



Model IS-LM dan Model Mundell-Fleming

oleh

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Perekonomian Tertutup dan Terbuka

- ◆ Perekonomian terbuka adalah perekonomian yang berinteraksi secara bebas dengan perekonomian lain di dunia.
- ◆ Suatu perekonomian tertutup adalah perekonomian yang tidak berinteraksi dengan perekonomian lain di dunia (asumsi topik sebelumnya).
 - ◆ Tidak ada ekspor, impor, dan tidak ada aliran modal dari dan ke perekonomian tersebut.

Perekonomian Terbuka

- ◆ Suatu perekonomian terbuka berinteraksi dengan negara lain dengan dua cara.
 1. ... membeli dan menjual barang dan jasa di pasar produk internasional. → *Current Account*
 2. ... membeli dan menjual asset modal di pasar keuangan dunia. → *Capital Account*
- ◆ Net exports (**NX**) adalah nilai ekspor suatu negara dikurangi dengan nilai impornya.
- ◆ Net exports juga disebut dengan neraca perdagangan (**trade balance**).

NERACA PEMBAYARAN

A. Transaksi Berjalan (*current account*)

1. Barang

Ekspor f.o.b.

Impor

2. Jasa-jasa (Bersih)

B. Lalu Lintas Modal (*capital account*)

1. Modal Pemerintah (Bersih)

Penerimaan (*Inflows*)

Pelunasan Pinjaman (*Debt Repayments*)

2. Modal Swasta (Bersih) (*Private Capital / net*)

Investasi langsung (*Direct Investment*)

Lainnya (*Others*)

C. Jumlah (A + B)

D. Selisih Perhitungan (Bersih) (*Error and Omissions/net*)

E. Cadangan Devisa resmi2 (*Reserves2*)

Aktiva Luar Negri (*Foreign Assets*)

Pasiva Luar Negri (*Foreign Liabilities*)

The Foreign Exchange Market

Utk bayar impor barang/jasa dari Jepang, Amerika harus mensupply dolar yang kemudian dikonversikan ke yen dalam pasar Valuta Asing (*foreign exchange market*).



Utk bayar impor barang/jasa dari Amerika, Jepang harus mensupply yen yang kemudian dikonversikan ke dolar dalam pasar Valuta Asing (*foreign exchange market*)

Aliran Barang: Ekspor, Impor dan Ekspor Bersih

- ◆ Trade deficit adalah situasi dimana net exports (NX) negatif.

Impor > Ekspor

- ◆ Trade surplus adalah situasi dimana net exports (NX) positif.

Ekspor > Impor

- ◆ Balanced trade merujuk pada situasi ketika net exports sama dengan nol – nilai ekspor dan impor persis sama.

Faktor-faktor Yang Mempengaruhi Net Exports

- ◆ Selera konsumen terhadap barang-barang dalam negeri dan luar negeri.
- ◆ Harga-harga barang di dalam negeri dan di luar negeri.
- ◆ Nilai tukar (*exchange rates*) dimana orang dapat menggunakan uang domestik untuk membeli uang asing.
- ◆ Pendapatan konsumen domestik dan luar negeri.
- ◆ Biaya transportasi barang dari/ke suatu negara.
- ◆ Kebijakan pemerintah tentang perdagangan internasional.

Aliran Kapital (*Capital Account*): Investasi Asing Bersih (*Net Foreign Investment*)

- ◆ **Net foreign investment** merujuk pada pembelian aset asing oleh penduduk domestik dikurangi pembelian aset domestik oleh orang asing.
 - ◆ Seorang penduduk Indonesia membeli saham Microsoft dan perusahaan Jepang membeli saham Astra Internasional.
- ◆ Ketika penduduk Indonesia membeli saham Microsoft, maka NFI Indonesia meningkat.
- ◆ Ketika penduduk Jepang membeli obligasi yang dikeluarkan oleh pemerintah Indonesia, maka NFI Indonesia berkurang.

Variabel Yang Mempengaruhi Net Foreign Investment

- ◆ Tingkat bunga riil yang dibayarkan terhadap asset asing/domestik.
- ◆ Tingkat resiko ekonomi dan politik yang tertanam di benak investor dalam memegang asset di dalam/luar negeri.
- ◆ Kebijakan pemerintah yang mempengaruhi kepemilikan asing terhadap asset domestik.

Persamaan Net Exports dan Net Foreign Investment

- ◆ Net exports (**NX**) dan net foreign investment (**NFI**) berhubungan sangat erat.
- ◆ Untuk perekonomian secara keseluruhan, **NX** dan **NFI** harus saling menyeimbangkan satu sama lain, sehingga:

$$\mathbf{NFI = NX \rightarrow Balance\ of\ Payment}$$

- ◆ Persamaan ini akan terbukti karena setiap transaksi yang mempengaruhi satu sisi pasti juga mempengaruhi sisi yang lain dengan jumlah yang sama.

From Nominal to Real Exchange Rates

Nominal exchange rates between two currencies can be quoted in one of two ways (e):

- As the price of the domestic currency in terms of the foreign currency (\$/Rp).
Apresiasi Rp → **e naik.** Depresiasi Rp → **e turun**
- As the price of the foreign currency in terms of the domestic currency. (\$Rp/\$)
Apresiasi Rp → e turun. Depresiasi Rp → e naik



