

1 Midterm Course of Money, Banking and Finance.

Chapter # 24 (Monetary Policy Theory)

Inflation has become a major concern of Politicians and the Public, and how best to control it is an issue that frequently dominates the discussion of economic policy. Specifically we will examine the role of monetary policy in creating inflation and stabilizing the economy.

→ Response of Monetary Policy to shocks:-

Main Goal of central banks is to maintain price stability. They set an inflation target π^T .

$$\rightarrow \text{Inflation Gap} = (\pi - \pi^T)$$

actual inflation \downarrow $\xrightarrow{\text{Target inflation}}$

$$\rightarrow \text{Output Gap} = (Y - Y^P)$$

aggregate output \downarrow $\xrightarrow{\text{Potential output}}$

The main objectives of the central banks is to minimize the difference b/w the actual inflation and Targeted inflation ($\pi - \pi^T$) and also to minimize the difference between aggregate output and Potential output ($Y - Y^P$).

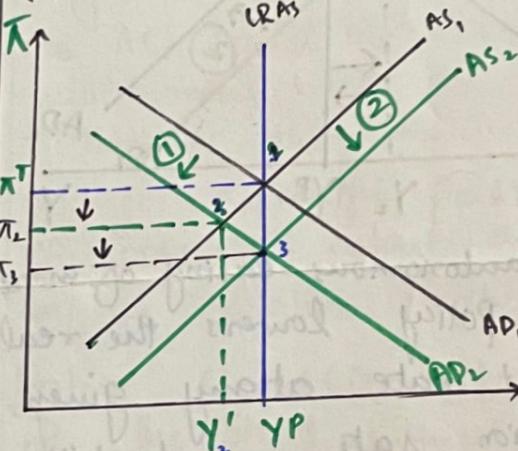
So, we can say that the central banks care about

the Price stability and as well as the economic activity.

→ Response to an Aggregate demand shock :-

Policymakers can respond to this shock in two possible ways:-

No Policy Response :-

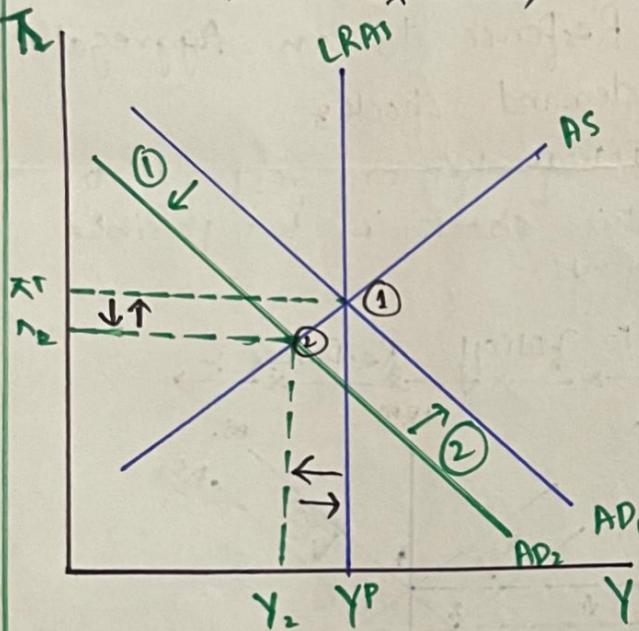


An aggregate demand shock shifts the aggregate demand curve leftward from AD_1 to AD_2 and moves the economy from Point 1 to 2.

where "Y" falls to Y_2 and inflation falls to π_2 with output below Potential, the AS shifts down to AS_2 and the economy moves to Point 3, where output is back at Y^P but inflation has fallen to π_3 . At first glance this outcome look favorable inflation is lower and output is back at its Potential. But aggregate output will remain below Potential for some time, and

If inflation was initially at its target level, the fall in inflation is undesirable for some reasons.

→ Policy Response &



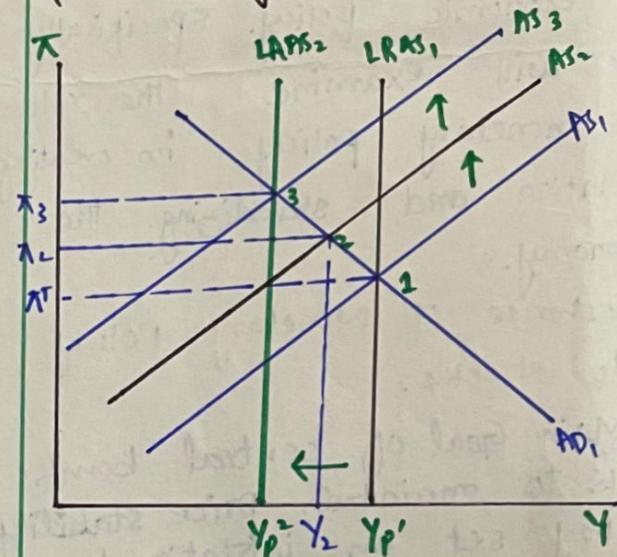
An autonomous easing of monetary policy lowers the real interest rate at any given inflation rate and shifts the AD curve back to AD₂. Aggregate output returns to potential at Point 1, and inflation returns to its target level.

Our analysis of this monetary policy response shows that in the case of aggregate demand shocks, there is no trade off between the pursuits of price stability and economic activity stability, as there is a divine coincidence which means if you want to

stabilize inflation in demand shock then the economic activity will stabilize itself.

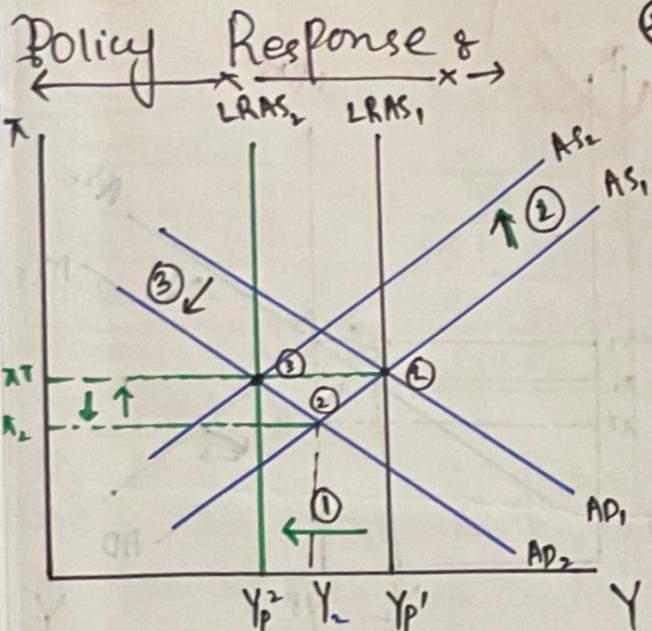
→ Response to a permanent supply shock -

→ No Policy Response &



A permanent negative supply shock decreases potential output from Y_p to Y_p' and the long run aggregate supply curve shifts to the left from LRAS₁ to LRAS₂. The short run aggregate supply curve shifts upward from AS₁ to AS₂. The economy moves to Point 2, with inflation rising to P_2 and output falling to Y_2 .

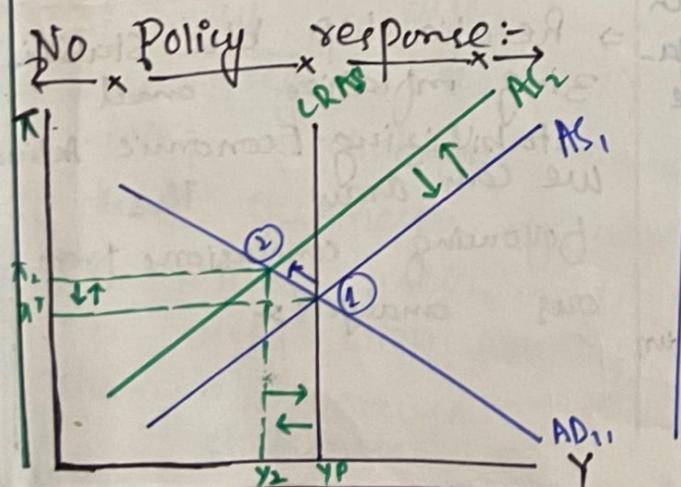
Because aggregate output is still above potential, the short-run aggregate supply curve will keep on shifting until the output gap is zero when it reaches AS₃. The economy moves to Point 3, where inflation raises to P_3 and output falls to Y_p' .



An autonomous tightening of monetary policy shifts the AD curve to the left to AD_3 . Thereby, keeping the inflation rate at π^* at Point 3.

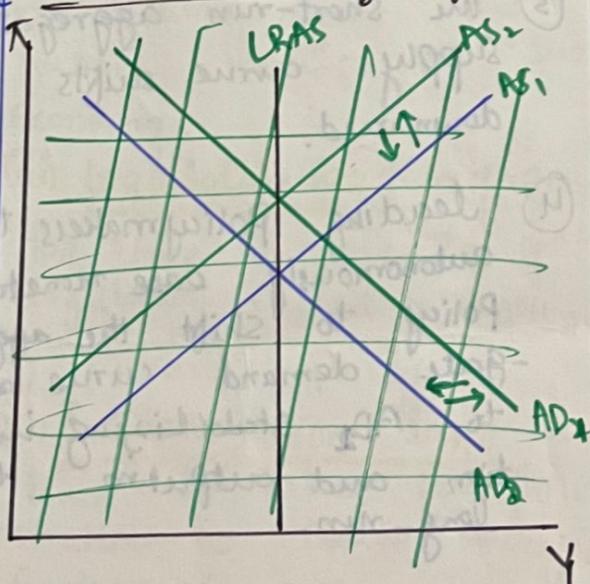
Here again, keeping the inflation gap at zero leads to a zero output gap. So by stabilizing inflation the Policy response has also stabilized economic activity. So the divine coincidence still holds true when a permanent supply shock occurs.

Response to Temporary Supply Shock:

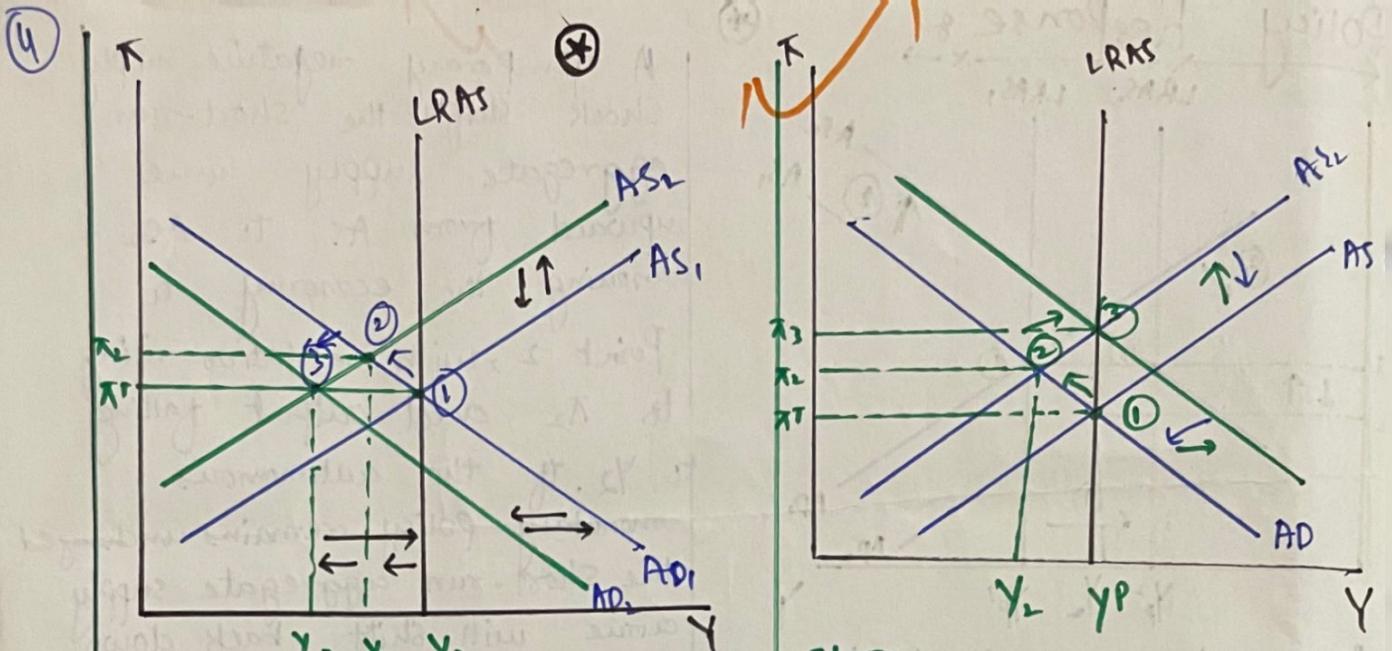


A temporary negative supply shock shifts the short-run aggregate supply curve upward from AS_1 to AS_2 , moving the economy to Point 2, with inflation rising to π_2 and output falling to Y_2 . If the autonomous monetary policy remains unchanged, the short-run aggregate supply curve will shift back down and to the right in the long run, eventually returning to AS_1 , and the economy will move back to Point 1. However, the economy will undergo a painful period of reduced output and higher inflation rates.

Policy stabilizes inflation in the Short Run



Next Page:-



Steps:

- ① A temporary negative supply shock shifts the short-run AS curve upward.
- ② Autonomous tightening of monetary Policy shifts the AD₁ curve to AD₂, leading to a decline in output, but keeping inflation at π^* .
- ③ The short-run aggregate supply curve shifts downward.
- ④ Leading Policymakers to autonomously ease monetary Policy to shift the aggregate demand curve back to AD₁, stabilizing inflation and output in the long-run.

