

Unit 4:

Money and Monetary Policy

Why do we use money?

What would happen if we didn't have money?

The Barter System: goods and services are traded directly. There is no money exchanged.

Problems:

- 1. Before trade could occur, each trader had to have something the other wanted.**
- 2. Some goods cannot be split. If 1 goat is worth five chickens, how do you exchange if you only want 1 chicken?**

Example: A heart surgeon might accept only certain goods but not others because he doesn't like broccoli. To get the surgery, a pineapple grower must find a broccoli farmer that likes pineapples.

What is Money?

Money is anything that is generally accepted in payment for goods and services

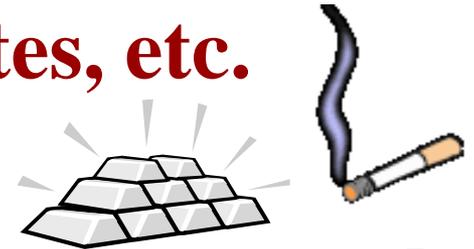
Money is NOT the same as wealth or income

Wealth is the total collection of assets that store value

Income is a flow of earnings per unit of time

Commodity Money- Something that performs the function of money and has alternative uses.

– **Examples: Gold, silver, cigarettes, etc.**



Fiat Money- Something that serves as money but has no other important uses.

– **Examples: Paper Money, Coins**



3 Functions of Money

1. A Medium of Exchange

- Money can easily be used to buy goods and services with no complications of barter system.

2. A Unit of Account

- Money measures the value of all goods and services. Money acts as a measurement of value.
- 1 goat = \$50 = 5 chickens OR 1 chicken = \$10

3. A Store of Value

- Money allows you to store purchasing power for the future.
- Money doesn't die or spoil.

3 Types of Money

Liquidity- ease with which an asset can be accessed and converted into cash (liquidized)

M1 (High Liquidity) - Coins, Currency, and Checkable deposits (personal and corporate checking accounts).

In general, this is the **MONEY SUPPLY**

M2 (Medium Liquidity) - M1 plus savings deposits (money market accounts), time deposits (CDs = certificates of deposit), and Mutual Funds below \$100K.

M3 (Low Liquidity) - M2 plus time deposits above \$100K.



Credit vs. Debt Cards

What is the difference between credit cards and debit cards?

Are credit cards money?

A credit card is NOT money. It is a short-term loan (usually with a higher than normal interest rate).

Ex: You buy a shirt with a credit card, VISA pays the store, you pay VISA the price of the shirt plus interest and fees.

Total credit cards in circulation in U.S: 576.4 million

Average number of credit cards per cardholders: 3.5

Average credit card debt per household : \$15,788



Personal Finance

Personal finance refers to the way individuals and families budget, save, and spend.

In a personal finance class you learn about checking and savings accounts, credit cards, loans, the stock market, retirement plans, and how to manage your assets

Assets- Anything of monetary value owned by a person or business.

Investment refers to business spending.

Personal investments refers to the asset management of individuals



Bonds vs. Stocks

Pretend you are going to start a lemonade stand. You need some money to get your stand started. **What do you do?**

- You ask your grandmother to lend you \$100 and write this down on a piece of paper: "I owe you (IOU) \$100, and I will pay you back in a year plus 5% interest."
- Your grandmother just bought a **bond**.

Bonds are loans, or IOUs, that represent debt that the government or a corporation must repay to an investor. The bond holder has NO OWNERSHIP of the company.

Ex: War Bonds During World War II

But, now you need more money...

- **To get more money, you sell half of your company for \$50 to your brother Tom.**
- **You put this transaction in writing: "Lemo will issue 100 shares of stock. Tom will buy 50 shares for \$50."**
- **Tom has just bought 50% of the business. He is allowed to make decisions and is entitled to a percent of the profits.**

Stockowners can earn a profit in two ways:

1. **Dividends**, which are portions of a corporation's profits, are paid out to stockholders.

The higher the corporate profit, the higher the dividend.

2. A **capital gain** is earned when a stockholder sells stock for more than he or she paid for it.

A stockholder that sells stock at a lower price than the purchase price suffers a **capital loss**.

What backs the money supply?

There is no gold standard. Money is just an I.O.U. from the government “for all debts, public and private.”

What makes money effective?

1. Generally Accepted - Buyers and sellers have confidence that it IS legal tender.
2. Scarce - Money must not be easily reproduced.
3. Portable and Dividable - Money must be easily transported and divided.

The **Purchasing Power** of money is the amount of goods and services an unit of money can buy.

Inflation (increases/decreases) purchasing power.
Rapid inflation (increases/decreases) acceptability.

The Demand for Money

At any given time, people demand a certain amount of liquid assets (money) for everyday purchases

The Demand for money shows an inverse relationship between nominal interest rates and the quantity of money demanded

1. What happens to the quantity demanded of money when interest rates increase?

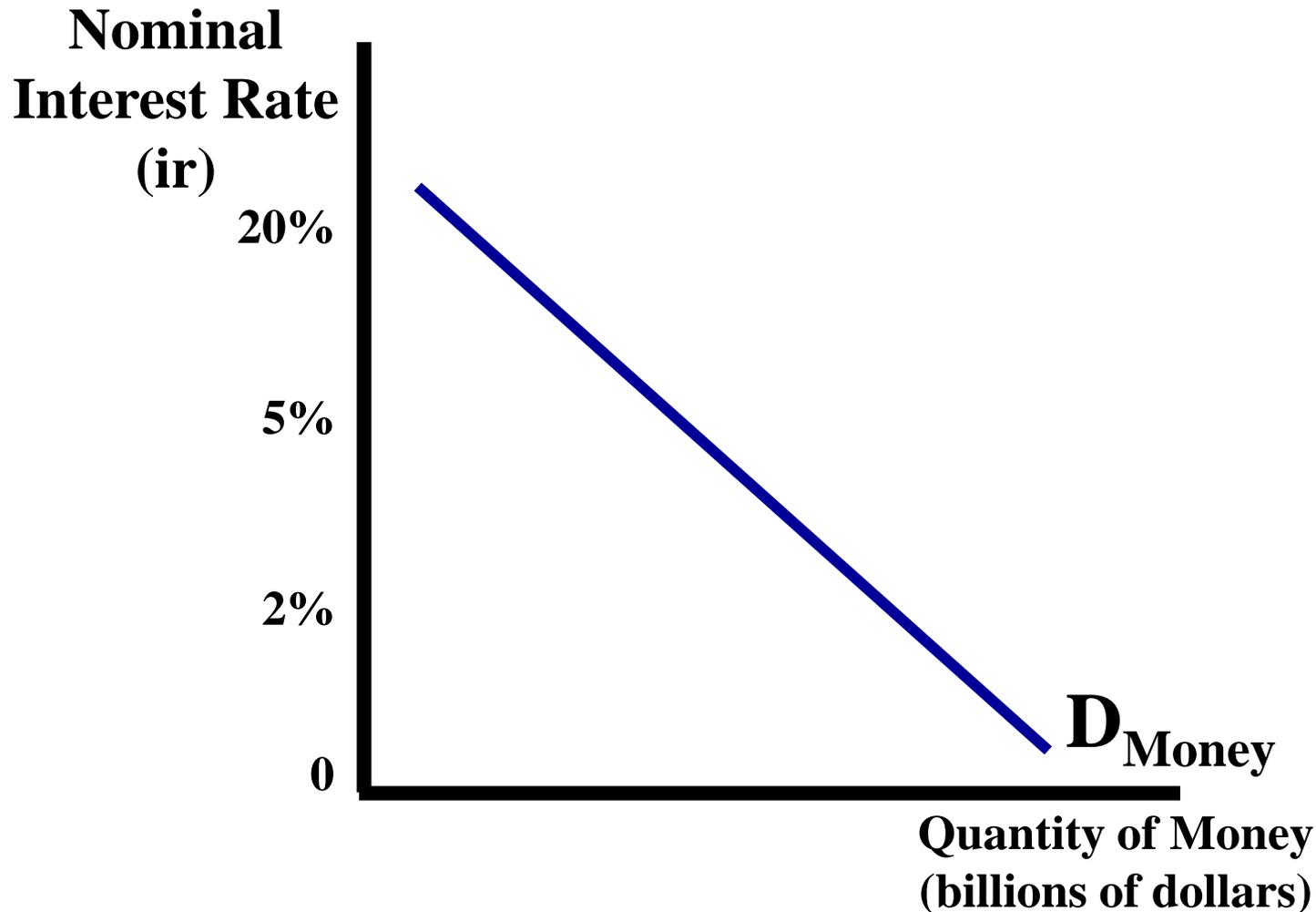
Quantity demanded falls because individuals would prefer to have interest earning assets instead