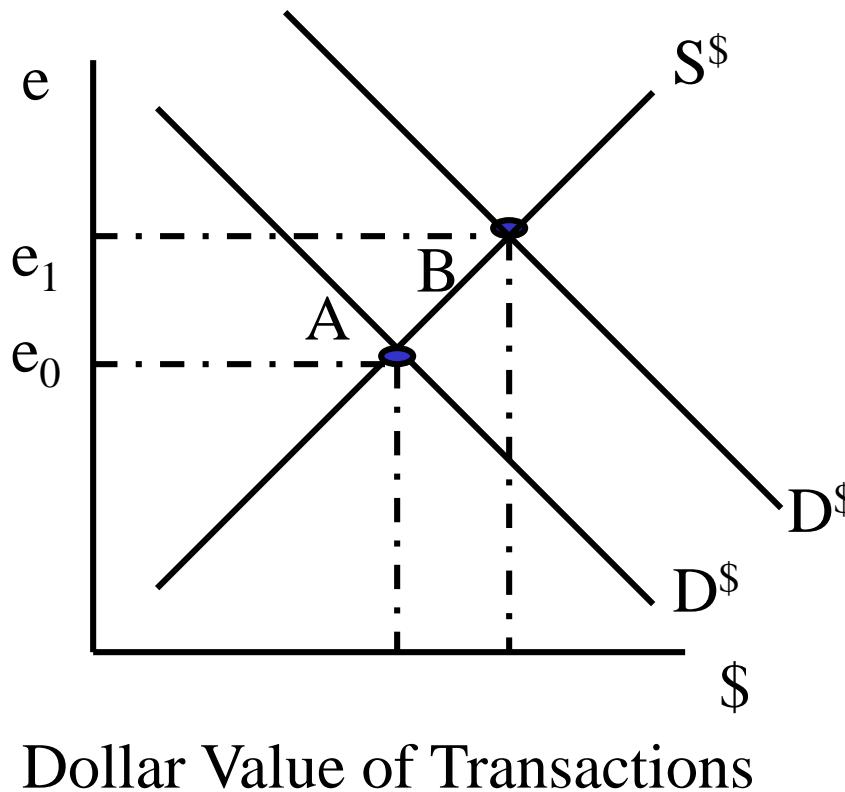
1. P^* = price of U.S. goods in dollars

2. P = price of Indonesian goods in Rp

$$\epsilon = \frac{EP}{P^*} \quad \text{Real Exchange Rates} = (\$/\text{Rp}) \cdot (\text{Rp})/(\$)$$

Appreciation and Depreciation

Misalnya ada kenaikan permintaan barang/jasa Amerika (mis. Amerika mengekspor atau Indonesia mengimpor). Bagaimana ini akan mempengaruhi Kurs Nominal e (**nominal exchange rate**) dlm Rp/\$?



$D\$$ bergeser ke kanan dan menaikkan Kurs $\$$ (e). Ini dikenal sebagai *apresiasi* dollar.

Kejadian yg menurunkan permintaan akan dollar, akan menurunkan e , atau dollar mengalami *depresiasi*.

SOAL

Jelaskan, menurut teori, bagaimana pengaruh depresiasi uang domestik terhadap ekspor dan impor? Bagaimana dengan kasus Indonesia yang sering mengalami depresiasi Rupiah sekarang ini, apakah sesuai teori tersebut? Dalam menjawab ini, kaitakan juga dengan Marshal-Lerner Condition dan *J-Curve*.

Nilai Tukar Riil

$$\text{Real Exchange Rate} = \frac{\text{Nominal exchange rate} \times \text{Domestic price}}{\text{Foreign price}}$$

Nilai Tukar Riil adalah nilai dimana seseorang dapat mempertukarkan barang dan jasa satu negara dengan barang dan jasa negara lainnya.

Nilai tukar riil membandingkan harga-harga barang domestik dengan barang-barang asing dalam perekonomian domestik.

*) Kalau hamburger Australia dua kali lebih mahal dibandingkan dengan hamburger Indonesia, maka nilai tukar riil adalah setengah hamburger Australia untuk setiap hamburger Indonesia.

Nilai Tukar Riil ϵ : determinan utama Ekspor/Impor

- ◆ Depresiasi ϵ : barang-barang produksi dalam negeri relatif lebih murah dibandingkan dengan produk luar negeri → ekspor naik, impor turun
- ◆ Apresiasi ϵ : barang-barang produksi dalam negeri relatif lebih mahal dibandingkan dengan produk luar negeri → ekspor turun, impor naik

The Marshall-Lerner condition is the condition under which a real depreciation (a decrease in ϵ) leads to an increase in net exports

The **Marshall-Lerner condition** adalah kondisi dimana **depresiasi real (penurunan ϵ)** mengarah ke **kenaikan eksport neto ($NX=EX-IM$)**.

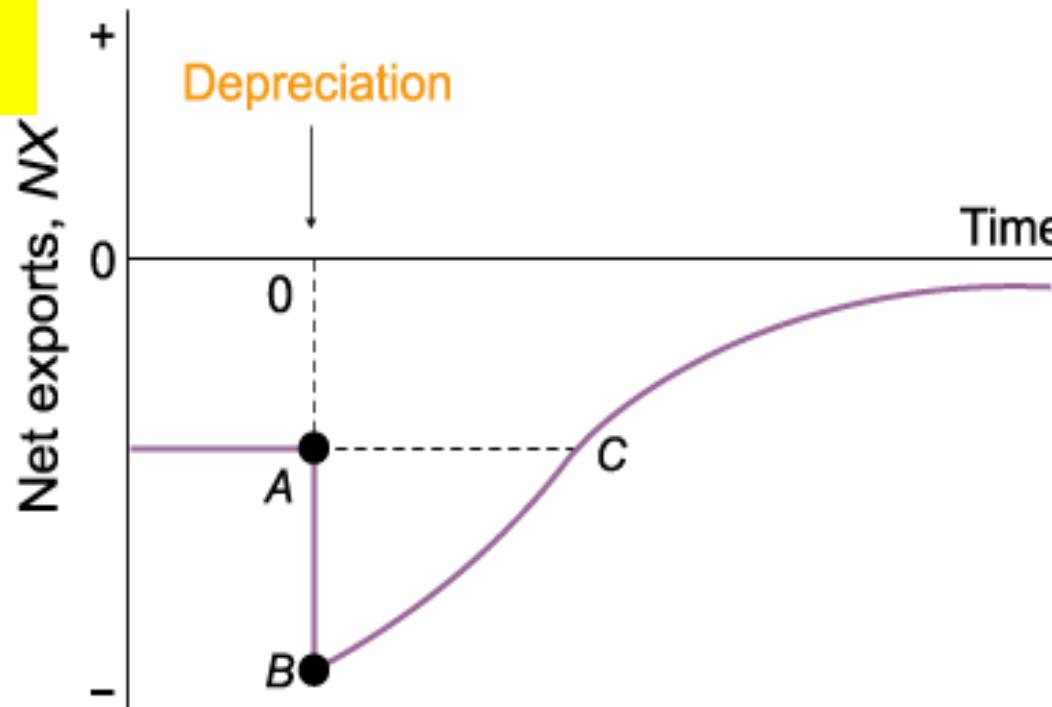
$$\epsilon \equiv \frac{EP}{P^*}$$

Jika industri tergantung bahan baku impor, depresiasi nominal belum tentu depresiasi real