→ Policy Stabilizing Economic activity in the Short-Run

steps:

- ① A temporary negative supply shock shifts the short-run aggregate supply curve upward.
- ② Leading to a rise in inflation, and fall in output.
- ③ Autonomous easing of monetary Policy shifts the AD curve rightward.
- ④ Output has stabilized at Potential, but inflation is higher than the target level.

⇒ Relationship b/w stabilizing inflation and Stabilizing Economic Activity we can draw the following conclusions from our analysis:

If most shocks to the economy are aggregate demand shock or permanent aggregate supply shocks, then policy that stabilizes inflation will also stabilize economic activity, even in the short-run.

If temporary supply shocks are the most common type of shocks, then a central bank must choose b/w the two stabilization objectives in the short-run.

How actively should policymakers try to stabilize economic activity?

All economists have similar policy goals, yet they often disagree for the best approach for achieving these goals.

Non-activists believe that wages and prices are very flexible and these are self-correcting mechanism works very rapidly.

Activists regards the self-correcting mechanism because of the stickiness of wages and prices adjustments is a very slow working mechanism because of the stickiness of

wages and prices. Thus they believe it will take the economy a very long time to reach the long-run, agreeing with Keynes' famous adage that "In the long-run, we are all dead".

lags and Policy Implementations

(i) Data lags is the time it takes for policymakers to obtain data that describe what is happening in the economy.

(ii) Recognition lags is the time it takes for the policymakers to feel confident about the signals the data are sending about the future course of the economy.

(iii) Legislative lags represents the time it takes to get legislation passed to implement a particular policy.

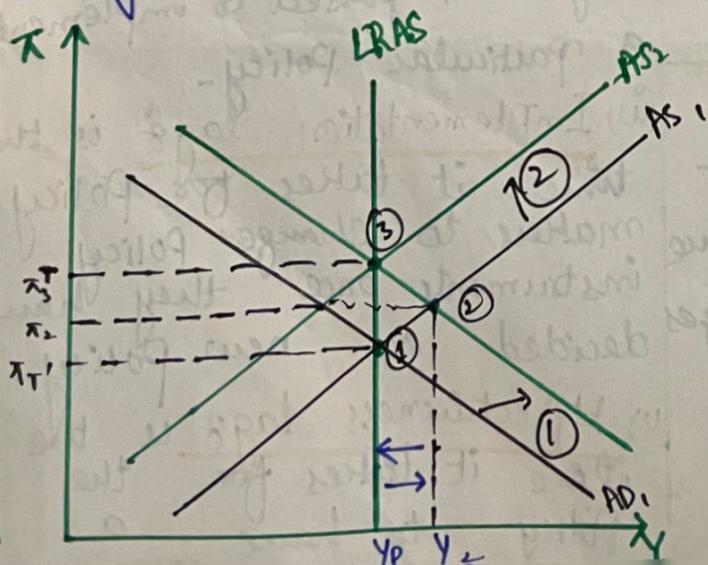
(iv) Implementation lags is the time it takes for policymakers to change policy instruments once they have decided on new policy.

(v) Effectiveness lags is the time it takes for the policy to have a

⑥ seal impact on the economy.
 → The existence of these lags makes the policymakers job far more difficult and therefore weakens the case for activism.

So, in situations in which policy lags are larger than the time it takes the self-correcting mechanism to work, a policy of nonactivists may produce a better outcome.

⇒ Inflation is always and everywhere a monetary phenomena. This adage is supported by our aggregate demand and supply analysis, which asserts that policymakers can target any inflation rate in the long-run by shifting the aggregate demand curve through autonomous monetary policy.



① Autonomous monetary Policy easing shifts the AD curve to the right, and over time, the short-run aggregate supply curve shifts upward.

② And inflation rises to the new, higher target. The analysis in below figure demonstrates the following key points-

i) The monetary authorities can target any inflation rate in the long-run with autonomous monetary policy adjustments.

ii) Potential output - and therefore the quantity of aggregate output produced in the long-run - is independent of monetary policy.

⇒ Causes of Inflationary Monetary Policy

In this section, we will examine the government policies that are most common sources of inflation.

High Employment targets & Inflation

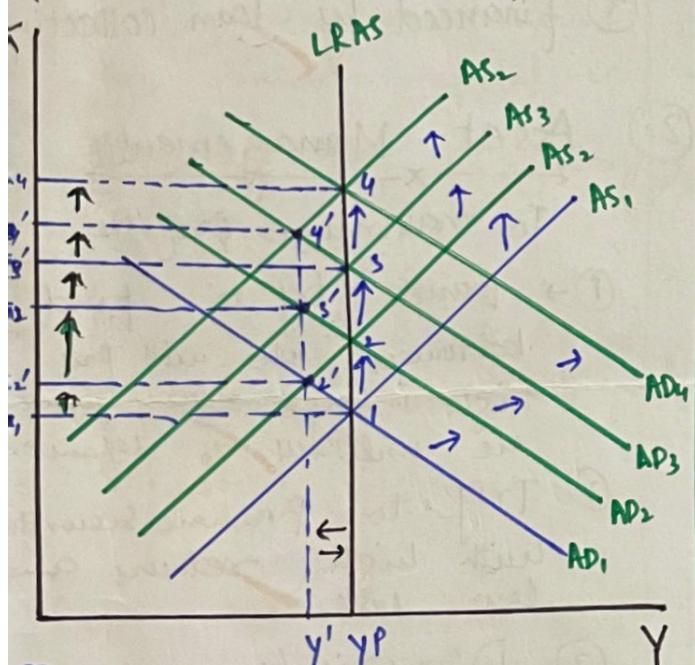
Inflation: The primary goal of most governments is high employment, and the pursuit of this goal can bring on high inflation. Two types of inflation pursue results from an activist stabilization policy.

aimed at promoting high employment.

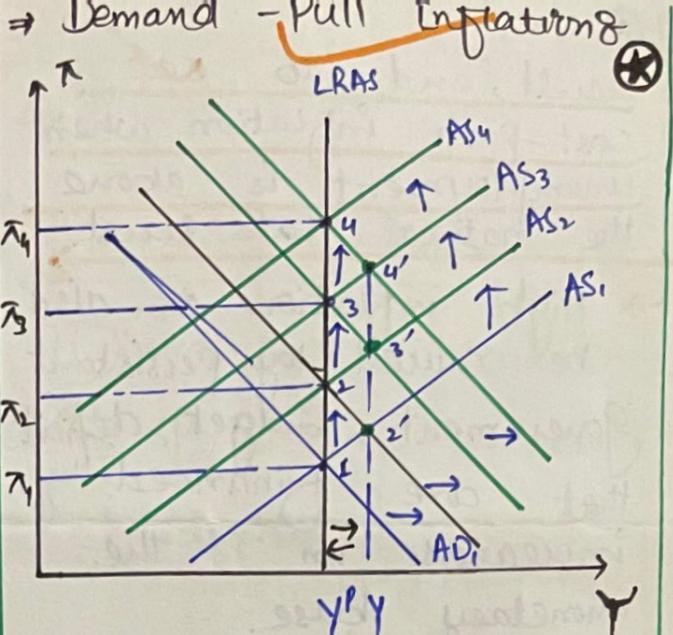
cost-push inflation results from either a temporary negative supply shock or a push by workers for wage hikes that are beyond those justified by productivity gains.

Demand-Pull inflation results when policy-makers pursue policies that increase AD.

Cost-Push Inflation



- ① A temporary negative supply shock shifts the short-run aggregate supply curve upward to AS₂, and the economy moves to point 2'. To keep aggregate output at Y_P and to lower the unemployment rate, policy-makers shift the AD curve to AD₂ so that the economy will return quickly to potential output at 2 and an inflation rate of π_2 .



Too low an unemployment target (too high an output target of Y_P) causes the government to increase the aggregate demand, shifting the AD curve rightward from AD₁ to AD₂ to AD₃ and so on. Because at Y_P the unemployment rate is below the natural rate level, wages will rise and short run AS curve will shift up and leftward, from AS₁ to AS₂ to AS₃ and so on. The result is a continuing rise in inflation known as a demand-pull inflation.

⇒ Cost-Push Versus Demand-Pull Inflation

When inflation occurs, how do we know whether it is demand-pull inflation or cost push inflation? We would normally expect to see demand-pull inflation when unemployment is below the natural rate.

③ level, and to see cost-push inflation when unemployment is above the natural rate level.

→ High inflation can also be caused by persistent government budget deficit that are financed by increases in the monetary base.

⇒ The public's knowledge that government policy was aimed squarely at high employment explains the persistence of inflation.

Chapter No # 098

Banking and the management of financial institutions:-

We examine how banking is conducted to earn the highest profit possible.

| Assets | Liabilities |
|---------------------------------------|-------------------------|
| ① Reserves | Checkable deposits |
| ② Cash items in process of collecting | Nontransaction deposits |
| ③ Deposits in other bank | Borrowings |
| ④ Securities | Bank capital |
| ⑤ Loans | |
| ⑥ Other assets | |

General Principles of Bank Management

- ① Liquidity management × \$ role of Reserves
- ② Financed by borrowing from Banks
- ③ Financed by selling securities
- ④ Financed by borrowing from fed
- ⑤ Financed by loan collection

② Asset Management

To maximize profits

- ① Banks try to find borrowers who will pay high interest rates and are unlikely to default
- ② Try to purchase securities with high returns and low risk
- ③ Diversification

④ Banks must manage the liquidity of its assets so that it can meet to cancel the bankruptcy.

③ Liability Management

- ① Riskaverse

④ Capital Adequacy

Management &

Banks manage capitals
to

- ① Bank capital helps to prevent bank capital failure.
- ② Amount of capital held affects returns for the owner of the bank.
- ③ A minimum amount of bank capital is required by obligatory authorities.

⇒ Amount of Bank Capital effects Return of Equity Holders

$$ROA = \frac{\text{net profit after taxes}}{\text{Assets}}$$

$$ROE = \frac{\text{net profit after taxes}}{\text{equity Capital}}$$

$$EM = \frac{\text{Assets}}{\text{equity Capital}}$$

$$\Rightarrow \frac{\text{net profit after taxes}}{\text{equity Capital}} = \frac{\text{net profit after taxes}}{\text{Assets}} \times \frac{\text{Assets}}{\text{equity Capital}}$$

low bank capital high profits
and vice versa -

⇒ Managing Credit Risk

-
- ① Screening & Monitoring
 - ② Specializing in lending
 - ③ Monetoring and enforcement of restrictive Covenants
 - ④ Credit Rationing

⇒ Managing Interest rate Risk &

- ① Gap and duration analysis

$\pi = 5\%$

$$RSA = RSL \times \pi$$

$$20 - 5\%$$

$$-30 \times 5\%$$

~~Confidential~~

$\pi = 5\%$

RSA = $RSL \times \pi$
 $20 - 5\%$
 $-30 \times 5\%$

When employment & Natural rate
 Government Policy is
 Bulk inflation

Chapter # 9 (Mishkin)

Banking and the management of financial institutions

We examine how banking is conducted to earn the highest profit possible.

$$\text{total Assets} = \text{total Liabilities} + \text{Capital}$$

Liabilities

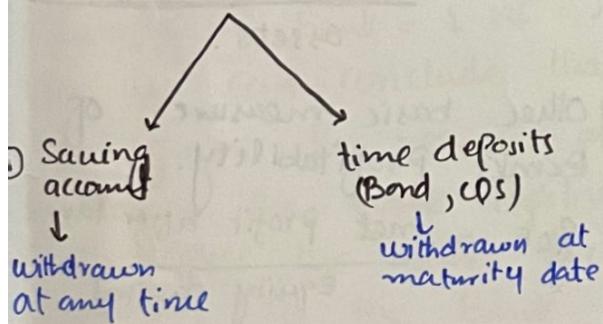
Banks borrow on less rate and purchase income earning asset through which they obtain high interest.

Checkable deposits (liability)

Checkable deposits are payable on demand liability for the Bank.

Non transaction deposits

Deposits that cannot be transferred or withdrawn at a movement notice.



Borrowings

Banks also obtain funds by borrowing from the central Bank (Fed).

Borrowings from the Fed are called discount loans.

Bank Capital

Bank's Net worth

$$\text{Bank capital} = \frac{\text{Assets}}{\text{Liabilities}}$$

Bank capital is difference between Asset and Liabilities.

⇒ **Assets** Assets usually are the sources through which there is inflow of interest to the Bank.

① Reserves

Reserves are basically currency that is physically held by Banks. Banks hold reserves for two reasons.

→ Required reserves (10% of each deposit must be kept in cash to meet its obligations)

→ Excess reserves most liquid of all banks asset and are used to meet its obligations.

② Cash items in process of collecting

Check written on an account at another bank is deposited in your bank and are not yet received.

③ Deposits at other Banks

Many small banks hold deposits in larger banks for variety of services.

④ Securities

A bank's holding of securities are an important income-earning asset.

Banks holds Treasury bonds due to its liquidity the U.S. govt bonds also called secondary reserves.

⇒ **Loans** Banks make the profits primarily by issuing loans.