2. What happens to the quantity demanded when interest rates decrease?

Quantity demanded increases. There is no incentive to convert cash into interest earning assets

The Demand for Money

Inverse relationship between interest rates and the quantity of money demanded

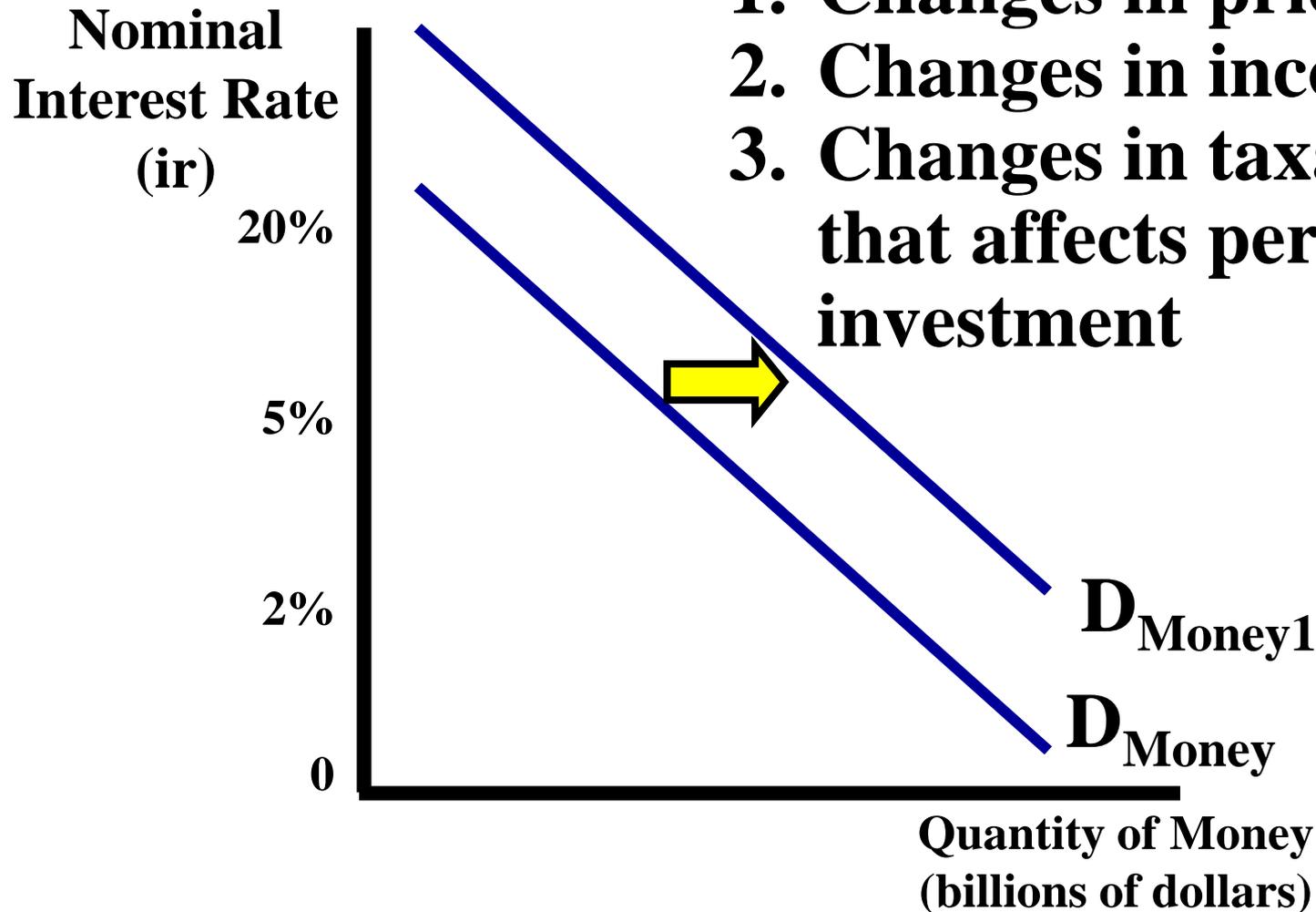


The Demand for Money

What happens if price level increase?

Money Demand Shifters

1. Changes in price level
2. Changes in income
3. Changes in taxation that affects personal investment



The Demand for Money

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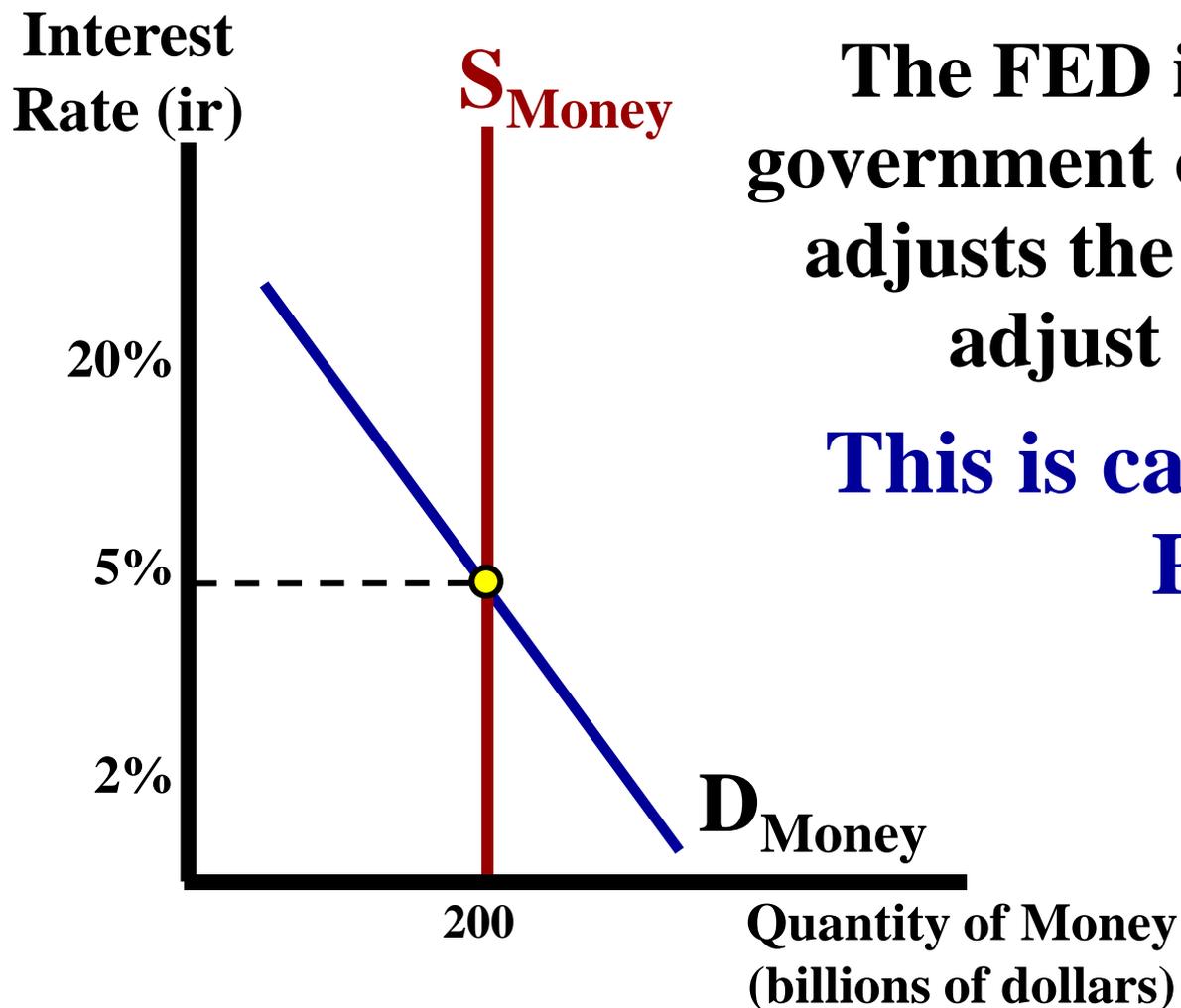
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The Supply for Money

