

Economics 102 final review

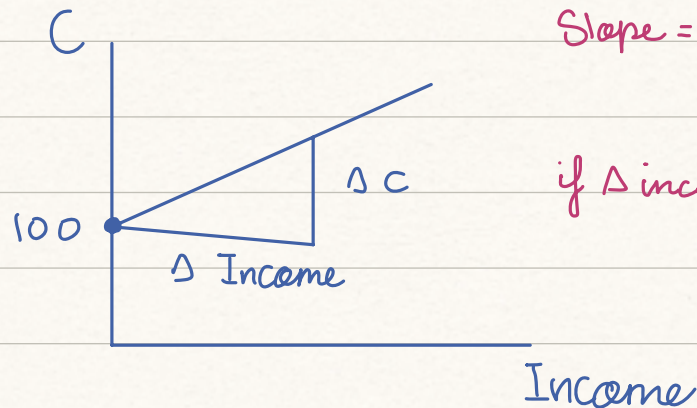
By g Rehaf Alastad

(Lec 10)

* Keynesian consumption theory numerical question.

$$C = 100 + 0.6 \text{ income}$$

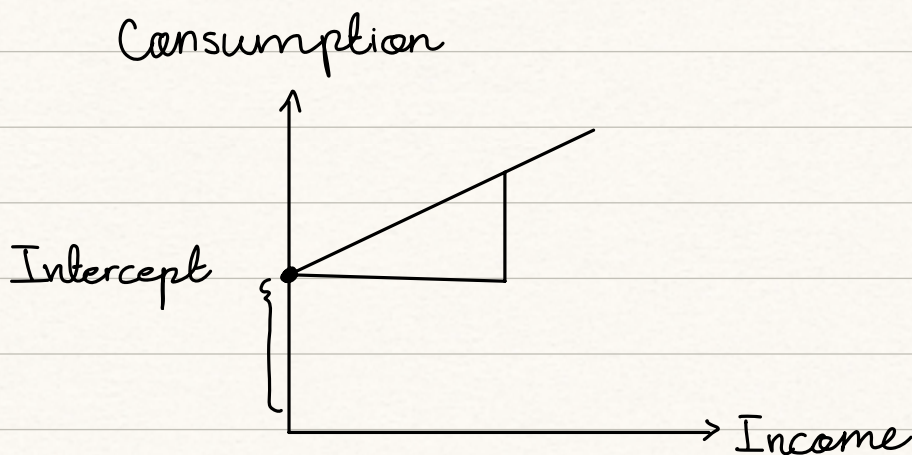
@ Draw a graph to explain the meaning of Keynesian consumption theory



$$\text{Slope} = \text{MPC} = 0.6 = \frac{\Delta C}{\Delta \text{Income}}$$

if $\Delta \text{income} = \$1$, then $\Delta C = \$0.6$

* Draw a graph for Keynesian consumption theory



$$\text{Income} = C + S$$

↓ ↓

Consumption saving

* Write the consumption function

Consumption function $\rightarrow y = a + bx$

Intercept $\rightarrow a$
Income $\rightarrow x$
Consumption $\rightarrow y$
Slope $\rightarrow b$

$$C = 100 + 0.75y$$

$$S = -100 + 0.25y$$

$$MPC + MPS = 1$$

* What are the assumptions of Keynesian consumption theory

Keynesian consumption theory

Slope > 0 @ $\uparrow$ Income $\rightarrow \uparrow$ Consumption

Slope < 1 @ Δ Consumption $< \Delta$ Income
less than

* Explain the meaning of MPC

$$\text{Consumption} = a + b \text{ Income}$$

Marginal propensity to consume (MPC)

$0 < b < 1$

$\uparrow$ Income $\rightarrow \uparrow$ consumption

Change in $\Delta C < \Delta \text{Income}$

* Numerical Question

* Write the saving function

$$C = 100 + 0.6 \text{ income} \rightarrow (1)$$

$$\text{Income} = C + S \rightarrow (2)$$

Substitute Eq(1) into Eq(2)

$$\text{Income} = 100 + 0.6 \text{ income} + S$$

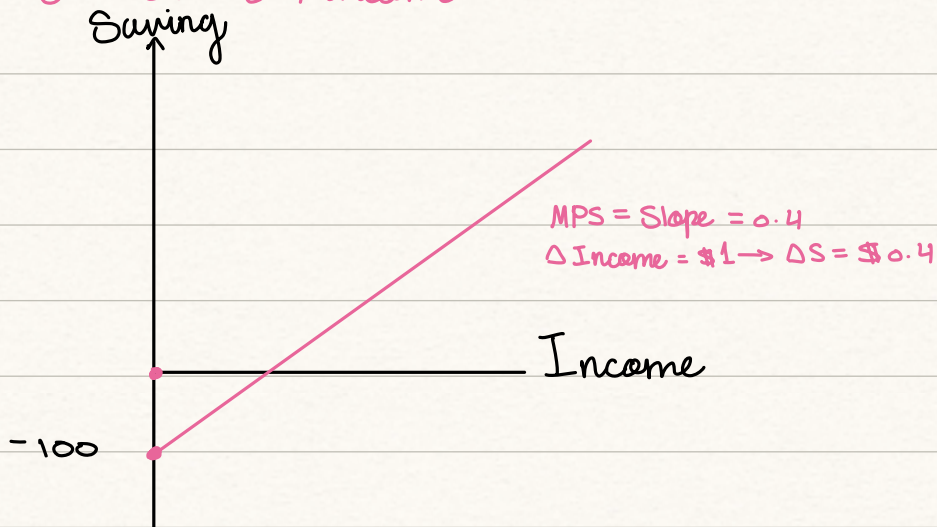
$$S = -100 + \text{income} - 0.6 \text{ income} \leftarrow Y - 0.6Y$$

$$\underline{S = -100 + 0.4 \text{ income}}$$

↓
Saving function

* Draw the saving function graph

$$S = -100 + 0.4 \text{ income}$$



* The multiplier & Investment Multiplier

$$C = a + b(y - T) \rightarrow 1$$

$$Y = \overset{\text{replace}}{C} + I + G + \overset{=0}{NX} \rightarrow 2$$

$$Y = a + b(y - T) + I + G \rightarrow 3$$

$$Y = a(bY - bT) + I + G \rightarrow 4$$

$$Y - bY = a - bT + I + G \rightarrow 5$$

$$Y(1 - b) = a - bT + I + G \rightarrow 6$$

$$\Delta Y = \frac{1}{1 - b} (\Delta a - b\Delta T + \Delta I + \Delta G) \rightarrow 7$$

$$\Delta Y = \frac{1}{1 - b} (0 - 0 + \Delta I + 0) \rightarrow 8$$

$$\Delta Y = \frac{1}{1 - b} \Delta I \rightarrow 9$$

$$\frac{\Delta Y}{\Delta I} = \frac{1}{1 - b} \rightarrow 10$$

$$\frac{\Delta Y}{\Delta I} = \frac{1}{1 - MPC} \rightarrow 11$$

$$\frac{\Delta Y}{\Delta I} = \frac{1}{MPS} \rightarrow 12$$

If $MPC = 0.75$, what is the Multiplier?

