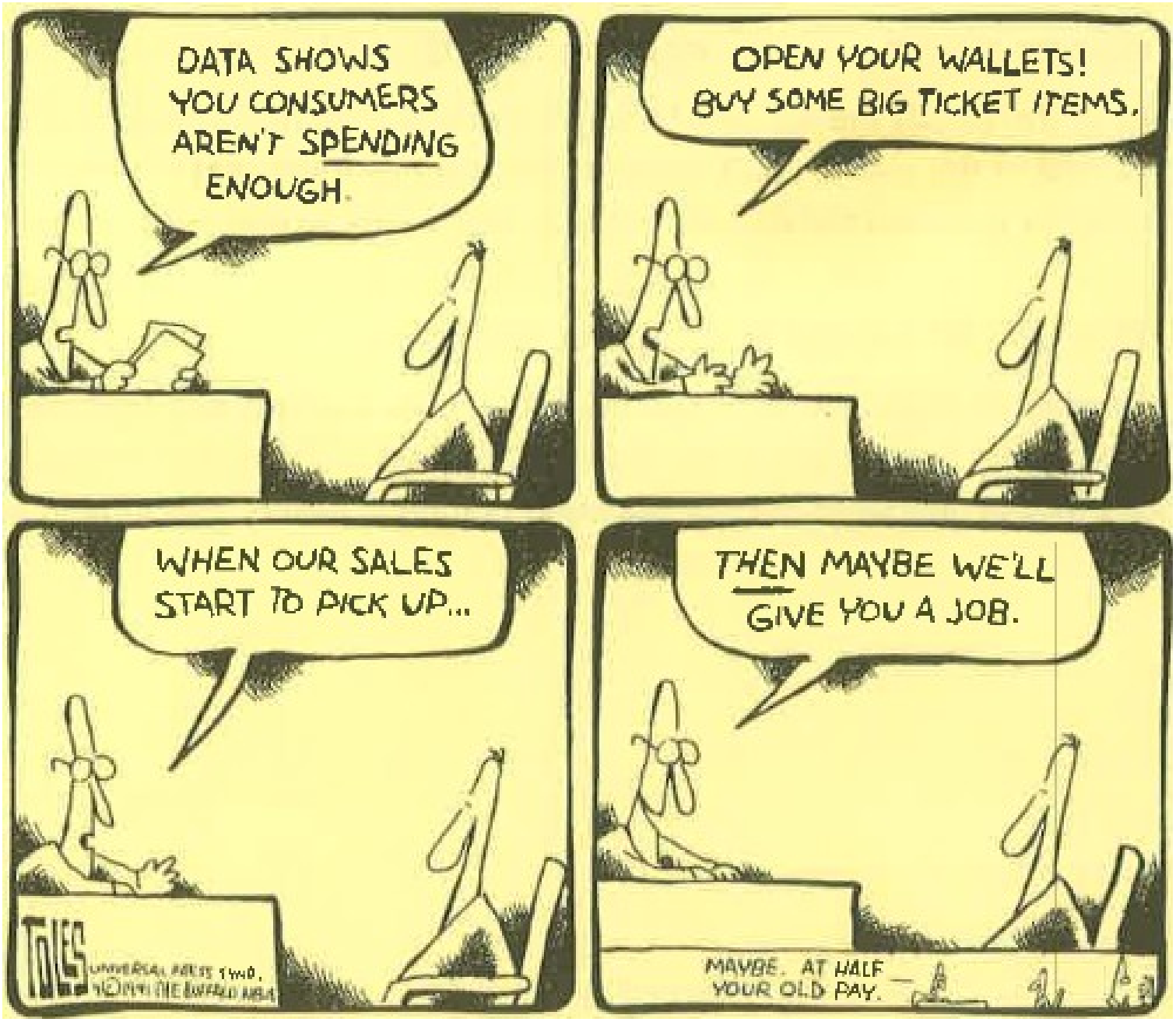
MACROECONOMICS I

Class 6. The Core: Financial Markets.

Monetary Policy

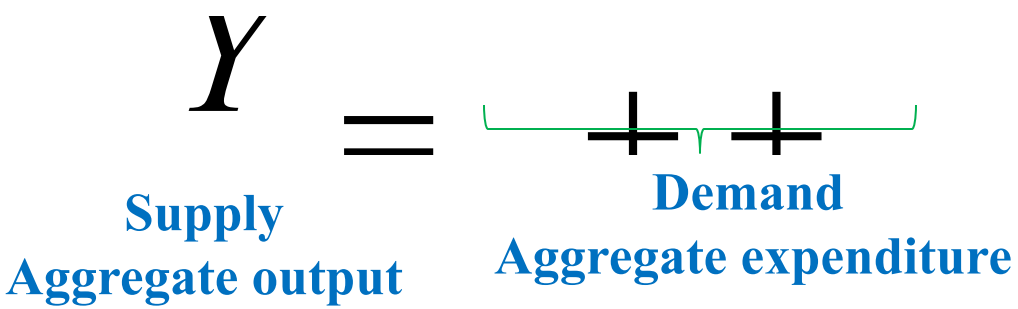
March 25th, 2014


DATA SHOWS YOU CONSUMERS AREN'T SPENDING ENOUGH.
OPEN YOUR WALLETS! BUY SOME BIG TICKET ITEMS.
WHEN OUR SALES START TO PICK UP...
THEN MAYBE WE'LL GIVE YOU A JOB.
MAYBE. AT HALF YOUR OLD PAY.

