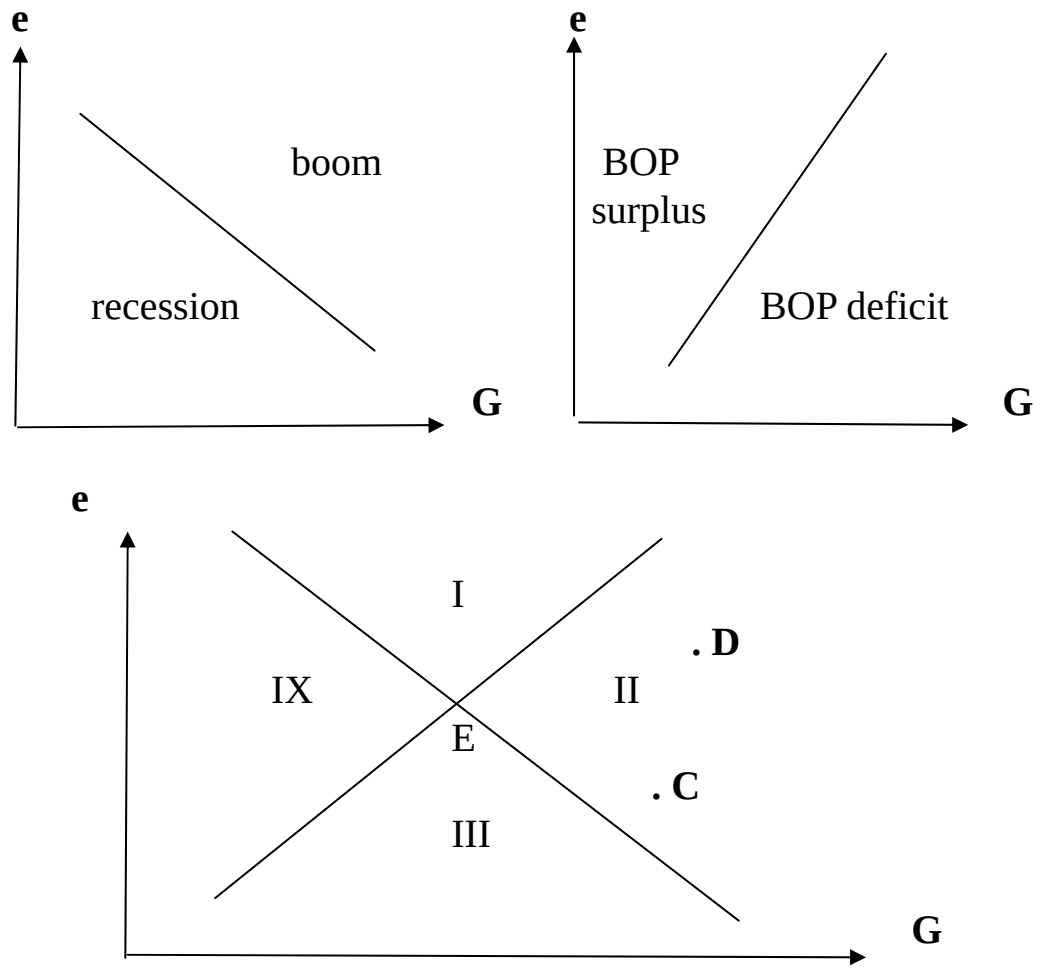
Open Economy Considerations

{Read Argy, The Postwar International Monetary Crisis, chapter 22; Argy, International Macroeconomics, chapters 6 and 7.}

1. The Swan Diagram



G=fiscal expenditure; e=exchange rate=HC/FC. A rise in e is devaluation/depreciation. Four possible combinations of internal and external competitiveness:

I: boom plus BOP surplus
II: boom plus BOP deficit
III: recession plus BOP deficit
IV: recession plus BOP surplus

What should be the policy responses in each regime to return to the bliss point, point E of internal and external balance?

What are the differences between policy responses to point C and point D, when both are in regime II?

