets		Liabilities and Net Worth	
Building and Fixtures	250,000	Owners' Equity	250,000
Cash	100,000	Demand Deposits	100,000

In doing this the makeup of M1 has changed. Currency is down by \$100,000 and Demand Deposits are up by \$100,000.

By definition of M1 the money held by banks is not included in demand deposits. This avoids double counting of money. Only when the people get the money back from the bank is the money counted.

By law we are required to keep a legal reserve (reserve). These reserves are based on a specified percentage (reserve ratio) set by the Federal Reserve.

Federal Reserve (Fed) –

Reserves are calculated as a percentage of Demand Deposits.

For example, if the reserve ratio is 20% and we have \$100,000 in demand deposits we have to keep \$20,000 as reserves.

$$\text{Ex: } 20\% = 20,000/100,000$$

From here on we will assume a rate of 20%. This means that the bank must keep back 20% of their deposits (mandated by the government).

The amount by which the banks actual reserves exceed its required reserves is called excess reserves.

$$\text{actual reserves} - \text{required reserves} = \text{excess reserves}$$

$$100,000 - 20,000 = 80,000$$

Assume a reserve ratio of 20% and calculate the Required Reserves and Excess Reserves for the following demand deposits.

Demand Deposits	Required Reserves	Excess Reserves
\$150,000	\$	\$
\$200,000	\$	\$
\$250,000	\$	\$
\$300,000	\$	\$

Assets		Liabilities and Net Worth	
Building and Fixtures	250,000	Owners' Equity	250,000
Required Reserves	20,000	Demand Deposits	100,000
Excess Reserves	80,000		

**** It is very important that you understand this concept. You must be able to compute all of these numbers. It is the excess reserves that allow a bank to create money. ****

This is called the Fractional Reserve Banking System.

Fractional Reserve Banking System:

The required reserves are not there for the banks to draw on if a run occurs. Instead the required reserves are there so that the Fed can control the amount of money the bank lends.

What does the individual bank do with their required reserves?

Let's look and see what happens if one of our banks customers writes a \$50,000 check to an individual at another bank.

This check will go through *the other bank*. *The other bank* will credit the account of the person that our customer paid.

The other bank will now send the check to the Fed (this actually happens electronically now). The Fed will take this check and increase *the other bank's* reserves by \$50,000.

The Fed will then take \$50,000 out of our reserves. The check will then be sent to us. We will then take the money out of our customer's account thus reducing our demand deposit by \$50,000 and reduce our excess reserves by the \$50,000.

Assets		Liabilities and Net Worth	
Building and Fixtures	250,000	Owners' Equity	250,000
Required Reserves	20,000	Demand Deposits	50,000
Excess Reserves	30,000		

Since the Demand Deposits at our bank are now \$50,000 lower, what happens to our Required Reserves?

The new balance sheet looks like this:

Assets		Liabilities and Net Worth	
Building and Fixtures	250,000	Owners' Equity	250,000
Required Reserves	10,000	Demand Deposits	50,000
Excess Reserves	40,000		

*** A check drawn against a bank and deposited in another bank means a loss in both reserves and demand deposits. This also works in the opposite.

***Required reserve/excess reserve/demand deposits homework.**

Assume we want to make a loan equal to \$50,000. We have to check to see if we have the excess reserves to do so. In this case, we do not so we cannot loan that much.

The bank could not have loaned more than the \$40,000. Any one bank can only loan an amount equal to the excess reserves. A single commercial bank in a multi-bank system can only lend an amount equal to its initial pre-loan excess reserves.

What happens if we want to loan \$10,000 to one of our customers? Our bank will loan \$10,000 and put it in our customer's account. Notice the change in both the Assets and Liabilities/Net Worth sides of our balance sheet.

Assets		Liabilities and Net Worth	
Building and Fixtures	250,000	Owners' Equity	250,000
Required Reserves	10,000	Demand Deposits	60,000
Excess Reserves	40,000		
Loans	10,000		

**** When the bank loaned the money it has created \$10,000 dollars of new money. The demand deposits are considered money. ****

What happens when the \$10,000 is paid by check to someone else? After the check clears the Fed our account will look like this.

Assets		Liabilities and Net Worth	
Building and Fixtures	250,000	Owners' Equity	250,000
Required Reserves	10,000	Demand Deposits	50,000
Excess Reserves	30,000		
Loans	10,000		

What happens when the loan is repaid by check? Assume a lump sum payment with no interest.

Assets		Liabilities and Net Worth	
Building and Fixtures	250,000	Owners' Equity	250,000
Required Reserves	10,000	Demand Deposits	40,000
Excess Reserves	30,000		
Loans	0		

We now have a situation where money has been destroyed.

And brains now explode.



If he had paid in cash money is still destroyed because cash held by banks is not considered money.

If banks find their reserves to be low they can borrow from other banks reserves (the Federal funds market). This is temporary situation (overnight) and interest must be paid equal to the Federal funds rate.

Unit Four, Day Four (pages 932-955)

Multiple-Deposit Expansion

If one person deposits 100 in currency and another takes out a loan for 500 the money supply only increases by 400 because the original 100 was already M1 money.

We know that each individual bank can only loan money equal to its excess reserves. This means it can only create money equal to its excess reserves.

Yet when we combine all the banks we will see that they can create an amount in excess of their combined reserves.

- 1) assume that the reserve ratio is 20%.
- 2) assume each bank exactly meets the reserve ratio (*ceteris paribus* from here on out).
- 3) assume all loans are made to one individual and that check is deposited in another bank.

No money is kept out. It is all left in the bank.

Start with 100 found by someone. They deposit it in bank A.

Deposit	Loans (Money Created)
100	80
80	64
64	51.20
51.20	40.96
40.96	32.77
32.77	26.21
.	.
.	.
.	.
Total is \$500	Total is \$400

We find that the initial 80 dollars in reserves produced 400 dollars in new money. That is a multiple of 5.

Remember the Keynesian Multiplier: $1/1-MPC$ (also $1/MPS$).

Money Multiplier (m) = 1/ Required Reserve Ration (R)

$m = 1/R$ tells us the amount of **new money generated** by the acquisition of new reserves. (NOT NEW DEPOSITS)

In this case $m = 1/.20 = 5$

We can now calculate the Maximum demand-deposit expansion (D)

$D = \text{excess reserves (E)} \times \text{monetary multiplier (m)}$

$D = E \times m$

$400 = 80 \times 5$ (NOT $5 \times 100 = 500$ because **500 is the total expansion to the money supply not the expansion to demand deposits.**)

How much of the initial money will go to required reserves? (.20) How much to Excess Reserves? (.80)

There are three possible leakages or reasons the demand deposits may not completely reach the maximum demand deposit expansion.