Review

The **short run**: year-to-year changes in real GDP

A fundamental identity (closed economy)



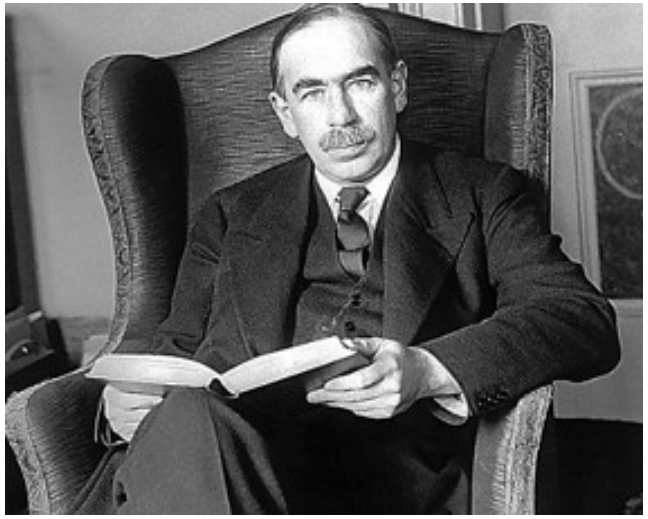
Total Output = Total Expenditure = Total Income

The **goods' market** equilibrium:

Aggregate Output (**Y**) = Aggregate Expenditure (**AE**)

Review (Cont.)

