

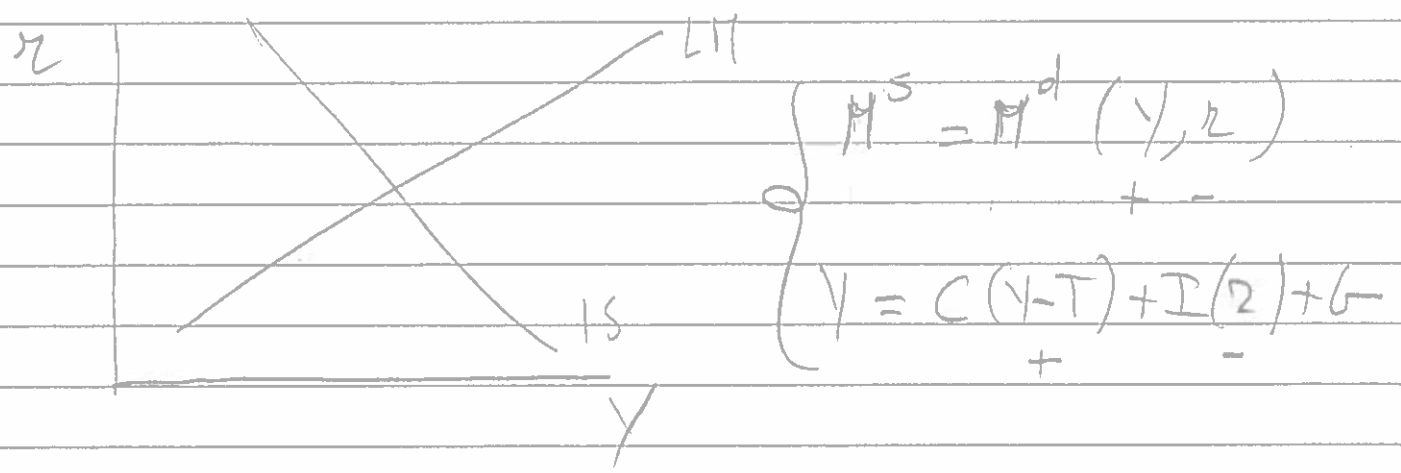
MARCH 20, 2012

Global Finance & The macroeconomics of the balance of payments (GIUSEPPE SCINTARCA)

Purpose of the lecture

- 1) Study the connections amongst global finance, monetary policy (MP) & the BoP
- 2) assessing the effectiveness of MP under fixed & flexible ex. rate regimes

Let's start with the basic IS-LM model.



This is a closed-economy model that can serve only as a first approximation of how a real economy works.

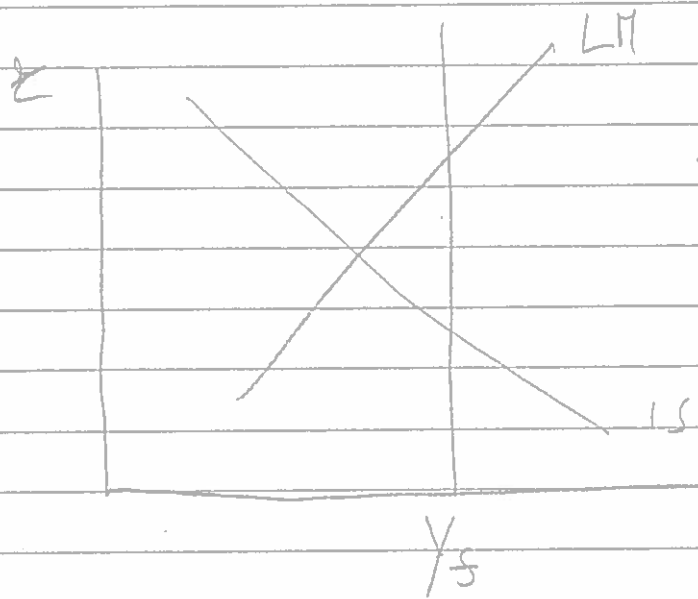
Note that ; you can use fiscal policy as well as mon. policy to raise income & employment

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In fact:

- ① There is no balanced-budget rule
- ② Prices are not treated explicitly

A ^{slightly} more realistic variant of this model is:



Here Y^s denotes full-employment income

Beyond Y^s demand stimulus is inflationary ↑

→ nominal income $Y = Y^s \cdot P$

We can make the model more realistic by considering the case of an open-economy that exchanges goods & services with the rest of the world & is open to international capital flows.