The U.S. Money Supply is set by the Board of Governors of the Federal Reserve System (FED)



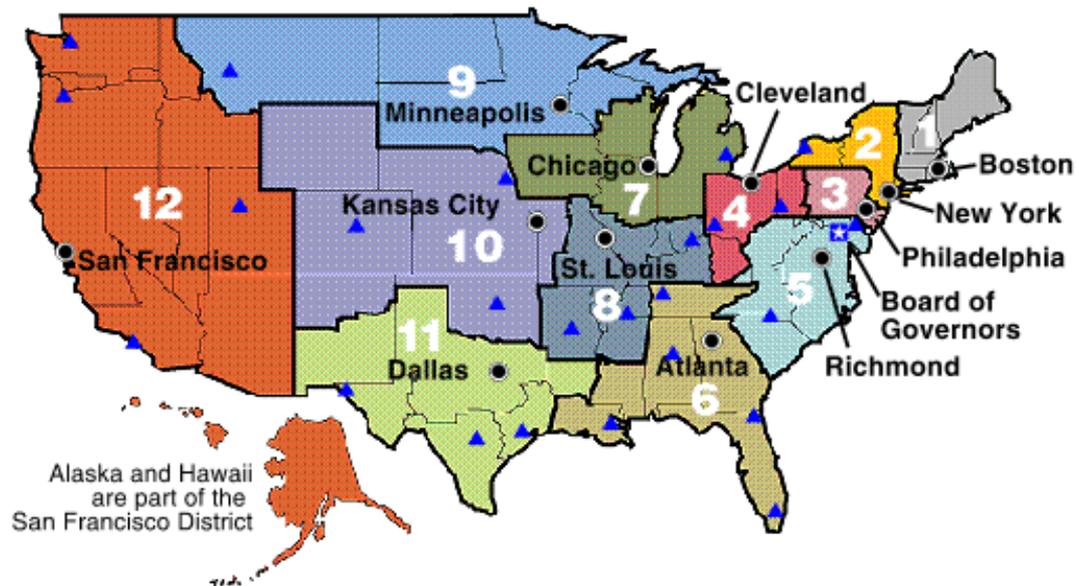
The FED is a nonpartisan government office that sets and adjusts the money supply to adjust the economy

This is called Monetary Policy.