Answer :

$$MPS = 1 - 0.75 = 0.25$$

$$\text{The Multiplier} = \frac{1}{0.25} = 4$$

$$\text{if } \uparrow I = \$1 \rightarrow \Delta Y = 1 \times 4 = \$4$$

$$\Delta I = \$1000 \rightarrow \Delta Y = \$4000$$

* Deriving Multiplier 8 Government spending multiplier

$$C = a + b(y - T) \rightarrow 1$$

$$y = C + I + G + Nx \rightarrow 2$$

$$y = a + b(y - T) + I + G + \rightarrow 3$$

$$y = a + by - bT + I + G \rightarrow 4$$

$$y - by = a - bT + I + G \rightarrow 5$$

$$y(1 - b) = a - bT + I + G \rightarrow 6$$

$$y = \frac{1}{1-b} (a - bT + I + G) \rightarrow 7$$

for G

$$\frac{\Delta Y}{\Delta G} ? \Rightarrow \Delta Y = \frac{1}{1-b} \Delta G \rightarrow 8$$

$$\frac{\Delta Y}{\Delta G} = \frac{1}{1-b} \rightarrow 9$$

$$\frac{\Delta Y}{\Delta G} = \frac{1}{1-b} \rightarrow 10$$

$$= \frac{1}{1-MPC} = \frac{1}{MPS} \rightarrow 11$$

* Tax Multiplier

$$\frac{\Delta Y}{\Delta T} \rightarrow \text{Tax Multiplier?}$$

$$\Delta Y = \frac{1}{1-b} * -b \Delta T$$

$$\boxed{\frac{\Delta Y}{\Delta T} = \frac{-b}{1-b}} \rightarrow \text{Tax Multiplier}$$

What if Taxes & Government are simultaneously increased by the same amount? $\rightarrow$ Tax Multiplier

Answer :-

Government spending Multiplier

$$\begin{aligned} \text{Balanced Budget Multiplier} &= \frac{-b}{1-b} + \frac{1}{1-b} \\ &= \frac{-b + 1}{1-b} \\ &= \frac{1-b}{1-b} \\ &= 1 \end{aligned}$$

$$\text{if } \Delta T = \Delta G = \$1 \Rightarrow \Delta Y = \$1$$

$$\text{The Multiplier : } \frac{\Delta Y}{\Delta I} = \frac{1}{MPS}$$

$$G \text{ Multiplier : } \frac{\Delta Y}{\Delta G} = \frac{1}{MPS}$$

$$T \text{ Multiplier : } \frac{\Delta Y}{\Delta T} = \frac{-MPS}{MPS}$$

$$\text{Balanced Budget Multiplier} = 1$$

Lec 11

Money: is a commodity that is generally accepted as a method of payments

Functions of Money :-

① Medium of Exchange

Exchange the money for G&S $\Rightarrow$ Goods & services

$\rightarrow$ to buy goods & services

② Unit of account

To price G&S

$\rightarrow$ All prices are quotes in monetary unit

③ Store of value

$\rightarrow$ People store their saving

Q.1: ATM card is Money?

Credit card is Money?

IS NOT MONEY

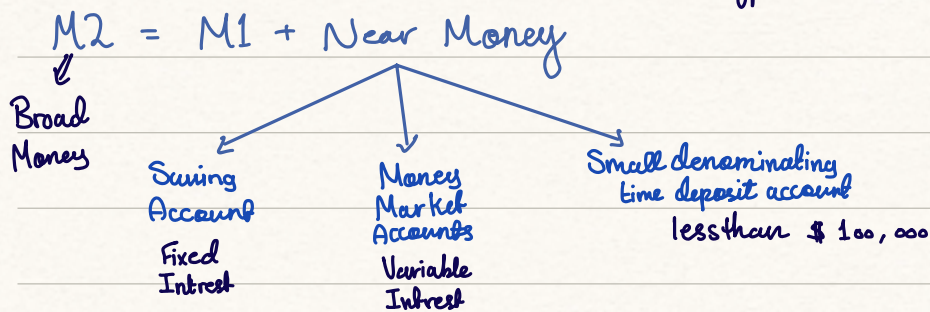
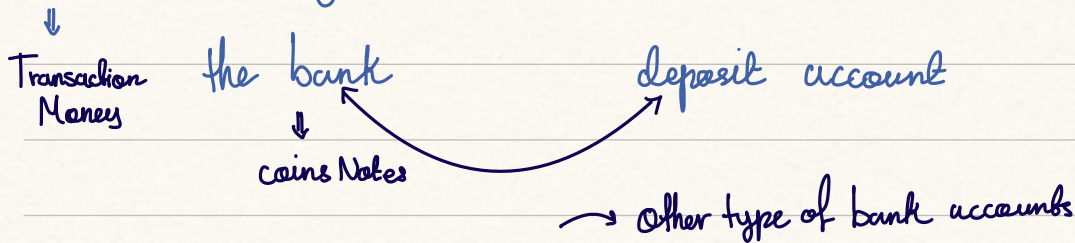
because credit card is a method of deferring payments, not a method of payments

* Measures of Money Supply

Measures of money supply



$M1 = \text{Currency outside the bank} + \text{Demand checkable deposit account} + \text{Travelers checks}$



1-Which of the following three expressions uses the economists' definition of money?

- a. "How much money did you earn last week?"
- b. "When I go to the store, I always make sure that I have enough money."
- c. "The love of money is the root of all evil."

2-Rank the following assets from the most liquid to least liquid

- a. Houses ^u
- b. Checking account deposits ^①
- c. Saving deposits ^②
- d. Common stock ^③

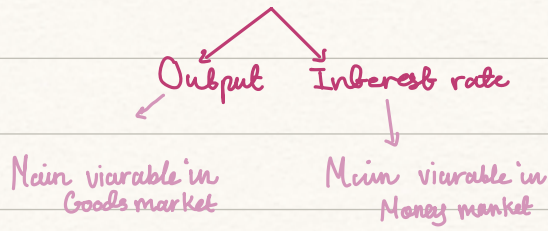
3-For each of the following assets, indicate which of the monetary aggregates (M1 and M2) includes them:

- a. Currency *included in M1, M2*
- b. Small-denomination time deposits *not included in M1, only M2*
- c. Checkable deposits *included in M1, M2*

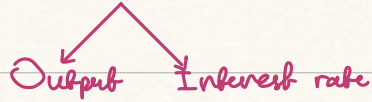
* What are the links between Goods market & money market?