John Maynard Keynes

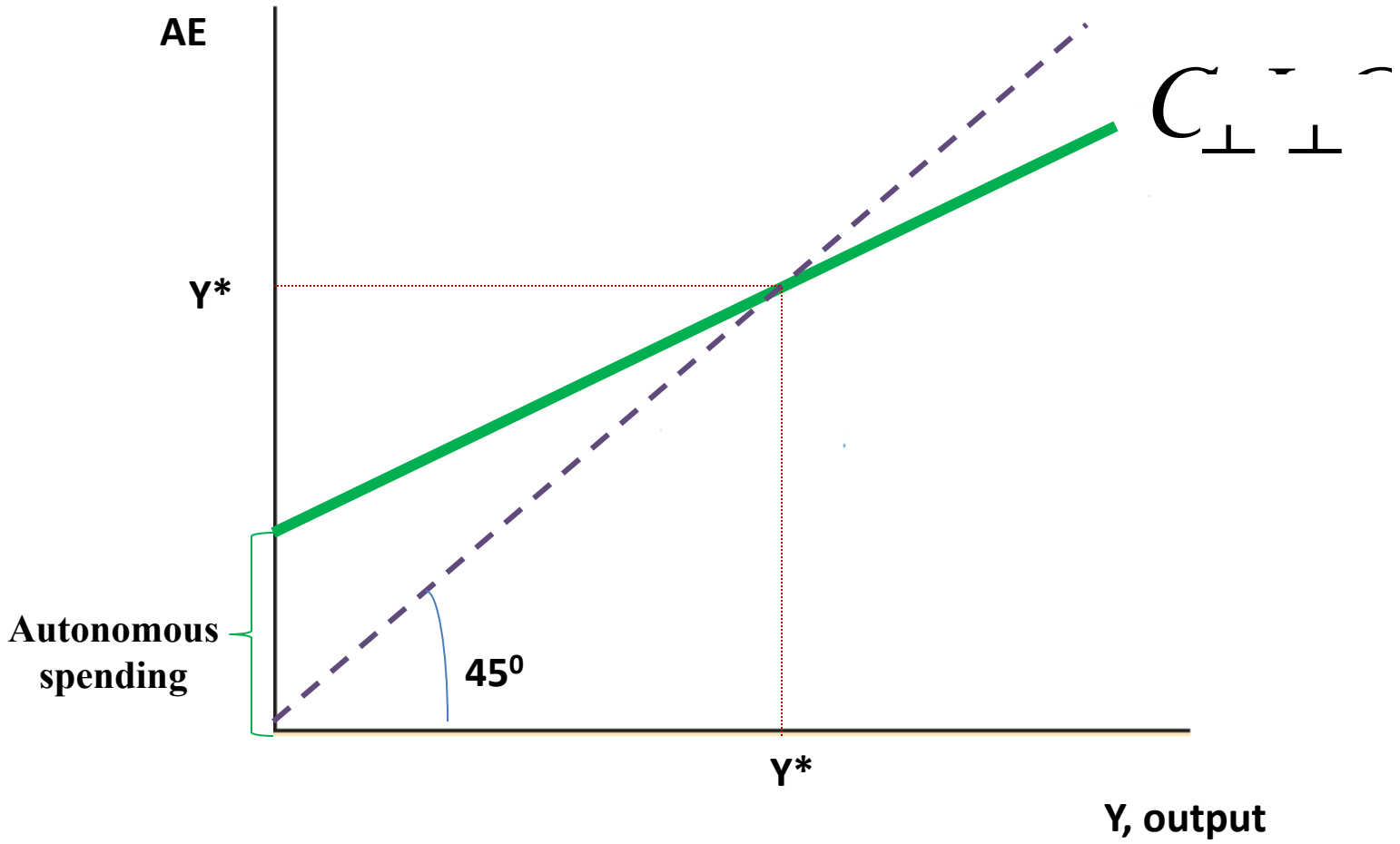


The General Theory of Employment, Interest, and Money (1936)

- The economy is driven by **demand** (in the short-run)
- Prices in the short run are fixed
- Insufficient spending is the key reason behind recessions
- Active government interventions

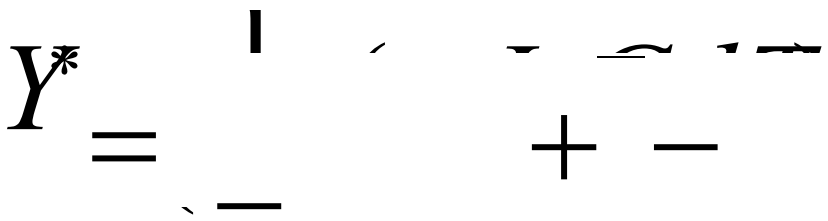
Review: Equilibrium in the Goods' Market

$Y =$



Review: Fiscal Policy

GDP in the short-run

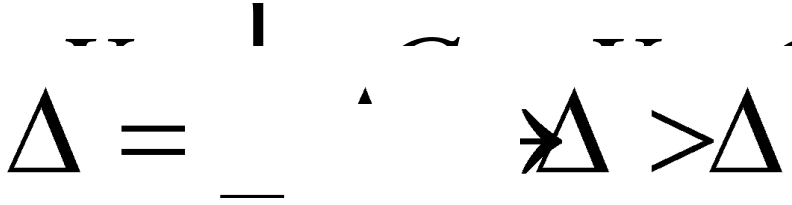


Which multiplier is bigger?

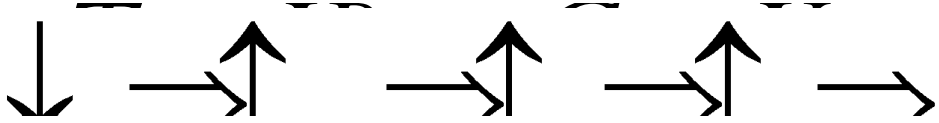
- **Fiscal policy**

• *Government spending (G)*

Total effect of the policy:



• *Taxes (T)*



Total effect of the policy:

Example on Multipliers

TE Consider two countries:

Japan $b\_$ $Y^* =$

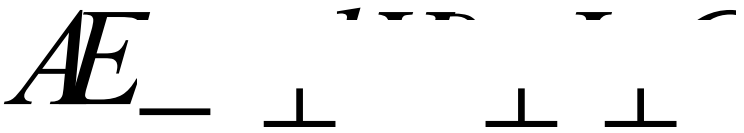
The USA $b\_$

1. *What are the values of the government spending (G) and tax (T)* ***multiplies*** *in each countries?*

2. *In what country the fiscal policy will be more efficient*

The Financial Markets: Introduction

- Relaxing assumption about fixed investments (I)



- Investment depends on *two* factors

Y – level of sales; *i*-nominal interest rate

- **Interest rate (*i*)** is the price of money

What is money?

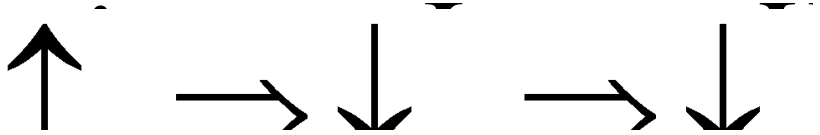
- Funds that you can spend: Currency + Checking accounts
- The most **liquid** asset: spend whenever you want

The Financial Markets: Introduction (Cont.)