Leakages:

- 1) **Currency Drain:** borrower may request part of payment in cash. Currency in circulation is outside the banking system and cannot be held by banks as reserves from which to make loans. The greater the amount of cash leakage, the smaller is the actual deposit expansion multiplier.

Currency Drain:

- 2) **Excess Reserves:** Since depository institutions keep some excess reserves, deposits do not increase as much as they could. The greater the excess reserves, the smaller the actual deposit expansion multiplier. If a bank does hold money in excess, you just add the percentage to R. This will get the new multiplier.

Excess Reserves:

- 3) **Real World Money Multipliers:** Because of leakages, actual deposit multipliers are smaller than the maximum possible. The reserve requirement on transactions deposits is currently around 10 percent implying a potential deposit expansion multiplier of about 10. The actual M1 multiplier is between 2.5 and 3.0. The actual M2 multiplier has ranged from 6.5 in the 1960's to over 12 in the 1990's.

Real World Money Multipliers:

The U.S. Financial System:

(The next page will not be lectured over! Students need to read this section outside of class!)

Due to the importance of controlling the money supply our banking system is regulated. You can not just go out and create a bank.

Board of Governors: seven members appointed by the President and confirmed by the senate. They are in term for 14 years. A new one is appointed every two years.

They control the operation of the money and banking system of the nation.

Federal Open Market Committee: part of the Board of Governors. It is made up of seven members of the Board plus five of the presidents of the Federal Reserve Banks.

They are in charge of the purchase and sale of government bonds in the open market. This is an important monetary control. It will be discussed later.

Federal Advisory Council: also part of the Board of Governors. It has 12 commercial bankers. They are each selected by one of the local Federal Reserve Banks.

They are advisory to the Board. They hold no power.

There are 12 Federal Reserve Banks in the nation. They have three characteristics.

1) Central Banks: We have 12 Central Banks. This balances out the size of the nation and the political problems (some want it to be totally decentralized, Jefferson, and some want it to be totally centralized, Hamilton.)

2) Quasi-Public Banks: These banks are like being partly government owned and part privately owned. Member banks are required to buy stock in the Fed. Reserve banks. This gives them part ownership. Even though the banks own the Fed Reserve Banks they have no control over them.

The Fed. Reserve Banks have no profit motive. Their only role is to provide for the well-being of the economy. Generally, these are labeled “Credit Unions”, instead of banks.

3) Bankers Banks: They perform banking functions for their member banks. They accept deposits and make loans to the member banks. In addition to this they issue currency.

Commercial Banks: state banks (operated under a state charter) and national banks (operate under charter from the Federal government).

Thrift Institutions: They are not regulated directly by the Fed. Yet they still must maintain a reserve with the Fed and they can still get loans from the Fed.

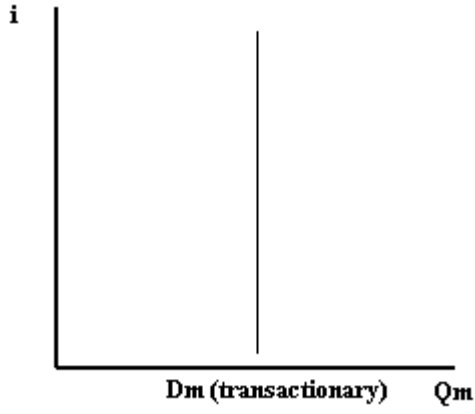
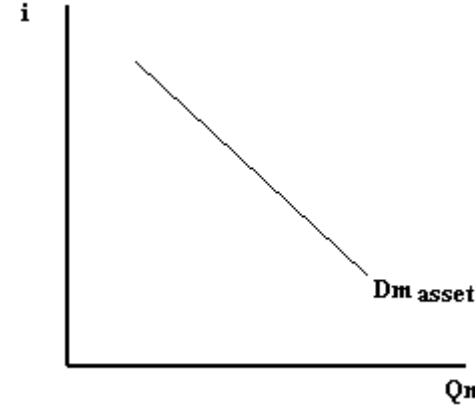
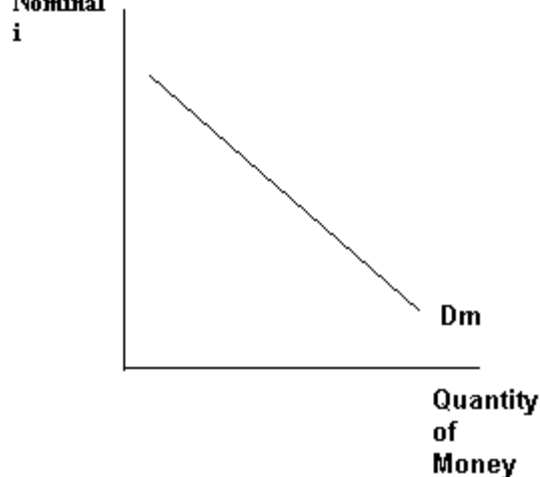
Functions of the Federal Reserve System (Fed)

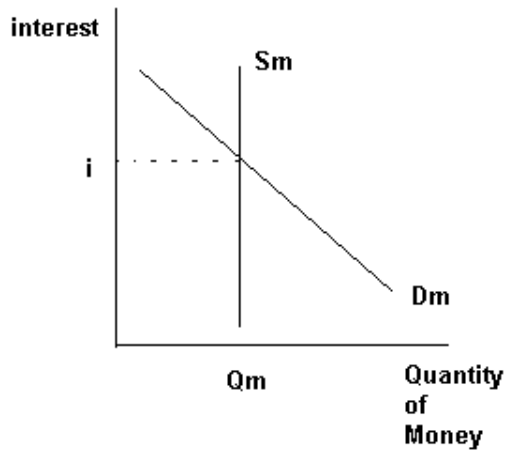
- 1) Supplies the Economy with Fiduciary Currency: The fed issues paper currency in the form of Federal Reserve notes
- 2) Provides a system for check collection and clearing: It provides means by which a check written on an account at one bank and deposited in another bank can be cleared
- 3) Holds Depository Institution Reserves: Vault cash and deposits at the Federal Reserve Banks
- 4) Acts as the Government’s Fiscal Agent: The Fed maintains the U.S. Treasury’s checking account. The Fed also helps the government collect tax revenues and aids in the purchase and sale of government securities.
- 5) Supervises Member Banks: The Fed is one of the regulators of member banks.
- 6) Acts as a “Lender of Last Resort”: The Fed stands ready to “bail out” any part of a banking system that is in trouble and those depository institutions it has decided should not fail.
- 7) Regulates the Money Supply: The Fed’s most important function is to control the amount of money in the economy.

(The previous page will not be lectured over! Students need to read this section outside of class!)