2 Links :

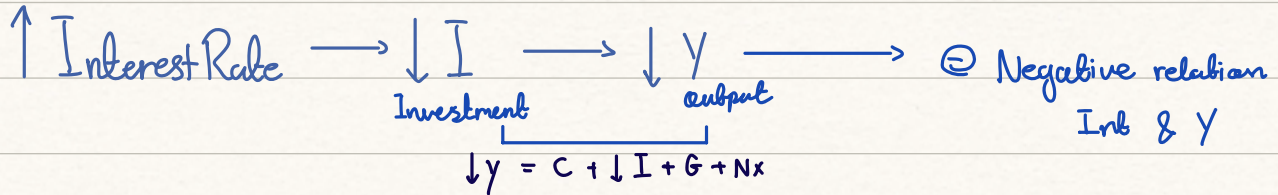
① Negative relation between



② Positive relation between



First Link :



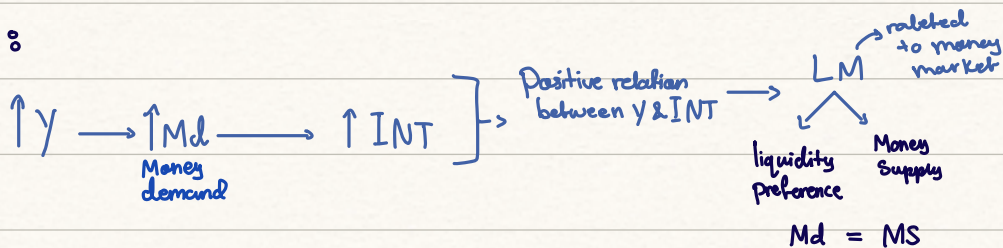
Macroeconomic Equilibrium = $Y = C + I + G + Nx$

output $\leftarrow$ Aggregate Supply = Aggregate Demand
 Total spending

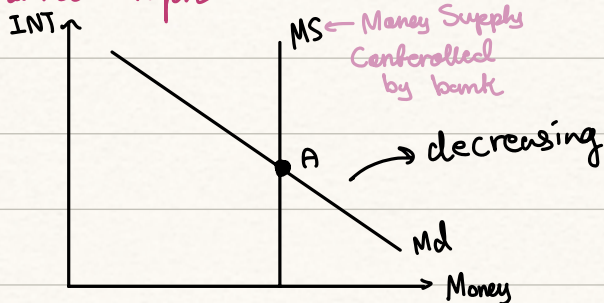
Total output = Total Income = Total spending

Cell phone = 100 KD $\Rightarrow$ \$ 100 spending by consumers $\Rightarrow$ \$ 100 Income for selling $\Rightarrow$ \$ 100 Output

Second Link :



Money market Graph



$\uparrow INT \downarrow Md$

Point A : Money market Equilibrium
 Money supply = Money demand

Lec 12

↑G what is the impact on Goods & money markets.

What is the impact on output & Interest rate

Answer:

Investment x Savings

Step 1: which curve will change IS or LM?

The variable (e.g. G) is related to Goods market or Money market

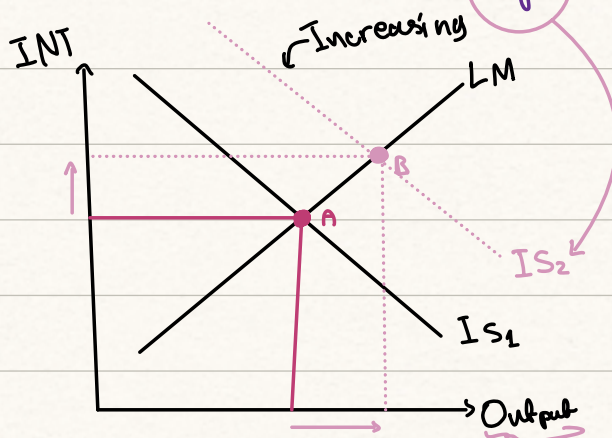
$$\text{Equilibrium } \uparrow Y = C + I + \uparrow G + Nx$$

↓
IS Curve

$$MS = Md$$

↓
LM Curve

Step 2: The curve will change to right or left



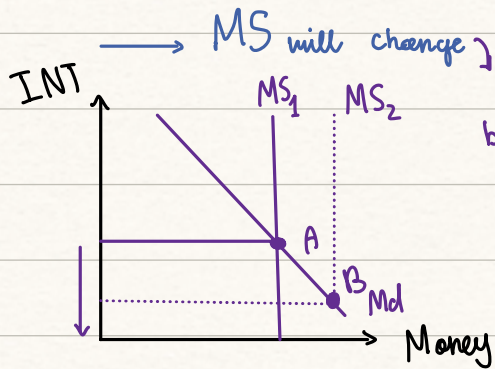
$$\uparrow G \rightarrow \uparrow Y \rightarrow \uparrow Md \rightarrow \uparrow INT$$

$$\uparrow Y = C + I + \uparrow G + Nx$$

↓
Second link

* $\uparrow MS$ what is the impact on Goods market & Money market or Output & Interest rate
 $\downarrow$
 $= \text{Income}, = \text{Expenditure}$

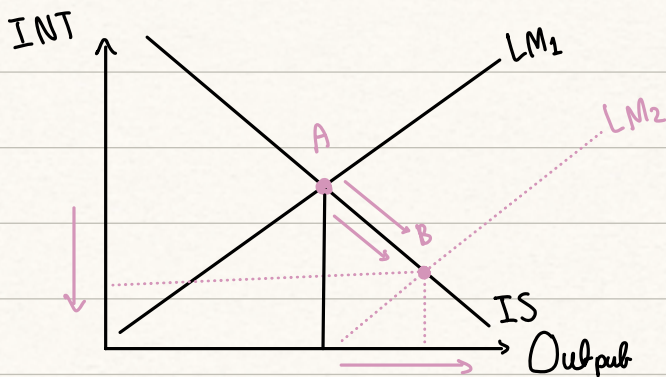
Answer: Which curve will change



because MS is a part of Money market

$\uparrow MS \quad \downarrow INT$

$\rightarrow LM$ will change to right or left



$\uparrow MS \rightarrow \downarrow INT \rightarrow \uparrow I \rightarrow \uparrow Y$