→ To do this we need to add to the model the BoP.

(Chapter 7 in L&V)

The BOP is based on a number of accounts/sub-balances

① The "Commercial balance" (CB)

Exports - Imports (of goods & services)

If the CB is positive, there is an increase in official reserves -

A US exporter will price and sell his goods/services in \$, hence his clients will have to buy \$ on the exchange market in exchange for his currency.

The opposite in the case of a US importer

If $Exp - Imp > 0 \rightarrow$ the inflow of foreign exchange exceeds the outflow, hence $R \uparrow$

② The "Current account balance"

It's the commercial balance plus

(a) income receipts (net)

It's the (net) income that the country's residents receive on their investments

④

abroad (stocks, bonds, securities, rent on
patents, etc.)

⑥ unilateral transfers (net)

It's the net inflow of private donations,
development aid, remittances of migrants

③ The "capital account balance" (KA)

The CA records all inflows & outflows
of financial investments.

A capital "inflow" occurs when
• foreigner buys domestic assets
Some domestic assets are denominated
in the national currency, foreign investors
will have to exchange foreign currency with
\$

→ capital inflows increase
foreign reserves (RT)

↳ In the case of capital outflows the
same works the other way round
hence

→ capital outflows determine reductions
of official reserves (R↓)

A surplus in the Capital Account determines RT↑.

LEVI Table 7.1

→ Ent of all items that are recorded in the BOP.

• The accounting principle adopted in BOP accounting is "double entry"

→ All items sum up to zero

Therefore in accounting terms:

BOP balance = 0

A more interesting way to look at the economics of the BOP is using the following identity:

ΔR = Current Account + K Account

change in the stock of official reserves

net inflows of goods & services (unilateral transfers)

net capital inflow

Note: in LEVI the identity is CA + KA + ΔR = 0

CA + KA + ΔR = 0

but note that in the copy of the text book ΔR < 0 since an increase in reserves = supply of national currency hence the sign is negative

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There are many important things to be noted around our BoP identity

$$\Delta R = CA + KA$$

① $\Delta R \rightarrow M^s \uparrow$

An increase in official reserves implies an increase in money supply. In fact the foreign currency obtained on the market in the end goes to the CB in exchange for national currency; hence $\pi \uparrow$

\rightarrow A surplus in the BoP implies an increase in M^s under fixed ex. rate (ex. China).

② When the exchange rate is ^{flexible} flexible

$$\Delta R = 0 \quad \text{since the CB does not buy or sell foreign reserves.}$$

There can be no change in reserves as the exchange rate (a price) will adjust to accommodate any excess of supply/demand

- If CA or $KA > 0 \rightarrow E \downarrow$ (appreciation)

- If CA or $KA < 0 \rightarrow E \uparrow$ (depreciation)

In essence:

- An inflow of foreign reserves leads to an appreciation of the domestic currency hence of the ex. rate
- An outflow of foreign reserves leads in reverse to an ex. rate depreciation



Before integrating our BOP identity into the IS-LM model we need to make more explicit the economics behind it:

$$\Delta R = CA(\epsilon, Y) + KA(r, \epsilon)$$

+
-
+
?
+

$\frac{\Delta CA}{\Delta \epsilon} > 0$ is clear since we assume the Marshall-Lerner condition holds. Hence there is a (net) increase in export (a depreciation makes domestic goods cheaper)

$\frac{\Delta CA}{\Delta Y} < 0$ since the higher income stimulates imports from abroad

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$$\frac{\Delta KA}{\Delta R} > 0$$

