Balance of Payment and Open Economy Macroeconomics

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Definition

A nation’s BOP accounts is the statistical record of all economic transactions between its residents and rest of the world.

Distinction between Credit items and Debit items

- Credit items (Debit items) lead to increase (decrease) in the foreign exchange.

Components of BOP

- Current Account (CA): The record of trade in goods and services and other current transactions.
- Capital Account (KA): The record of trade in assets, which are obligations regarding the future.
- Official Reserve transactions account (ORT):

  The transactions of assets by Central Bank.

Components of CA

- Merchandise trade
- Services
  - Transportation
  - Tourism
  - Business and professional services
- Investment Income
- Unilateral transfers
  - Government grants
  - Private remittances

Components of KA

- Direct investment
- Portfolio investment(Securities and banking flows)
  - Long-term
  - Short-term
- External Commercial Borrowings

Components of ORT

- Changes in foreign central bank’s holding of domestic assets
- Changes in domestic central bank’s holding of foreign assets:
- Gold
- IMF credits and SDRs
- Foreign exchange reserves

The Adding-up Constraint

$$CA + KA + ORT = 0$$

$$BOP = CA + KA$$

$$ORT = 0$$

$$BOP = CA + KA = 0$$

$$\Rightarrow KA = -CA$$

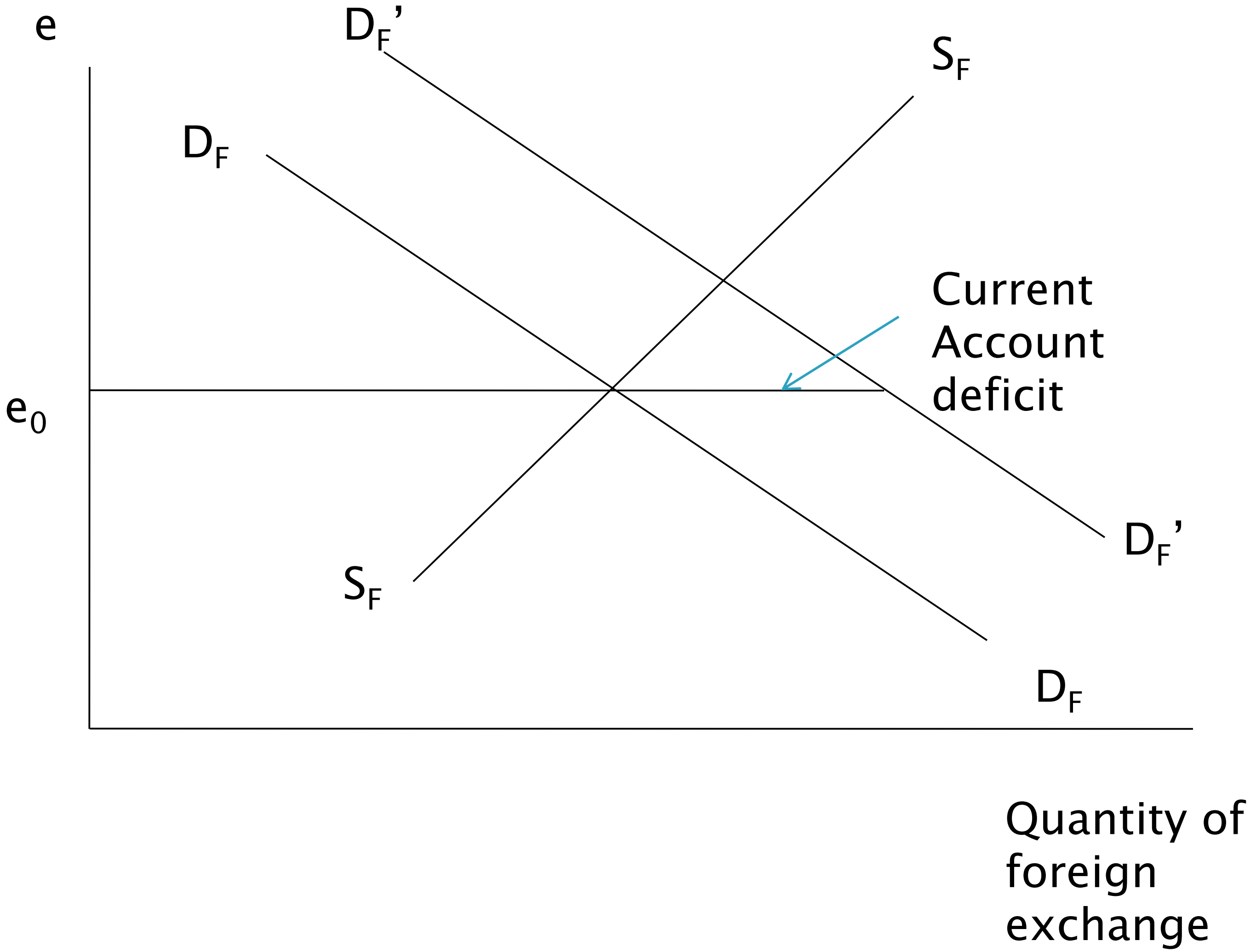
$$NS - I = X - M$$

$$KA = 0$$

$$ORT = -CA$$

Exchange Rate and Foreign Exchange Reserve

- The exchange rate is defined as the price of foreign currency in terms of domestic currency.
- The central bank engages in international financial transactions in order to influence the exchange rate. Attempts by a central bank to influence the exchange rate of its home currency through buying and selling of foreign currencies is known as managed exchange regime or managed float. The central bank’s sale of foreign currency (purchase of rupee) in the foreign exchange market leads to an equal decline in the monetary base. Purchase of foreign currency (sale of rupee) leads to an equal expansion of the monetary base.



Current Account deficit

- The Central Bank keeps the domestic currency from depreciating by buying up the excess supply of the domestic currency.
- If the deficit continues, eventually the Central Bank will run out of foreign exchange reserves and will be forced to withdraw support from the domestic currency.

- The Central Bank has two options:

1. Set a new, higher exchange rate: Devaluation
2. Allow the market to determine the rate : the floating of the currency

Effect of devaluation on trade balance

- Assumption 1: No capital flow
- Assumption 2: Changes in demand due to change in income are ignored– **elasticity approach.**
- Assumption 3: Supply is infinitely elastic.
- Assumption 4: The economy is initially in a position of balanced trade (TB=0)

The necessary and sufficient condition for the devaluation to improve the trade balance, or for the foreign exchange market to be stable, is the Marshall–Lerner condition.