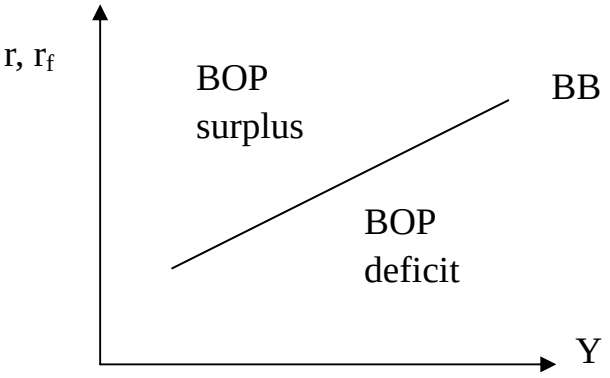
2. The Mundell-Fleming Model

Open-economy Keynesian framework with the IS, LM and BB curves

BB curve specification

$B = X - M + K$

Fixed exchange rate system	Floating exchange rate system
$X = \overline{X}$	$X = x_o + xe$
$M = m_0 + mY$	$M = m_0 + m_1Y - m_2e$
$K = k\,(r - r_f)$	$K = k\,(r - r_f)$



m_0 – autonomous import
m – marginal propensity to import
k – capital inflow coefficient
r – domestic interest rate
r_f – foreign interest rate

Take the fixed rate system as an example:

$$B = \overline{X} - m_0 - mY + k\,(r - r_f)$$

In equilibrium, B = 0

$$\therefore mY = \overline{X} - m_0 + k\,(r - r_f)$$

$$\therefore Y = \frac{\overline{X} - m_0}{m} + \frac{k}{m}(r - r_f) \qquad \text{--------} \quad BB$$

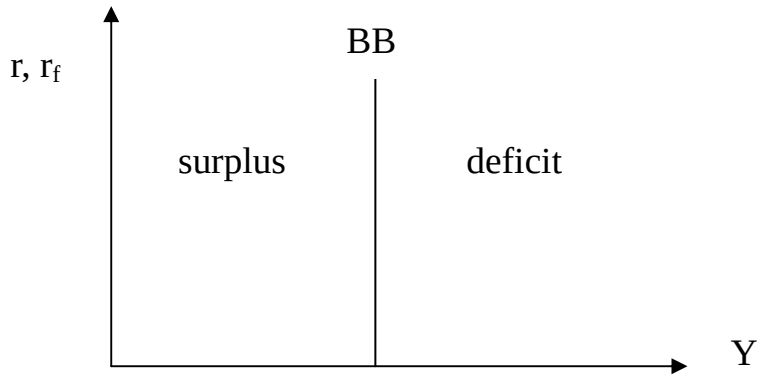
the slope : $\frac{\partial r}{\partial Y} = \frac{m}{k} > 0$ so the slope is positive

Work out the BB equation for the floating rate regime yourself.

Two extreme situations:

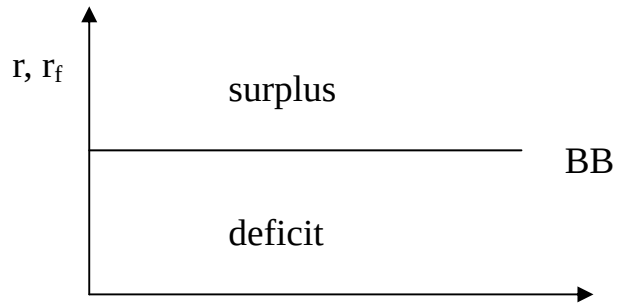
(1) zero capital mobility

i.e. $k = 0$ $\therefore$ $\frac{\partial r}{\partial Y} = \frac{m}{k} = \infty$ so a vertical BB curve