The higher the return on domestic assets, the more attract foreign inflows

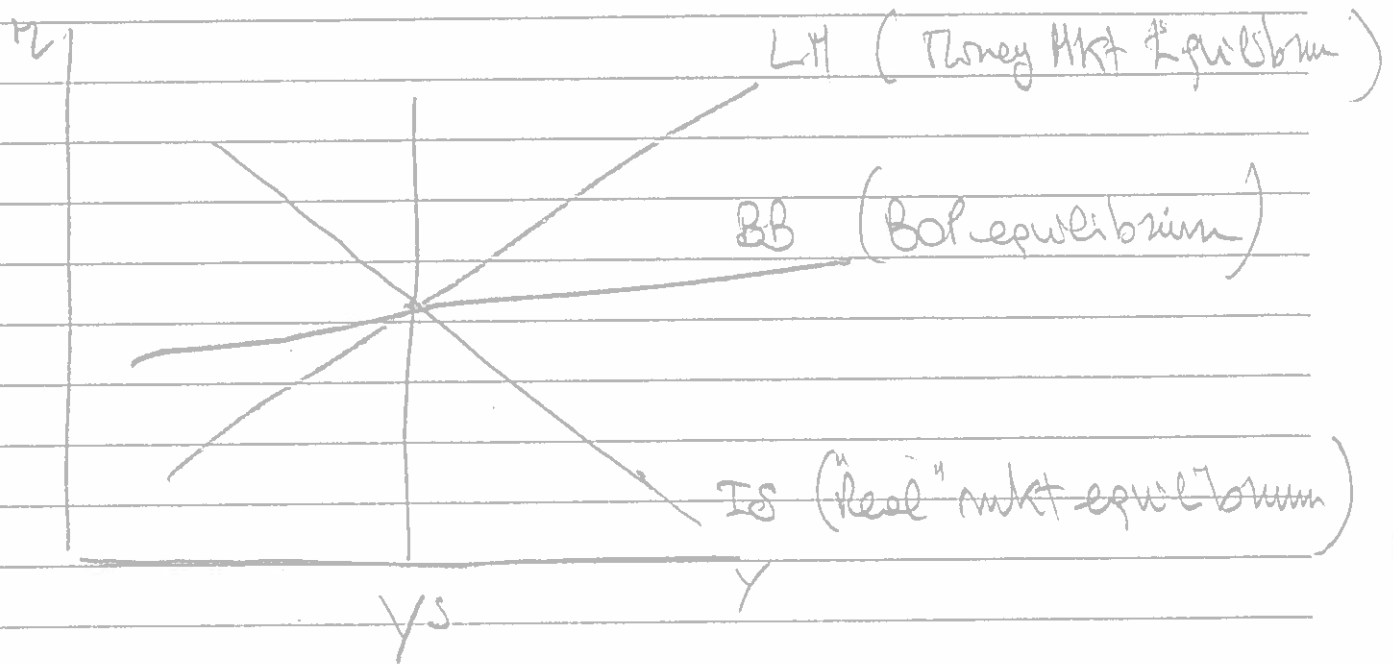
$$\frac{\Delta KA}{\Delta \epsilon} > 0$$

When $\epsilon \uparrow$ (a depreciation) domestic assets become cheaper to foreign investors. However a depreciation might induce the expectation of further depreciations in the future, which can lead to "capital losses".

→ It's a complex causal relationship. For simplicity we'll assume that:

$$\frac{\partial KA}{\partial \epsilon} > 0$$

The expanded model: IS-LM-BB (Lui's Ch. 12)



The expanded model sets us in the world of **OPEN-ECONOMY MACROECONOMICS** the branch of intr. economics that concentrates on a single country (more than on the system) in order to assess the effectiveness of macroeconomic policy.

What is the meaning of the BB curve?

The BB curve is simply the combination of Y/E & Z that warrants that the BoP is "on balance" (economically), which means that $\Delta R = 0$ (no change in reserves)

When BoP is on balance, there is no need for the CB to buy or sell foreign ex. reserves.