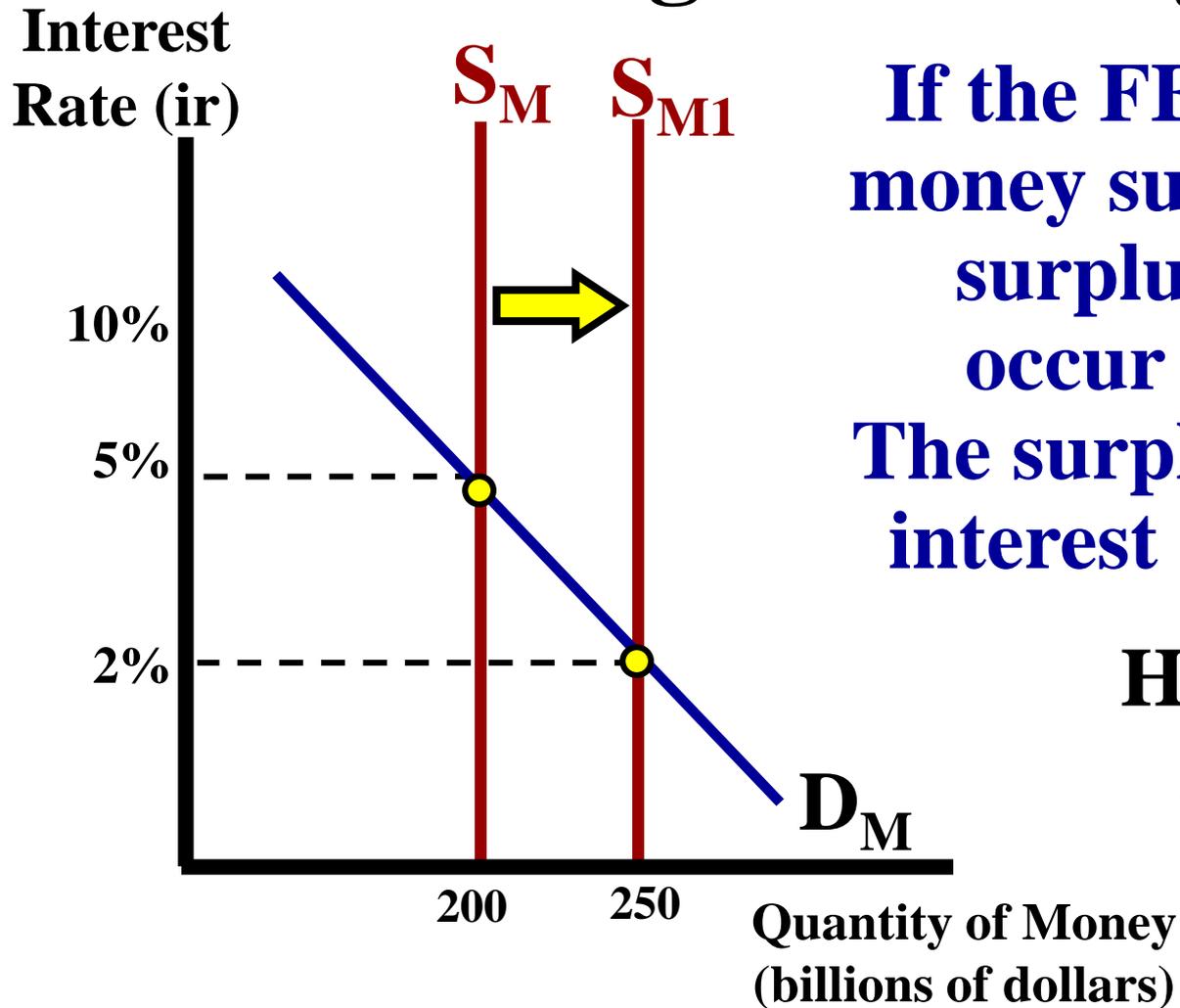


Monetary Policy

When the FED adjusts the money supply to achieve the macroeconomic goals



Increasing the Money Supply

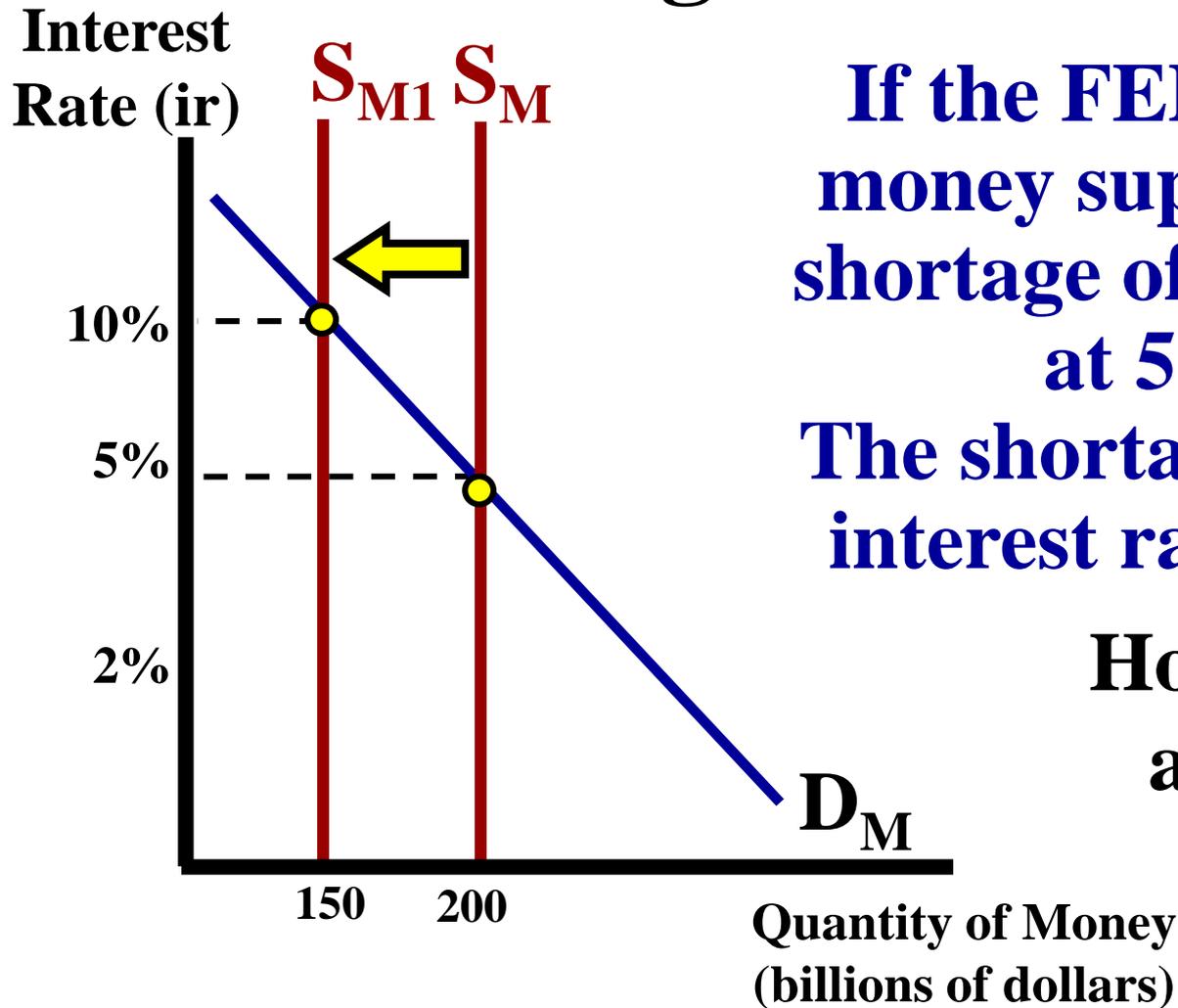


If the FED increases the money supply, a temporary surplus of money will occur at 5% interest. The surplus will cause the interest rate to fall to 2%

How does this affect AD?

Increase money supply → Decreases interest rate → Increases investment → Increases AD

Decreasing the Money Supply



If the FED decreases the money supply, a temporary shortage of money will occur at 5% interest.

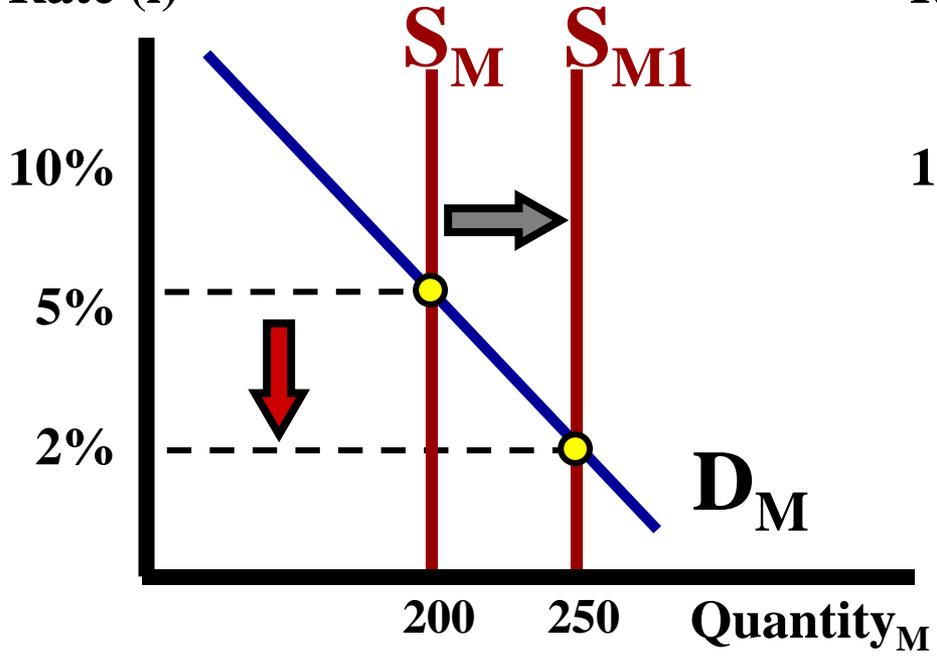
The shortage will cause the interest rate to rise to 10%

How does this affect AD?

Decrease money supply → Increase interest rate → Decrease investment → Decrease AD

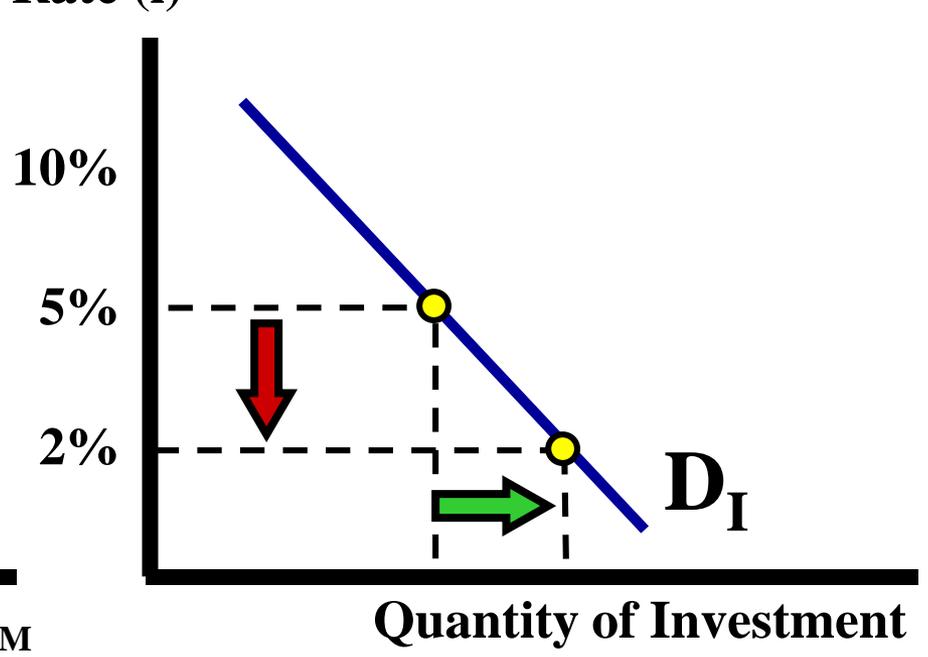
Interest Rate (i)