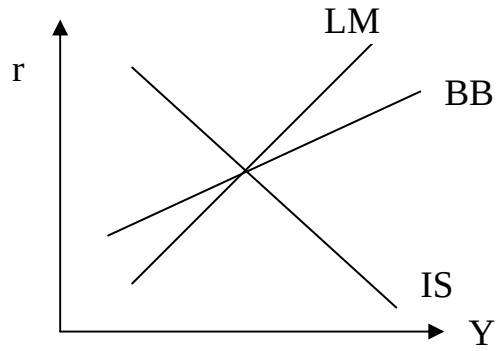
(2) perfect capital mobility

i.e. $k = \infty$ $\therefore$ $\frac{\partial r}{\partial Y} = \frac{m}{k} = 0$ so a horizontal BB curve



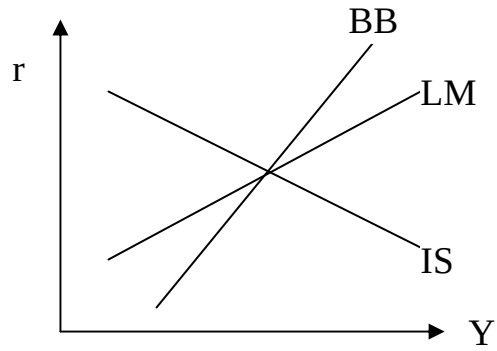
Two intermediate cases:

(3) High capital mobility



if BB is flatter than LM

(4) Low capital mobility



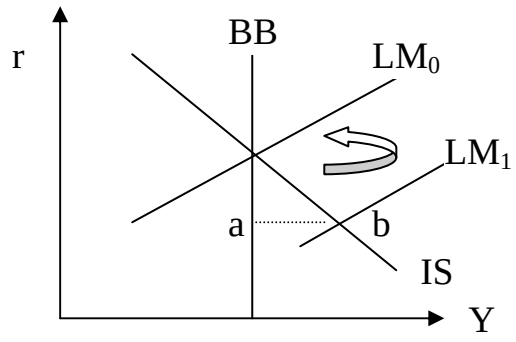
if BB is steeper than LM

Let us look at the comparative effectiveness of monetary versus fiscal policies under:

Fixed exchange rate

(1) zero capital mobility

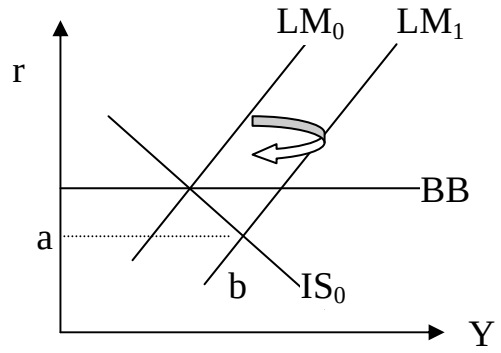
Monetary Policy



Monetary policy:
$LM_0 \rightarrow LM_1$, and a BOP deficit *ab* is created. Under a fixed exchange rate system, the government has to avoid devaluation by intervention in the foreign exchange market, e.g. selling foreign currency and buying home currency. So LM_1 shifts back to LM_0
$\therefore$ Policy INEFFECTIVE

(2) perfect capital mobility

Monetary policy

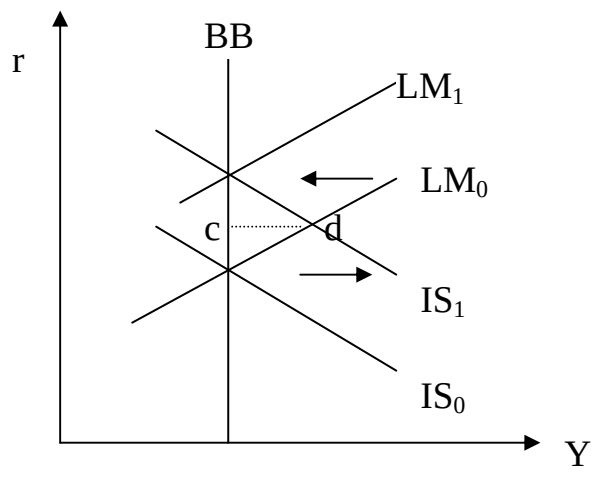


Monetary policy:
$LM_0 \rightarrow LM_1$:
BOP deficit *ab*.
$\therefore$ monetary contraction to keep the fixed exchange rate
$LM_1 \rightarrow LM_0$
$\therefore$ Policy INEFFECTIVE