Hence: $CA(Y, \bar{E}) + KA(Z, \bar{E}) = 0$

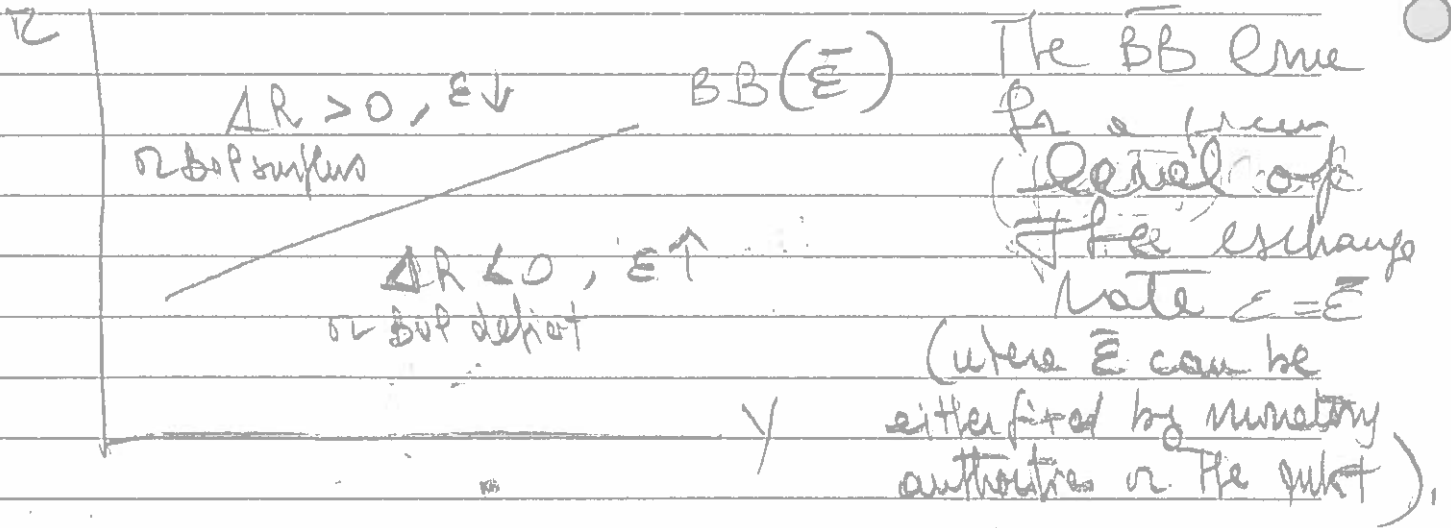
BB curve is positively sloped

When $Y \uparrow \rightarrow CA$ worsens since $Imp \uparrow$
Hence to attain equilibrium you need $Z \uparrow \rightarrow$ raise more capital inflows

This means that the BB curve is positively sloped.

The BB curve works under both fixed & flexible ex. rate regime.

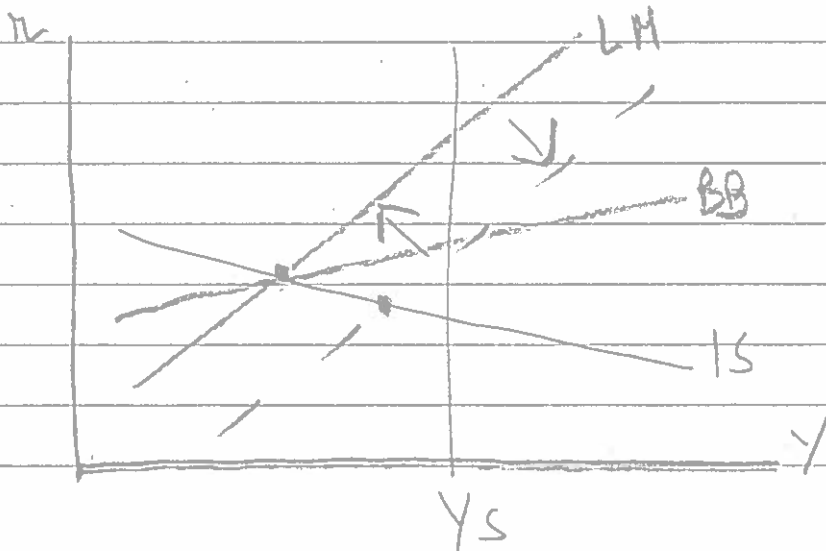
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At this point we are able to assess the impact of fiscal & monetary policy under different ex rate regimes.

The most interesting case is that: FIXED EX. RATE

1) When the ex. rate is set at a given level, monetary policy is not "independent" any longer. By this we mean the MP must be targeted to the ex. rate parity and cannot be adjusted freely to stimulate the economic cycle -



If I try to raise Y by expanding money supply, the BOP moves, hence $\epsilon \uparrow$

To ensure that $e = \bar{e}$ (PARITY condition)
I must set M^s .

If the Central Bank (CB) expands money supply via open-market operations (buys bonds on the secondary market),
then

$$\begin{aligned} & \downarrow \quad \quad \quad r \downarrow \quad \rightarrow \quad K \downarrow \quad \rightarrow \quad e \uparrow \\ & \left\{ \begin{array}{l} I(r) \uparrow \rightarrow Y \uparrow \rightarrow CA \downarrow \rightarrow e \uparrow \end{array} \right. \end{aligned}$$

To counteract the "downward" pressure on e , the CB will have to buy its currency on the market in exchange for R . Hence M^s gets back to its previous level.