• The J-Curve Dynamics

Depresiasi real awalnya memperburuk neraca perdagangan kemudian terjadi penyesuaian dan perbaikan.

- ϵ : Nilai Tukar Real
- e : Nilai Tukar Nominal (\$/Rp), harga Rp dlm \$
- P : Harga Domestik (Rp)
- P^* : Harga Luar Negeri (\$)



The Determinants of Exports

Let Y^* denote foreign income, thus for exports we write:

$$X = X(Y^*, \varepsilon)_{(+,-)}$$

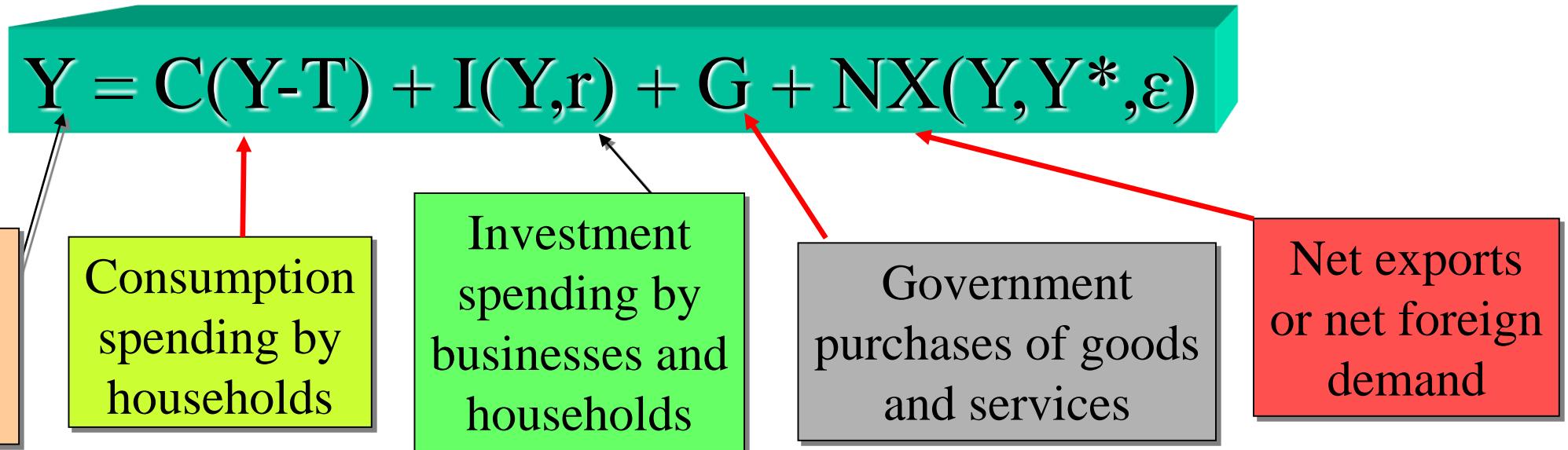
The Determinants of Imports

A higher real exchange rate leads to higher imports, thus:

$$IM = IM(Y, \varepsilon)_{(+,+)}$$

$$NX = X - IM = NX(Y, Y^*, \varepsilon)$$

National Income Accounts Identity in an Open Economy



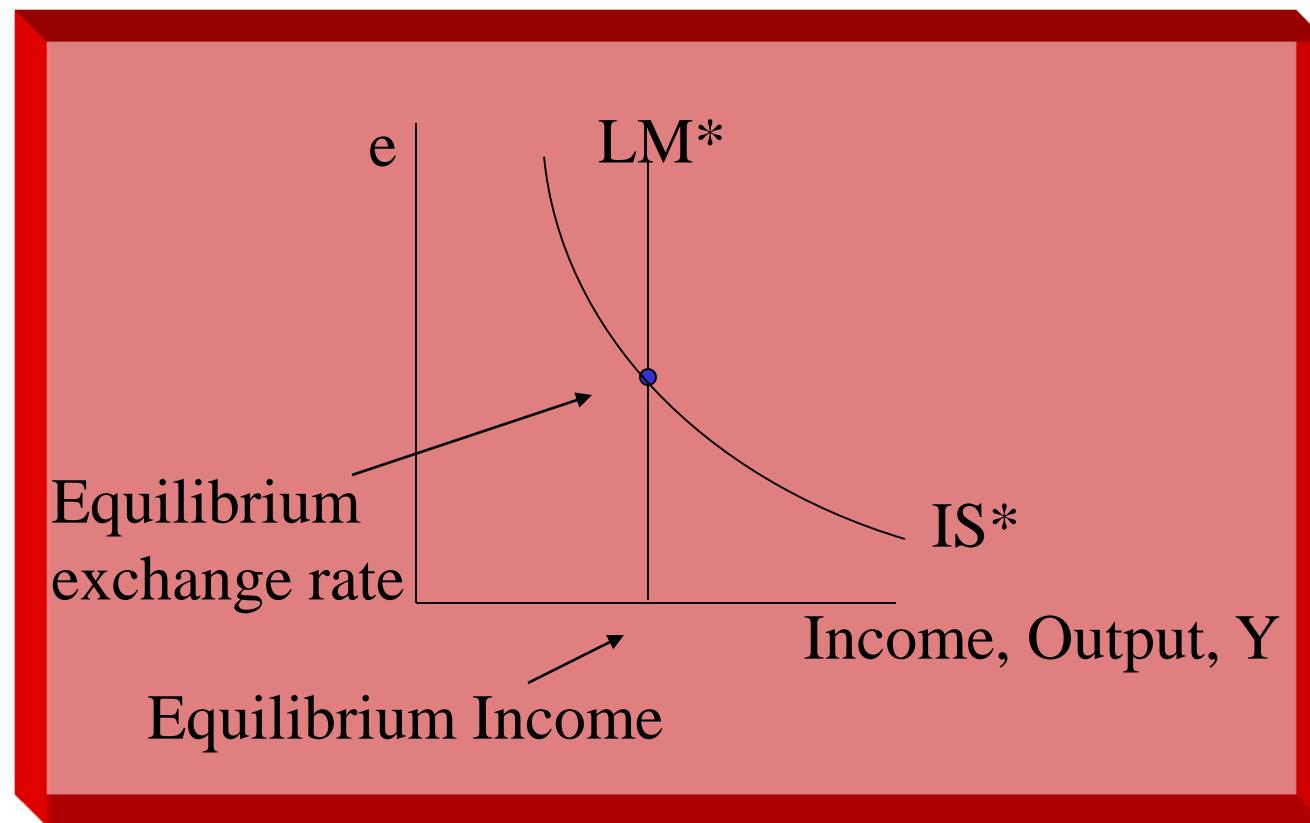
$$Y = C(Y - T) + I(Y, r) + G + NX(Y, Y^*, \varepsilon)$$