⑤ Other Assets

- ② Basic Banking shows how banking is carried out to make profit. It is very simple.
- ⇒ General Principles of Bank Management
- (1) Liquidity Management and Role of reserves of
 - (i) Financed by borrowing from other Banks.
 - (ii) Financed by selling securities.
 - (iii) Financed by borrowing from the Fed.
 - (iv) Financed by loan collection.
 - (2) Asset Management
 - (i) Banks try to find borrowers who pay high interest and are unlikely to default.
 - (ii) Try to purchase securities with high returns and low risk.
 - (iii) Manage the assets to lower risks by diversification.
 - (iv) Banks must manage the liquidity of its assets so that it can meet to cancel the bankruptcy.
 - (3) Liability Management
 - ① A bank must pay interest on deposits and also charge a rate of interest on loans. To manage these two variables, bankers track net interest margin
- or the difference b/w their interest paid on deposit and interest earned on loans.
- ② Banks should not make risky loans.
- ④ Capital Adequacy Management
- Bank manager capital to
 - (i) Bank capital helps to prevent Bank's failure.
e.g.: - (\$5 million Loan value)
 - (ii) Amount of capital held affects returns to owner of the Bank.
 - (iii) A minimum amount of capital is required by obligatory authorities.
- How the amount of Bank capital Affects returns to equity holders &
- ① A basic measure of bank profitability is the ROA

$$ROA = \frac{\text{net profit after taxes}}{\text{assets}}$$
 - ② Other basic measure of Bank's profitability.

$$ROE = \frac{\text{net profit after taxes}}{\text{Equity capital}}$$
 - ③ Relationship b/w ROE or ROA is determined by equity multiplier.
- $$EM = \frac{\text{Asset}}{\text{equity capital}}$$
- To see this, we note the

$$ROE = ROA \times EM$$

$$\frac{\text{net profit after taxed}}{\text{Equity capital}} = \frac{N.P.A \text{ taxed}}{\text{assets}} \times \frac{\text{Assets}}{\text{equity capital}}$$

High Capital Bank initially has \$100 million of assets and \$10m of equity

$$EM = \frac{100}{10} = 10\%$$

Low Capital bank

$$EM = \frac{100}{4} = 25\%$$

Suppose these banks have been equally well run so that they both have the same return on asset 1%

The return on Equity for H. Capital bank = $1\% \times 10 = 10\%$

Low Capital bank = $1 \times 25 = 25\%$
So we can conclude that the given the return on assets, the lower the bank capital, the higher the return for the owner of the bank.

Managing Credit Risk
Managing Credit Risk refers to reduce credit risk and make successful loans.

Adverse selection in loan markets occurs

Those who are most likely to produce an adverse outcome are most likely to be selected.

→ Adverse selection in loan market requires that lenders screen out the bad credit risks from the good one.

Managing Credit Risk can be done by such a ways.

- (i) ↳ Screening and Monitoring
 - ↳ taking applications and verifying the information they contain
- (ii) ↳ Specialization in lending:-
diversify the loans to make it risk averse.
- (iii) ↳ Monitoring and Enforcing of restrictive agreements.
- (iv) ↳ long-term customer relationships.

(v) ↳ Credit Rationing

Refusing to make loans even though borrowers are willing to pay the stated interest rate or even a higher interest rate.

⇒ Managing Interest-Rate Risk

If a bank has more rate-sensitive liabilities than assets, a rise in interest rate will reduce bank profits and a decline in interest rate

④ will raise bank profits.

⇒ Gap and Duration Analysis

The sensitivity of bank profits to change with interest rate can be measured more directly by Gap analysis, in which the amount of rate-sensitive liabilities is subtracted from the amount of rate sensitive assets.

$$RSA - RSL = \pi$$

$$\$20m - \$50m = \pi$$

$$\pi = -\$30m$$

when interest rate rise by 5% the change in profit is 5% \times -\\$30million.

$$= -\frac{30}{100} \times 50/10 = -\$1.5m$$

↳ Duration Analysis

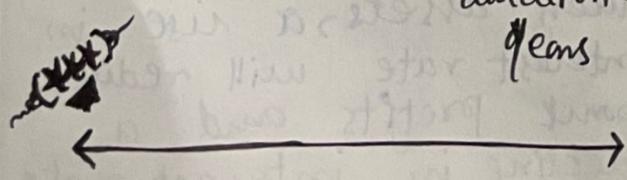
An alternative measure of sensitive bank profit to change with interest rate.

It examines the sensitivity of market value of the banks total assets and liabilities to changes in interest rate.

Completed

% Change in market value \approx - % change in

\times
duration in
years



Chapter # 17

International Economics:

Theory and Policy

output and the exchange rate in the short run

Introduction

Macroeconomic changes that effect exchange rates, interest rates, and the price levels may also effect output.

Here we will analyze the effects of macroeconomic tools on output.

The use of macroeconomic policy tools to maintain full employment.

Determinants of aggregate demand in an open economy

Aggregate demand &

The amount of a country's goods and services demanded by households and firms throughout the world.

The AD for an open economy's output consists of four components.

- ① Consumption demand (C)
- ② Investment demand (I)
- ③ Government demand (G)
- ④ Current Account (CA)

⇒ Determinants of consumption demand & $C = C(Y^D)$

The consumption demand depends on disposable income. When the disposable income $Y^D = (Y - T)$ increases at the aggregate level, the consumption demand also increases.

The increase in consumption demand is less than the increase in disposable income because some part of the income that is increased is saved.
e.g.- 5000 increase in income leads to 2500 increase in consumption and 2500 are saved, so income increases higher than the consumption.

② Determinants of the current account

Current account = Exports - Imports

The current account balance is viewed as the demand for a country's Export less than the country's own demand for imports.

⇒ The current account balance is determined by two main factors.

- ① Disposable income (Y^D)
- ② The domestic currency exchange rate against foreign currency ($q = E P^*/P$)

$$CA = CA(Y^D, EP^*/P)$$

How Real Exchange rate changes affect the current account?

$$\text{As } q = EP^*/P$$

① When $q \uparrow$ it means the domestic currency depreciates and as a result its exports becomes cheaper for the foreigner so due to which the exports increases and the CA balance improves.

② When $q \uparrow$ it has two effects on CA imports.

① It can rise.

② It can fall.

When $q \uparrow$ (domestic currency depreciates) due to which the imports becomes expensive so it decreases and improves CA balances.

and on the other why when Money supply increases the $q \uparrow$ and domestic currency depreciates and $AD \uparrow$ which can also increase imports. So an increase in q can raise or low the imports and has an ambiguous

Whether the CA improves or worsens depends on which effect of a real exchange rate change is dominant.

Here we assume that when $q \uparrow$ the imports \downarrow and as a result the CA improves.

$$CA = \text{Exports} \uparrow, \text{Imports} \downarrow$$

As a result of this it improves

→ How Y^D changes the affect the current account An increase in Y^D worsens the current account balance because of $Y^D \uparrow$ the $AD \uparrow$ and as a result the demand for imports increase which in turn worsens the current account balances and vice versa.

factors determining the CA

| Change | Effect on CA |
|--|-----------------|
| Real exchange rate $EP^*/P \uparrow$ | CA \uparrow |
| Real exchange rate $EP^*/P \downarrow$ | CA \downarrow |
| $Y^D \uparrow$ | CA \downarrow |
| $Y^D \downarrow$ | CA \uparrow |

The Equation of Aggregate Demand. The four components of AD are combined to get total aggregate Demand.

$$AD = C + I + G + CA$$

$$AD = C(Y - T) + I + G + CA(E^*P/P, Y_D)$$

$$AD = C(C - T) + I + G + CA(E^*P/P, Y - T).$$

This equation shows that aggregate demand for home output can be written as:

$$D = D(E^*P/P, Y - T, I, G)$$

The Real exchange rate and aggregate Demand

An increase in q means a depreciation of a domestic currency increases the exports due to which the CA balance improves and also rises the AD because due to which the imports becomes expensive.

An increase in q makes the domestic goods and services cheaper relative to foreign goods and services.

If shifts both domestic and foreign spendings

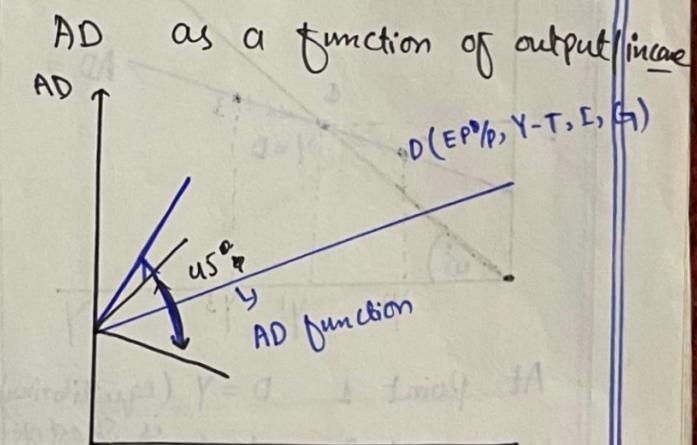
from foreign goods to domestic goods.

So, the real depreciation of a currency (home) raises the AD for home output.

Real income and aggregate demands

i) A rise in domestic real income raises the AD for home output.

ii) A fall in domestic real income lowers the AD for home output.



It doesn't start from origin as when $Y=0$ we are having some AD to survive. But when the $Y \uparrow$ the AD also increases but less than Y , so due to which the slope of Aggregate demand function is less than 1 (as indicated by its position).

Within the 45° angle).

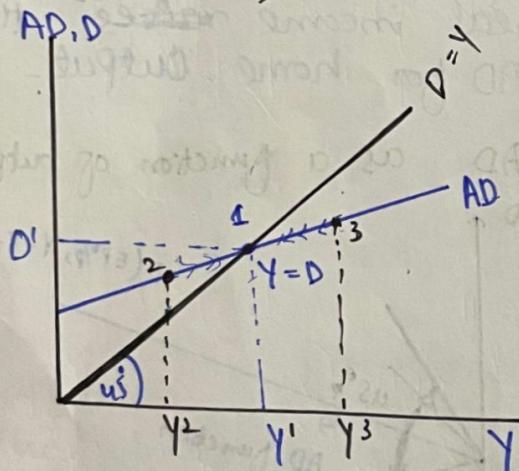
→ How output is determined in the short run?

* Output market is in equilibrium in the short run when real output, Y equals the aggregate demand for a domestic output.

$$Y = D(E \cdot P^*/P, Y-T, I, G)$$

↳ equilibrium of output in the short-run.

→ Graphically,



At Point 1 $D=Y$ (equilibrium)

At Point 2 output is ~~short of~~,
Aggregate demand ($D > Y$)

→ At Point 3 $D \neq$ output
or excess supply of
domestic output

at Point 3 firm
will cut down their
Production till Point Y_1
where Supply = Demand.

→ At Point 2 there is

an excess of demand due
to which the firm will
increase its level of production
till the point where supply (Y) =
demand (D).

Output market equilibrium
in the short run

The DD Schedule

The DD Schedule shows the
combination of output and
the exchange rate at which
the output market is in
short-run equilibrium.

The DD schedule slopes upward
because a rise in exchange
rate (means $q_r \uparrow$ (depreciation))
causes aggregate demand and
output to rise.

output, the exchange rate, and
output market equilibrium

When the economy depreciates
means $q_r = EP^*/P$ rises
(assuming Price level at home
and abroad fixed) makes
the foreign goods and
services more expensive
relative to domestic goods
and services.

→ A rise in q_r will cause
an upward shift in the
AD schedule function and
causes an expansion of
output due to increase in
aggregate demand.

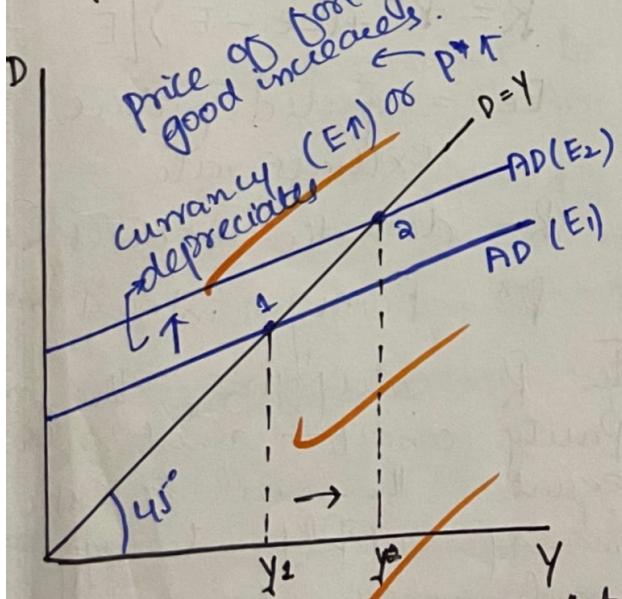
→ Any fall in q (meaning appreciation of currency) will cause output to contract because when the currency appreciates makes the domestic output more expensive against the foreign goods so the demand for domestic output decreases.

When:

- $E \uparrow, P^* \uparrow, P \downarrow \Rightarrow$ upward shift of AD function
- When $P^* \uparrow \Rightarrow$ upward shift in AD (domestic)
- When $E \downarrow, P^* \downarrow, P \uparrow \Rightarrow$ downward shift in AD schedule of domestic.