Unit Four, Day Five (Pages 956-971)

Demand for money

	<p>Dt: transaction demand: we need money to make day to day purchases (transactions). The larger the nominal GDP (total value of G & S in the economy) the larger the Dt. For simplification purposes we must assume that Dt is independent of interest rates. Therefore, the Dt is a vertical line.</p>
	<p>Da: asset demand: When money is not being held it can be put into interest earning accounts. The money that is held is Da. Notice the Da is inversely related to interest rates. When the interest rates increase the opportunity cost of holding money is too great so people will put their money in investments.</p> <p>i is nominal not real</p>
	<p>$D_m = D_t + D_a$</p>



When you add in the vertical supply of money to the Dm you can get equilibrium. (Sm is vertical because the supply should be constant, provided a stable government, at specific interest rates.)

ON THIS GRAPH THE INTEREST RATE WE ARE DEALING WITH IS NOMINAL INTEREST RATE NOT REAL.

Unit Four, Day Six (Pages 956-971)

Tools of Monetary Policy

Monetary Policy: goal is to assist the economy in achieving a full-employment, non inflationary level of total output.

This means using the money supply to stabilize aggregate output, employment and price level.

Three major instruments of monetary policy (we will discuss each one individually).

1. Open Market Operations (most important/widely used)
2. The Reserve Requirement
3. The Discount Rate

1) Open Market Operations: This is the *buying* and *selling* of securities/bonds. This is the most important control of the Fed. When the Fed buys bonds/securities they are *putting money into the money supply that did not exist before* (money supply increases by initial injection + money created by banking system).

Fed buys securities/bonds from banks

When the Fed buys securities from banks it directly increases the reserves of the commercial banks.

Fed buys securities/bonds from individuals

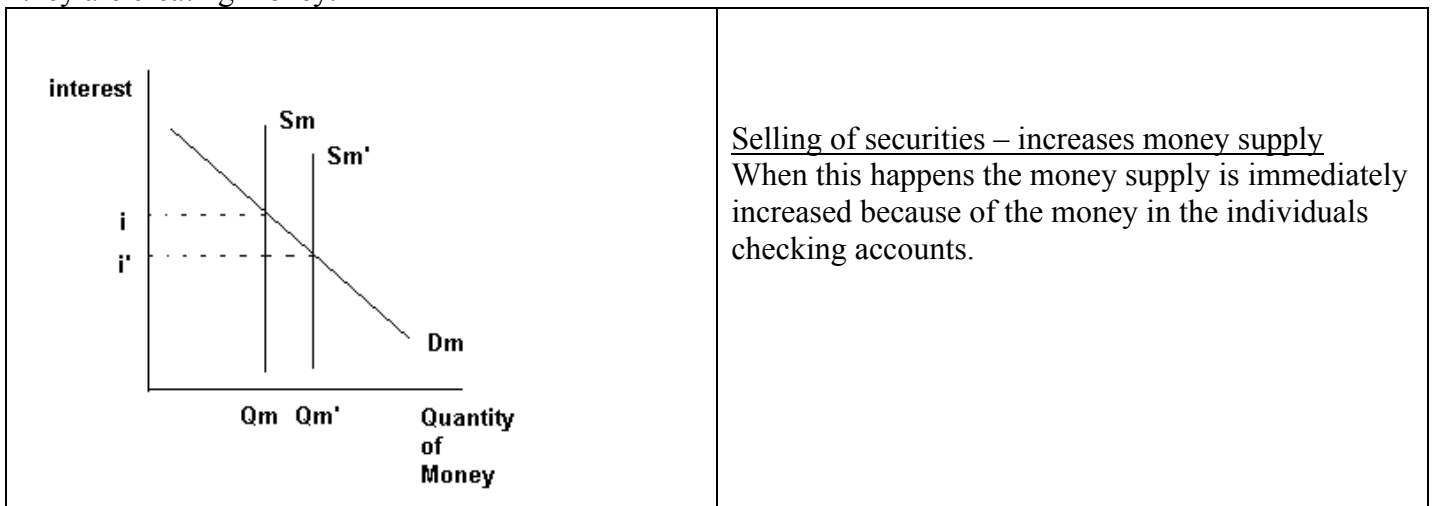
If they buy from individuals, the individuals end up putting the money in their banks which increases the bank reserves.

Fed buys securities/bonds directly from the government

In so doing they inject capital directly into the US Government budget which gets spent somewhere.

*** This will increase the lending ability of the member banks. ***

When banks purchase securities from the government it is just like making a loan to them. In doing so they are creating money.



One advantage of the purchase of securities from the banks is that it increases the excess reserves of the commercial banks. This is not the case when they purchase from individuals. For purchases from the individual Reserves increase but they have to take out the 20% (reserve ratio).

Either way the increase in the money supply will be the same amount.

When the Fed sells securities: the opposite occurs. Bank reserves are reduced.

	<p><u>Buying of securities – decreases money supply</u> When this happens the money supply is immediately decreased because of the money leaving the individuals checking accounts.</p>
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It is through open market operations that the Federal Reserve adjusts the Federal Funds Rate.

Why would people buy or sell bonds? They do it because of the profits they can make from the interest.

How do securities/bonds work...

Bonds:

Bonds are a fixed maturity investment that pays a fixed dividend each period. The investor will then get back his original investment unless the company goes out of business.

The lower the price of a bond the higher the yield (interest earned).

\$50 interest payment on a \$1000 bond = $50/1000 = 5\%$ yield

\$50 interest payment on a \$800 bond = $50/800 = 6.25\%$ yield.

If the S_m decreases people must sell bonds to get cash. When they sell bonds the price drops and the yield goes up. Competition in the market place will then cause interest rates to go up.

In general, the lower the price of the bond the higher the interest rate and vice versa.

If we have a \$1000 bond that pays 50/year in interest the yield equals $50/1000$ or 5%

If the price of the bond fell to \$667 the yield would increase

$50/667 = 7.5\%$

As the interest rate on bonds increase. This means the opportunity cost of holding money will increase and people will be willing to buy.

2) The Reserve Requirement:

The Fed influences the banks ability to lend through the reserve ratio.

If the fed increases the reserve requirement they take away part of the banks excess reserves. This takes away the banks ability to create money.

In some cases, banks have to cut down on checking accounts in order to meet the reserve requirement.

Banks may also call in outstanding loans or sell securities to put money into reserves.