The condition is

$$\varepsilon_x + \varepsilon_m > 1$$

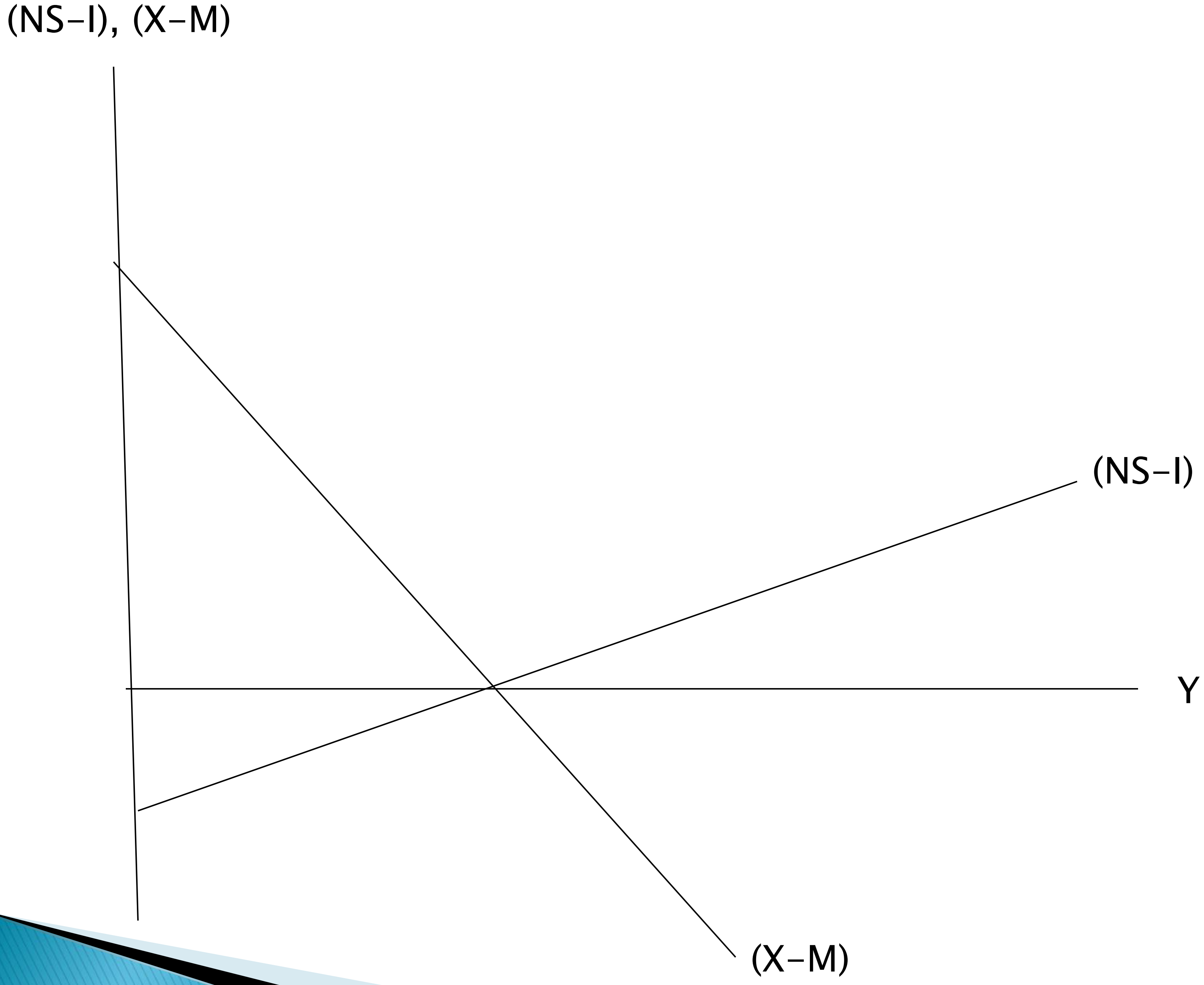
Where, ε_x and ε_m are the elasticities of demand for exports and imports, respectively.

Open Economy SKM

- One Country Model:

$$S + (T - G) = I + (X - M)$$

$$\Rightarrow NS - I = X - M$$


(NS-I), (X-M)
(NS-I)
Y
(X-M)

Absorption Approach

$$Y = C + I + G + X\left(p\right) - pM\left(p, Y\right) \ldots [where, p = \frac{eP^{*}}{P}]$$

$$If\ \varepsilon_x + \varepsilon_m > 1$$

$$\frac{dY}{dp} = \frac{M\left(\varepsilon_x + \varepsilon_m - 1\right)}{s + m} > 0$$

$$\frac{d\left(TB\right)}{dp} = \frac{s}{s + m}\left[M\left(\varepsilon_x + \varepsilon_m - 1\right)\right] > 0$$