Graphically:

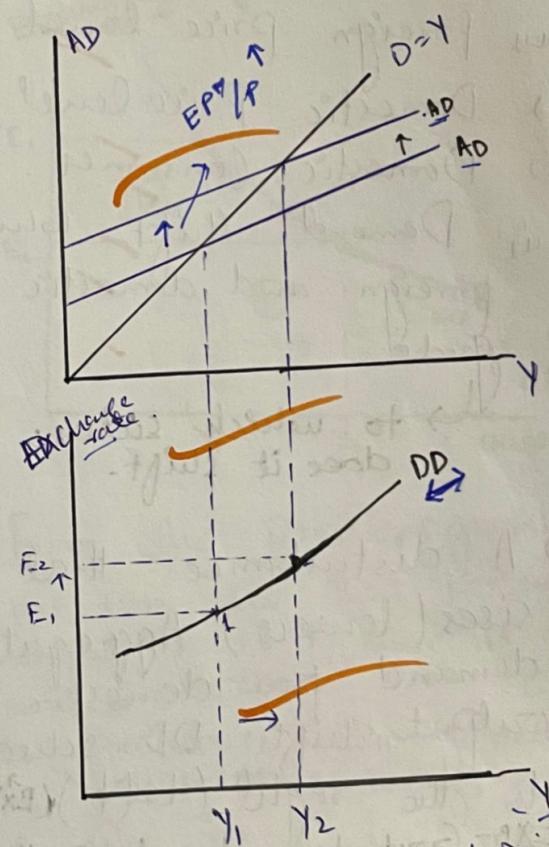
- $E \uparrow, P^* \uparrow, P \downarrow$
- $P^* \uparrow$



while when currency appreciates or $P^* \downarrow$ or $P \uparrow$ the AD schedule will shift downward causing the output to decline because Low AD.

Deriving the DD Schedule & It shows all the combinations of output and exchange rate for which the output market is in short-run equilibrium ($AD = AS$).

- It slopes upward because a rise in the exchange rate causes output to rise.



So it is upward sloping as we know that when exchange rate increases (currency depreciates) then the aggregate demand of domestic goods increases as foreigners will demand your goods so exports increases as a result the output increase so the DD curve slopes upward.

⑥ And its slope depends on the AD curve when the AD is steeper the DD curve will also be steeper and when AD \rightarrow flatter \Rightarrow DD \rightarrow flatter

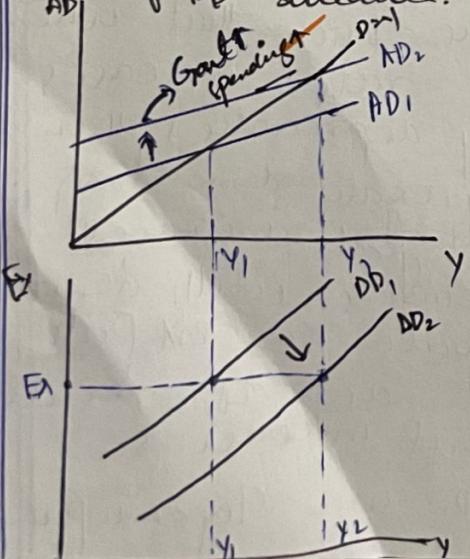
\Rightarrow Factors that shift the DD curve:

- Government Purchases
- Taxes
- Investment
- Foreign Price Level
- Domestic Price Level
- Domestic Consumer Demand
- Demand shift b/w foreign and domestic goods.

\hookrightarrow to which sides does it shift?

\hookrightarrow A disturbance that rises (lowers) Aggregate demand for domestic output shifts DD schedule to the right (left) (Ex)

Ex: Govt demand and position of DD schedule.



Asset Market Equilibrium in the Short-Run.
The AA schedule.

AA schedules

The AA schedule shows all combinations of exchange rate and output that are consistent with equilibrium in the domestic money market and the foreign exchange market.

We will combine the interest parity condition with the money market to derive the asset market equilibrium in the short-run.

\hookrightarrow The interest parity condition describing foreign exchange market equilibrium

$$R = R^* + (E_e - E) / E$$

E_e = expected future exchange rate

R = domestic interest

R^* = Foreign interest

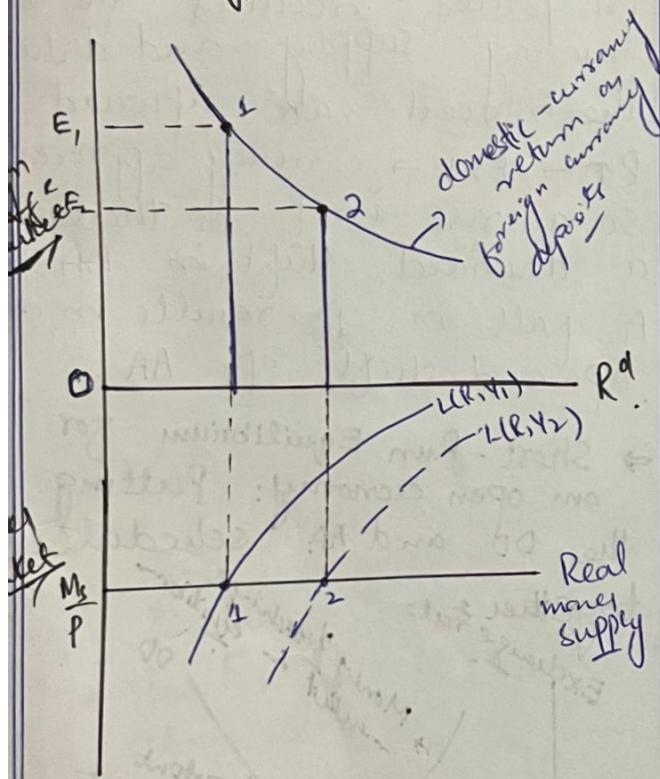
The R satisfying the interest parity condition must also equate the real domestic money supply to aggregate real money demand.

$$\frac{M_S}{P} \leftarrow L(R, Y) \quad (1 \rightarrow 2)$$

The aggregate real money demand rises when the G.R.Y.

interest rate fall because of fall in interest rate (R) makes interest-bearing nonmonetary assets less attractive to hold.

Graphically:



For an asset market to remain in equilibrium &

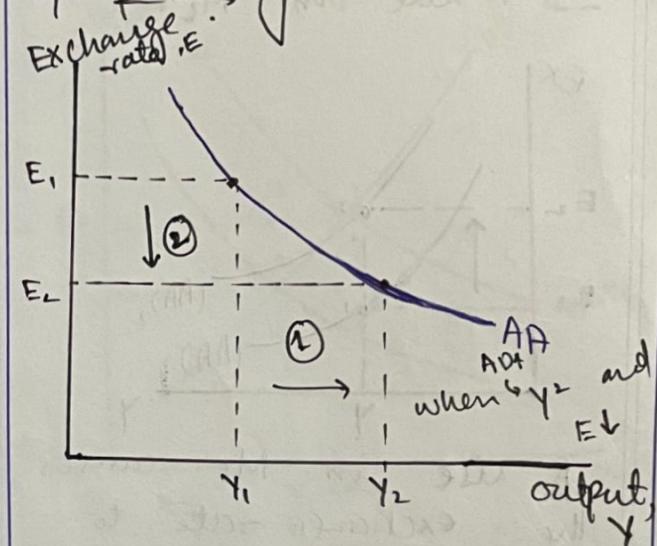
① A rise in domestic output must be accompanied by an appreciation of the domestic currency.

② A fall in domestic output must be accompanied by a depreciation of domestic currency.

Deriving the AA schedule

While the DD schedule plots water and output levels at which the output market is in equilibrium, the AA schedule relates exchange rates and output levels that keep the money and foreign exchange market in equilibrium.

Graphically:



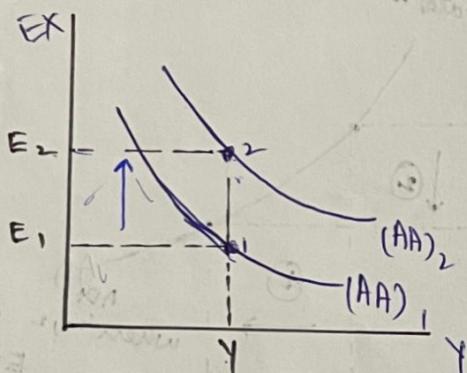
From the previous graph we can see that for any output level Y , there is a unique exchange rate E . Our previous reasoning tells us that other things equal, a rise in Y^1 to Y^2 will produce an appreciation of the domestic currency that is, a fall in exchange rate from E_1 to E_2 . The AA Schedule therefore has a negative slope as shown in the above figure.

(B)

Factors that Shift the AA schedules

- (i) Domestic money supply
- (ii) Domestic price level.
- (iii) Expected future exchange rate.
- (iv) Foreign interest rate.
- (v) Shifts in the aggregate money demand schedule

① ex: A rise in $M_s \uparrow$



A rise in M_s causes the exchange rate to rise (currency depreciates) at a given level of output so due to which the AA schedule shifts up - ward

Similarly

$M_s \downarrow \rightarrow$ appreciates \rightarrow AA downward shift.

② $E^e \uparrow \rightarrow$ currency depreciates \rightarrow AA schedules ~~downward~~ (shift)

$E^e \downarrow \rightarrow$ currency appreciates AA schedule ~~upward~~ shifts

③ A change in R^* ($R^* \uparrow$)

When R^* , outflows of currency so due to which exchange rate rises and currency

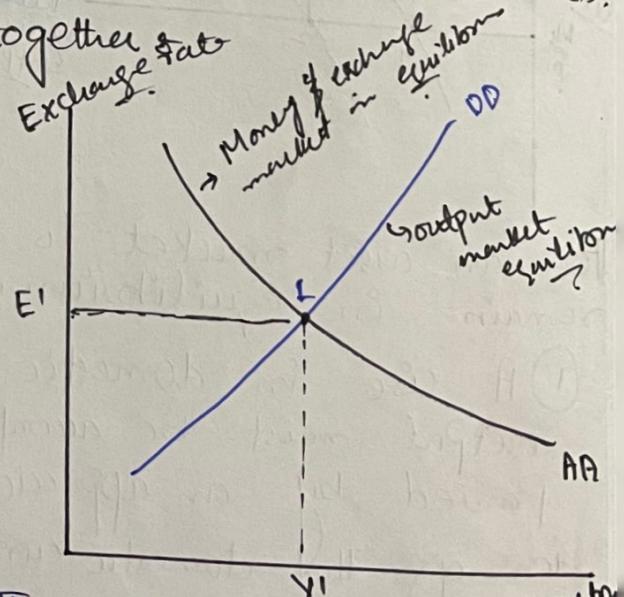
depreciates and with the AA schedule shifts upward.

④ \rightarrow Change in real money demand & A reduction in M_d has the same effect as an increase in M_s , in that it shifts AA upward.

⑤ A change of P & An increase in prices reduces the real money supply and drive the interest rate upward.

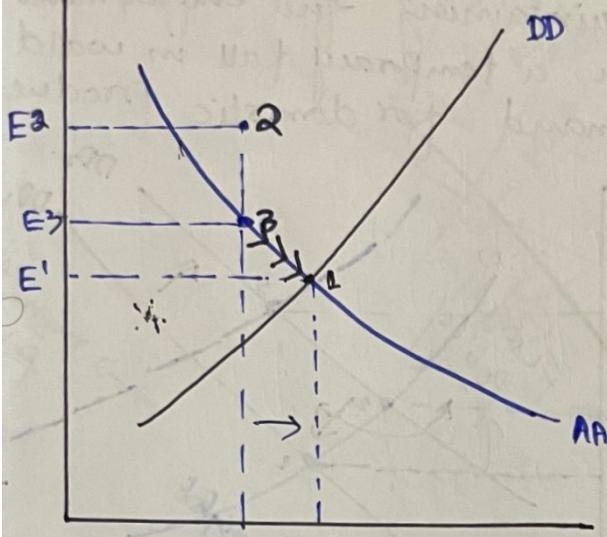
$R^* \rightarrow EX \downarrow \rightarrow$ currency appreciation so a rise in P is therefore a downward shift in AA. A fall in P results in an upward shift of AA.

\Rightarrow Short - Run Equilibrium for an open economy: Putting the DD and AA schedules together.



The S.R equilibrium of the economy occurs at Point L where the output market (DD) and the asset market (AA) simultaneously clear.

\Rightarrow How the economy reaches its S.R equilibrium.



At Point 2, there is a depreciation of currency due to which the domestic goods become cheap and the exports increases due to which the demand of the currency increases.

So, the excess demand for domestic currency leads to an immediate fall in exchange rate from E_2 to E_3 . Since point 3 is above the DD curve there is still excess demand for domestic output.

As firms rise production to avoid depleting their inventories, the economy travels to Point A, where aggregate demand and supply are equal.

Temporary changes in Monetary and fiscal Policy

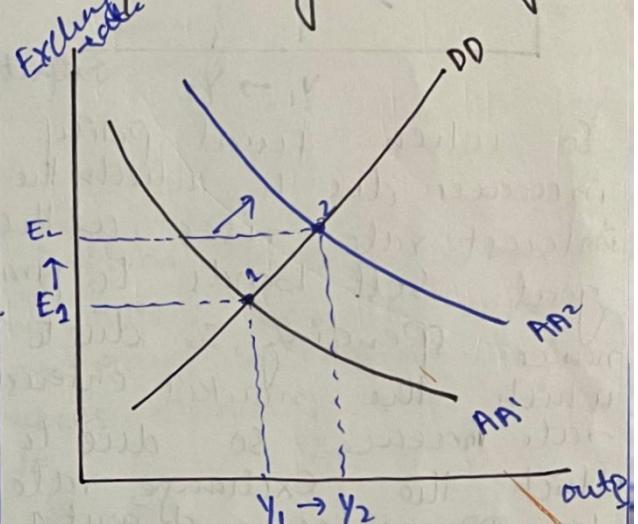
Monetary Policy
MST \rightarrow expansionary monetary policy \rightarrow raises the economy's

output.

MST \rightarrow $\gamma \downarrow \rightarrow Ex \uparrow \rightarrow$ currency depreciates \rightarrow (home product becomes relatively cheaper relative to foreign products and the aggregate demand increases).

Effects of temporary increase in money supply.