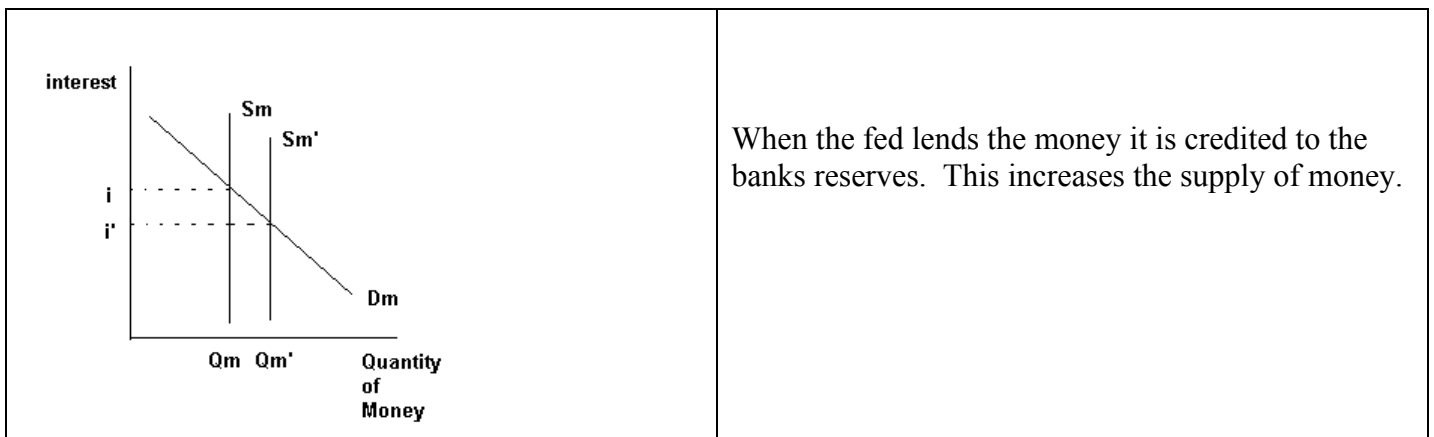
Changing the reserve requirement does two things:

- 1) It affects the size of excess reserves -
- 2) It changes the size of the multiplier -

Reserve requirements are changed infrequently.

3) The Discount Rate:

The Fed loans money to banks if they are in need of money. The rate of interest that they charge is the discount rate.



Banks usually borrow very little. However, if the rate is low enough they will borrow more because they can then turn around and lend it out.

The problem is that the Fed really has no say so in if the banks will borrow. This tends to make this very inefficient.

If the economy is faced with unemployment and deflation the Fed can increase the supply of money. To do this they have three possibilities. (These are called **Easy Money Policies**)

- 1) Buy securities:
- 2) Reduce the Reserve Ratio:
- 3) Lower the Discount Rate:

If the economy is faced with excess production and inflation the fed can decrease the supply of money. To do this they have three possibilities. (These are called **Tight Money Policies**)

- 1) Sell Securities:
- 2) Increase the Reserve Ration:
- 3) Raise the Discount Rate:

If the FED tells the banks to do something they do it. They can influence the money supply using this tactic.

The FOMC (Federal Open Market Committee) is more than just Yellen. There are 6 governors that vote.

The Fed is charged with the task of keeping stable prices, low inflation and a stable dollar. They must testify before congress every 6 months based on the Humphrey Hawkins Act.

The discount rate is actually determined by a bank by bank basis. If Atlanta wants to change its rate then it submits it to the board of governors who then approve or disapprove.

The Desk: Every morning at 9:15 a call is made to Member board of Governors. A president and The Desk then make a decision on how to act or implement the latest FOMC policy.

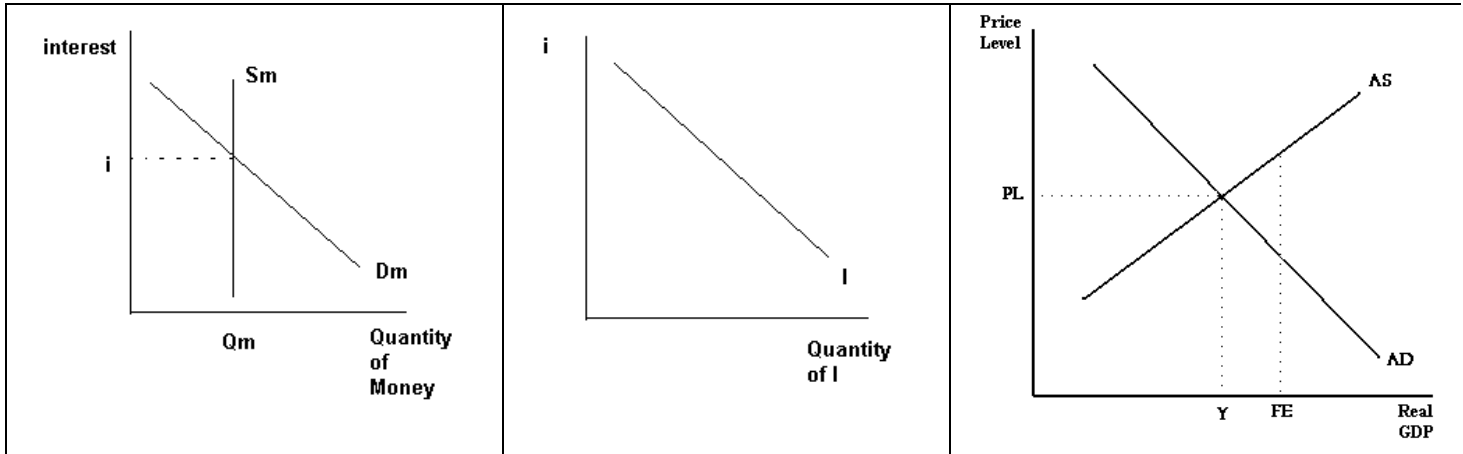
Crazy things affect the Fed. They (and generally economists) worry about things like...

1. The weather: Bad weather can cause money to not flow into a region.
2. Time of the month: Social security checks enter the market at the beginning of the month.
3. Christmas
- 4.

Unit Four, Day Seven (Pages 956-971)

Things to remember -

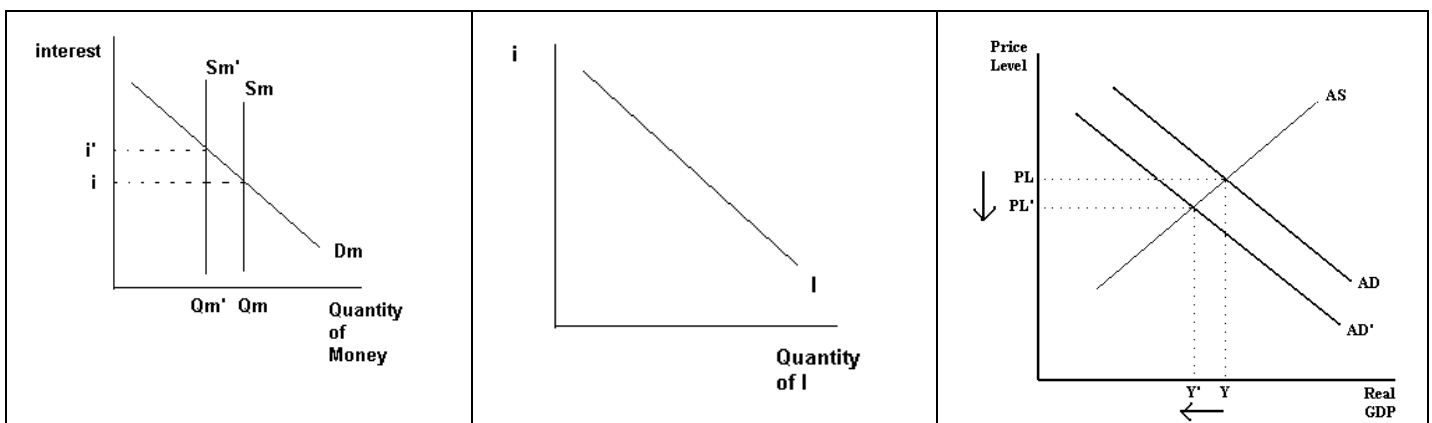
- 1) transactionary demand is a vertical line and that it directly affects GDP.
- 2) asset demand: is inversely related to interest rates. The higher the interest rate the greater the opportunity cost of holding money. This means people will not hold the money as an asset.