Two Country Model

Export function of the home country

$$X = \overline{X} + m^{*}Y^{*}$$

Import function of the home country

$$M = \overline{M} + mY$$

Equilibrium income of the home country

$$Y = \frac{\overline{A} + \overline{X} - \overline{M} + m^{*}Y^{*}}{s + m}$$

- Export function of the foreign country

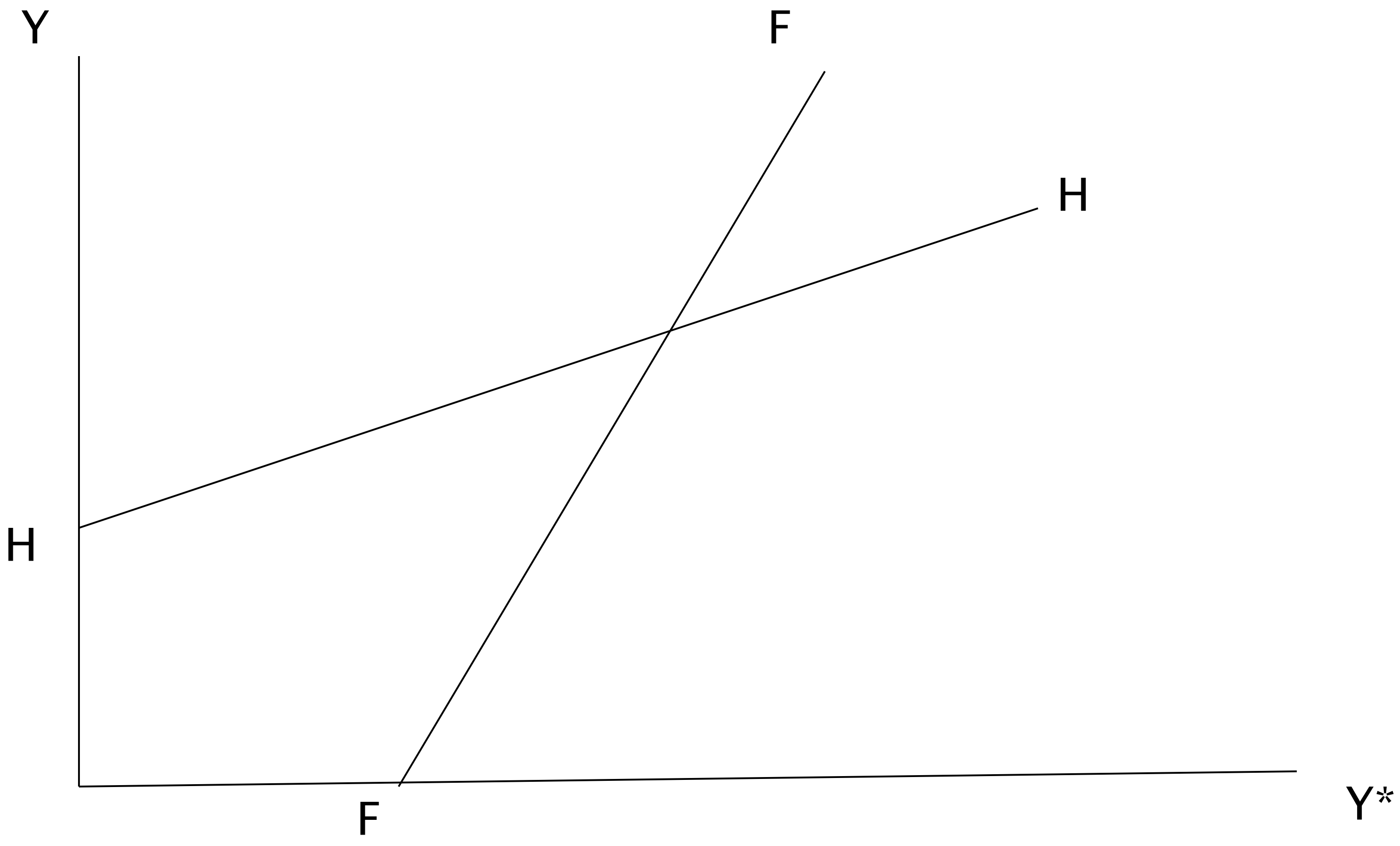
$$X^{*}=\overline{M}+mY$$

- Import function of the foreign country

$$M^{*}=\overline{X}+m^{*}Y^{*}$$

- Equilibrium income of the foreign country

$$Y^{*}=\frac{\overline{A}+\overline{M}+mY-\overline{X}}{s^{*}+m^{*}}$$


Y
F
H
H
F
Y*

- The domestic spending multiplier in two country model exceeds that of one country model.