(Expansionary Monetary Policy)



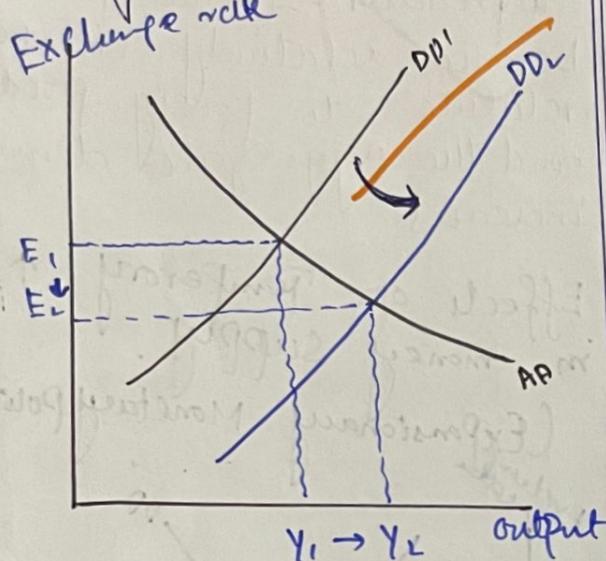
When the money supply increases due to when the currency depreciates and output rises so due to which the AA schedule shifts upward.

② Fiscal Policies

\hookrightarrow An increase in government spending, a cut in taxes or some combination of two (expansionary fiscal policy) raises output.

\hookrightarrow The increase in output raises the transaction demand for real money holdings, in turn increases the real interest rate.

⑤ As a result the domestic currency must appreciate.



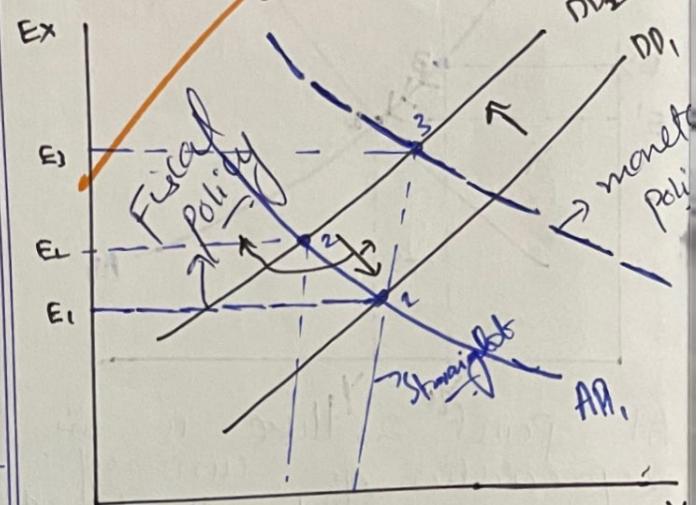
So when fiscal policy increases due to which the interest rate rises as the govt sell bonds to finance spending, so due to which the market interest rate increases so due to which the exchange rate appreciates and govt's output due to which the DD curve (output equilibrium market) shifts rightward.

⇒ Policy to maintain full employment

→ Temporary disturbance that lead to recession can be offset through expansionary monetary or fiscal policy.

Temporary disturbance that lead to overemployment can be offset through contractionary monetary or fiscal policies.

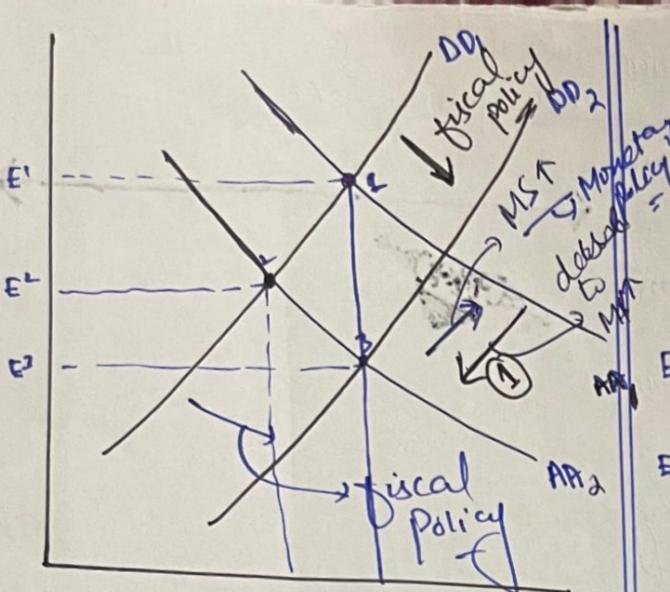
Maintaining full employment after a temporary fall in world demand for domestic product



A temporary fall in world demand shifts the DD¹ to DD², reducing output from $Y_1 + Y_2$ and causing currency to depreciate from $E_1 - E_2$. The temporary fiscal expansion can restore full employment (Point 2) by shifting the DD schedule back to its original position. Temporary monetary expansion can restore full employment (Point 3) by shifting the AA¹ to AA². The two policies differ in their exchange rate effects. The fiscal policy restores the currency to its previous (E_1) value; the monetary policy causes the currency to depreciate further, to E_3 .

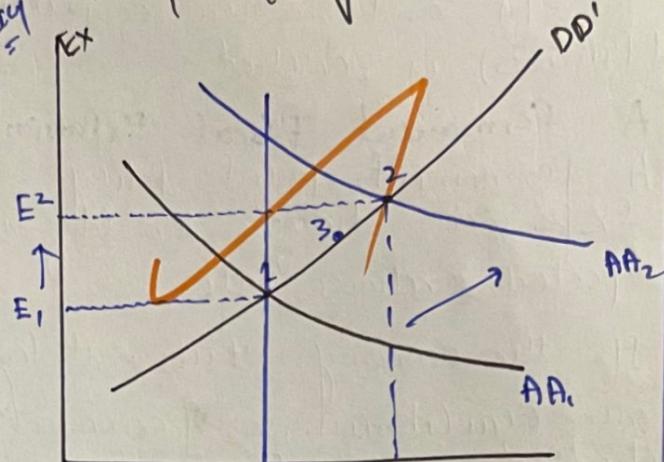
⇒ Policies to maintain full emp after a money demand increase

Graphically:



After a temporary $M_d \uparrow$ (shifts from AA^1 to AA^2) either an increase in money supply or temporary fiscal expansion can be used to maintain full employment. The two Policies have different exchange rate effects. The monetary Policy restores the exchange rate back to E^1 , whereas the fiscal Policy leads to greater appreciation (E_3).

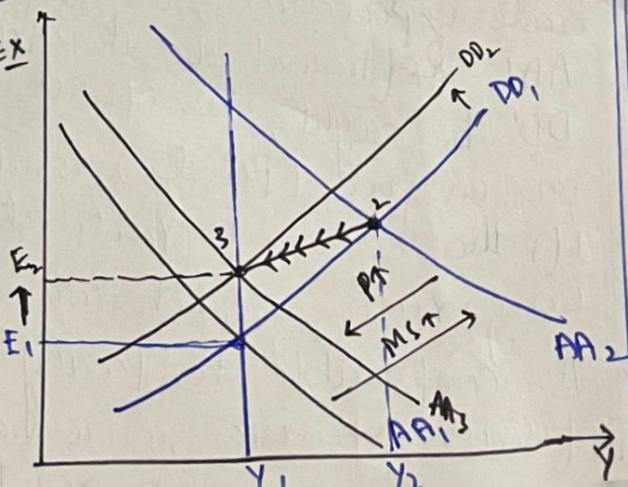
Short-run effects of a permanent increase in Money supply



A temporary increase in money supply, which shifts AA^1 to AA^2 and moves economy from point 1 to point 2 has a stronger effect on the exchange rate and output than an equal temporary increase, which moves economy only to point 3.

→ Adjustment to permanent ↑ in money supply

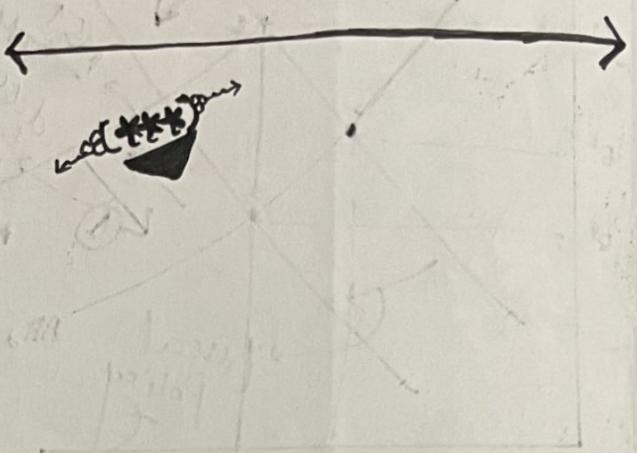
→ A permanent increase in money supply raises output above its full employment level. As a result the price level increases to bring economy back to full employment level.



→ A permanent increase in M_s
A permanent increase in M_s causes the expected future exchange rate to rise proportionally.

A permanent increase in M_1 causes a steady increase in price level shifts the DD and AA to the left and a new equilibrium (Point 3) is reached.

would leave the economy at point (3).

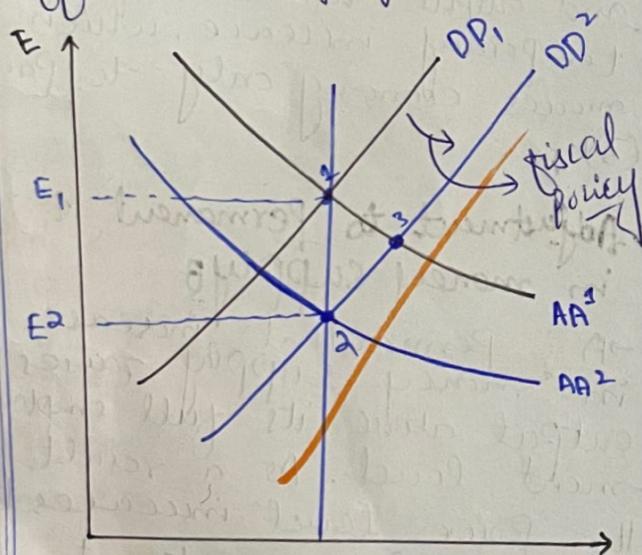


A Permanent Fiscal Expansion

A permanent fiscal policy expansion changes the long-run expected exchange rate.

If the economy starts at long run equilibrium, a permanent change in fiscal policy has no effect on output. Because it causes an immediate and permanent exchange rate jump that offsets exactly the fiscal policy's direct effect on aggregate demand.

Completed



Because a permanent fiscal expansion changes exchange rate expectations, it shifts AA' leftward as it shifts DD' to right, the effect on output (Point 2) is null.

If the economy starts at long-run equilibrium:

A comparable temporary fiscal expansion, in contrast

①

Chapter No 14

Exchange Rate and the Foreign Exchange Markets

- the price of one currency in terms of the other is called exchange rate.
 - Our general goals in this chapter is to understand the role of exchange rates in international trade and to understand how exchange rates are determined.
 - Exchange rates and international transactions
- An exchange rate can be quoted in two ways.
- The price of any currency in terms of dollar (direct terms)
 - Price of dollars in terms of any other currency. (indirect terms).
- Households and firms use exchange rate to translate foreign currency prices into domestic currency to compute the relative prices that affect the international trade flows.

- ⇒ Domestic and foreign currencies. Exchange rates b/w two countries currencies allow for the computations of price of one country's exports in terms of the other country's money. For example

$$\$EP/\text{euro} = \$1.50 \text{ /per euro.}$$

so if the price of sweater in euro is \$50

Pounds. The dollar price of a sweater is $(1.50 \text{ \$/€}) \times \$50 = \$75$.

if dollar appreciates to \$1.25 /per euro. it costs.

$$1.25 \times 50 = \$62.5$$

if dollar depreciates to \$1.75 /per euro it costs.

$$1.75 \times 50 = \$87.5$$

So that's how we can calculate the price of a country's exports in other country currency.

Conclusion

when a country currency depreciates → exports ↑ → imports ↓ and an appreciation has the opposite effects.

The \$45 american jeans that is exported can be calculated in € Euro.

$$(i) \frac{\$45}{1.50} = €30 \quad (\text{1.5\$ exchange})$$

$$(ii) \frac{\$45}{1.25} = €36 \quad (\text{1.25\$ exchange})$$

$$(iii) \frac{\$45}{1.75} = €25.71 \quad (\text{1.75\$ exchange})$$

so it is clear from above example that if country appreciates its exports become expensive.

Exchange Rates and Relative Prices

All else equal, an appreciation of a country's

②

Currency raises the relative price of its exports and lowers the relative price of its imports. Conversely, a depreciation lowers the relative price of a country's exports and rises the relative price of its imports.

⇒ The Foreign Exchange Market
The market in which international currency trade takes place is called the foreign exchange market.

⇒ The Actors & The major participants in the foreign exchange market are:

- (i) Commercial banks.
- (ii) Corporations that engage in international trade.
- (iii) Non bank financial institutions.
- (iv) Central banks.

⇒ Characteristics of the Markets

↳ (i) Arbitrage

The process of buying currency cheap and selling it expensive if it is called Arbitrage.

↳ (ii) Vehicle currencies

A vehicle currency is one that is widely used to dominate the international contracts made by the parties.

⇒ Spot and Forward rates
Exchange rate governing such "on the spot" trading are called spot exchange rates.

⇒ Foreign exchange deals sometimes specify a future transaction date - one that may be 30 day, 90 day or even several years away. The exchange rate quoted in such transactions are called forward exchange rate.