Money market graph

First link

$$\uparrow Y = C + \uparrow I + G + Nx$$

Lec 13

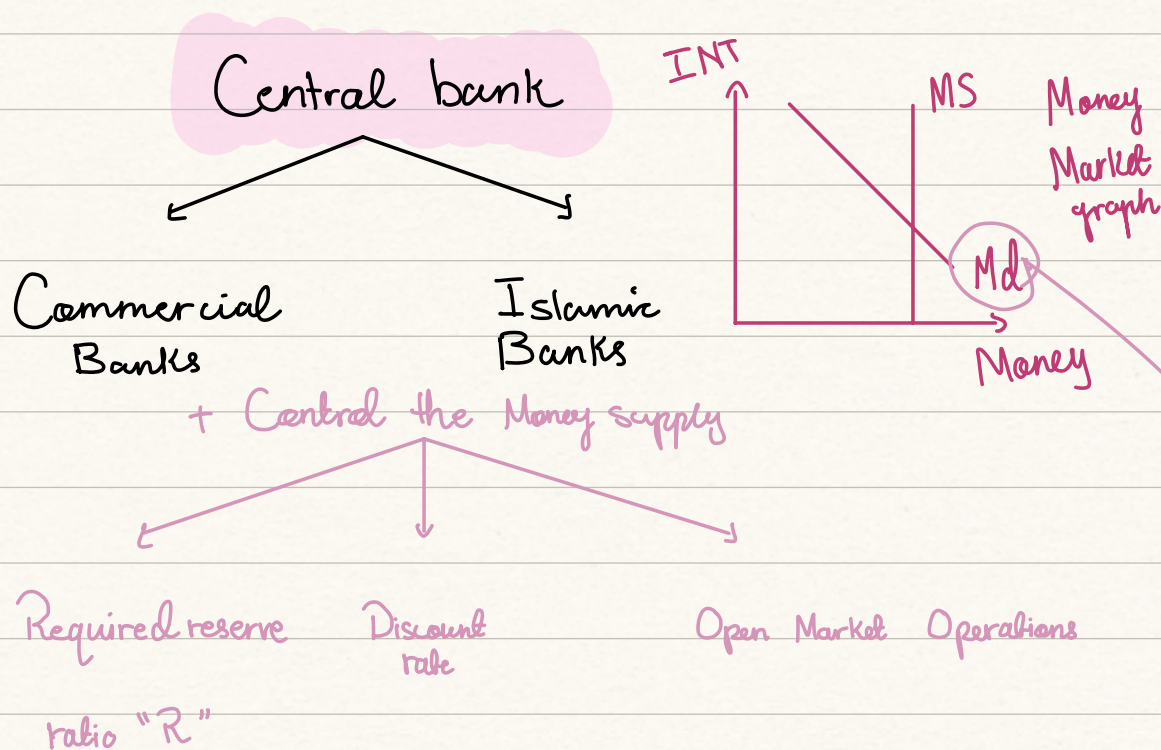
* How can the central bank control the money supply?

3 ways:-

① Required reserve Ratio

② Discount rate

③ Open market Operations



Q: Explain the meaning of Md function?

Answer: $Md = f(\overset{-}{INT}, \overset{+}{price}, \overset{+}{Income})$

Money demand function

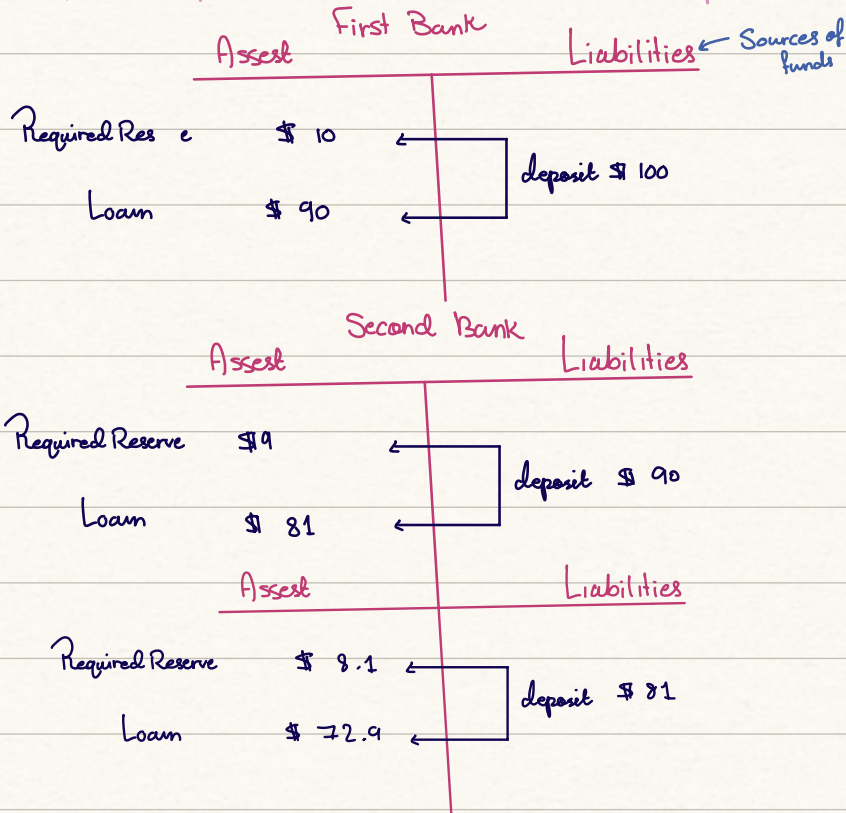
* What is the required reserve ratio?

The percentage of total deposit that a bank must keep at the central bank

To ensure that the Banking sector is safe

To control the MS

Example: Suppose that $r = 10\%$ & Initial deposit = \$100



$$\begin{aligned} \text{Total deposits} &= \$100 + \$90 + \$81 + \dots \\ &= 100 (1 + 0.9 + (0.9)^2 + (0.9)^3 + \dots) \\ &= 100 (1 + b + b^2 + b^3 + \dots) \end{aligned}$$

Infinite sum

General formula of the infinite sum

$$\begin{aligned} &= \frac{1}{1-b} \\ &= \frac{1}{1-0.9} \\ &= \frac{1}{0.1} \rightarrow 10\% = r \end{aligned}$$

Required Reserve Ratio

$$= 100 \times \frac{1}{r} \rightarrow \text{Money Multiplier}$$

$$= 100 \times \frac{1}{r=10\%} = \$1000$$

↑ MS 10 times

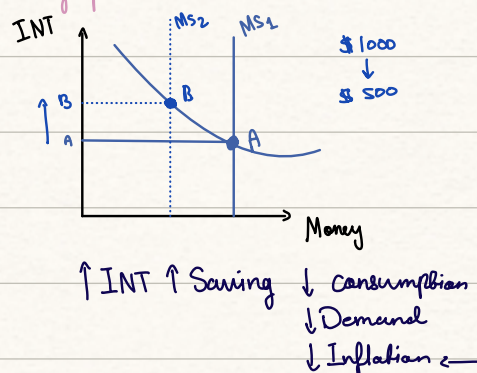
$$100 \times 10 = \$1000$$

What if $r = 20\% = \frac{1}{1-b}$

$$\text{Total deposit} = 100 \times \frac{1}{20\%} = 100 \times 5 = \$500 \rightarrow \uparrow \text{MS}$$

from 10% to 20% → ↑ r ↓ MS

Q1: Draw a graph to show relation between required reserve ratio & MS



* Discount rate

Example: Suppose that many people come to a bank & ask
① for loans ② for the bank to make profit