Floating Exchange rate

- The trade balance remains at zero:

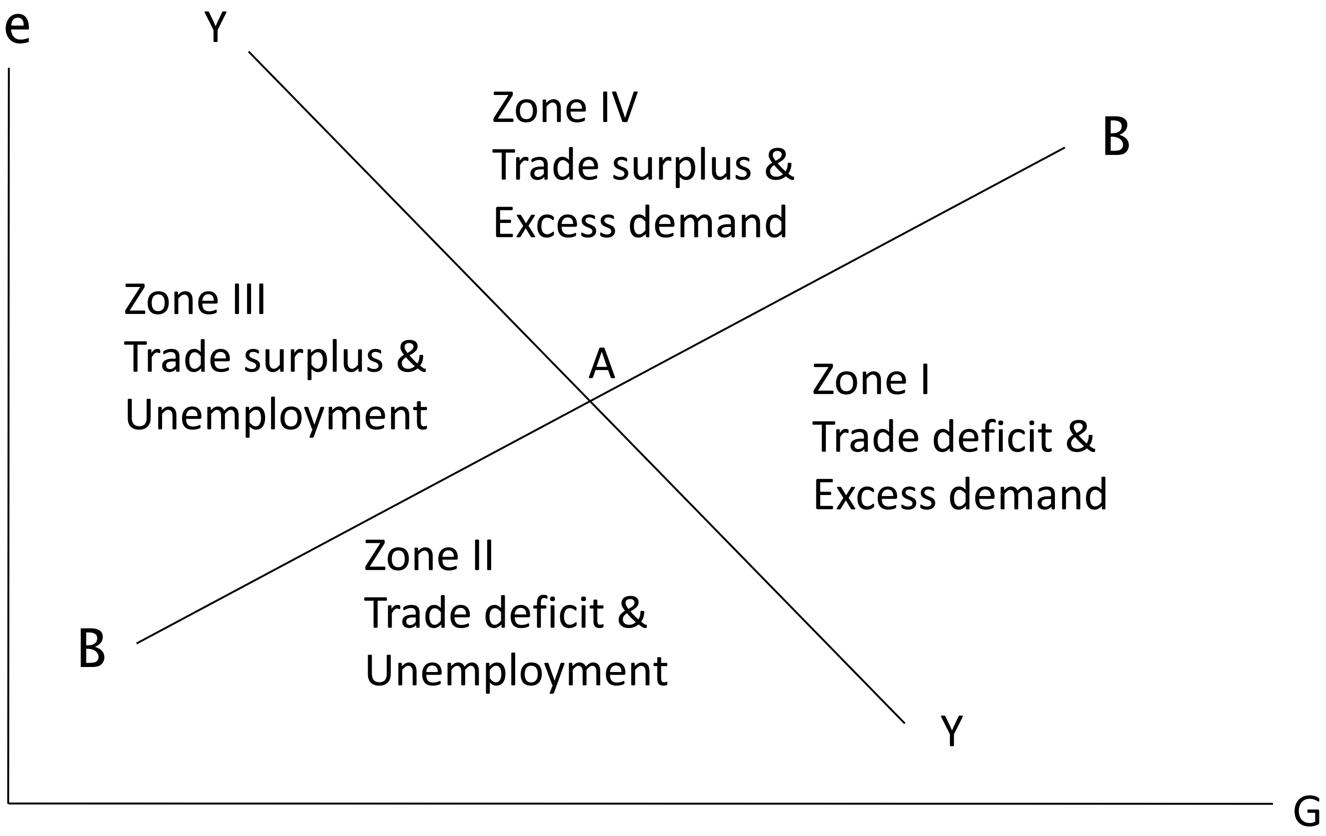
$$\Delta TB = 0$$

- All disturbances are bottled up inside the country rather than be partially transmitted abroad: we get closed economy multiplier.
- The floating rate insulates the economy against foreign disturbances:

$$\Delta Y = 0$$

The Swan Diagram

- The BB schedule shows the combinations of spending, G, and the exchange rate, e, that give the desired trade balance (External Balance), the YY schedule shows the combinations that give the desired level of output (Internal Balance).
- Only by deliberately using both Expenditure-Switching and Expenditure-Reducing Policy instruments could the government attain both policy goals at point A.