S&D of Money



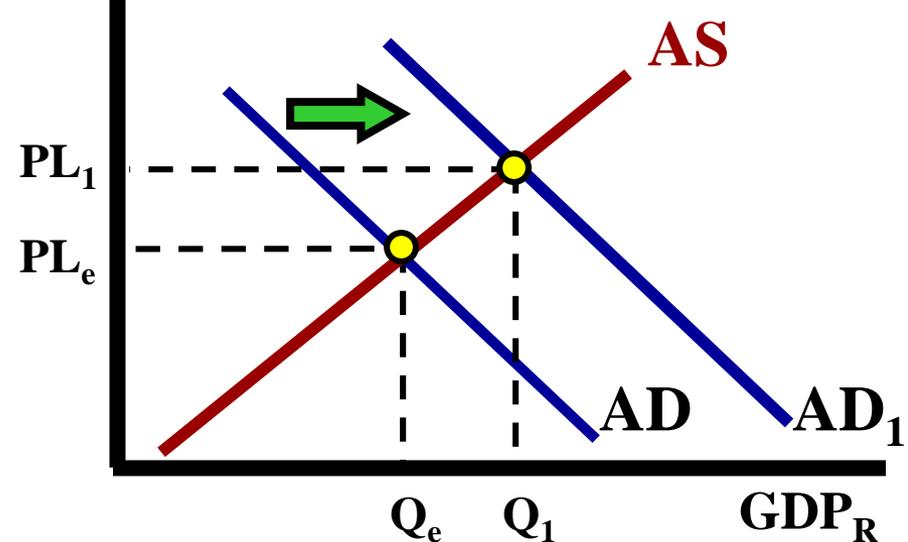
Interest Rate (i)

Investment Demand



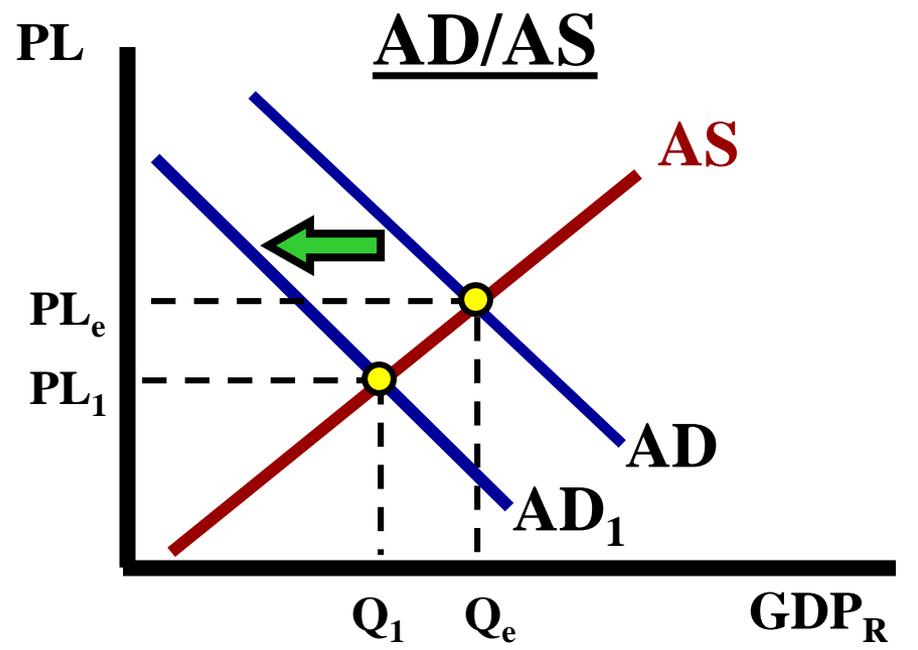
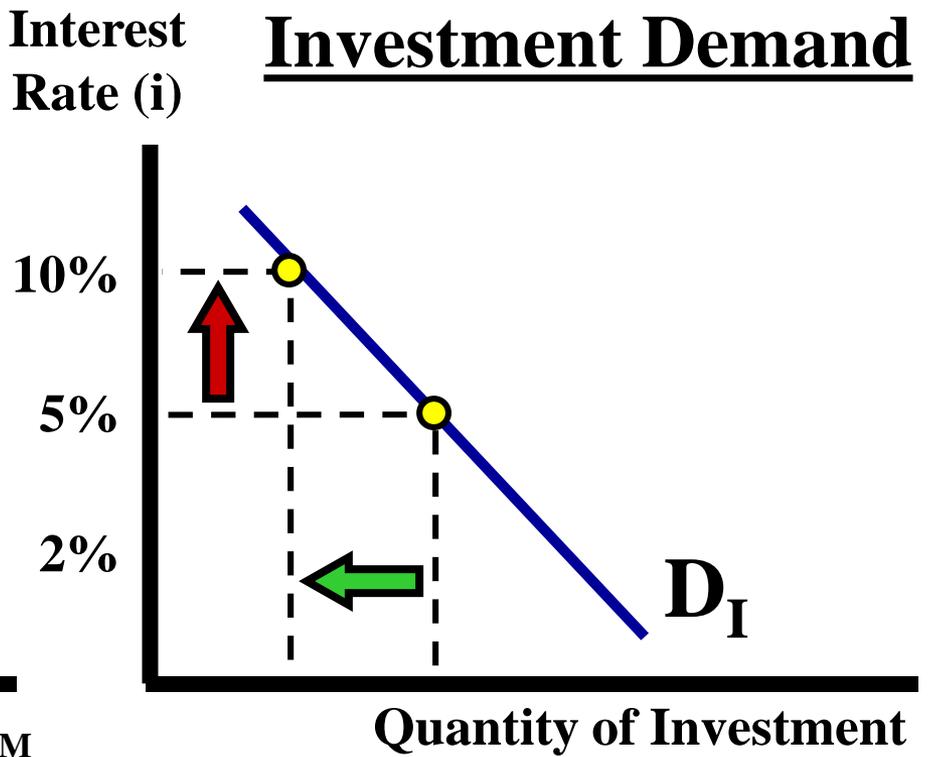
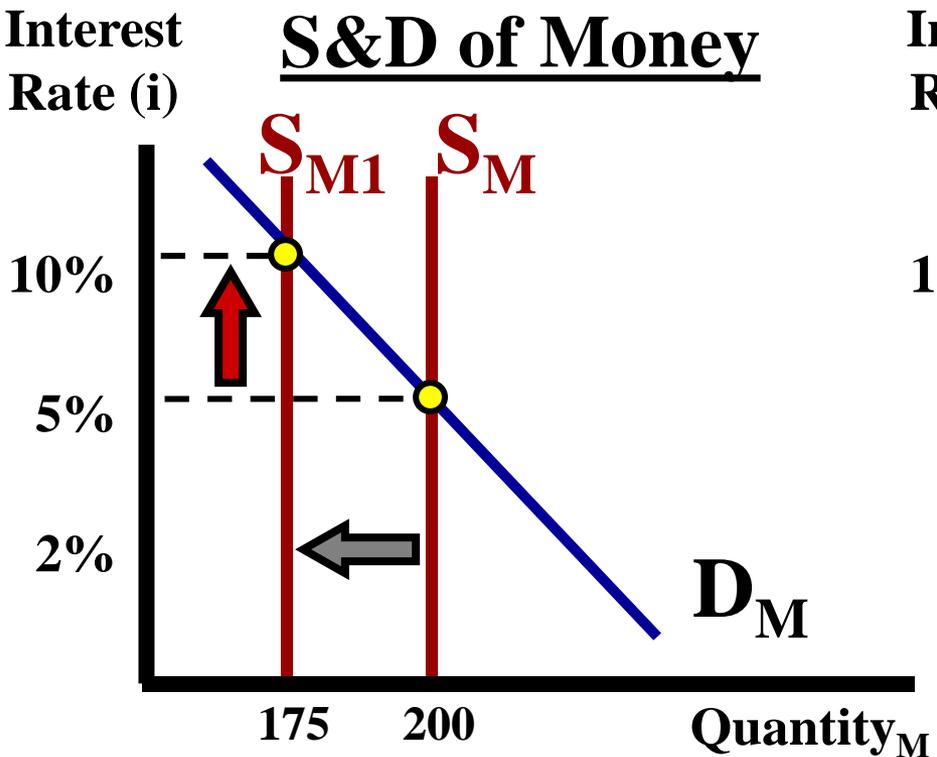
PL