The forward exchange rate is that when you sell rupee for dollar on a future date at a forward rate agreed on today.

The forward rate is basically the hedging a currency, to avoid from the risk that if you pay 100/\$ and you want dollars after 3 months and you don't know what will be the rate so you sell rupee to dollar for forward rate on \$105/\$.

⇒ Foreign Exchange Rate swaps

A foreign exchange swap is a spot sale of a currency and combined with a forward repurchase of that currency.

For example → If I receive \$100 from Japanese for my exports and I have to pay those \$100 to US supplier after 30 days so if I sell those \$100 to purchase bonds and on the same time repurchase \$100 on a forward rate after 30 days to pay to US company → This process is called Foreign exchange swap.

③ Future and Options

Imagine you are uncertain about when in the next month a foreign currency payment will arrive. To avoid the risk of the loss, you may wish to buy a ~~put~~ option giving you the right to sell the foreign currency at a known exchange rate at any time during the month.

→ If instead you expect to make a payment abroad sometime in the month, a call option, which gives you the right to buy foreign currency to make the payment at a known price, might be attractive.

⇒ Demand for Foreign currency assets

The demand for foreign currency assets depends on

- Expected Return.
- Risk.
- Liquidity.
- Interest Rates.

① → The demand for foreign currency must be based on an expected rate of return

$$\text{Expected rate of return} = (P_E - P) \cdot \frac{\text{of an asset predicted}}{}$$

→ The Real rate of return if you earn 10% on

your foreign currency and the price also increases by 10%, it means the profit = 0. So if rate of return is higher we will demand that currency (+ve effect)

- ② → Risk: The variability it contributes to saves wealth (-ve effect)
 ③ → Liquidity: The ease with which it can be sold or exchanged for good (+ve effect)

④ Interest Rates: Higher the interest rate on foreign currency higher will be its demand.

⑤ Exchange rates can also fluctuate the asset return.

A simple rule shortens the calculation that on which assets the return is more and then demand that currency assets.

Formula:

$$R_E = \left[R_E + \left(E \frac{S/E - F/E}{S/E} \right) \right]$$

when the difference above is negative, dollar deposits yield the higher expected rate of return: when it is negative euro deposits yield the higher expected rate of return.

Suppose if $R_E = 0.10$

$$R_E = 0.06$$

$$\frac{E \frac{S/E - F/E}{S/E}}{E \frac{S/E}{S/E}} = 0.08$$

④

Then

$$R\$ + \left(R\$/E + \frac{(E\$^e/E - E\$/\epsilon)}{E\$/\epsilon} \right)$$

$$0.10 + [0.06 + 0.08]$$

$$0.16 - 0.14$$

$$= -0.14 \rightarrow \text{so it's}$$

negative it means euro deposits yields higher expected rate of return.

\Rightarrow Equilibrium in the foreign exchange market

The foreign exchange market is in equilibrium when deposits of all currencies offer the same expected rate of return.

\hookrightarrow This condition is known as interest parity condition

interest parity condition mathematically

$$R\$ = R\$/E + \left[\frac{E\$^e/\epsilon - E\$/\epsilon}{E\$/\epsilon} \right]$$

\Rightarrow How changes in current exchange rate affect expected returns?

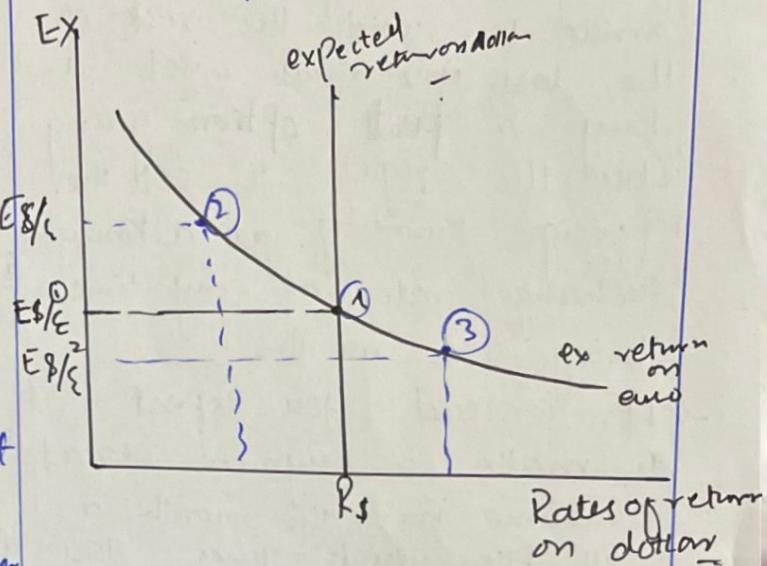
An appreciation of dollar makes higher expected \$ return on Euro. \rightarrow table 14.4 page 398

\hookrightarrow and the other way as well.

\Rightarrow The Equilibrium Exchange rates

equilibrium in the foreign

exchange market occurs at a point where the expected dollar return on dollar and euro deposits are equal.



$$R\$ = R\$/E + \left(\frac{E\$^e/\epsilon - E\$/\epsilon}{E\$/\epsilon} \right)$$

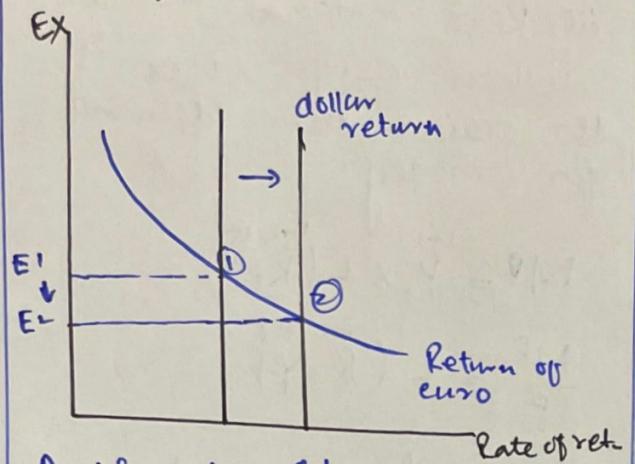
Point 2 Return of euro is less than return of US dollar so people will demand dollar and at reciprocal case.

\Rightarrow The appreciation of a dollar makes euro deposits more attractive and vice versa

\Rightarrow The effects of changing interest rates on current exchange rate.

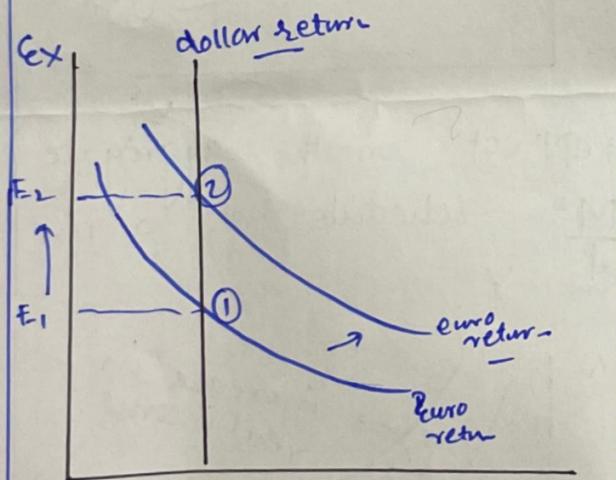
It is as following graphically that when the interest rates changes it changes the current exchange rate too.

⑤ Effect of rise in dollar interest rates



A rise in interest rate offered by dollar deposits from R_1 to R_2 cause the dollar to appreciate from E_1 to E_2 .

⑥ Effect of a rise in Euro interest rates



A rise in the interest rate paid by Euro deposits causes the dollar to depreciate from E_1 to E_2 .

Our discussions show that all else equal, an increase in the interest rate paid on deposits of a currency causes that currency to appreciate against foreign currency.

⑦ The effect of changing expectations on current exchange rates.

A rise in the expected future exchange rate causes a rise in the current exchange rate. Similarly, a fall in the expected future exchange rate causes a fall in the current exchange rate.

← Chapter # 15 →

Money, Interest Rate, and Exchange Rates

⇒ Money & A brief view

Money is an object that is generally accepted or payments for goods and services and repaid of debt in a given country.

Characteristics

- ① Money as unit of account.
- ② Money as a store of value.
- ③ Money as a unit of account.
- ④ The most liquid.

⇒ How the money supply is determined

The money supply is determined by central bank and simply sets the size of the money supply at the level it desires.

6 The Demand for Money by individuals

Three factors influence money demand.

(i) Expected Returns (-ive effect)

↳ it inturns depend on interest rate, High the interest rate mean higher interest on the asset so lower will be the demand for money.

(ii) Risk (-ive effect)

Holding money is risky so higher inflation means higher risk to hold money as it will loss its value, so high risk means low money demand

(iii) Liquidity (-ive effect)

Households and firms hold money b/c it is the easiest way of financing their everyday purchases.

⇒ Aggregate Money demands

Three main factors determine aggregate money demand:

(i) Interest Rate & (-ive)
higher the interest rate lower will be the demand for money.

(ii) Price Level & (+ive)
To maintain the liquidity as before the price level

increases, they will therefore have to hold more money.

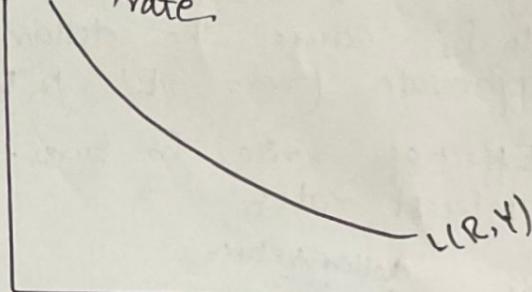
iii, Real national income & (+ive)
When GDP rises it also raises the demand for money

$$M^D = P \times L(R, Y)$$

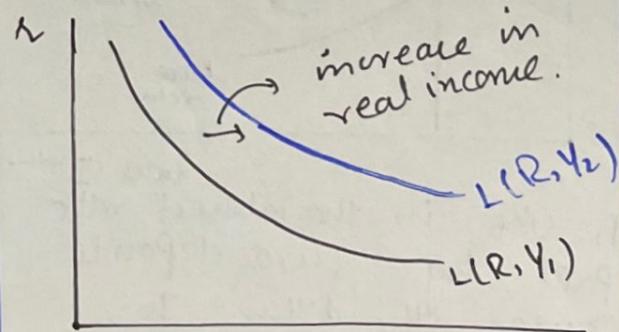
$$\frac{M^D}{P} = L(R, Y)$$

↳ Real money demand

↳ Real money demand and interest rate



→ effect on the aggregate schedule of a rise in Y.

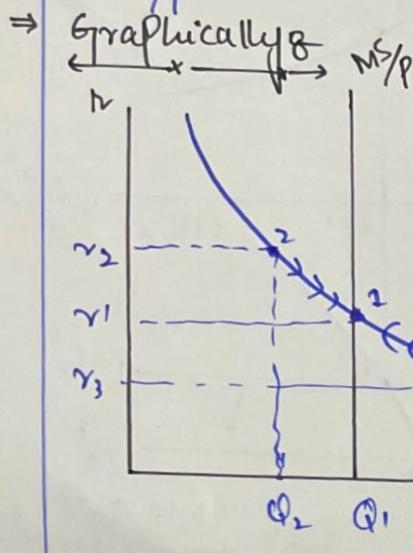


⇒ The Equilibrium interest Rate &

The equilibrium interest rate is determined when $M^S = M^D$.

$$\frac{M^S}{P} = L(R, Y)$$

② The equilibrium interest rate is the one at which aggregate real money demand: $-L(R, Y)$ equals the real money supply: MS/P .



at Point 2 the money demand is less than MS so due to which the "Y" will decrease to move to Point 1.

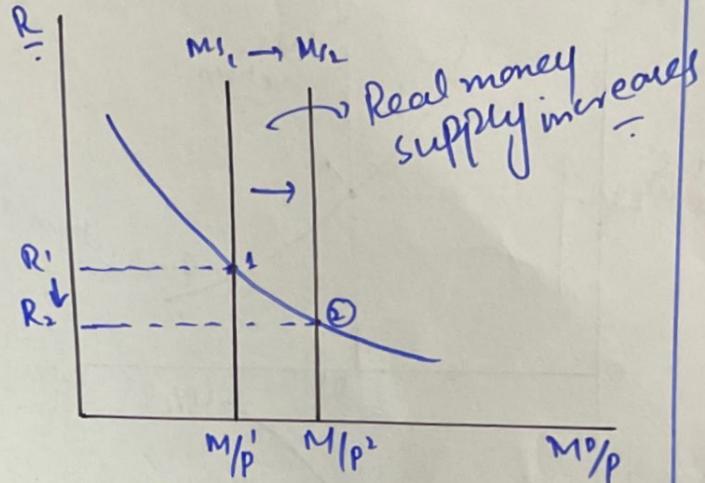
at Point 3 $MD > MS$ so due to which the interest rate increases and reaches to Point 1.

we can summarize our finding as follows: The market always moves towards an interest rate at which the real money supply equals aggregate real money demand.

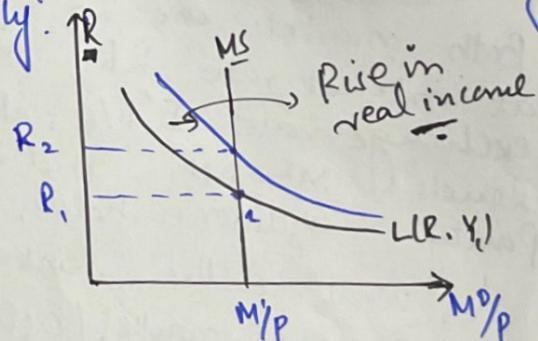
If there is initially an excess supply of money, the interest rate falls, and if there is initially an excess demand, it rises!