Zone IV
Trade surplus &
Excess demand

Zone III
Trade surplus &
Unemployment

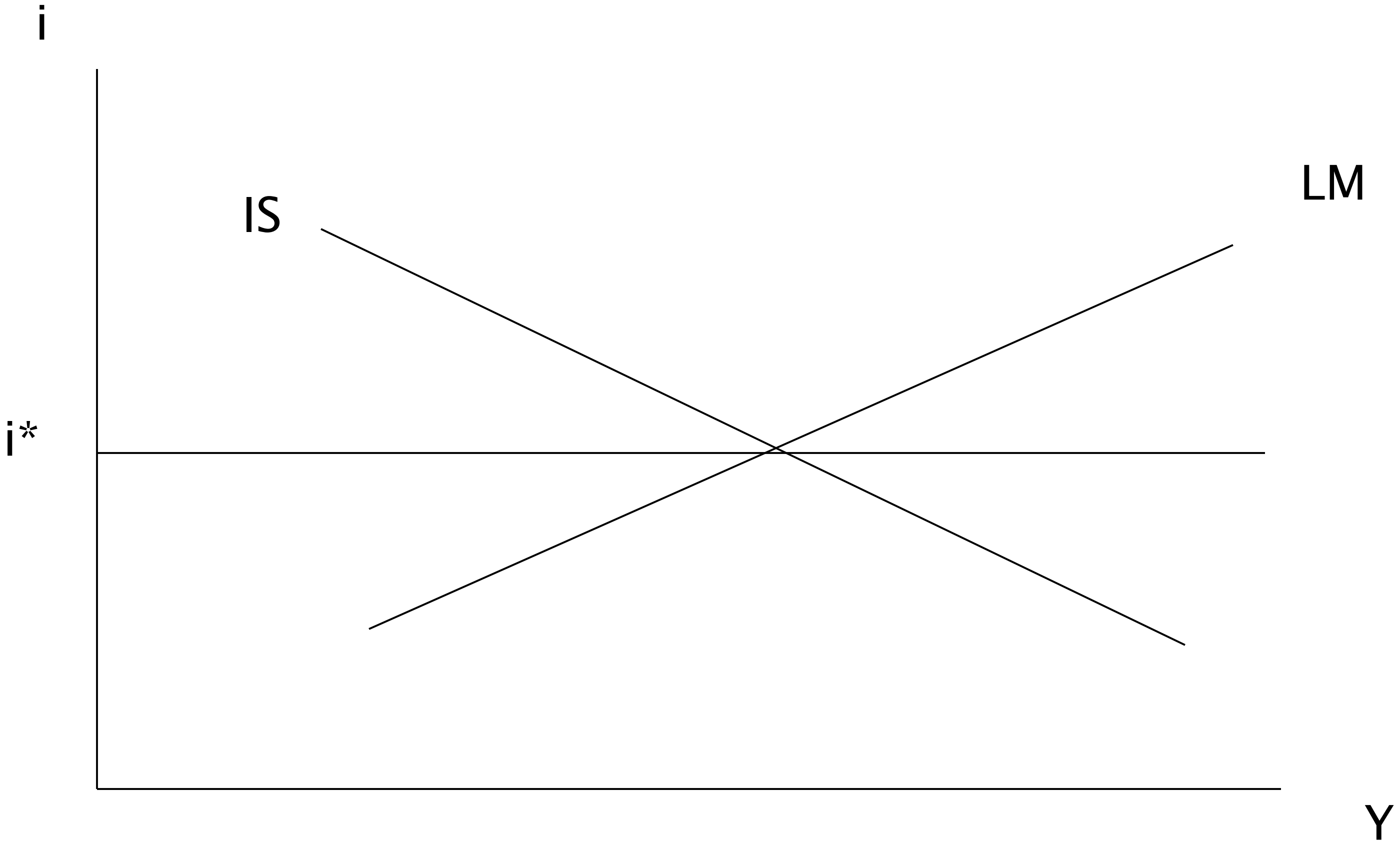
Zone I
Trade deficit &
Excess demand

Zone II
Trade deficit &
Unemployment

Mundell–Fleming Model Under Perfect Capital Mobility

- IS: $Y = [\overline{A} - b(i) + \overline{X} - \overline{M}]/(s + m)$
- LM: $M / P = L(i, Y)$

$$i = i^*$$


i
LM
IS
i*
Y

References:

- Caves, Jones and Frankel– World Trade and Payments.
- Krugman, and Obstfeld– International Economics: Theory and Policy.