- **The story**

Not enough money in circulation (**Money Supply**)

Money is scarce => More expensive to borrow => Higher interest rate (*i*)



Excess of money in circulation

Money is abundant => Less expensive to borrow => Low interest rate (*i*)

Money supply => Interest rate => Output

• The effect of financial markets on the goods' markets

Money Supply (M^S)

Who is in charge of the money supply?

A Nations' Central Bank

Money Supply (Cont.)

- Central Bank is a **government** agency
- Stands at the center of the monetary and financial systems

First Central Banks

Bank of Sweden (1668); Bank of England (1694); Bank of France (1800)

The most important today

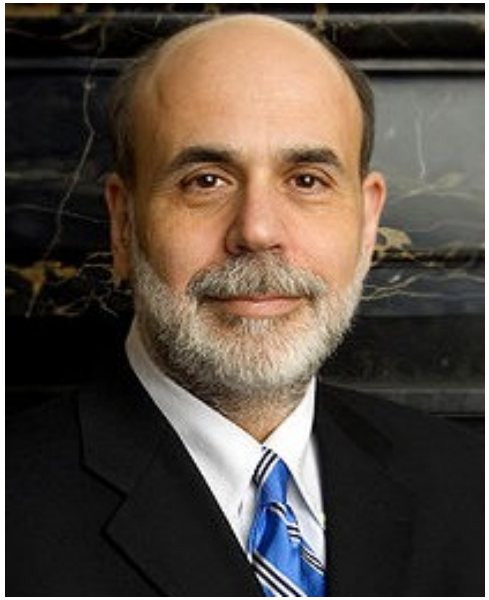
FED: The US Federal Reserve (1913). Consists of 12 Banks all over the US

ECB: European Central Bank (1998) – a common CB for the **Eurozone**

- **Central banks have a monopoly for printing national currency**

Money Supply (Cont.)

The US Federal Reserve Chairman



Ben Bernanke (since 2006-2014)

Janet Yellen (since Feb 2014)

The Central Banking System

Mission of a Central Bank:

• *Macroeconomic stability*: low and stable inflation; stable growth of GDP and employment

• *Financial stability*: preventing and mitigating financial panic or crises

Available tools:

1. *Monetary policy* – adjustment of the interest rate
2. *Provision of liquidity* – a "lender of the last resort"
3. Regulation and supervision of financial institutions

Changes in Money Supply

- **Three major tools**

1) Reserve ratio: a share of funds that every bank **must** hold at the CB

Lower reserve ratio => More money to lend out => More money in circulation

2) Discount rate: Rate on the overnight loans

Lower discount rate => More borrowing from CD => More money lend out =>

⇒ More money in circulation

3) Open market operations (OMO): Purchase of governments securities

Government Bonds = Debt/Fixed-Income securities

• A promise to pay a certain amount (face value) on a certain date and periodic interest payments

• Free of credit risk: Trust in the government

Buying bond by CB => Increase in money supply => More money in circulation

Demand for Money

- The amount of money people want to hold **(M^D)**

$ 20,000

- Less liquid
- Yield **positive** interest
- Transaction costs

- Full liquidity
- Yield **NO interest**
- NO transaction costs

- **Liquidity preferences:** keep money or loan them to someone

Demand for Money (Cont.)

$\mathbf{M^D}$ will depends on:

- Level of transactions (Y)
- Bonds' *interest rate (i)*

$$M^D = f(Y, i)$$

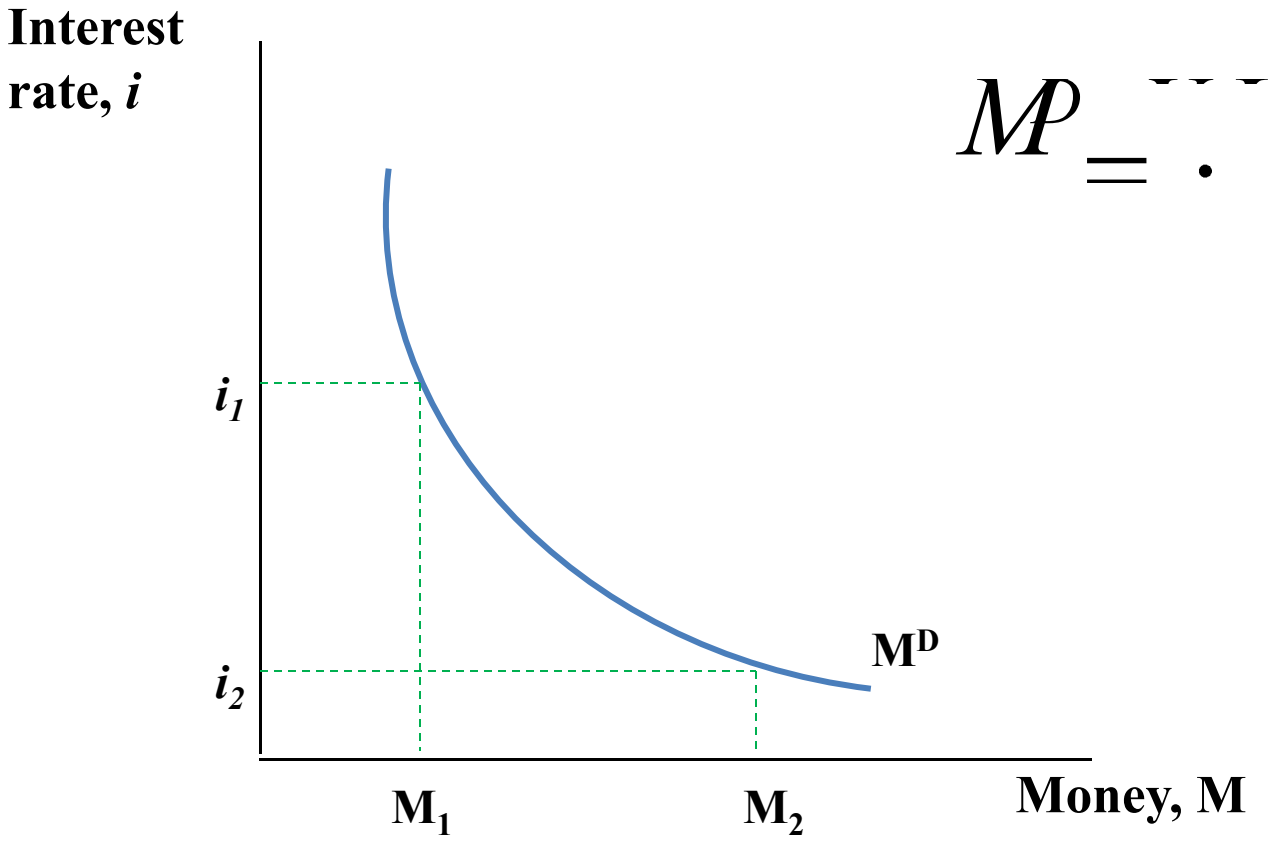
Where Y – **nominal** income; *i* is a **nominal** interest rate

$$M^D = P \cdot L(Y, i)$$

- Demand for money increases in proportion to nominal income
- The lower the interest rate, the higher is the demand for money

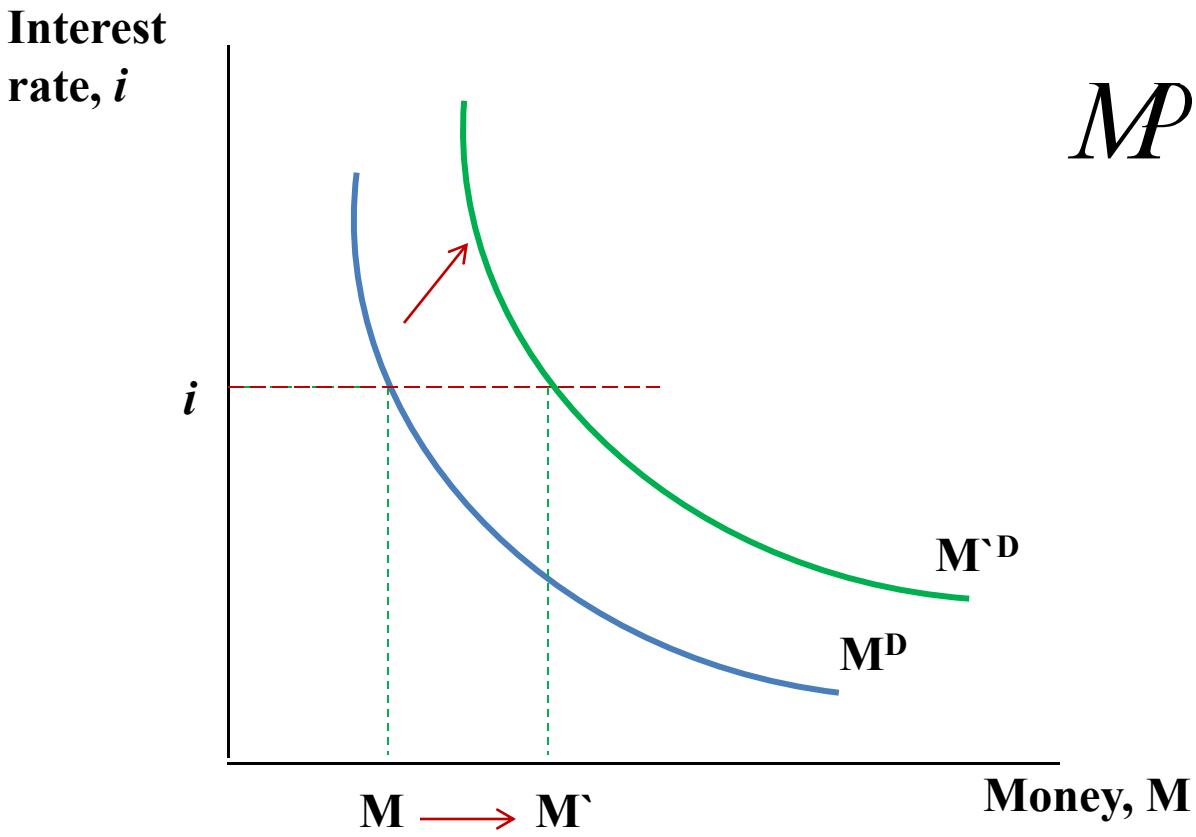
Demand for Money: Graphical Representation