Interest rate and MS/P

A increase in Money Supply lowers the interest rate, while a fall in money supply raises the interest rate given the price level and output.



Output (Y) and Interest rates
An increase in real output raises the interest rate while a fall in real output lowers the interest rate, given the price level and money supply.

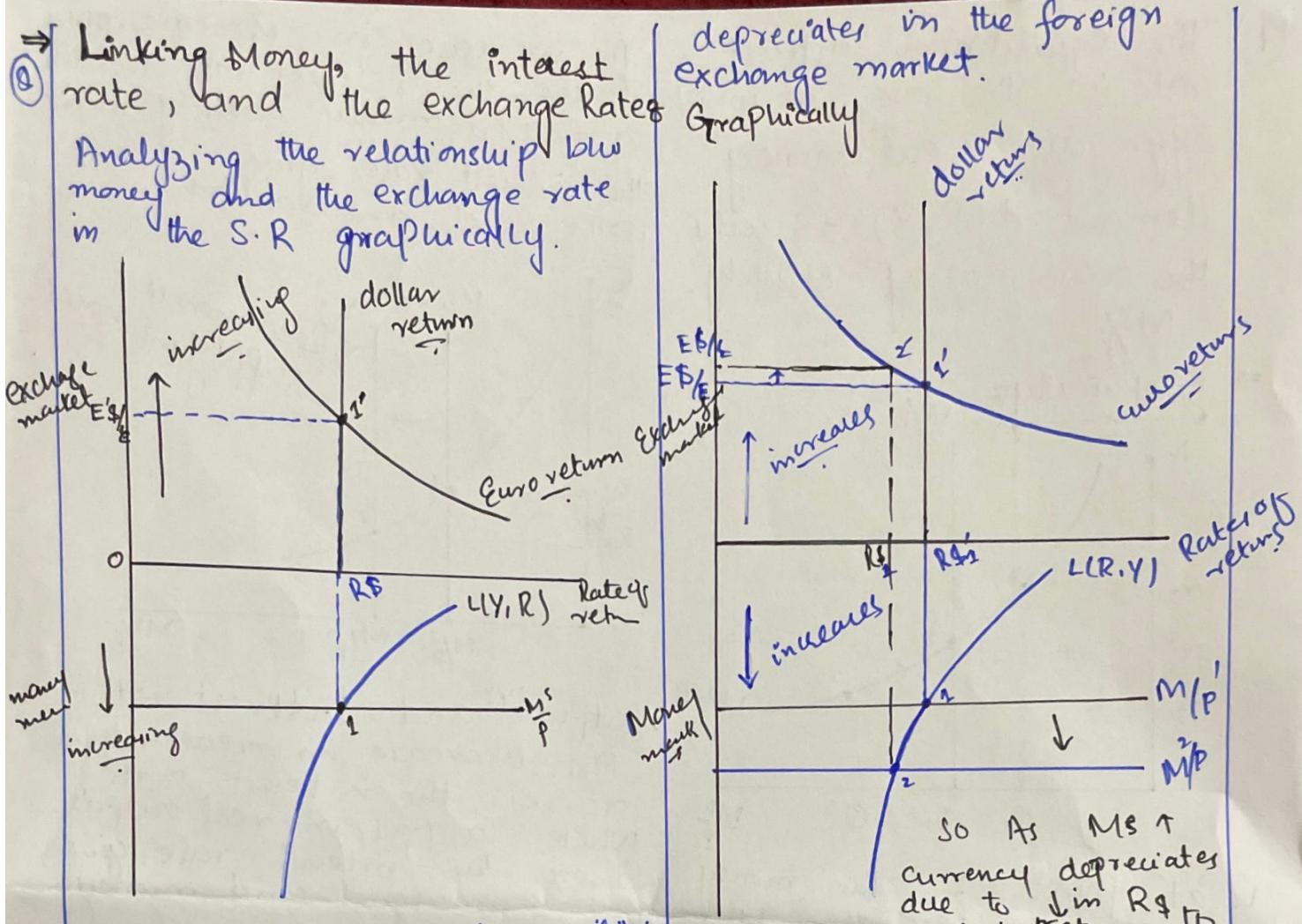


Money Supply and the exchange rate in the Short-Run

An increase in a country's money supply causes its currency to depreciate in the foreign exchange market. While a reduction in the money supply causes its currency to appreciate.

→ In S.R prices are given

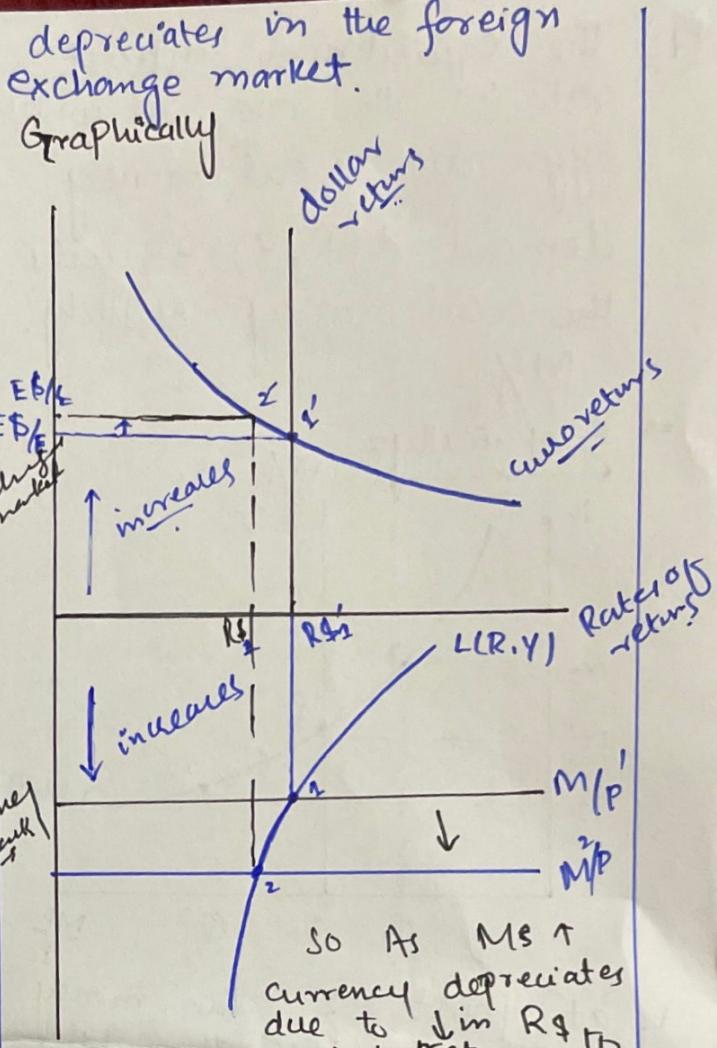
→ In L.R price are flexible.



Both markets are in equilibrium at interest rate R^* and exchange rate $E^*/\text{€}$, at these levels $M^S = M^D$ and interest Parity conditions holds.

↳ what is the linkages b/w money market / exchange rate. Monetary Policy actions by the fed affect US interest rate, changing the dollar/euro exchange rate that clears the foreign exchange market. The ECB can effect the exchange rate by changing the euro-pean money supply and interest rate.

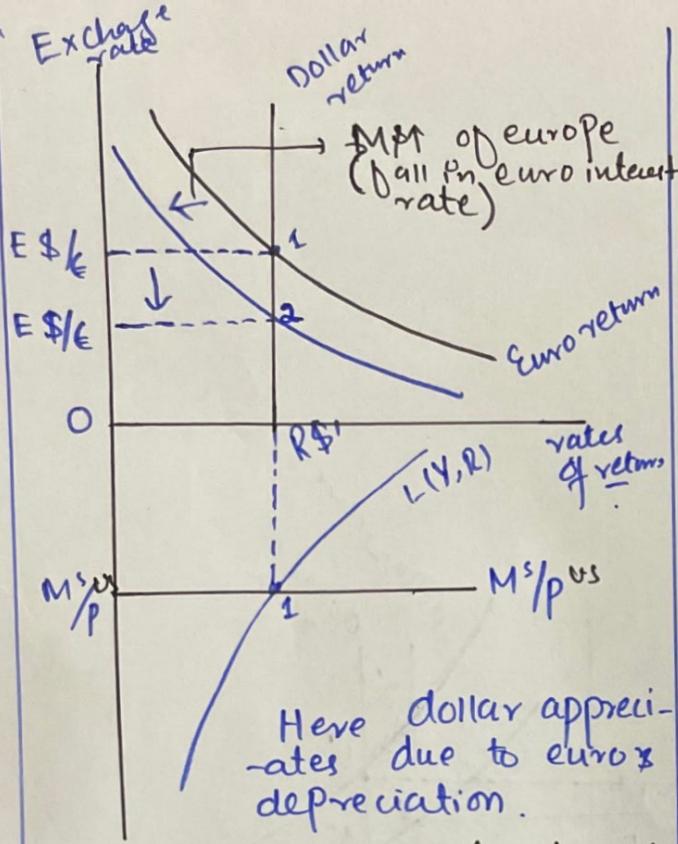
⇒ US Money Supply and \$/€ Exchange rate. In increase in country's M^S causes its currency to



so As $M^S \uparrow$ currency depreciates due to \downarrow in R^* and interest rate \uparrow .
↳ Similarly when $M^S \downarrow$ currency appreciates and exchange rate \downarrow .

⇒ European Money Supply and the \$/€ Exchange Rate

An increase in European money supply causes the Euro to depreciate against the dollar. Similarly, a fall in Europe's Money Supply would cause the euro to appreciate against the dollar. A change in the European money supply does not disturb the US Money market equilibrium, which remains at Point 1.



\Rightarrow Money, the price level and the exchange rate in the Long Run:-

In Long Run the wages and prices are flexible in long run.

$$\hookrightarrow M^S/P = L(R, Y) \Rightarrow (S.R)$$

$$P = M^S / L(R, Y)$$

in L.R Quantity theory of money exists which means when $M \propto \% (I.O) \Rightarrow P \propto \% I$ so no change in Money supply so the interest rate and output are independent of MS.

\hookrightarrow So this is easier than you might ~~value~~ think. As a change in the MS has no effect on the long-run values of interest rate

or real output.

In particular, if the economy is initially at full employment level, a permanent increase in MS eventually will be followed by a proportional increase in the price level.

\Rightarrow Money and the exchange rate in the Long - Run

A permanent increase in a country's MS cause a proportional L.R depreciation of its currency against the foreign currencies. Similarly a permanent decrease in a country's money supply caused a proportional long-run appreciation of its currency against foreign currency.

\Rightarrow Inflation and Exchange Rate Dynamics

An economy experiences inflation when its price level is rising and deflation when its price level is falling.

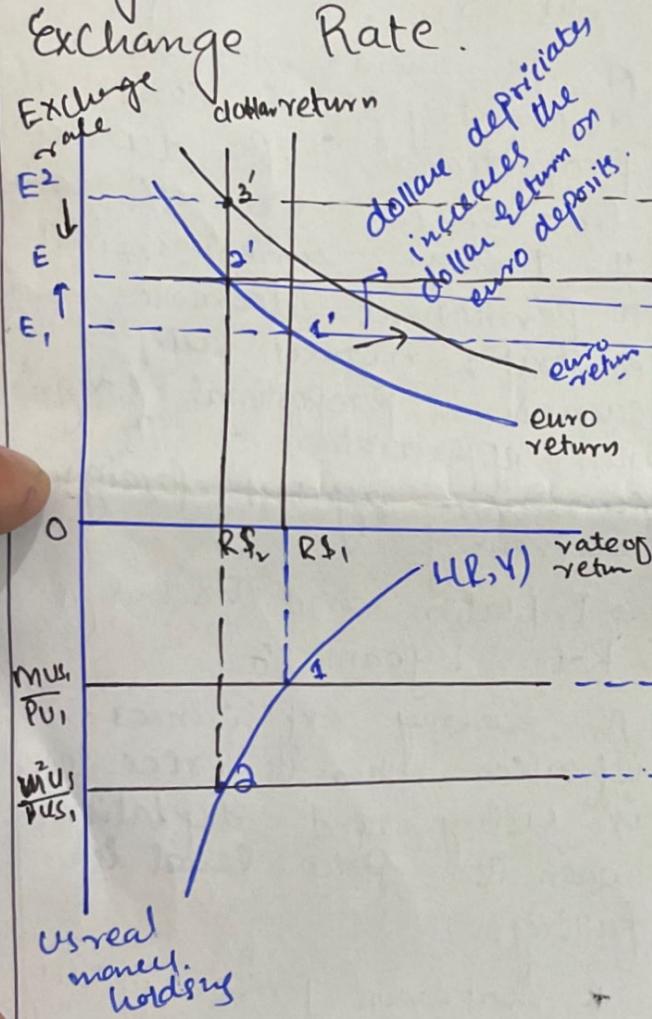
* short-run price rigidity versus Long-run Price flexibility when MS increases the price level displays short run stickiness in many countries. But in the long run the prices are flexible because there is an upward pressure on prices due to following three effects.