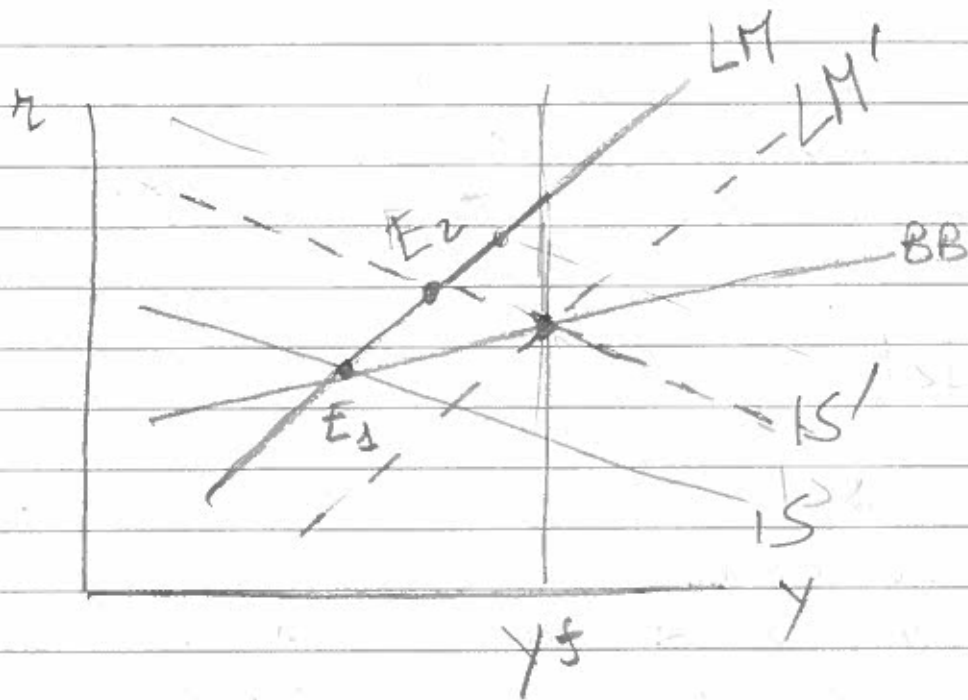
The composition of the CB's balance sheet has changed (more securities than reserves) but M^s must be unchanged at the end of the process.

→ Conclusion: with fixed exchange rate monetary policy cannot be used to stimulate income & employment.

This is a fundamental conclusion and is also the reason why sometimes countries introduce capital controls, as we'll see in the next class.

① fixed rate

② let's now consider fiscal policy



Example
to expand G
in order
to raise y
closer to
full employment
level
(move IS
from IS' to IS'')

In E_2 we are in a BOP surplus
hence there will be pressure on the *
exchange rate to appreciate ($E \downarrow$).

These pressures on E must be
offset by the CB that will sell
the national currency on the market
in ex. for foreign currency.

$\Rightarrow MS \uparrow, R \downarrow$

The LM moves to the right & we can
achieve full employment in E_3

*Note that if the BB curve is steeper than the LM curve,
there will be a deficit & E will tend to depreciate.

Autonomous

12 bis

There on fiscal policy under fixed ϵ .

When $G \uparrow$ this implies also $Y \uparrow$ which produces two effects

- CA worsens since $MP \uparrow$
- $M^d(\gamma, r)$, money demand goes up will will push $r \uparrow$ with M^s given.
- Since $r \uparrow$, KA improves

Thus, an expansionary fiscal policy will
(i) worsen the current account
(ii) improve the capital account