For a *given* level of nominal income Y



Shifts in M^D

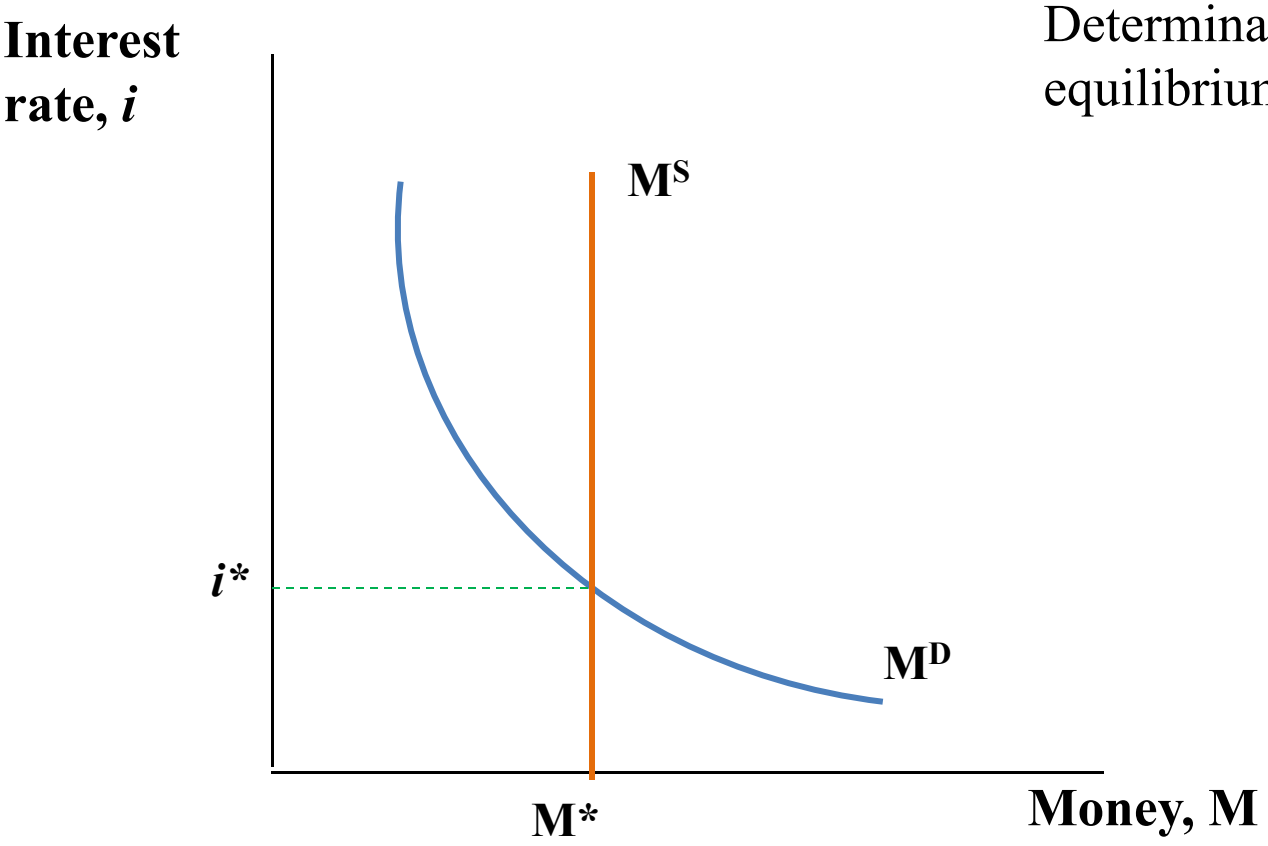
- Increase in nominal income & **fixed** interest rate