① borrow the money from the
central bank & pay **INT**

Discount rate

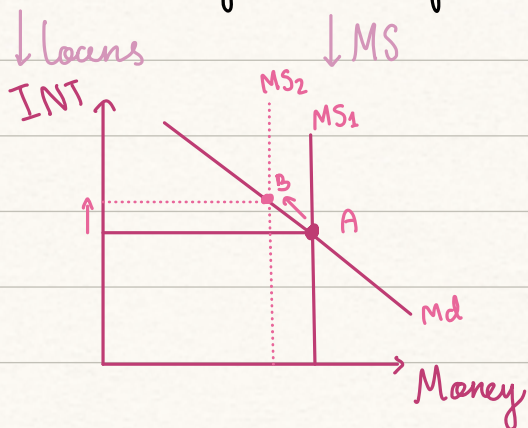
② borrow the money from another
bank & pay **INT**

federal funds rate

is determined by the central bank's

↑ 1 Discount rate

it will discourage banks from borrowing the money



↑ Discount rate

↓ MS

↑ INT

↑ Saving

↓ Consumption

↓ Price

Inflation problem

can be solved

* Open Market Operations

② Selling government bonds

② buying bonds owned by firms

↓
Bond: A contract between borrowers & lenders in which borrowers agree to pay the amount of bonds with INT

if a government issues a bond

→ Government sells the bond to people & firms

Treasury bill $\rightarrow$ Short run bond

① 1 month ② 3 months ③ 6 months

Example: if the government sells bonds to people & firms

borrowers lenders

firms will write a check will withdraw the money from its bank account

↓ MS

Selling government bonds $\rightarrow \downarrow MS$

Buying bonds owned by firms $\rightarrow \uparrow MS$

Review Questions

Question 1: Money Supply

For each of the following assets, indicate which of the monetary aggregates (M1 and M2) includes them:

- Money market account
- Traveler's checks

Question 2: Money Market

Illustrate each of the following situations using supply and demand curves for money. In each case explain what happens to the equilibrium interest rate. Below each graph, write a simple economic analysis.

a. The Fed increases the discount rate during high inflation.

- ↑ Discount Rate → borrowing from the Fed becomes more expensive
- Banks will borrow less
- ↓ MS

Results in Money market

↑ INT

↓ Quantity of money

Equilibrium INT will rise

Types of inflation

Demand-pull

Cost-push

inflation

inflation

Inflation $\% \Delta$ price level $\rightarrow$ ① GDP deflator
② CPI

Inflation rate $\geq 50\%$ (Hyperinflation)

Deflation ($\% \Delta$ price level is negative)

* Draw a graph to explain the difference between Demand-pull & cost-push Inflation.

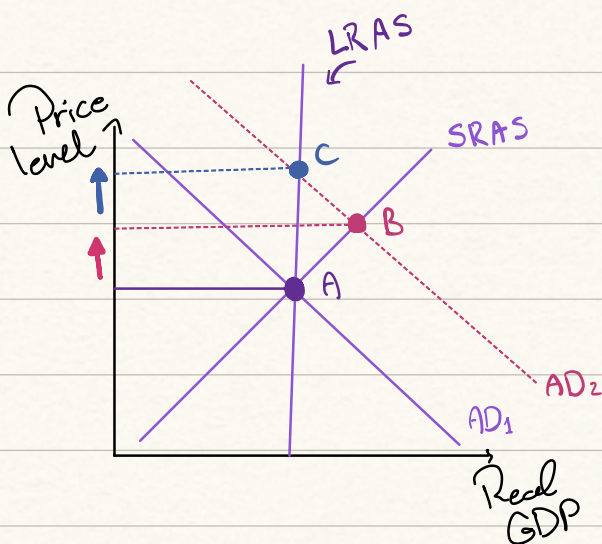
① Demand-Pull Inflation $\leftarrow$ The inflation comes from demand

* Due to ① money growth

$$② Y = \underbrace{C + I + G + NX}_{\text{Total spending Aggregate Demand}}$$

if it increases it is called Demand-pull inflation

Output Aggregate Supply



if cost of production $\uparrow$
production $\downarrow$

AD: Aggregate Demand
SRAS: Short-run Aggregate supply
LRAS: Long-run Aggregate supply
Appear on full employment

The wage is the cost of production

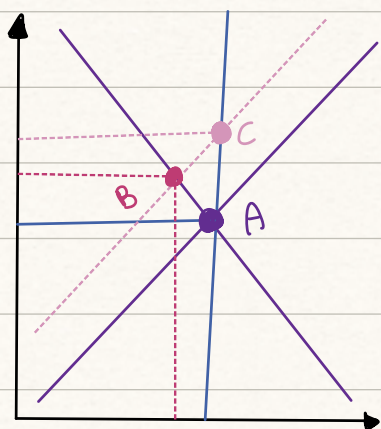
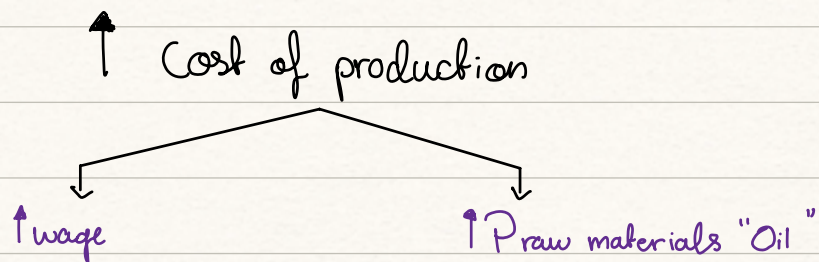
- Point A: Macroeconomic Equilibrium point

- $A \rightarrow B$: $\uparrow$ Money growth $\rightarrow \uparrow AD$ from $AD_1 \rightarrow AD_2$

* Real GDP called Potential GDP

$\uparrow$ price
 $\uparrow$ price $\rightarrow \uparrow$ wage $\rightarrow \uparrow$ cost of production $\rightarrow \downarrow$ supply $\rightarrow SRAS_1 \rightarrow SRAS_2 \rightarrow \downarrow S$
SRAS Shift to the left

@ Cost-push inflation → The inflation comes from supply



If Inflation rate is higher or equal to 50%
it's called Hyper Inflation

Deflation is when $\% \Delta$ price level is negative

↑ P oil → ↑ cost of production ↓ production (supply)

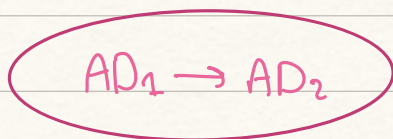


Stagflation

↑ P

↓ Real GDP
↑ Unemployment

↑ G ↑ AD



B → C

Cost-push Inflation
(P₂ → P₃)

“High Inflation is threatening social stability in China, soaring from 3.3 percent in March 2007 to 8.3 percent in March 2008....The proximate cause of price growth since mid-2007 is the appearance of production bottlenecks as domestic demand exceeds supply in an increasing number of sectors.....The prolonged rapid increase in Chinese aggregate demand has been fueled by an investment boom, as well as a growing trade surplus” [Brookings Institution, July 2, 2008]. Is China experiencing demand-pull or cost-push Inflation? Draw a graph to explain your answer. Below the graph, write a simple economic analysis.