- (i) Excess demand
 - (ii) Inflationary Expectations
 - (iii) Raw materials prices

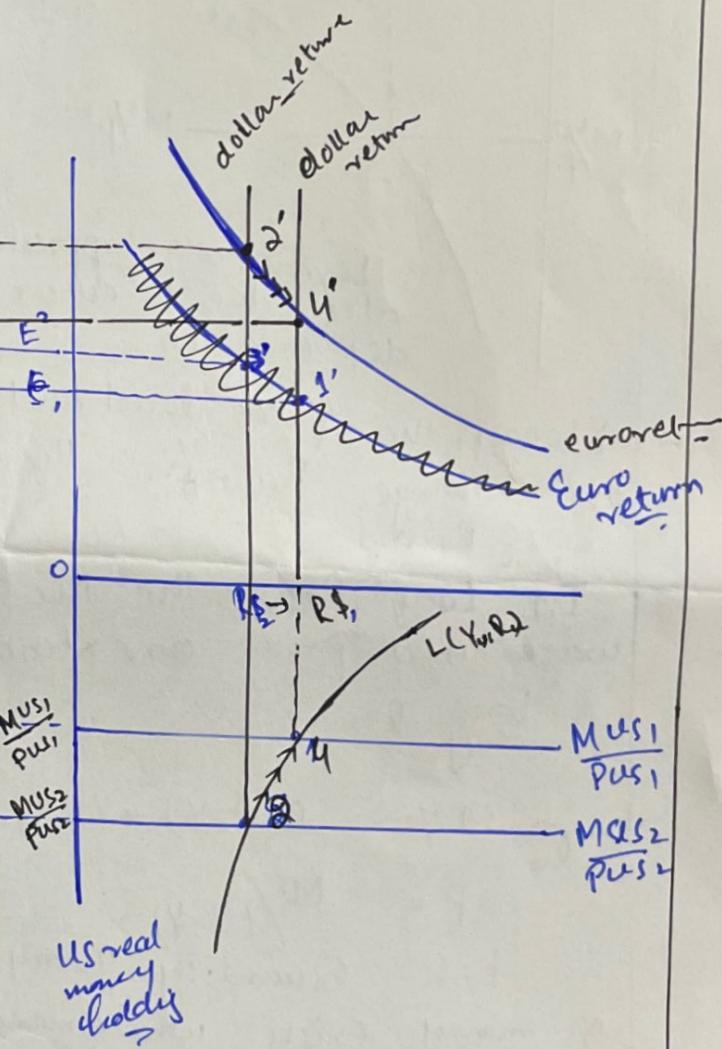
6 Petroleum-

\Rightarrow Important topic of

⇒ Permanent Money Supply Changes and the Exchange Rate.



(a) Short-Run effects



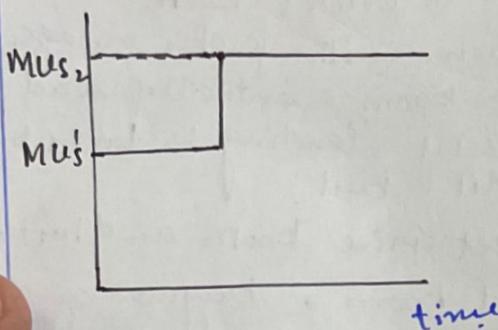
(b) Adjustment to the Long-Run Equilibrium.

So, in Panel b we can see that in the long-run the money supply has not effect on the interest rate and output as the price increasing in the same proportion to the money supply.

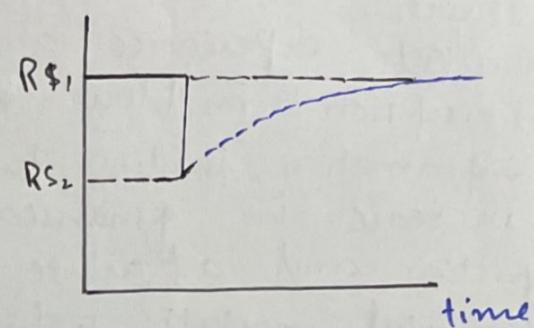
⇒ Over Shootings The exchange rate overshooting is said to overshoot when its immediate effect due to disturbance is greater than its long-run effect.

11 Time Paths of US Economic Variables after a Permanent increase in the US Money Supply:-

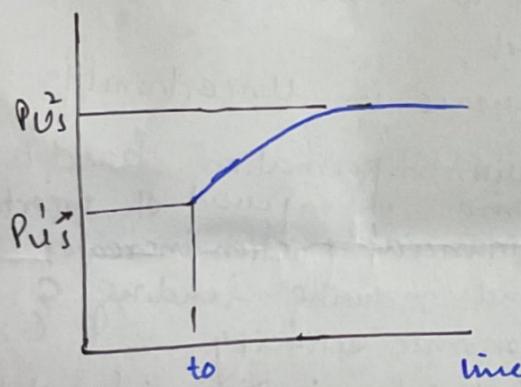
(a) US Money supply



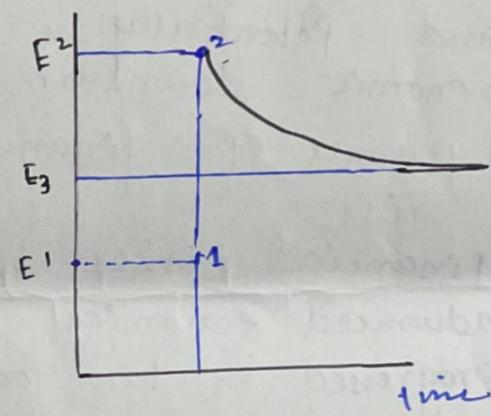
(b) Dollar interest rate



(c) US price level



(d) Dollar / Euro exchange rate



(12)

Chapter # 09

Financial Crises &

A financial crises is a situation in which financial markets experience a sharp disruption in flow of information, leading to an increase in financial friction and a failure of financial markets to function efficiently. This results in a decline of economic activity and potentially a broader economic downturn.

Dynamics of financial crisis

Financial crises in advanced economies have progressed in two or some times 3 stages.

→ Stage 1 & Beginning of financial crises (initial phase)

Stage 2 & Banking Bubbles

→ Stage 3 & Debt in deflation

Stage 1 &

Financial crises can begin in two ways

① credit boom and bust.

② Increase in uncertainty caused by failure of major financial institutions.

- ① Economic liberalization / innovation
lending increases in short run
 - ↳ No monetary and screening to any kind of restriction
 - ↳ Credit boom
 - even with proper management credit boom eventually lead to risky lending → turns to credit bust.

② Asset price boom and bust
Credit boom → buying of asset prices ↑ and form a bubble and when that bubble bust → Assets value declines due to which it turns into bust.

Increase in Uncertainty

With information hard to come in a period of uncertainty financial friction increases and reducing lending & economic activity.

③ Deteriorations in financial institutions Balance Sheets

In some case the balance sheet weakens due to which depositor demand for their deposits and

Capital equity = -ive so due to which lending contracts.

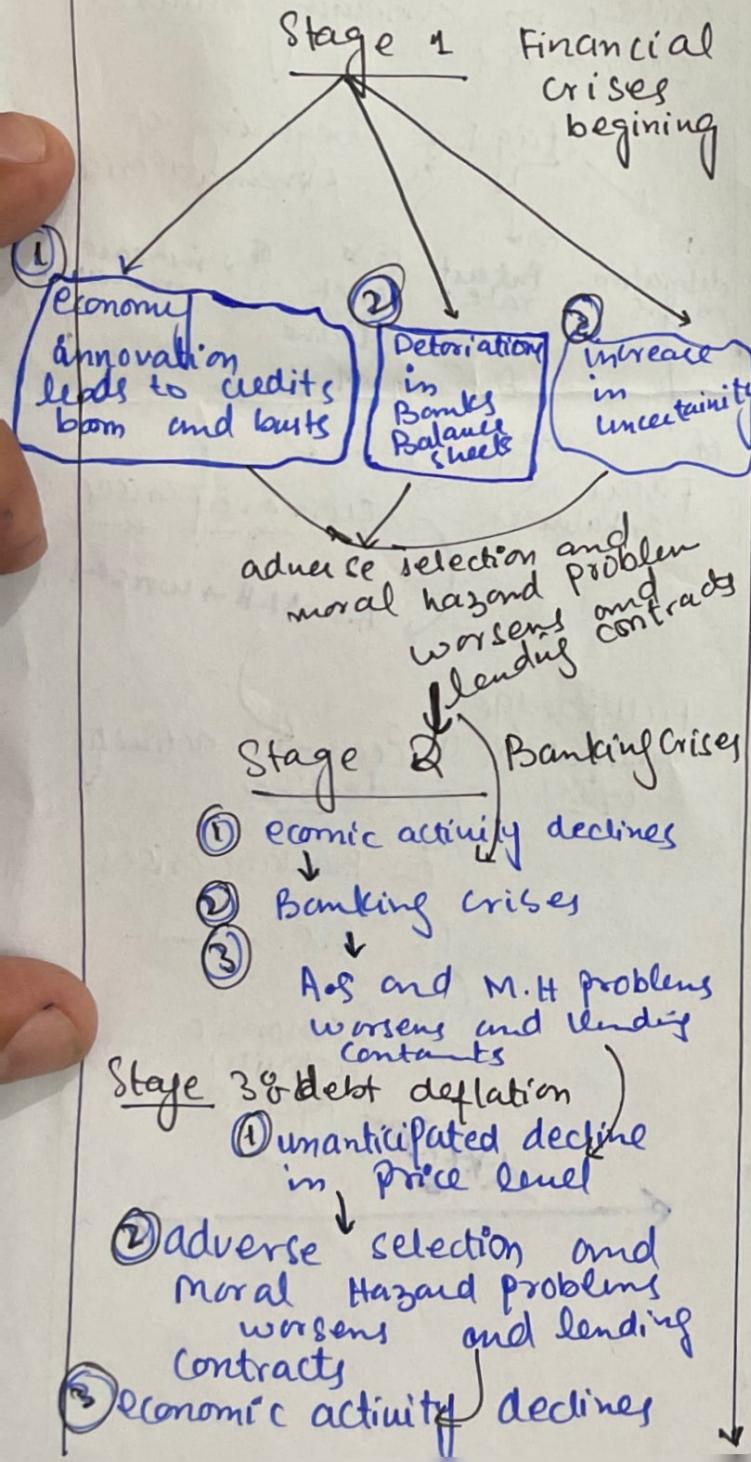
Stage 2 &

Banking Crises &

Deteriorating balance sheet and tougher balance sheet business conditions lead some financial institution into Bankruptcy.

③ Stage debt deflation
The economic downturn leads to a sharp decline in the price level.

↳ Due to which the Assets prices shocks price and other CDs or bonds less its real value as it will be worth less than today so due to which the lending contracts.



② The Mother of all financial crises (The Great depression)

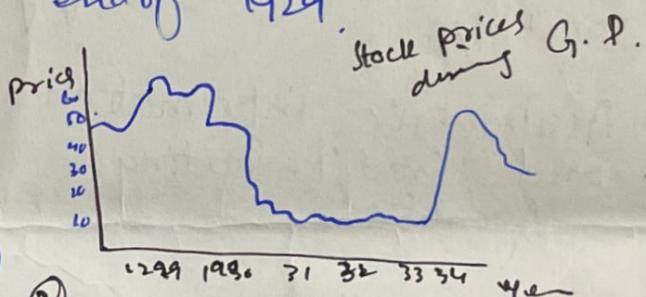
① Stock Market Crash

↳ In 1929 & 1928

↳ stock prices doubled
↳ Fed officials warned the stock market boom on excessive speculation

② To curb it they pursued the tightening Monetary Policy to raise interest rate to limit the stock prices.

↳ Stock market crashed in 1929 falling by 40% by end of 1929.



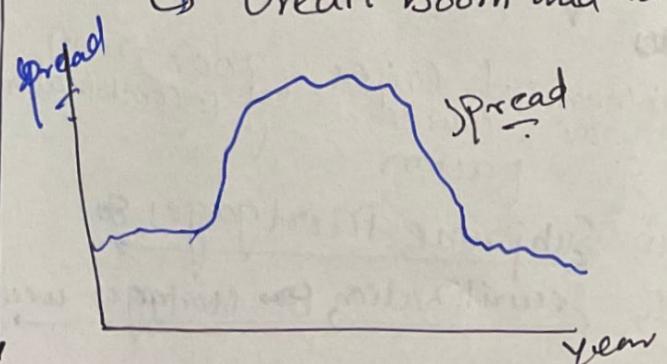
③ Bank Panics,

in middle of 1930 the stock prices recovered by half.
↳ But severe drought in midwest led to a sharp decline in Agricultural products → So farmers could not pay their bank loans → Balance sheets detonate, leading to Bank runs

↳ Credit spread Risk premium

↳ lenders starting lending on high interest rates.

↳ Credit boom and busts



- International dimensions
 ↳ Started in USA → Lead to Global depression.
 ↳ Banks panic in Rest of the world.
 ↳ The result of this Great depression lead to WWII

⇒ The Global Financial Crisis

- ↳ Financial innovations in the Mortgage markets.
 ↳ The business of lending to buy houses and other properties.
 ↳ In 2000s Real Estate ↑
 ↳ New innovation in the market.
 ↳ Agency problems in Mortgage markets &

iii) Asymmetric information and Credit-Rating Agencies &

→ Effects of the 2007-2009 financial crises

Consumers and businesses suffered the most.

- (i) Residential Housing Prices (Boom and Bust)
- (ii) Deteriorations of financial institutions Balance sheets.
- (iii) Global financial mkt.
- (iv) Failure of high profile firm.

→ Financial crises by 2007-2009 was caused by a combination of factors.

- (i) Subprime Mortgages

- (ii) Securitization ↳ Mortgages were

bundled together and sold as securities.

(iii) Leverage & many financial institutions invested heavily in these securities.

(iv) Lack of Regulation

V Economic Downturn

→ Dynamics of financial crises in Emerging market economies.