(+) (+,-) (-+-)

Notice we've added *net exports*, NX , defined as $EX-IM$. Also, note that **domestic spending on all goods and services is the sum of domestic spending on domestics goods and services and on foreign goods and services.**

Introducing... The Mundell-Fleming Model

Utk Negara kecil yang ekonominya terbuka



Building the Mundell-Fleming Model

Keseimbangan pasar barang (IS)
dan pasar Uang (LM):

$$\begin{aligned} \text{IS*}: Y &= C(Y-T) + I(r^*) + G + NX(e) \\ \text{LM*}: M/P &= L(r^*, Y) \end{aligned}$$

Assumption 1:

Suku bunga domestik sama dengan suku bunga dunia ($r = r^*$).

Assumption 2:

Tingkat harga tetap (ditentukan secara eksogen) karena model digunakan untuk menganalisis jangka pendek (P). Ini berimplikasi **Kurs nominal** proporsional dgn **Kurs Riil**.

Assumption 3:

Money supply ditentukan secara eksogen oleh bank sentral (\bar{M}) .

Assumption 4:

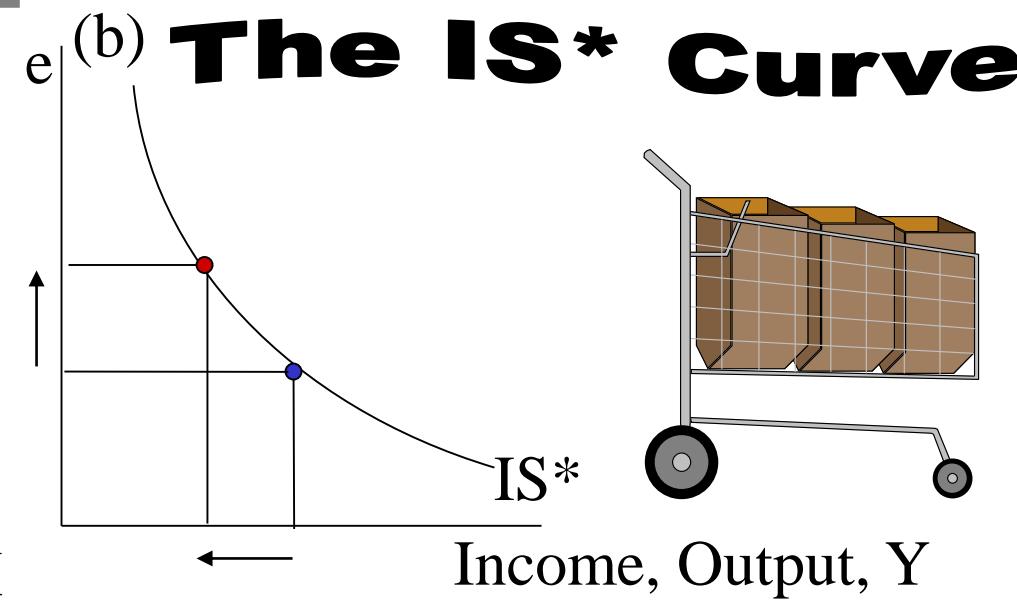
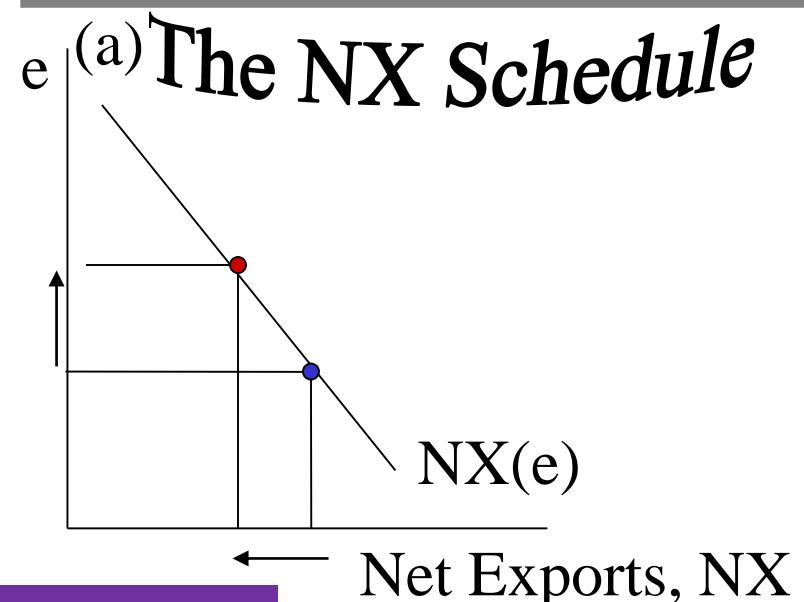
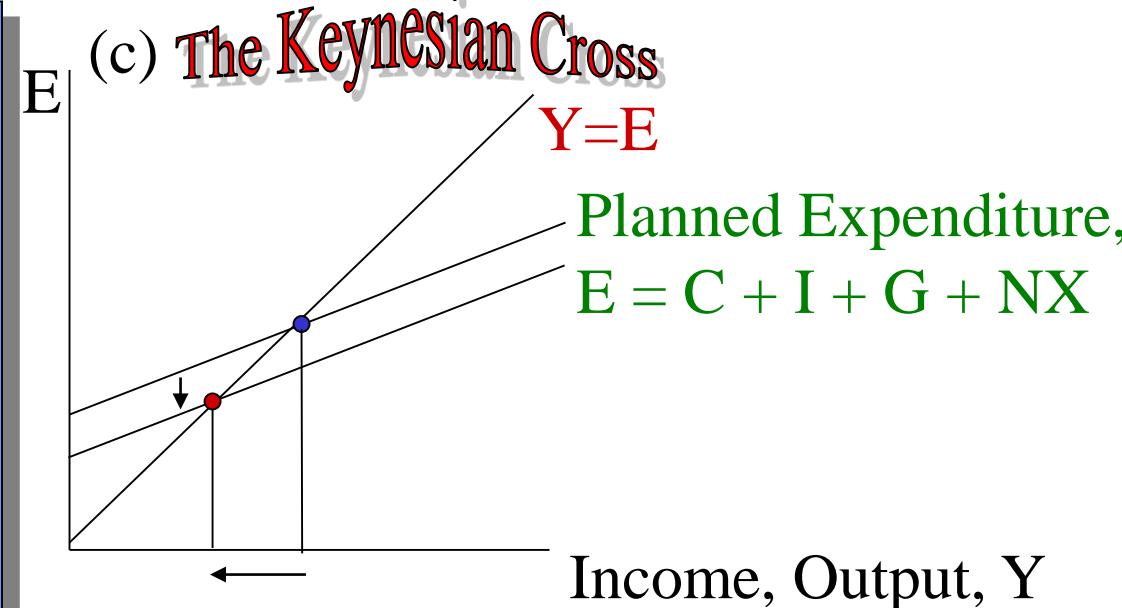
Kurva LM* vertikal karena Kurs (e) tidak masuk dlm persamaan LM*.