* Draw a graph for the Phillips curve & below the graph write a simple economic analysis.

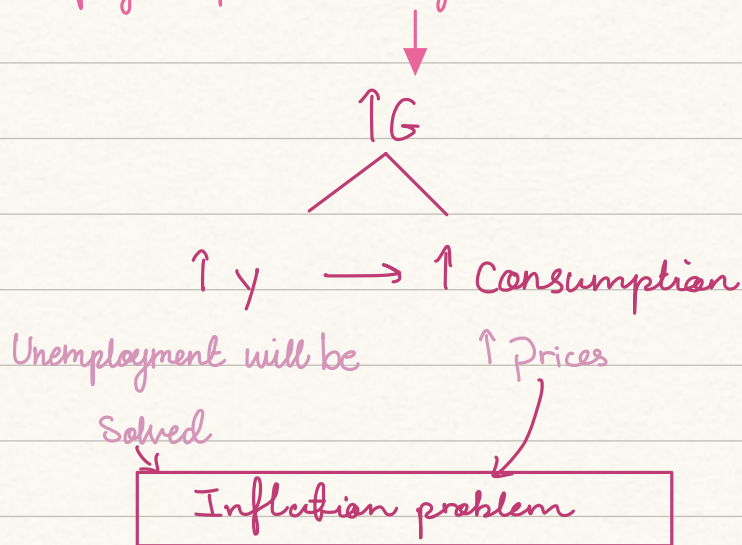
Unemployment & Inflation

Short-Run

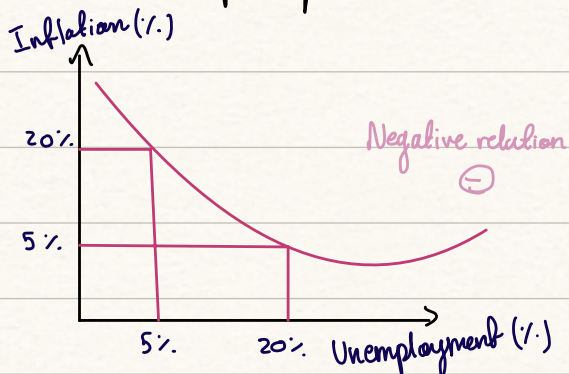
Long-Run

In Short-Run : if there is an unemployment problem, how can the government solve unemployment problem?

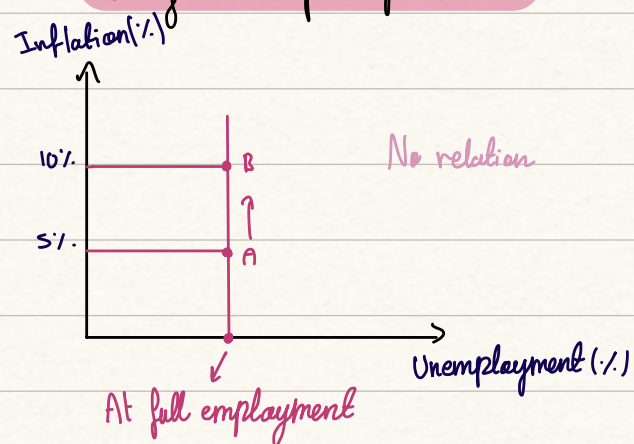
To solve the unemployment problem, the government will increase its spending,



Short-run philips curve



Long-run philips curve



Example : if a government wants to solve recession

$$\uparrow y = C + I + \uparrow G + NX$$

* The difference between Islamic Economics Vs. Economics

→ Economics

* it focuses on efficiency

Min cost & Max profit

→ Islamic Economics

* it focuses on efficiency

→ Both Rich & Poor will benefit

→ Economics

* Economic problem like poverty & hunger are due to Scarcity → limited resources

→ Islamic Economics

Economics problems are due to unequal distribution of income and resources relative scarcity

Example: European farmers dump milk to protest low price

Ethical principles of Islamic Banks

Islamic Bank

Commercial Bank

① Client	Buyers & Seller	Borrower & lender
② Interest Rate	X	✓
③ Fairness Fair treatment	Risk sharing	No Risk sharing
④ Equality Equal access	Both rich & poor can have access to islamic finance	Only Rich
⑤ Efficiency & Productivity	$Y = I_c + I + G + Nx$ Double Impact "growth factor"	$Y = I_c + I + G + Nx$ Single Impact
* Explain the Ethical principles of Islamic finance ↗ * Which country team		

Efficiency :-

$$\begin{aligned} \text{Total spending} &= \uparrow \text{consumption} + \text{Investment} + \text{Government spending} + \text{Net export} \\ &= \text{Output} \quad \downarrow \text{Spending by individual} \quad \downarrow \text{Spending by} \quad \downarrow \text{Spending by} \quad \downarrow \text{Exports - Imports} \\ &= \text{Income} \quad \text{for personal use} \quad \text{firms to make} \quad \text{government} \quad \begin{array}{l} \text{Kuwait} \\ \text{exports} \\ \text{Oil to the USA} \end{array} \quad \begin{array}{l} \text{Kuwait} \\ \text{imports} \\ \text{Automobiles \& cellphones} \\ \text{from the USA} \end{array} \end{aligned}$$

Import: Buying foreign products from foreign countries

Export: Selling domestic products to foreign countries

$$\uparrow Y = \uparrow C + \uparrow I + G + Nx$$

Commercial Bank $y = \uparrow C + \overset{\text{Single impact}}{I} + G + Nx$ } Using Tawarruq

Islamic Bank $y = \uparrow C + \downarrow \uparrow I + G + Nx$ } Using Tawarruq
 double impact

on Economic growth

TAWARRUQ

1. The bank will purchase commodities from Supplier A and pay the sale price on spot. (First Sale)
2. After owning the commodities, the bank will sell them to Customer based on Murabaha but sale price will be paid on deferred. (Second Sale)
3. After owning the commodities, Customer (or through his agent) sells them to Supplier B and will be paid the sale price immediately. (Third Sale)

<https://www.kfh.com/en/home/Personal/Financing/Tawarouq-Q-A.html>

<https://www.kfh.com/en/home/Personal/Financing/Tawarouq-Q-A.html>

Exchange rate & prices

Introduction:-

Which country is cheaper?

$$R = \frac{ep}{p^*}$$

Real exchange rate = Nominal exchange rate / foreign country

Example:-

In USA Big Mac = \$2.5

In Japan Big Mac = 400 yen

Yen/\$ = 120

Q Which country is cheaper?

$$R = \frac{ep}{p^*} = \frac{120 * 2.5}{400 \text{ yen}} = 0.75 \text{ USA is cheaper}$$

300 yen

$R < 1$ Domestic country is cheaper

$R > 1$ foreign country is cheaper

$R = 1$ Long run



Law of one price

$$R = 1 = \frac{ep}{p^*} \Rightarrow ep = p^*$$

prices in domestic country = prices in foreign country

$$e = \frac{p^*}{p}$$

correct level of exchange rate

Absolute version of purchasing power parity theory
 $\Rightarrow$ we can predict $|e|$ based on prices in domestic & foreign countries

(PPP theory)

[b] based on ppp theory, ↑\$ will appreciate" Is the previous Statement correct?