Fixed exchange rate

(1) zero capital mobility

Fiscal policy

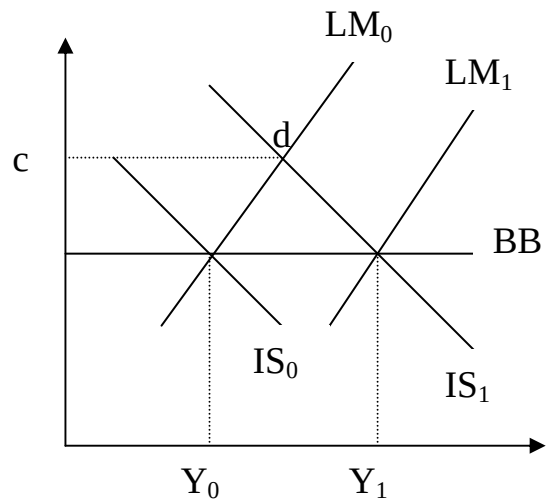


$IS_0 \rightarrow IS_1$, a deficit of *cd* is created. By the same logic as above, monetary contraction has to take place, so $LM_0 \rightarrow LM_1$ backwards.

∴Policy INEFFECTIVE. Moreover interest rate becomes higher.

(2) perfect capital mobility

Fiscal policy



$IS_0 \rightarrow IS_1$, a <u>surplus</u> of *cd* is created, there will be pressure for the exchange rate to rise, the government has to sell the home currency

∴ increase money supply.

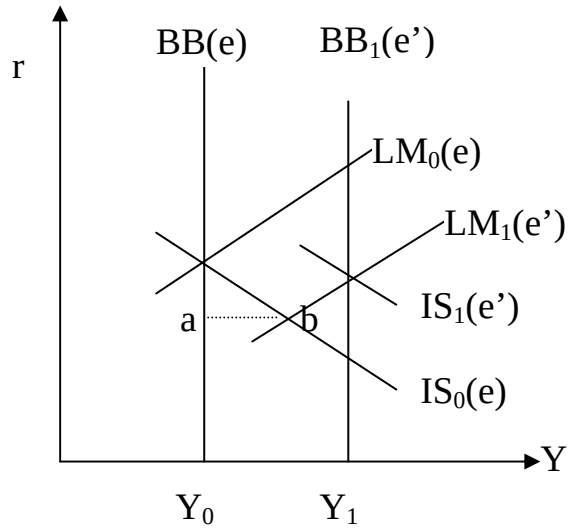
$LM_0 \rightarrow LM_1$ and $Y_0 \rightarrow Y_1$

∴Policy EFFECTIVE

Flexible Exchange Rate

(1) Zero capital mobility

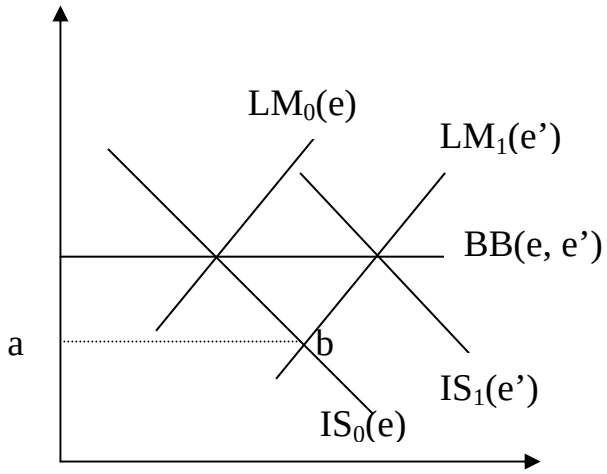
Monetary policy



Monetary policy:
$LM_0 \rightarrow LM_1$,
BOP deficit *ab*. Under a floating exchange rate system, depreciation, i.e. e↑, exports will increase and BOP surplus will appear unless Y increases, sucking in more imports. So both IS_0 and BB_0 curves shift outwards to IS_1 and BB_1 respectively. Y↑.
∴ Policy EFFECTIVE