Next we see an investment demand curve. We know that investment is directly related to interest rates. A business will not undertake a new project if the interest rates are very high. Furthermore, if the interest rates are low they are more likely to take on a new project. (The lower the interest rate the less the return needed in order to make money.)

The interest rates decrease you will have an increase in the Investment demand and you will have an increase in the Consumption demand. (People buy more cars and houses... at lower interest rates.)

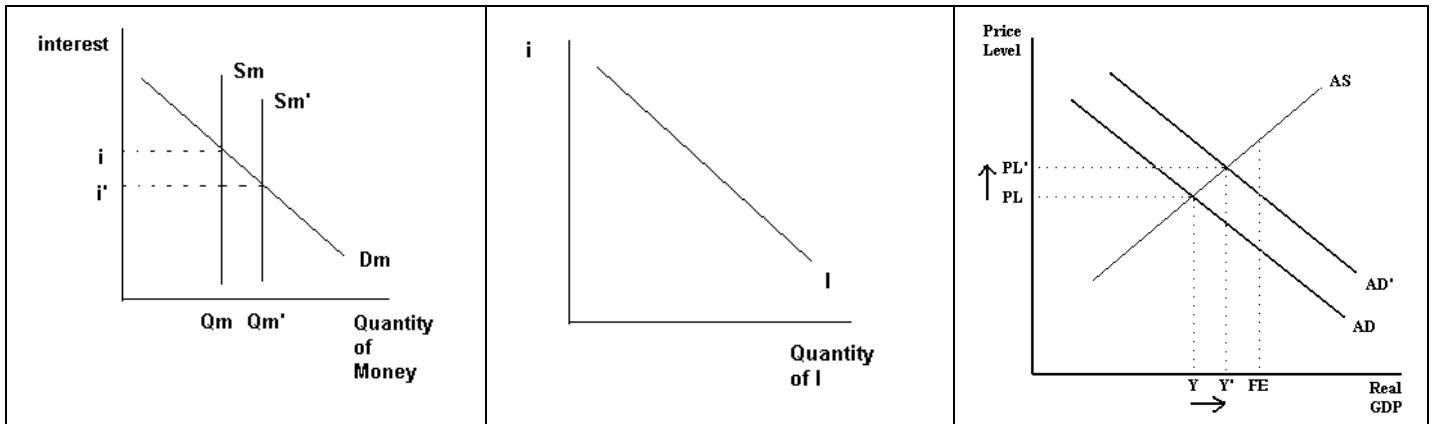
What would happen if the S_m decreases? Tight Monetary Policy
(i increases, I decreases and GDP decreases)



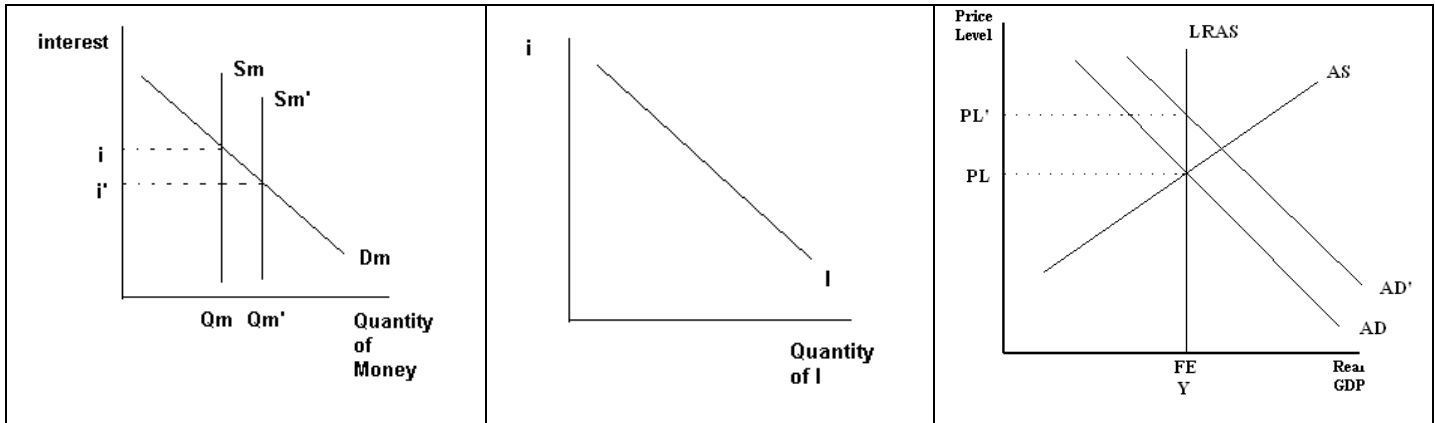
When playing with this you have to remember that the effects seen all depend on the slopes of the D_m and the I curves.

Furthermore, the D_m (transactionary) depends on the GDP. If GDP is high this means that people need more money. This is because the price level is high so people need to hold more money to make day to day purchases.

What happens if The Fed imposes expansionary monetary policy?



When i decreases and I increases we have a shift in the AD curve equal to the change in I . Depending where you are on the AS curve has an effect on how this will affect GDP. If you are at full employment and you increase the money supply all you will do is raise prices.



Unit Four, Day Eight (Pages 956-971)

Value of a dollar = $1/\text{price level}$ (index based on set year)

The price level is a reciprocal relationship that exists between the general price level and the value of the dollar. As inflation goes up the dollar becomes worth less.

If the Fed got sloppy and allowed too much money into the economy, inflation would result. This would mean the dollar would be worth less. If an excess amount of money got out into the economy the value of money would collapse. Money is nothing more than our belief that the government will maintain its value.

Nominal Interest rates are the stated rates. Real Interest rates are adjusted for inflation.