- Increase in prices & **fixed** interest rate

The Equilibrium in Money Market

$$M^S = \bar{M}$$

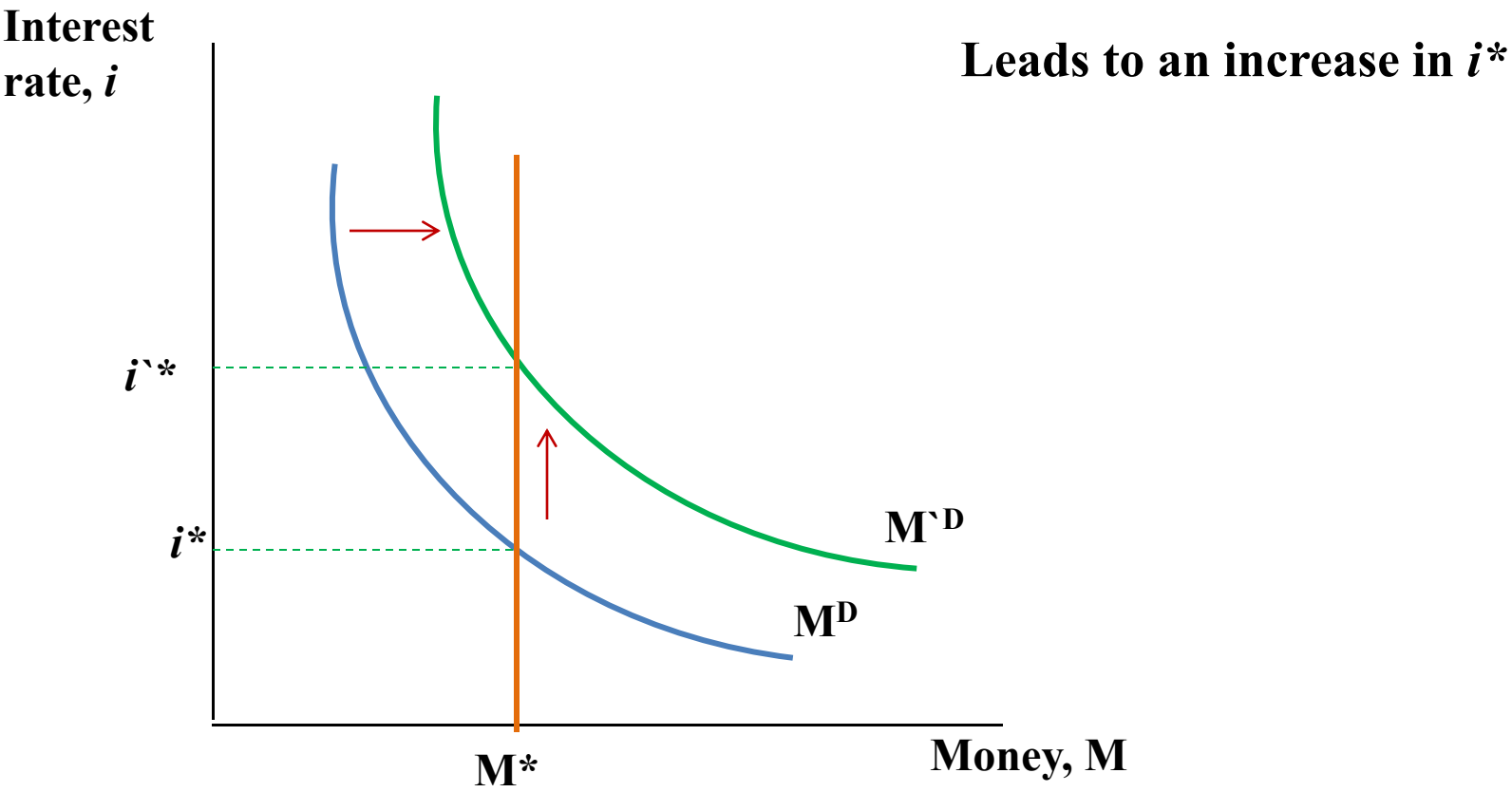


Determination of the equilibrium interest rate

For a given level of nominal income Y

Comparative Statics

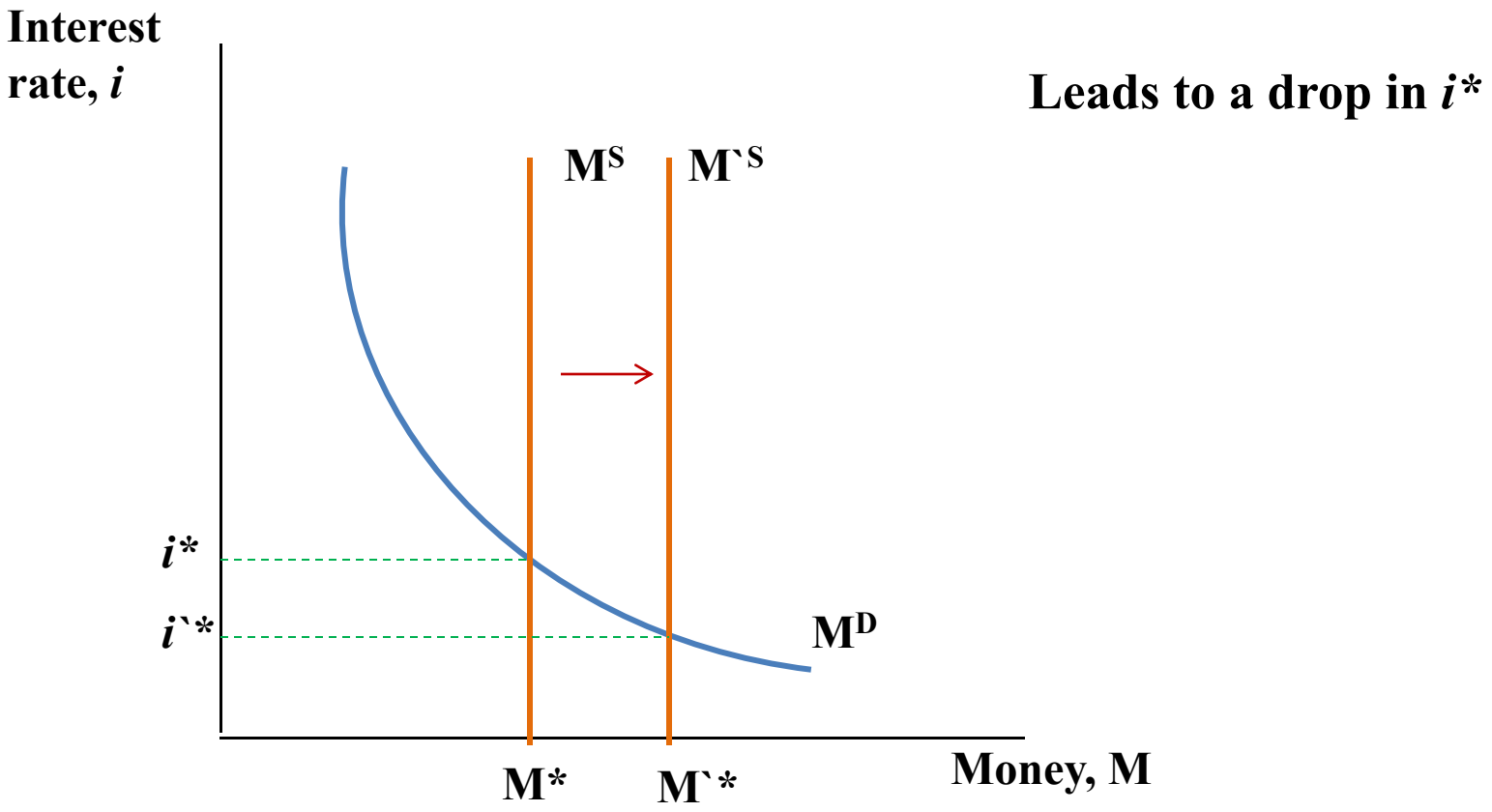
- Increase in nominal income



- Same effect in the case of price change

Comparative Statics (Cont.)

- Increase in money supply



- **Monetary policy**: Central banks affect interest rate by changing money supply

The Goods Market and the Role of Interest Rate