$$Y = C(Y - T) + I(Y, r) + G + NX(Y, Y^*, \varepsilon)$$

(+) (+ , -) (- + -)

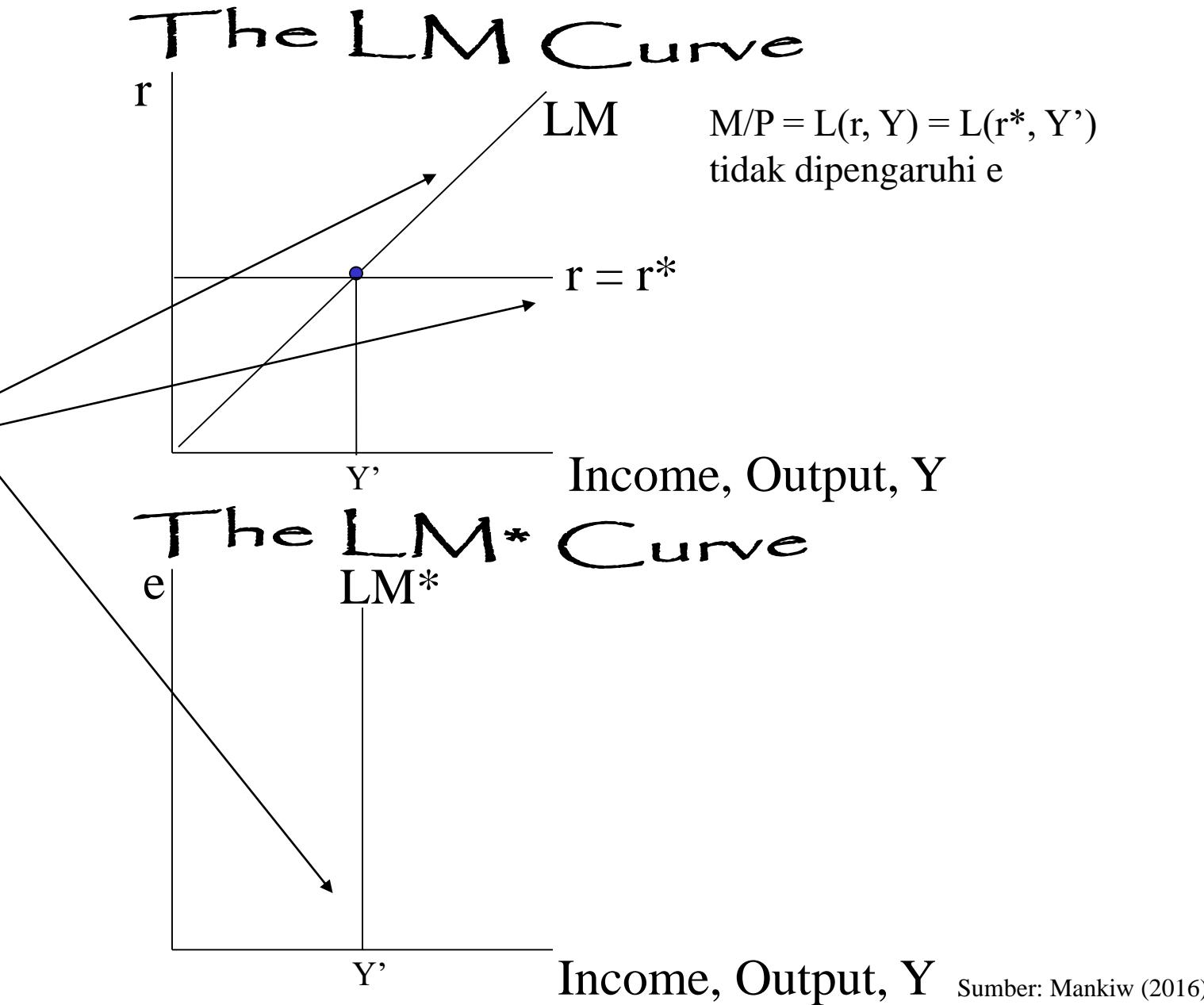
Deriving the Mundell-Fleming IS* Curve

Kenaikan kurs, menurunkan *net exports*, yg menggeser *planned expenditure* ke bawah dan menurunkan *income*. Kurva IS* meringkaskan perubahan ini dlm keseimbangan pasar barang.



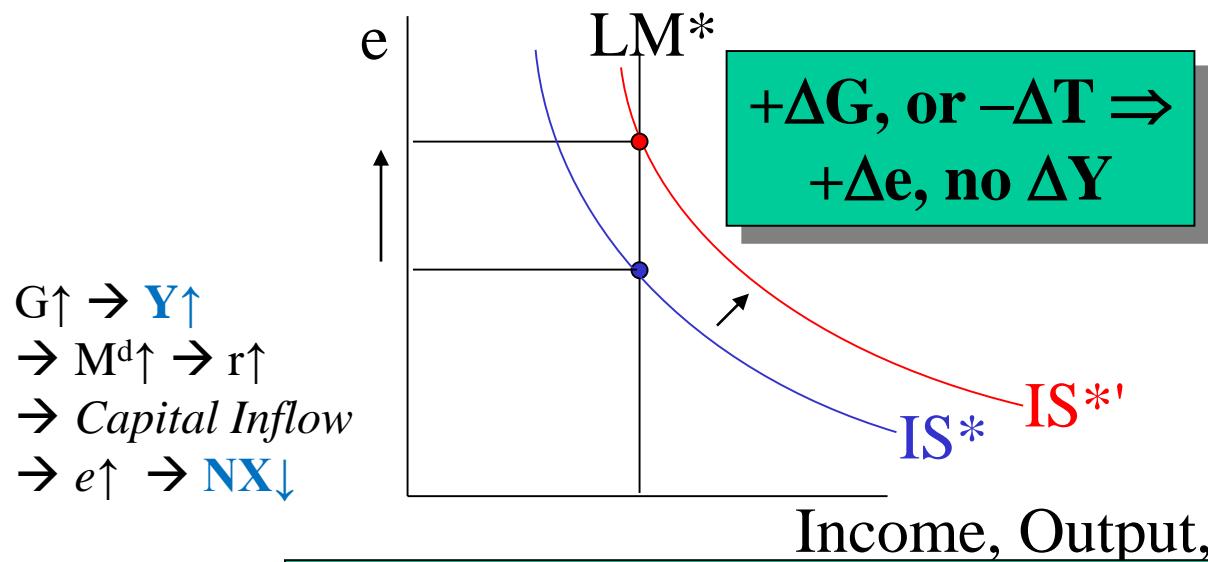
Deriving the Mundell-Fleming LM^* Curve

Kurva LM dan
suku bunga dunia
Bersama-sama
menentukan *income*.

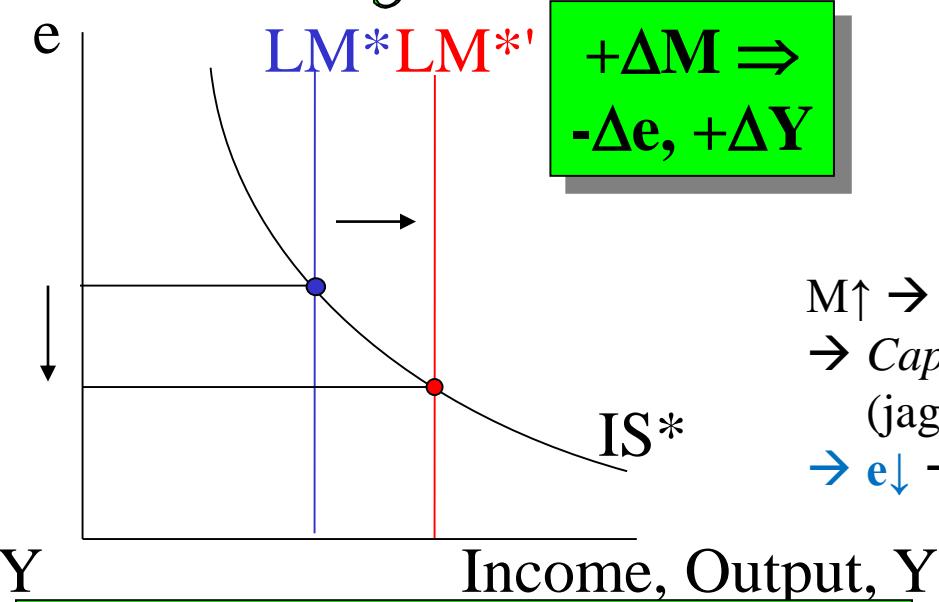


The M-F Model Under Floating Exchange Rates (Kurs Mengambang)

Expansionary Fiscal Policy



Expansionary Monetary Policy



Jika *income* naik dlm *small open economy*, karena ekspansi fiskal, suku bunga akan naik tapi *capital inflows* dari luar akan menekan suku bunga turun. *Capital inflow* menyebabkan kenaikan dalam permintaan mata uang dan mendorong Kurs naik sehingga membuat barang domestik relatif lebih mahal (menyebabkan $- \Delta NX$). $- \Delta NX$ mengimbangi kebijakan ekspansi fiskal dan pengaruh terhadap Y.