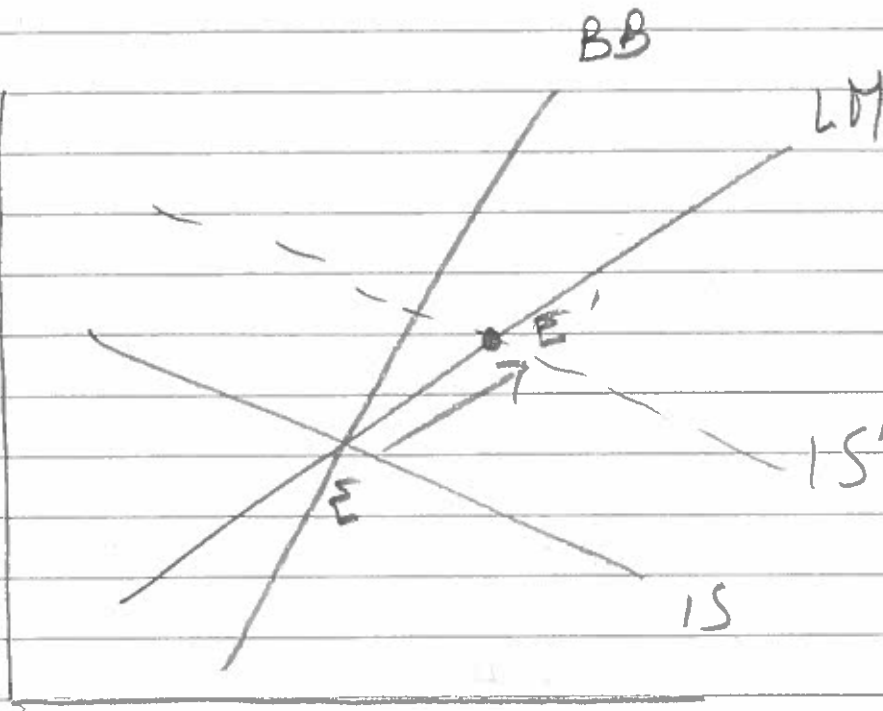
The net effect on ϵ is thus indeterminate a priori & will depend on which account is dominant in the BOP.

If the effect on KA dominates, the BOP will go in surplus, vice versa when the effect on CA dominates

The two different cases can be depicted in our model by changing the slope of the BOP curve.

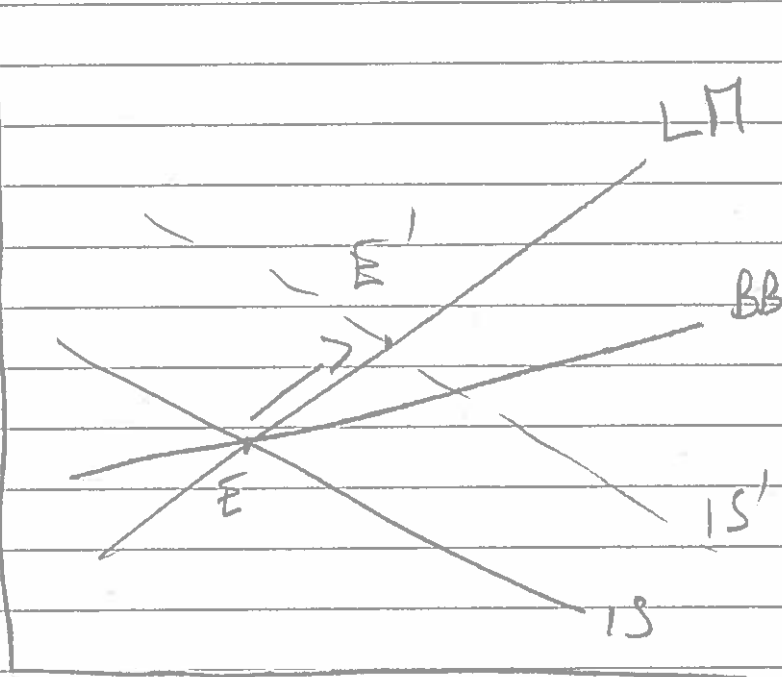
Fixed rate

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Case (1)
BB steeper
than the LM
curve.

① An expansionary fiscal policy leads to a BOP deficit (CA dominates KA)



Case (2)
BB line
less steep
than LM curve

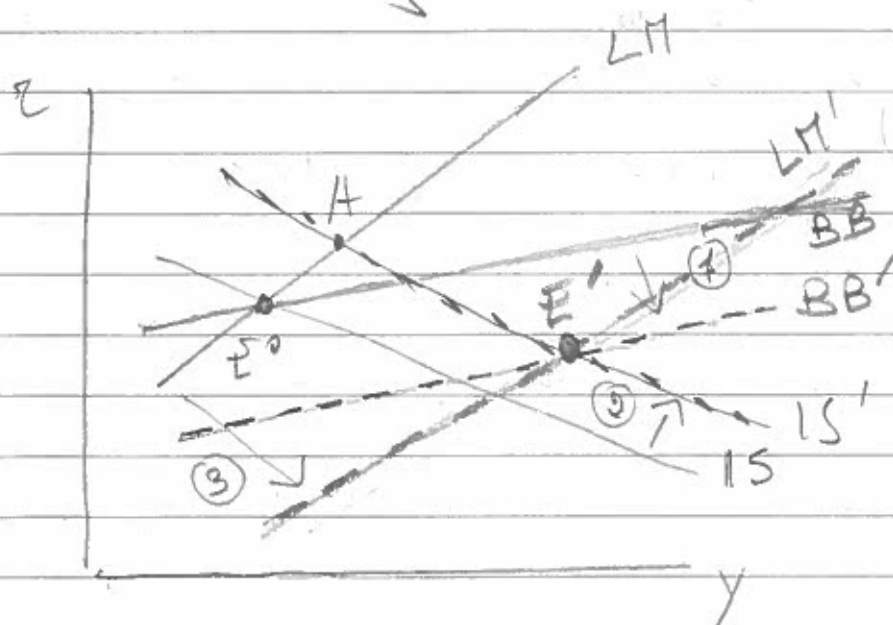
② An expansionary fiscal policy leads to a BOP surplus (KA dominates CA)