Answer:

$$|e| = \frac{P^*}{P} = \frac{400}{2.5}$$

$$¥/\$ = 160$$

$$\$1 = 160 \text{ yen}$$

⇒ \$ will appreciate against yen

from \$1 = 120 yen

$$\text{to } \$1 = 160 \text{ yen}$$

based on ppp theory

Relative version of ppp theory

$$\% \Delta e$$

$$\% \Delta e = \frac{P^*}{P}$$

$$\% \Delta e = \% \Delta P^* - \% \Delta P$$

Inflation in
Foreign country

Inflation in
Domestic country

Inflation Differential

Prove that $\% \Delta e = \text{Inflation Differential}$

Answer: $e = \frac{P^*}{P}$

To convert from absolute version to relative version, we need to use Log rules

first log rule ⇒ $z = \frac{y}{x} \Rightarrow \log z_t = \log y_t - \log x_t$

$$\log e_t = \log P_t^* - \log P_t$$

Second log rule ⇒ $\log z_t - \log z_{t-1} = \% \Delta z$

$$\log e_{t-1} - \log e_{t-1} = (\log P_{t-1}^* - \log P_{t-1}^*) - (\log P_{t-1} - \log P_{t-1})$$

$$\% \Delta e = \% \Delta P^* - \% \Delta P \longrightarrow \text{Inflation Differential}$$

Exchange rate & Interest Rate

(E) (INR)

Example: Should you deposit your money in KD or \$?

3 factors:

① INR on \$

② INR on KD

③ % Δ exchange rate

$$= \frac{E_t - E_{t-1}}{E_{t-1}} \times 100$$

Q if you have \$1000 Should you buy £500 or keep your funds in dollar deposit?

$$£1 = \$2$$

* if you deposit your money in \$

$$\frac{\$1000}{£2000} + \frac{1000 \times 1\%}{\$10} = \$1010$$

* if you deposit your money in £ ← Pound

$$£1 = \$2$$

$$? = \$1000$$

$$? = \frac{\$1000 \times 1}{2} = 500 £$$

* if you deposit your money in pound?

$$\$500 + 500 \times 2\% = £510$$

$$£1 = \$2$$

$$£510 = ?$$

$$? = \frac{510 \times \$2}{1}$$

$$= \$1020$$

b) What if £ 1 = \$ 1.5

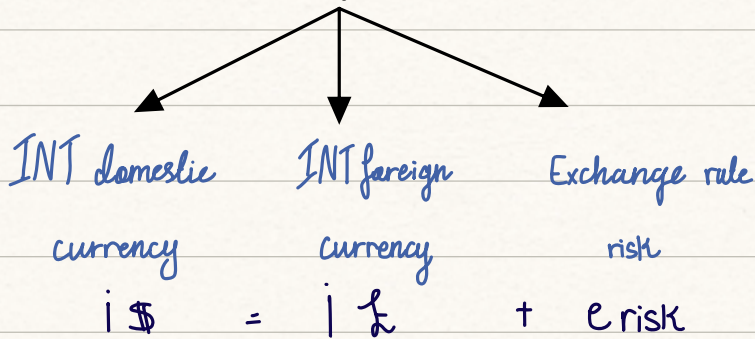
£ 500 = ?

$$? = \frac{510 \times 1.5}{1} = \$ 765$$

YOU SHOULD DEPOSIT YOUR MONEY IN \$

$$\$ 1010 > \$ 765$$

3 factors



1.5e

$$\frac{Expected - e}{e} \times 100$$

$$1\% = 2\% + \frac{1.5 - 2}{2} \times 100$$

$$1\% = 2\% + (-25\%)$$

$$1\% = -23\%$$

$$i_{\$} = i_{£} + 1.5e$$



Interest parity
Long run

Uncovered Interest parity

We have e risk

Covered INT parity

$$i_{\$} = i_{\pounds} + \frac{e^{\text{expected}} - e}{e} * 100$$

$$i_{\$} = i_{\pounds} + \frac{e^{\text{forward}} - e}{e} * 100$$

[c] $i_{\$} = 2\% \quad i_{\pounds} = 1\%$

$$e^{\text{forward}} = \$2.02$$

Do we have covered INT parity?

Answer :-

$$i_{\$} = i_{\pounds} + \frac{e_f - e}{e} * 100$$

$$2\% = 1\% + \frac{2.02 - 2}{2} * 100$$

$$2\% = 1\% + 1\%$$

$$2\% = 2\%$$

Covered INT parity

* What if INT parity does not hold?

Arbitrageur can profit by borrowing at lower INT and lending at higher INT with exchange rate fully covered via forward hedging

hedge e risk by using forward e

Covered INT Arbitrage

$$i_{\$} = 5\% \quad i_{\pounds} = 8\% \quad \text{Spot } e : \pounds 1 = \$1.8$$

Assume that Arbitrage can borrow up to \$1,000,000

$$F = \frac{S(1+i_{\$})}{(1+i_{\pounds})} = \frac{1.8(1+5\%)}{(1+8\%)}$$

$F > 1.75 \rightarrow$ for Banks to make profit

[a] Is there any Arbitrage opportunity?

$$i_{\$} = i_{\pounds} + \frac{F - S}{S} * 100$$

$$5\% = 8\% + \frac{1.75 - 1.8}{1.8}$$

$$= 8\% + (-1.1\%)$$

$$5\% \neq 6.9\%$$

INT parity does not hold $\rightarrow$ There an arbitrage opportunity (no profit)

b) Show what steps needs to be taken to make arbitrage profit?

Answer:

Step# 1 Borrow \$ 1,000,000 & you need to pay American Bank:

$$\frac{1,000,000 \times 1.05 = \$1,050,000}{1,000,000 + 1,000,000 \times 5\% = 1,050,000}$$

Step#2 Convert \$ 1,000,000 to £

$$£1 = 1.8$$

$$£ 555555.6 = \$1,000,000$$

Step#3 Deposit it in one of British Banks to get 8%.

$$= £ 555555.6 \times 1.08 \rightarrow 555555.6$$

$$= £ 600,000$$

$$\begin{array}{r} + \\ 555555.6 \\ \times 8\% \end{array}$$

Step#4 Convert it to \$ using

$$F: £1 = \$1.78$$

$$£600,000 = \$1,068,000$$

Arbitrage profit

$$1,068,000$$

$$- 1,050,000$$

$$= \$180,000$$

PROFIT

* How can banks quote F?