Real Interest Rate = Nominal interest – inflation rate

Nominal Interest Rate = Real Interest Rate + Inflation

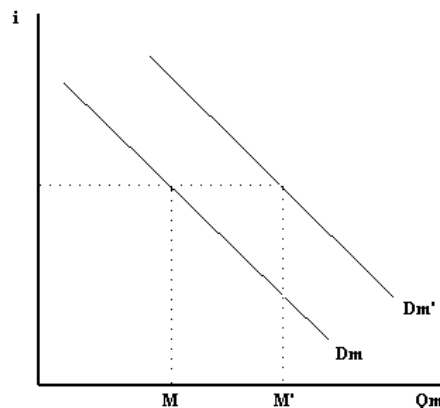
Fisher Effect: When the Fed increases the rate of money growth, the result is both a higher inflation rate and a higher nominal interest rate. **When prices rise interest rates rise.** This one for one adjustment of the nominal interest rate to the inflation rate is called the Fisher Effect. It does not hold true in the short run because unanticipated inflation catches lenders and borrowers by surprise. However, in the long run the adjustment is made and the Fisher Effect holds true.

Fisher Effect:

Change in the Demand for Money:

Like all demand curves, they can shift. The following are things that change of the demand for money:

1. Changes in Price Level. If things become more expensive, people demand more money. In fact, if price level increases by 10% the D_m will shift to 10% to the right. This makes sense because people need that much more money to buy products.



An increase in PL of 10% leads to an increase of D_m of 10%. This is represented by distance from M to M'.

2. Changes in GDP: Since people hold money to purchase goods, when GDP increases the D_m increases.
3. Increase in income of population. People spend more money when they have more money. As incomes increase the demand for money increases because people want to hold more money.

Three things affect Net Exports (we discussed these later and said that we would come back to relative interest rates)

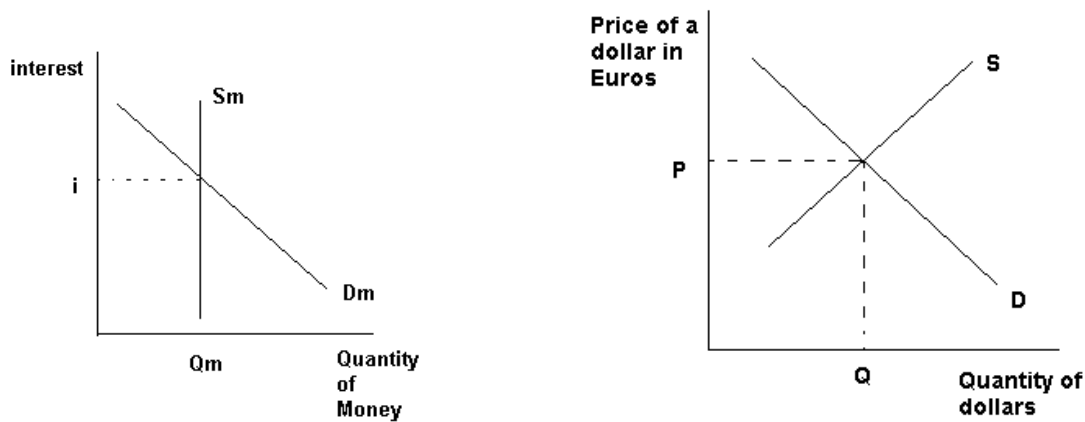
1. Relative Price Level:

PL increase X decrease M increase X_n decrease

2. exchange rate:

Dollar Appreciates X decreases M increases X_n decreases

3. Relative interest rates:



Increase in demand from money in money market drives up interest rates. The increase in demand for American money because of the higher interest rates (relative to the rest of the world) means the dollar will strengthen.

Expansionary Fiscal Policy will drive up interest rates making our investments desirable for foreign countries. They will demand more of our dollars which will drive up the price of our dollars. This means we will now export less.

Expansionary Monetary Policy will drive down interest rates making our economy less attractive for foreign investment. This makes the demand for our dollars less. This will drive down the price of the dollar causing us to export more.

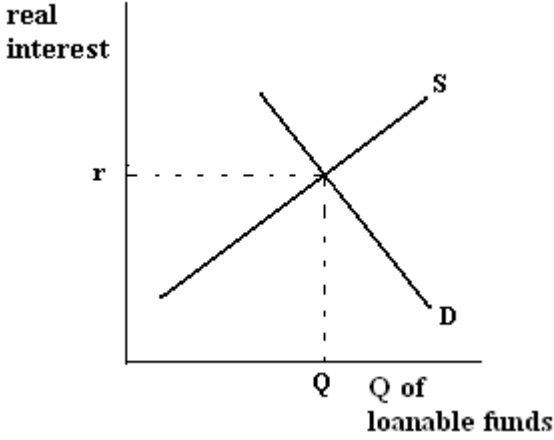
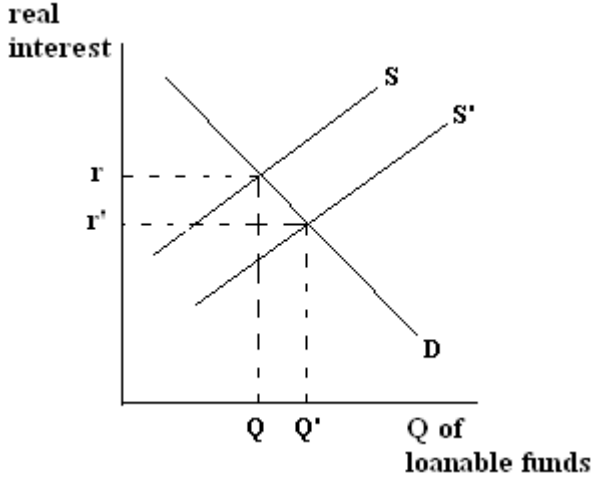
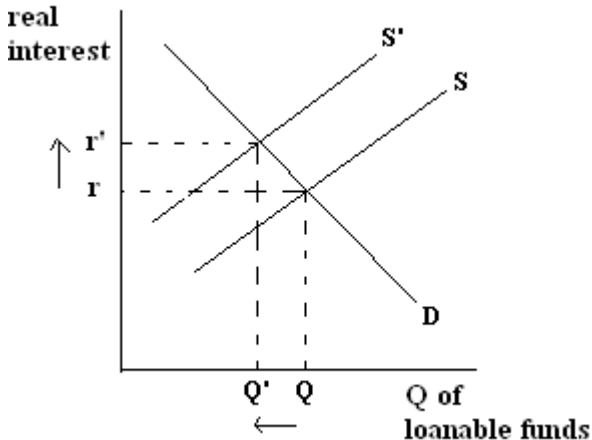
In general, if the S_m should decrease there will be a shortage of money. This means people will sell the investments (bonds) they have to get money.

When these bonds are sold before maturity they interest rate is driven up. Yield = dollar interest rate/price. When the price drops the yield increases.