AD/AS



The FED increases the money supply to stimulate the economy...

- 1. Interest Rates Decreases**
- 2. Investment Increases**
- 3. AD, GDP and PL Increases**



The FED decreases the money supply to slow down the economy...

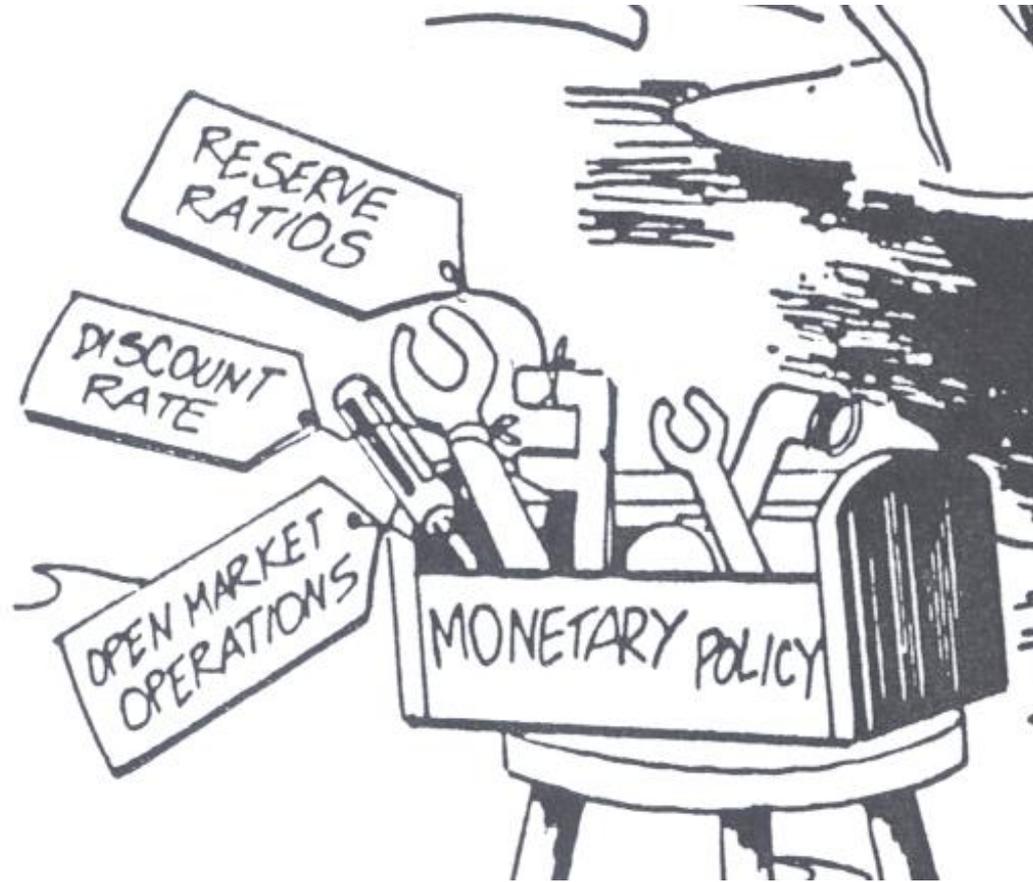
- 1. Interest Rates increase**
- 2. Investment decreases**
- 3. AD, GDP and PL decrease**

How the Government Stabilizes the Economy



How the FED Stabilizes the Economy

These are the three Shifters of Money Supply



3 Shifters of Money Supply

The FED adjusting the money supply by changing any one of the following:

1. **Setting Reserve Requirements (Ratios)**
2. **Lending Money to Banks & Thrifts**
 - **Discount Rate**
3. **Open Market Operations**
 - **Buying and selling Bonds**

#1. The Reserve Requirement

If you have a bank account, where is your money?

Only a small percent of your money is in the safe. The rest of your money has been loaned out.

This is called “Fractional Reserve Banking”

The FED sets the amount that banks must hold

The reserve requirement (reserve ratio) is the percent of deposits that banks must hold in reserve (the percent they can NOT loan out)

- **When the FED increases the money supply it increases the amount of money held in bank deposits.**
- **As banks keeps some of the money in reserve and loans out their excess reserves**
- **The loan eventually becomes deposits for another bank that will loan out their excess reserves.**

The Money Multiplier

Example: Assume the reserve ratio in the US is 10%

You deposit \$1000 in the bank

The bank must hold \$100 (required reserves)

The bank lends \$900 out to Bob (excess reserves)

Bob deposits the \$900 in his bank

Bob's bank must hold \$90. It loans out \$810 to Jill

Jill deposits \$810 in her bank

SO FAR, the initial deposit of \$1000 caused the CREATION of another \$1710 (Bob's \$900 + Jill's \$810)

$$\text{Money Multiplier} = \frac{1}{\text{Reserve Requirement (ratio)}}$$

Example:

- If the reserve ratio is .20 and the money supply increases 2 Billion dollars. How much the money supply increase?**

Using Reserve Requirement

1. If there is a recession, what should the FED do to the reserve requirement? (Explain the steps.)

Decrease the Reserve Ratio

- 1. Banks hold less money and have more excess reserves**
- 2. Banks create more money by loaning out excess**
- 3. Money supply increases, interest rates fall, AD goes up**

2. If there is inflation, what should the FED do to the reserve requirement? (Explain the steps.)

Increase the Reserve Ratio

- 1. Banks hold more money and have less excess reserves**
- 2. Banks create less money**
- 3. Money supply decreases, interest rates up, AD down**

Video: Beavis and Butthead

#2. The Discount Rate

The Discount Rate is the interest rate that the FED charges commercial banks.

Example:

- **If Banks of America needs \$10 million, they borrow it from the U.S. Treasury (which the FED controls) but they must pay it bank with 3% interest.**

To increase the Money supply, the FED should DECREASE the Discount Rate (Easy Money Policy).

To decrease the Money supply, the FED should INCREASE the Discount Rate (Tight Money Policy).