- Drawing the link between the goods market and financial market

Linking element: Interest rate *i*

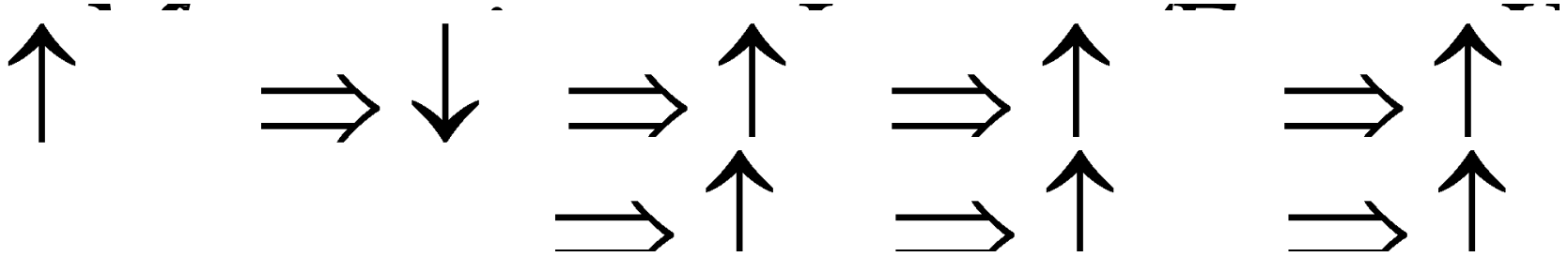
- The goods' market: Modifying **equilibrium condition**

As

N!B! Monetary policy affects aggregate output (GDP)

Monetary Policy and Aggregate Output

TE Assume CNB increases money supply by buying government bonds



• **Expansionary** monetary policy: increase in the amount of money in circulation leads to an increase in investment and discourages savings which cause an increase in GDP

The Equilibrium