When interest rates are driven up people are more willing to hold money and therefore $S_m = D_m$

In period of prosperity people will start spending more money. This in itself causes the savings accounts to diminish and can lead to even more inflation.

Loanable funds market

	<p>S_{lf} comes from people who have extra income they want to save and lend out.</p> <p>D_{lf} comes from households and firms that wish to borrow to make investments.</p> <p>Real i because the assumption is that people borrow to purchase capital goods so the returns are real.</p> <p>G can be either S_{lf} or D_{lf}. You will get the same answer for changes in i either way.</p>
	<p>A decrease in taxes will entice people to save more money. This will shift the S curve to the right. This drives down interest rates.</p>
	<p>One advantage of putting the government as S is that when they run a budget deficit they are pulling money out of the economy. The change in the Q is the actual amount crowded out.</p>

Understand that the loanable funds market is where business go to get money in order to finance capital growth.

Money Market or Loanable Funds Market: What's the Difference?

Money Market:

1. Short term.
2. Money Supply controlled by Fed (perfectly inelastic).
3. Interest rates are nominal.
4. Demand for money affected by economy.

Loanable Funds Market

1. Long term
2. Quantity supplied of loanable funds affected by real interest rate.
3. Interest rates are real.
4. Supply and Demand for loanable funds affected by economy:
 - a. Households save more or less
 - b. Fed monetary policy
 - c. Demand for money

Unit Four, Day Nine (pages 944-1017)

Fixed Exchange Rate: when a government artificially fixes the exchange rate.

Free Floating Exchange Rates: This is all determined by Supply and Demand of that foreign money (this is what we've worked with thus far).

Managed (dirty float) exchange rates: when countries buy and sell currency to attempt to control exchange rate.

In a free floating exchange rate scenario –

Demand is downwardly sloping because as the price decreases the cost of foreign goods is decreased. This means we will demand more of that money.

Supply curve is upward sloping because as the price of the USD in terms of Euros (for example) falls the French will be more willing to buy our goods.

When the dollar value goes from \$1 for 1 Euro to \$2 dollars for one Euro the value of the dollar has depreciated. It means it takes more dollars to buy one Euro. (Notice that the Euro has appreciated).

A strong dollar is one that exchanges for large amounts of foreign currency.

Importers want strong dollars while exporters want weak dollars.

Example:

Year One: \$1 = four Euros

Year Two: \$1 = five Euros

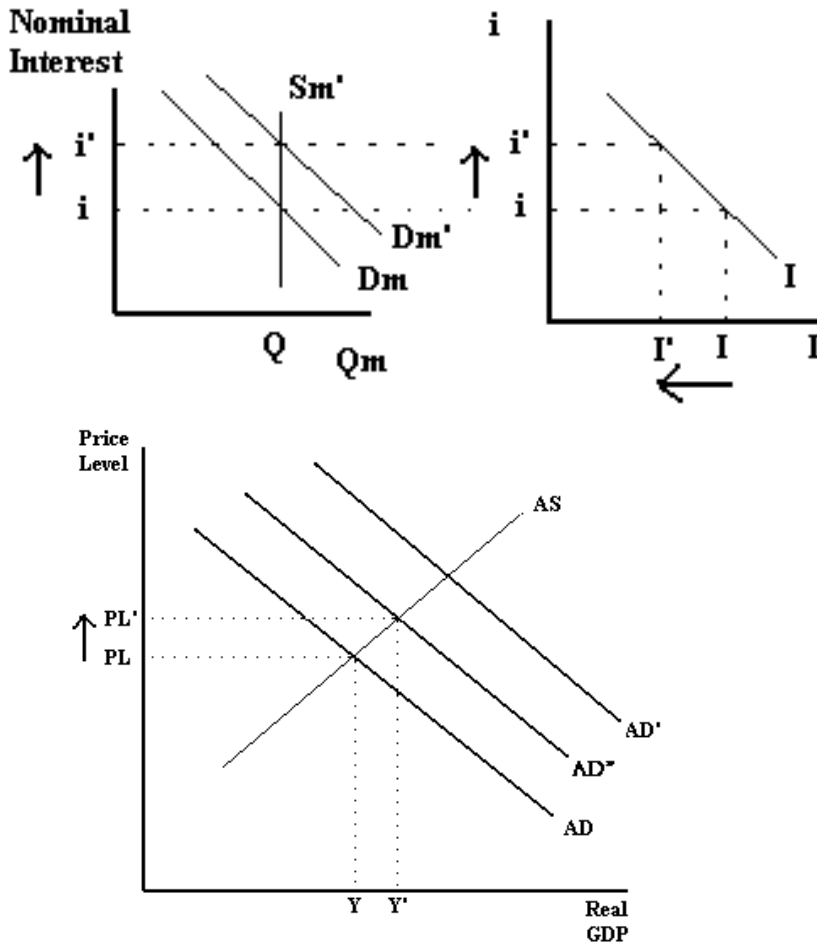
- a. has the dollar appreciated or depreciated.
- b. has the Euro appreciated or depreciated?
- c. What is the price of one Euro in year one?
- d. What is the price of one Euro in Year two?
- e. If a good was made for \$1 in Year One, what would it sell for in Europe?
- f. If a good was made for \$1 in year Two, what would it sell for in Europe?
- g. If the French made a good for four Euros in year one, what would it sell for in the US?
- h. How would the depreciation of the French Euro affect French exports and imports?