#3. Open Market Operations

- **Open Market Operations is when the FED buys or sells government bonds (securities).**
- **This is the most important and widely used monetary policy**

To increase the Money supply, the FED should BUY government securities.

To decrease the Money supply, the FED should SELL government securities.

How are you going to remember?

Buy-BIG- Buying bonds increases money supply

Sell-SMALL- Selling bonds decreases money supply

Practice

Don't forget the Monetary Multiplier!!!!

- 1. If the reserve requirement is $.5$ and the FED sells \$10 million of bonds, what will happen to the money supply?**
- 2. If the reserve requirement is $.1$ and the FED buys \$10 million bonds, what will happen to the money supply?**
- 3. If the FED decreases the reserve requirement from $.50$ to $.20$ what will happen to the money multiplier?**

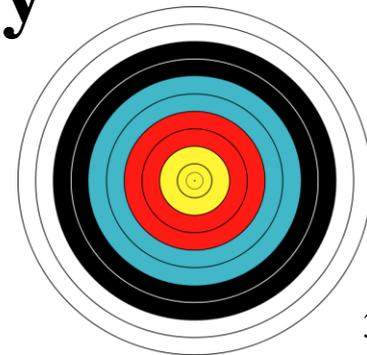
Federal Funds Rate

The federal funds rate is the interest rate that banks charge one another for one-day loans of reserves.

The FED can't simply tell banks what interest rate to use. Banks decide on their own.

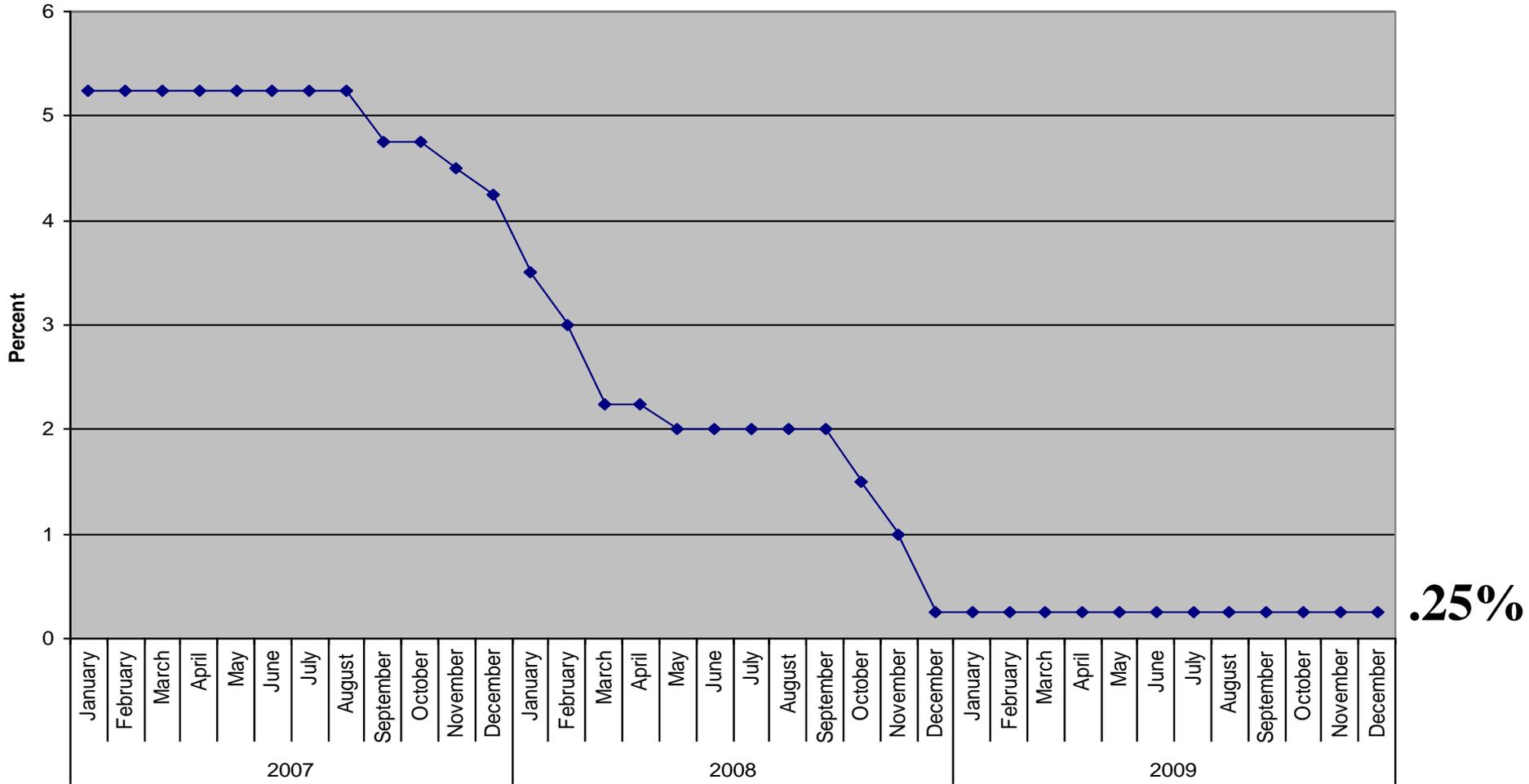
The FED influences them by setting a target rate and using open market operation to hit the target

The federal funds rate fluctuates due to market conditions but it is heavily influenced by monetary policy (buying and selling of bonds)



Federal Funds Rate

Target Federal Funds Rate





Real and Nominal Interest Rates

Nominal vs. Real Interest Rates

Example:

- You lend out \$100 with 20% interest.
- Prices are expected to increase 15%
- In a year you get paid back \$120.
- **What is the nominal and what is the real interest rate?**
- The Nominal interest rate is 20%
- The Real interest rate was only 5%
- In reality, you get paid back an amount with less purchasing power.

Nominal Interest Rates- the percentage increase in money that the borrower pays including inflation.

Nominal = real interest rate + expected inflation

Real Interest Rates- The percentage increase in purchasing power that a borrower pays. (adjusted for inflation)

Real = nominal interest rate - expected inflation

Nominal vs. Real Interest Rates

Example #2:

- You lend out \$100 with 10% interest.
- Prices are expected to increased 20%
- In a year you get paid back \$110.
- **What is the nominal and what is the real interest rate?**
- The Nominal interest rate is 10%
- The Real interest rate was only -10%
- In reality, you get paid back an amount with less purchasing power.

**So far we have only been looking at
NOMINAL interest rates**

Loanable Funds Market



Loanable Funds Market

Is an interest rate of 50% good or bad?