(2) Perfect capital mobility

Monetary policy

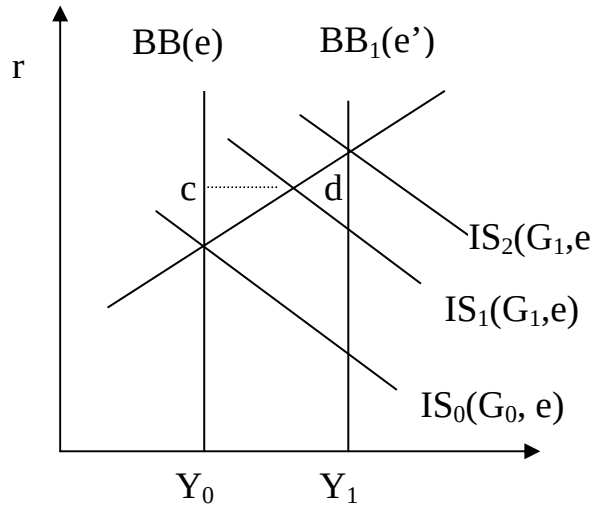


Monetary policy:
$LM_0 \rightarrow LM_1$,
deficit *ab*,
e↑ so $IS_0 \rightarrow IS_1$
BB cannot shift.
∴ Y↑
∴ Policy EFFECTIVE

Flexible Exchange Rate

(1) Zero capital mobility

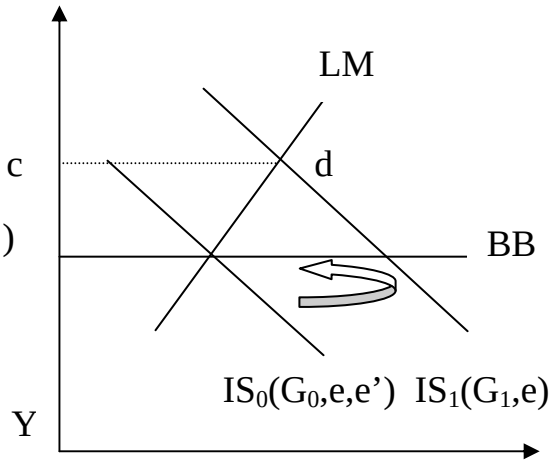
Fiscal policy



$IS_0 \rightarrow IS_1$
BOP deficit *cd*, so e↑
$\therefore$ $IS_1 \rightarrow IS_2$
$BB_0 \rightarrow BB_1$
$Y \rightarrow Y_1$
$\therefore$ Policy EFFECTIVE

(2) Perfect capital mobility

Fiscal policy



$IS_0 \rightarrow IS_1$
BOP surplus *cd*, so e↓ (appreciation). Export will drop, import will rise. The BOP surplus disappears.
$\therefore$ $IS_1 \rightarrow IS_0$ again
$\therefore$ Policy INEFFECTIVE