Crowding Out Effect

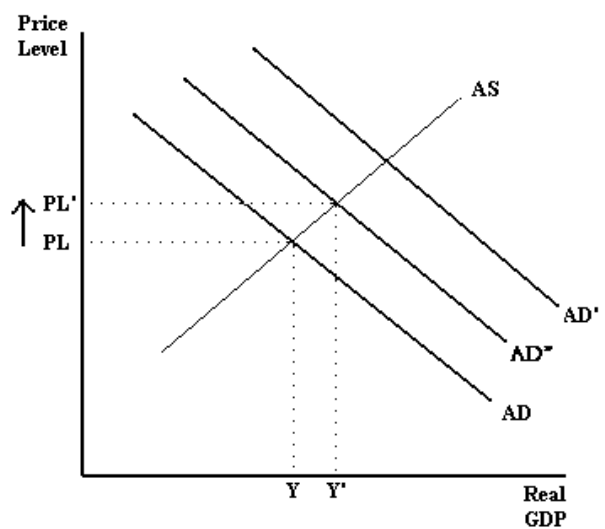
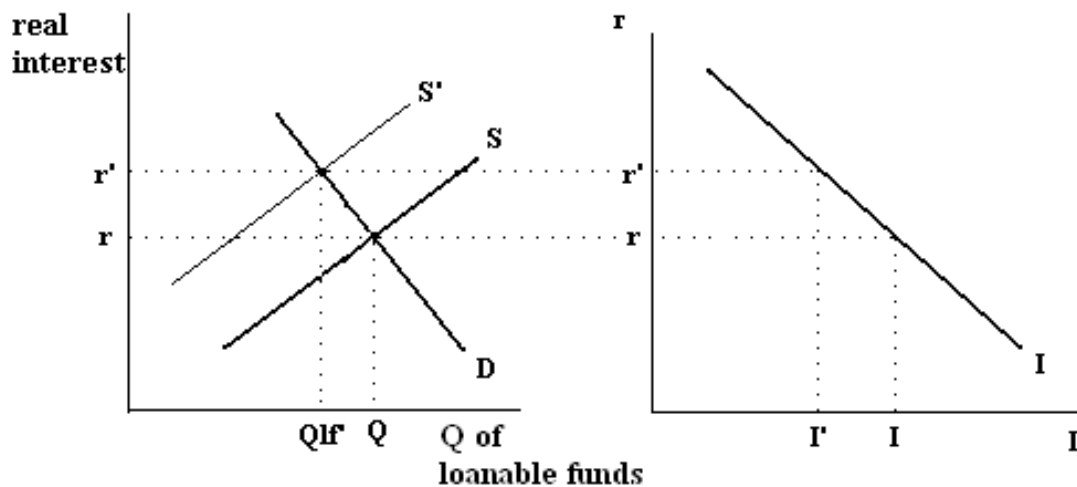
One problem we encounter in Fiscal policy is the crowding out effect. If the economy is in a recession and the government decides to expand the economy what do they do?

AD increases this will in turn increase output. The problem is that it will also increase the interest rates because there is an increase in demand for money. This increase in interest rates will then drive out investment spending.

There are several ways to show this!

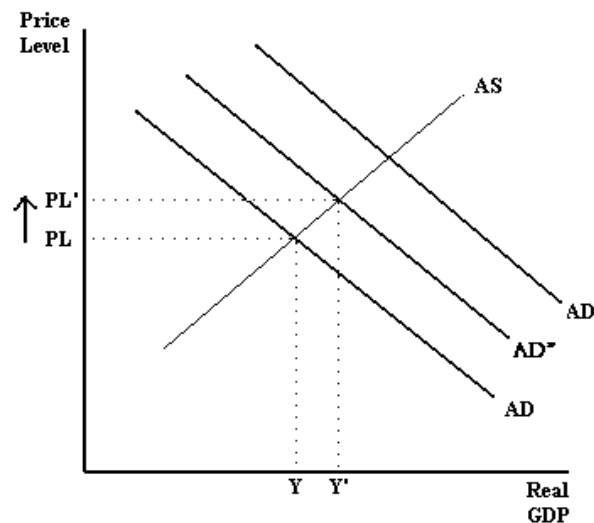
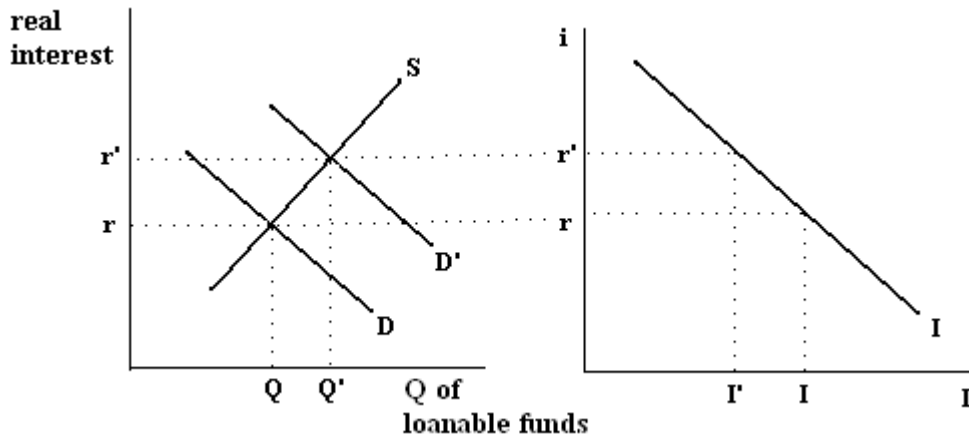


In the above example, the government entered the money market and increased the Demand for money. This drove up interest rates. The initial fiscal policy pushed AD from AD to AD'. However, since the interest rates were driven up by the government borrowing some Investment was crowded out of the economy. That means AD actually only increases to AD''.



Here you have another way of showing the crowding out effect. You are using the loanable funds market. You get a decrease in S_m because the Government has entered the market and sucked the funds out of the market. This drives up interest rates, decreases I and hence causes AD to not shift out as far as the original fiscal policy measure would have wanted it to.

Since the Government is just another player in the loanable funds market, you can also show this effect from the demand side.



Here the Government entered the market and increased the Demand for loanable funds. This drove up interest rates and crowded out investment.

When there is a change in anything that increases AD (for example G spending increases) this leads to an increase in the demand for money. This causes that curve to shift to the right and thereby raising interest rates and causing investment to be driven out... (Crowding out effect)

A secondary effect of this is that the increase in government spending increases aggregate demand which increases equilibrium incomes. This increase in incomes will increase the demand for money which will increase interest rates.

Unit Four, Day Ten (Pages 956-971)

Strengths of the Monetary Policy:

- 1) Speed and flexibility over the fiscal policy. It could be done on a daily basis if need be.
- 2) Isolation from political pressure. Monetary policy not controlled by elected officials directly.

Shortcomings and problems:

- 1) Cyclical Asymmetry:

Easy money does not mean that banks will loan or that people will borrow.

People may use the excess money to pay off loans.

- 2) Changes in V:

Velocity can sometimes go the opposite direction. If M increases, V may actually decrease. This will of course affect total spending.

If i decreases people will hold M for asset demand. This affects V.

- 3) Money demand is interest elastic. (It depends on the elasticity of the D_m curve)

- 4) Investment is interest elastic. (It depends on the elasticity of the I curve)

- 5) Inflow of international capital from the increase in interest rates leads to an expansion of AD.

What should the fed target?

i : If i is fluctuating this will affect the economy. If the economy is doing well and GDP is increasing, the interest rates will also be increasing. The way to decrease interest rates is to increase the money supply. This however, could lead to inflation.

M: If the economy is taking off and interest rates are increasing the only way to slow down the economy is to cut back on the money supply. If they cut back on the money supply the interest rates increase further.

Monetary and Keynesian theory are related. When you take the two in combination it gets complicated.

Ex. If GDP is \$25 billion short and the multiplier is 5 the government could increase purchases by only \$5 billion. This however will cause interest rates to increase. As the economy picks up the transaction demand for money will increase. This will then crowd out some investment spending. This will keep some of the companies from increasing and therefore have an effect on the true multiplier. The only way to stop this from happening is to increase the money supply.