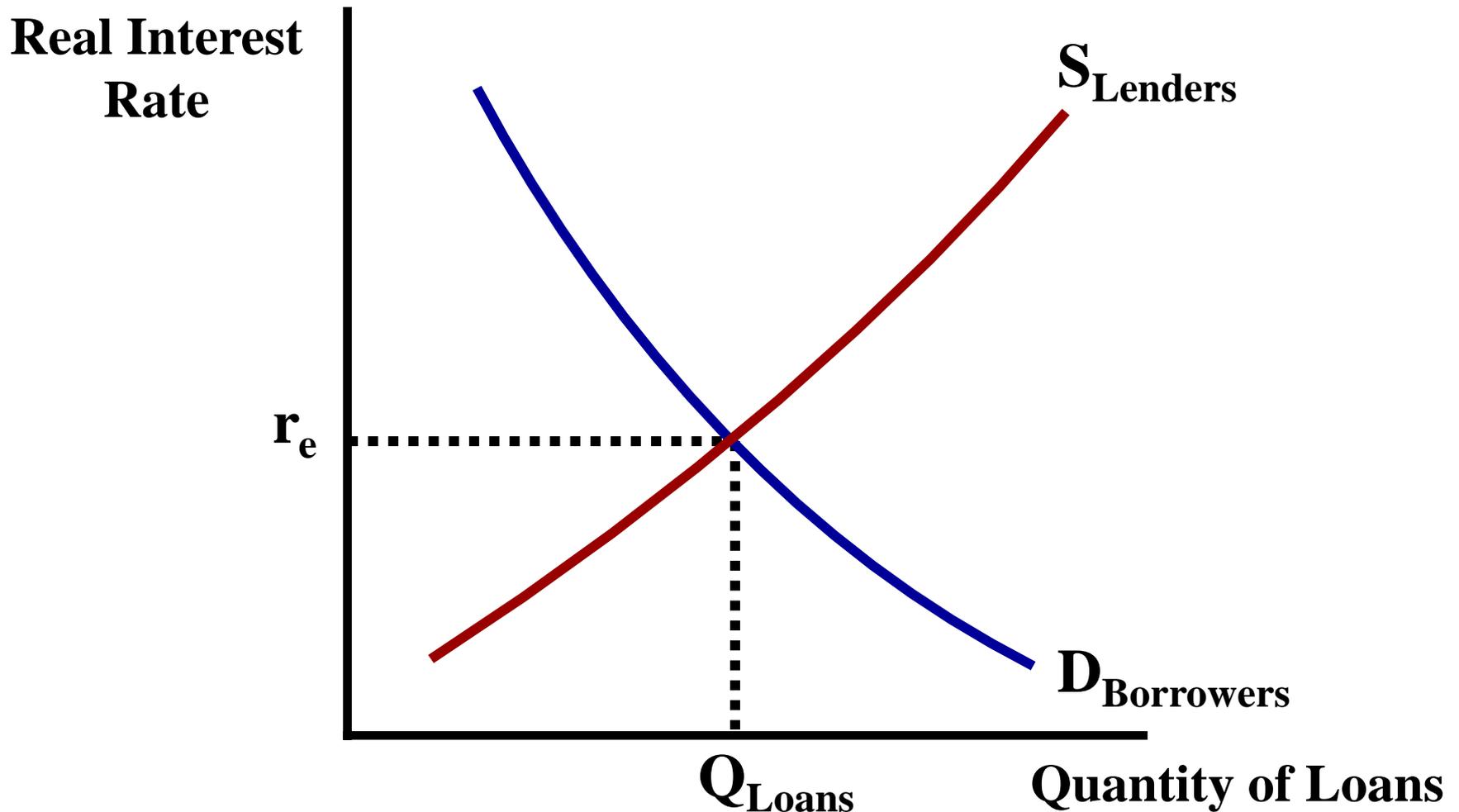
Bad for borrowers but good for lenders

The loanable funds market is the private sector supply and demand of loans.

- **This market shows the effect on REAL INTEREST RATE**
 - **Demand- Inverse relationship between real interest rate and quantity loans demanded**
 - **Supply- Direct relationship between real interest rate and quantity loans supplied**
- This is NOT the same as the money market.**
(supply is not vertical)

Loanable Funds Market

At the equilibrium real interest rate the amount borrowers want to borrow equals the amount lenders want to lend.



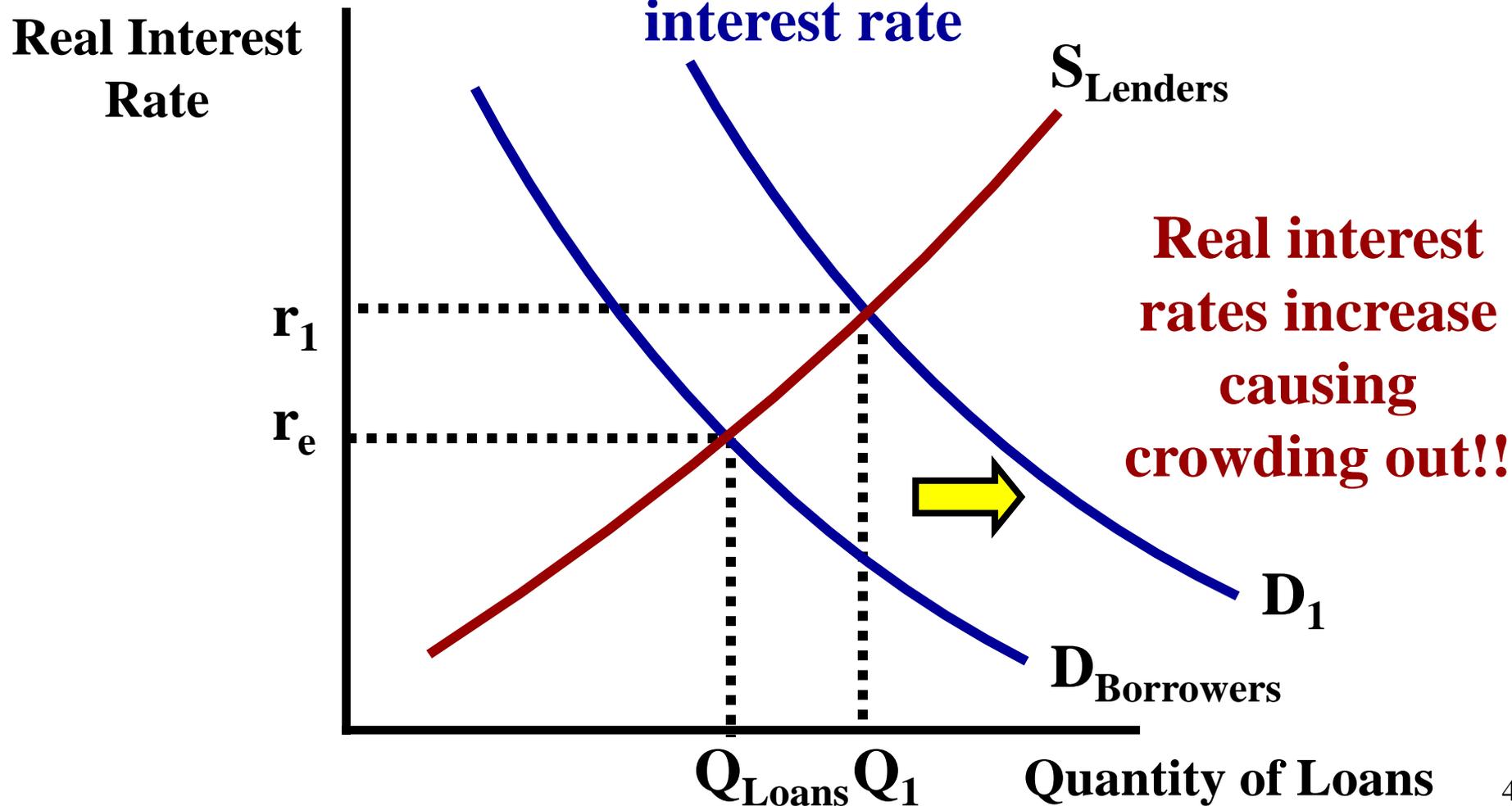
Loanable Funds Market

Example: The Gov't increases deficit spending?

Government borrows from private sector

Increasing the demand for loans and increasing the

interest rate



Loanable Funds Market

Demand Shifters

1. Changes in perceived business opportunities
2. Changes in government borrowing
 - **Budget Deficit**
 - **Budget Surplus**

Supply Shifters

1. Changes in private savings behavior
2. Changes in public savings
3. Changes in foreign personal investment
4. Changes in expected profitability