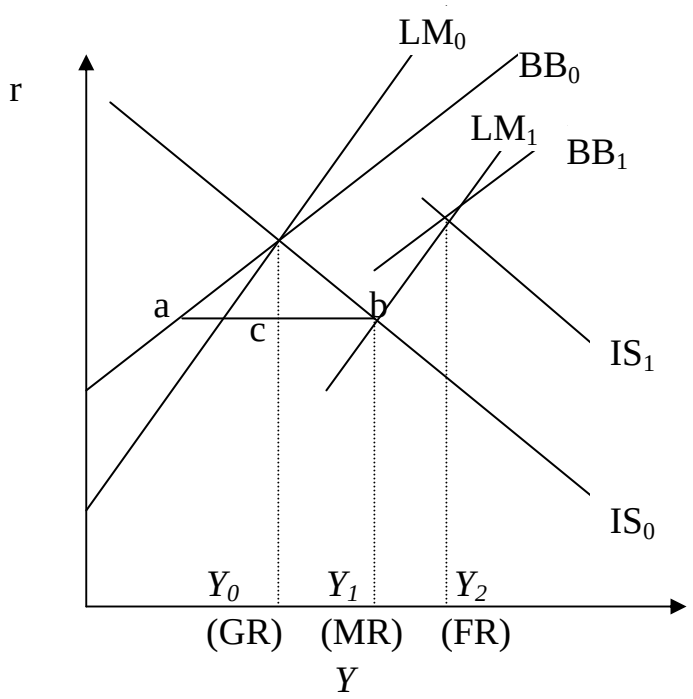
Now consider the intermediate case where there is **high capital mobility**.

Three regimes:

1. fixed exchange rate: GR
2. floating exchange rate: FR
3. dirty float with "sterilization".

An expansionary monetary policy will raise the level of income to Y_1; now, however, the deficit (*ab*) will be larger than the case of zero capital immobility (*cb*) because with lower interest rates there are also outflows of capital.

Monetary policy with high capital mobility



In the GR regime, there will be devaluation pressure on the domestic currency. To keep to the fixed exchange rate, the volume of money will be allowed to fall and again equilibrium can only be restored at the original level of output. Monetary policy will be completely ineffective, the only difference being that with the larger initial

deficit the movement to equilibrium will be accelerated and the final solution will be reached sooner than the case of zero capital mobility.

In the FR regime the larger deficit will lead to a larger devaluation and hence a larger stimulus to domestic income. The *IS* schedule will now shift still further to the right. The final solution for income for FR is, therefore, at a higher level than in the case where the degree of capital mobility is zero.

In the MR regime the economy will settle at Y_1 if the monetary authority sterilises the monetary effect of the BOP deficit by making larger purchases of government securities (thereby injecting money into the economy) so as to preserve the new, higher volume of money implied by LM_1.

Note: Sterilisation operations are basically bond market operations which are aimed at offsetting the monetary effects of foreign exchange market operations under a **fixed** exchange rate regime. In the bond market, the central bank does the opposite to what it does in the foreign exchange market.

Under a BOP deficit, the central bank buys HC and sells FC in the foreign exchange market in order to maintain the fixed e; but the LM curve would shift inwards. Hence it has to sell HC (i.e. buy bonds) in the bond market. If it is fully successful, the new LM curve will not shift inwards after the original increase of MS.

Under a BOP surplus, the central bank sells HC and buys FC in the foreign exchange market to maintain the fixed e; but the LM curve would shift outwards. Hence it has to buy HC (i.e. sell bonds) in the bond market. If it is fully successful, the new LM curve will not shift.

The effectiveness of sterilisation in a fixed exchange rate regime is controversial. It depends on, among other factors, whether the **substitutability** between the bond market and the forex market is **low** (i.e. if the substitutability between HC bonds and FC is low). The lower the substitutability, the higher the effectiveness of sterilisation will be.

General Results of the Mundell-Fleming Model

Degree of capital mobility: 1—totally immobile
2—BB steeper than LM
3—LM steeper than BB
4—perfectly mobile

Exchange rate system: GR--fixed exchange rate
FR--floating exchange rate

	Capital mobility			
	1	2	3	4
Monetary policy				
GR	ineffective	ineffective	ineffective	ineffective
FR	effective	effective	effective	effective
Fiscal policy				
GR	ineffective	less effective	effective	effective
FR	effective	effective	less effective	ineffective

Key findings

For monetary policy, it is always ineffective under GR and effective under FR, irrespective of the degree of capital mobility.

For fiscal policy, the turning point is when BB and LM have the same slope; after which the comparative effectiveness is reversed.

(1) In situations of "low" capital mobility, it is ineffective under GR and effective under FR

(2) In situations of "high" capital mobility, it is effective under GR and less effective/ineffective under FR.