Answer:

①

$$\text{Arbitrage Profit} = 1,068,000 - 1,050,000$$

$$0 = \frac{P}{S} (1 + i_{£}) F - P (1 + i_{\$})$$

$$P (1 + i_{\$}) = \frac{P}{S} (1 + i_{£}) F$$

$$F = \frac{\frac{P}{S} (1 + i_{£})}{\frac{P}{S} (1 + i_{\$})}$$

$$F = \frac{P \times \frac{S}{P} (1 + i_{\$})}{(1 + i_{£})}$$

$$F = \frac{S(1 + i_{\$})}{(1 + i_{£})}$$

For banks to make profit

②

$$F > \frac{S(1 + i_{\$})}{(1 + i_{£})}$$

$$F > \frac{1.8(1 + 5\%)}{(1 + 8\%)}$$

$$F > 1.75$$

$$* \text{ Per US\$} = \frac{1}{\text{In US\$}}$$

$$* \text{ In US\$} = \frac{1}{\text{Per US\$}}$$

\$ Currency
Currency \$

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Country/currency	in US\$	Per US\$	YTD chg (%)
Americas			
Argentina peso	.1889	5.2931	7.7
Brazil real BR	.4700	2.1277	3.9
Canada dollar C\$	.9668	1.0344	4.2
Chile peso	.001986	503.50	5.0
Colombia peso	.0005263	1900.22	7.5
Ecuador US dollar	1	1	unch
Mexico peso	.0778	12.8567	unch
Peru new sol	.3696	2.705	6.3
Uruguay peso	.04959	20.1650	5.6
Venezuela b. fuerte	.157480	6.3500	46.0
Asia-Pacific			
Australian dollar	.9542	1.0480	8.9
1-mos forward	.9521	1.0503	8.2
3-mos forward	.9482	1.0546	8.2
6-mos forward	.9425	1.0610	8.1
China yuan	.1632	6.1274	-1.7
Hong Kong dollar	.1288	7.7613	0.1
India rupee	.01759	56.855	3.4
Indonesia rupiah	.0001021	9792	1.6
Japan yen	.010001	100.00	0.0

year to date

↑ by 4.2%
against CAD

BR/C\$

$$= \frac{0.47}{0.9668}$$

$$= 0.486$$

In \$

$$= \frac{\text{BR} / \$}{\text{C\$} / \$}$$

$$= \frac{2.1277}{1.0344}$$

$$= 2.056$$

↓

$$\frac{\text{BR}}{\$} * \frac{\$}{\text{C\$}}$$

$$= \frac{\text{BR}}{\text{C\$}}$$

Per \$

$$= \frac{\$ / \text{BR}}{\$ / \text{C\$}}$$

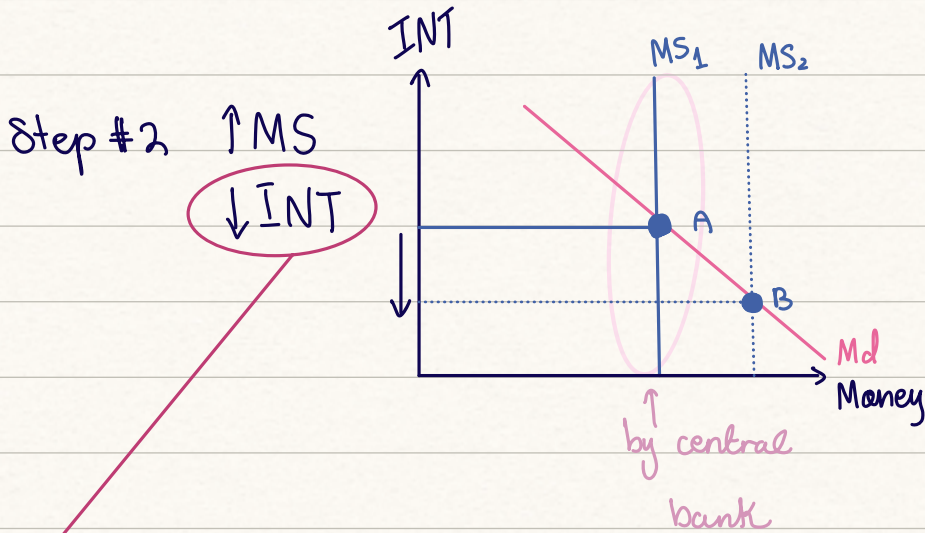
$$= \frac{\cancel{\$}}{\text{BR}} * \frac{\text{C\$}}{\cancel{\$}}$$

$$\frac{1}{0.486} = \frac{\text{C\$}}{\text{BR}}$$

$$\frac{1}{2.056} = \frac{\text{BR}}{\text{C\$}}$$

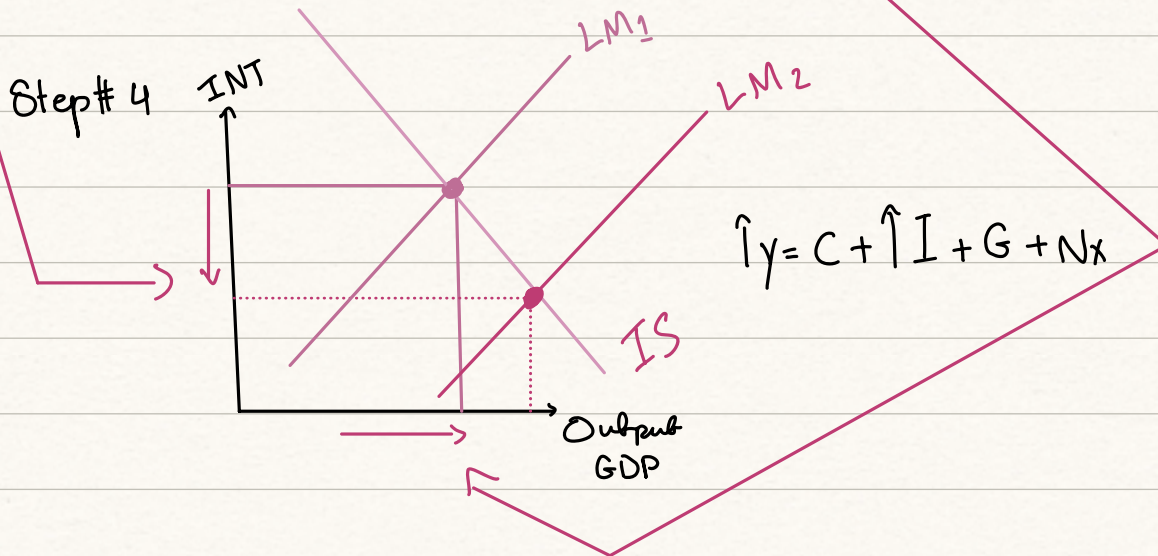
* IS-LM Model

Step #1 $\uparrow MS$ related to Money market
 $\Rightarrow$ LM will change



Step #3 Use two links

$\downarrow INT \uparrow I \uparrow y$



$\uparrow MS \downarrow INT \uparrow I \uparrow y$

Good Luck 😊