When the increase in the money supply puts downward pressure on the domestic interest rate, capital flows out as investors seek a higher return elsewhere. The capital outflow prevents the interest rate from falling. The outflow also causes the exchange rate to depreciate making domestic goods less expensive relative to foreign goods, and stimulates NX. Hence, monetary policy influences the e rather than r.

Sumber: Mankiw (2016)

LM*: $M/P = L(r^*, Y)$

IS*: $Y = C(Y - T) + I(r^*) + G + NX(e)$

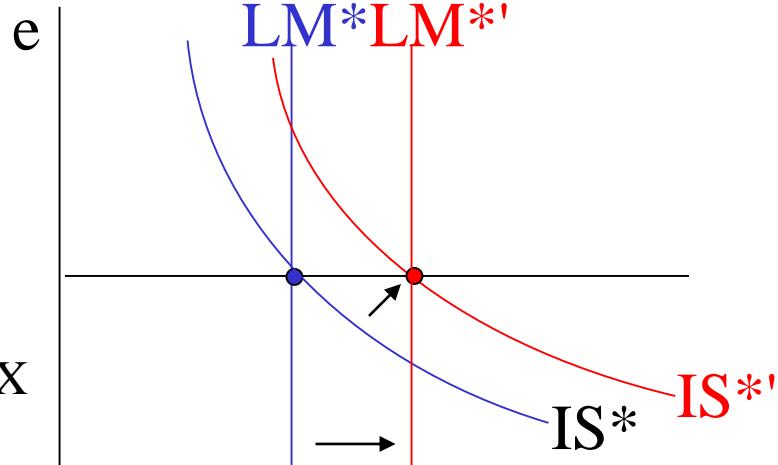
$$Y = C(Y - T) + I(Y, r) + G + NX(Y, Y^*, e)$$

(+) (+,-) (-+ -)

The M-F Model Under Fixed Exchange Rates (Kurs Tetap)

Expansionary Fiscal Policy

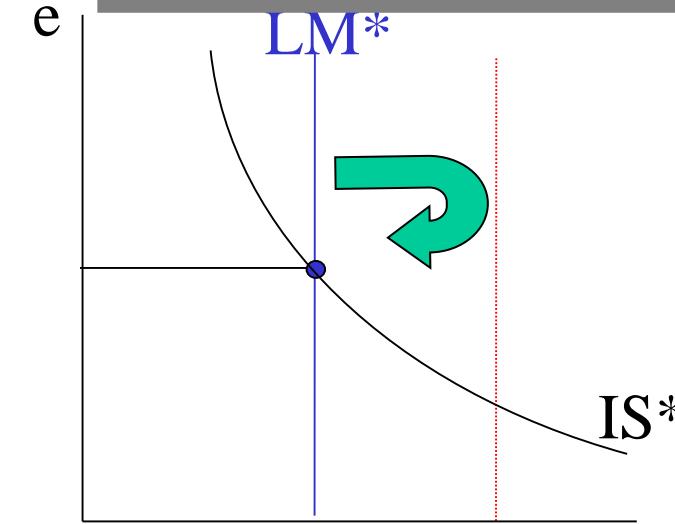
$$+\Delta G, \text{ or } -\Delta T \Rightarrow +\Delta Y$$



$G \uparrow \rightarrow Y \uparrow$
 $\rightarrow M^s \uparrow$ supaya e tetap shg tdk menurunkan NX

Expansionary Monetary Policy

$$+\Delta M \Rightarrow \text{no } \Delta Y$$



$M \uparrow \rightarrow r \downarrow$ (outflow?)
 $\rightarrow \text{Jual Rp ke BI}$ shg M dan LM ter-kontraksi ke titik awal (e tetap)

A fiscal expansion shifts IS* to the right. To maintain the fixed exchange rate, the Fed must increase the money supply, thus increasing LM* to the right. Unlike the case with flexible exchange rates, there is no crowding out effect on NX due to a higher exchange rate.

If the Fed tried to increase the money supply by buying bonds from the public, that would put downward pressure on the interest rate. Arbitragers respond by selling the domestic currency to the central bank, causing the money supply and the LM curve to contract to their initial positions.

$$\text{LM*}: M/P = L(r^*, Y)$$

$$\text{IS*}: Y = C(Y - T) + I(r^*) + G + NX(e)$$

$$Y = C(Y - T) + I(Y, r) + G + NX(Y, Y^*, e)$$

(+) (+,-) (-+-)

Sumber: Mankiw (2016)

Fixed vs. Floating Exchange Rate Conclusions

Fixed Exchange Rates

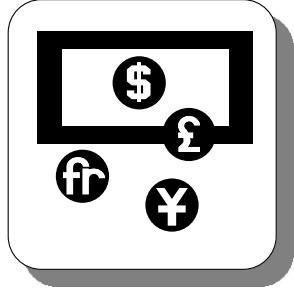
- Fiscal Policy is **Powerful**.
- Monetary Policy is Powerless.
Hint: (Fixed and Fiscal sound alike).

Floating Exchange Rates

- Fiscal Policy is Powerless.
- Monetary Policy is **Powerful**.
Hint: (Think of floating money.)

The Mundell-Fleming model shows that fiscal policy does not influence aggregate income under floating exchange rates. A fiscal expansion causes the currency to appreciate, reducing net exports and offsetting the usual expansionary impact on aggregate demand.

The Mundell –Fleming model shows that monetary policy does not influence aggregate income under fixed exchange rates. Any attempt to expand the money supply is futile, because the money supply must adjust to ensure that the exchange rate stays at its announced level.