Conclusion: under fixed ex rate
fiscal policy can be even more effective
than in a closed economy, since
any fiscal stimulus will have to
be accompanied by a monetary
stimulus to keep ϵ unchanged.

(But this result depends on the slope of BB curve)

③ CURRENCY DEVALUATION

Another policy option under the fixed
ex. rate regime is a "devaluation", which
means to reduce the value of the national
currency vis-à-vis the reference currency,
thus setting a new parity (ϵ' , with $\epsilon' > \epsilon^0$)



① The BB curve
shifts downward
since at ϵ' the
capital account
improves hence
need a lower
 r to achieve
equilibrium

② With the devaluation exports also improve
hence the IS shifts rightward

③ Monetary policy will have to adjust

To defend the new parity, in A the BOP is in surplus, which means that the national currency will be under pressure to revalue. The CB will offset these pressures by selling its currency ($H^S \uparrow$) in exchange for reserves.

Inflationary effect of devaluation

In some cases a devaluation may be the right choice to stimulate the economy, for an economy where growth is led by export, it may be helpful to keep the currency undervalued.

However, a devaluation is normally inflationary, as it raises the cost of imports and may give rise to inflationary spirals (cost-push inflation).

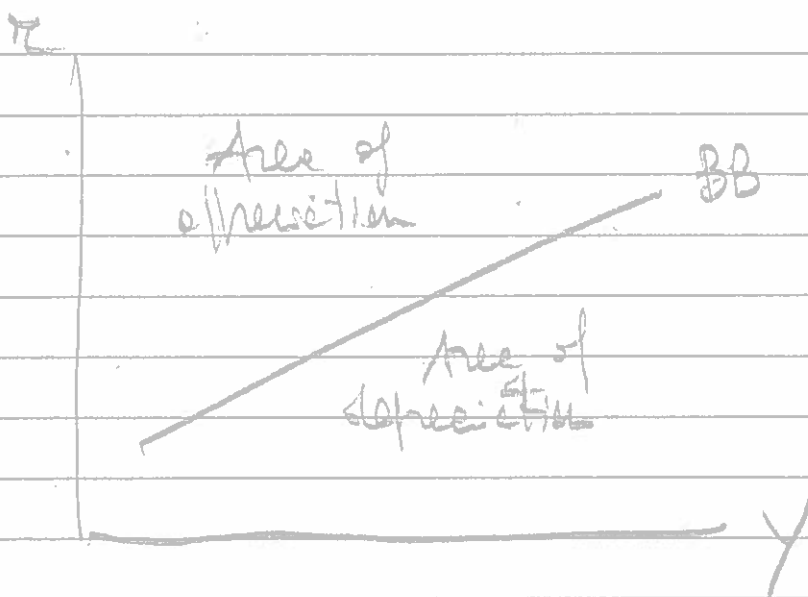
The model under flexible rates

Under flexible rates the substitution of the BB curve changes slightly:

Definition of BB line: combination of r & Y at which the demand for the currency equals supply at the market prevailing ex. rate

$$CA(Y, E) + KA(r, E) = 0$$

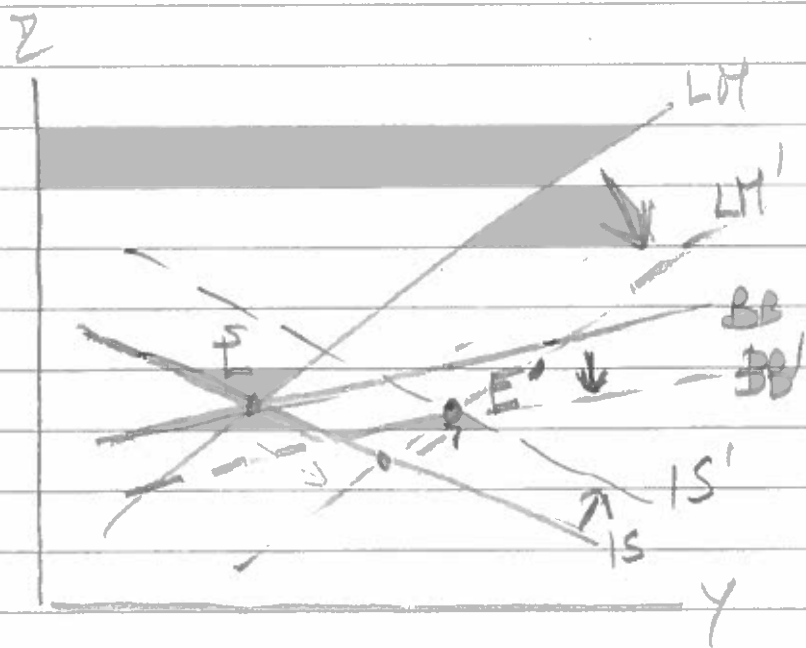
with E determined by market forces -



The effectiveness of fiscal & monetary policy reverses, as we'll see -

Also, we do not have devaluation as a third policy option -

16) Flexible rates



Monetary Policy

MP is free to move regardless of the r rate.

An expansionary policy lowers r and in turn causes a depreciation ($\epsilon \uparrow$)

When $\epsilon \uparrow$ that stimulates exports, hence the IS curve shift rightward

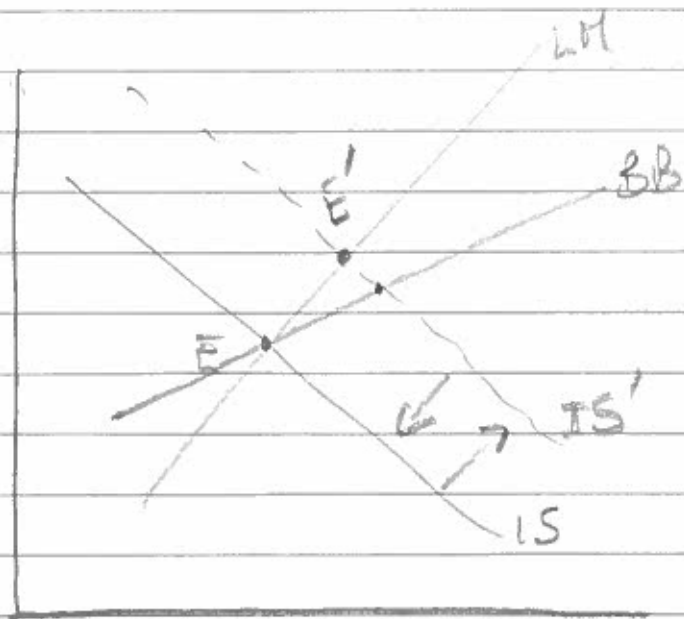
The BB curve will move to the new equilibrium r rate (the macro equilibrium moves from E to E')

In summary

$$M.S. \uparrow \rightarrow r \downarrow \rightarrow \epsilon \downarrow \rightarrow CA \uparrow \rightarrow Y \uparrow$$

Income will be higher in the new eq. due to higher exports (net).

Note: the increase in Y is also due to a rise in investment, since $r \downarrow \rightarrow I(r) \uparrow$ and this is a movement along the IS curve.



Fiscal policy

When $(G-T) \uparrow$
the IS line moves to the right

The BoP goes in surplus which implies $E \downarrow$,
currency appreciation
(same $r \uparrow$)

When $E \downarrow$, the current account will worsen and this effect will continue moving the IS line backward till we go back to previous equilibrium.

(but we'll end up with higher fiscal deficit & current account deficit)

Conclusion: under flexible rates fiscal policy is ineffective

Note 1 Note that in reality when the fiscal position worsens this more often leads to currency depreciation since the debt rises and so the risk of default.

Note 2 As in the fixed rate case, we can have a steeper BB line, so that, after the fiscal stimulus, we move to a point of BoP deficit, hence E will depreciate.