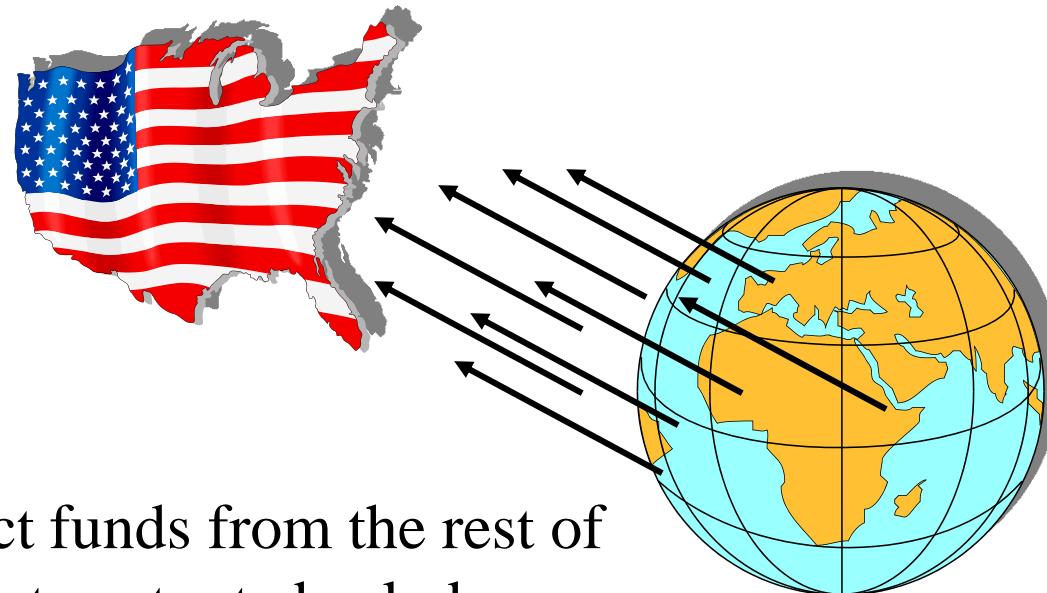


Policy in the Mundell-Fleming Model: A Summary

The Mundell-Fleming model shows that the effect of almost any economic policy on a small open economy depends on whether the exchange rate is floating or fixed.

The Mundell-Fleming model shows that the power of monetary and fiscal policy to influence aggregate demand depends on the exchange rate regime.

Interest Rate Differentials



The higher return will attract funds from the rest of the world, driving the US interest rate back down.

And, if the interest rate were below the world interest rate, domestic residents would lend abroad to earn a higher return, driving the domestic interest rate back up. **In the end, the domestic interest rate would equal the world interest rate.**

Faktanya suku bunga domestik berbeda dengan (diatas) suku bunga dunia?

Country Risk and Exchange Rate Expectations

Why doesn't this logic always apply? There are two reasons why interest rates differ across countries:

- 1) Country Risk: when investors buy US government bonds, or make loans to US corporations, they are fairly confident that they will be repaid with interest. By contrast, in some less developed countries, it is plausible to fear that political upheaval may lead to a default on loan repayments. Borrowers in such countries often have to pay higher interest rates to compensate lenders for this risk.
- 2) Exchange Rate Expectations: suppose that people expect the Indonesia Rupiah fall in value relative to the US dollar. Then loans made in Rupiah will be repaid in a less valuable currency than loans made in dollars. To compensate for the expected fall in the Rupiah currency, the interest rate in Rupiah will be higher than the interest rate in the US.

Differentials in the Mundell-Fleming Model

To incorporate interest-rate differentials into the Mundell-Fleming model, we assume that the interest rate in our small open economy is determined by the world interest rate **plus a risk premium θ** .

$$r = r^* + \theta$$

The risk premium is determined by the **perceived political risk** of making loans in a country and the **expected change in the real interest rate**. We'll take the risk premium θ as exogenously determined.

$$\text{IS*: } Y = C(Y-T) + I(r^* + \theta) + G + NX(e)$$

$$\text{LM*: } M/P = L(r^* + \theta, Y)$$

For any given fiscal policy, monetary policy, price level, and risk premium, these two equations determine the level of income and exchange rate that equilibrate the goods market and the money market.

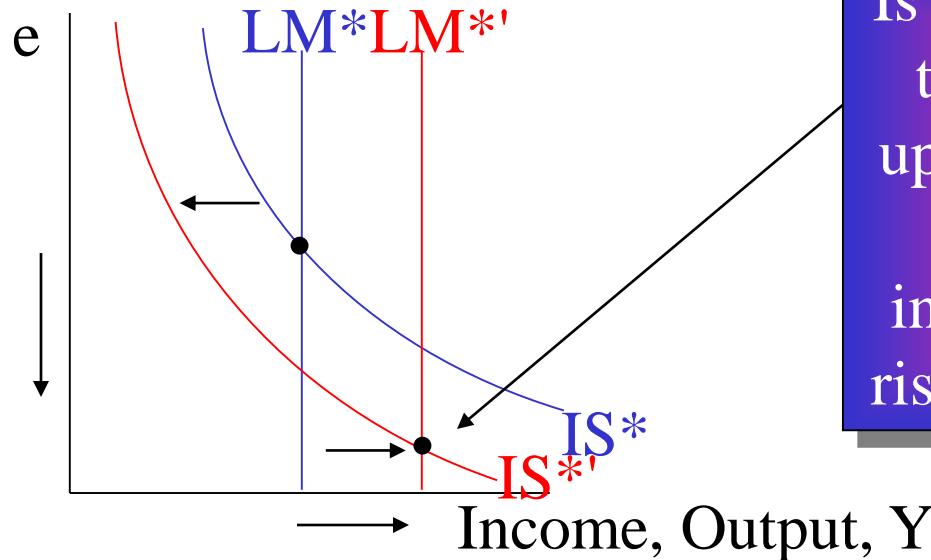
Now suppose that political turmoil causes the country's risk premium θ to rise. The most direct effect is that the domestic interest rate r rises. The higher interest rate has two effects:

- 1) **IS* curve shifts to the left**, because the higher interest rate reduces investment.
- 2) **LM* shifts to the right**, because the higher interest rate reduces the demand for money, and this allows a higher level of income for any given money supply.

These two shifts **cause income to rise and thus push down the equilibrium exchange rate** on world markets.

The important implication: expectations of the exchange rate are partially self-fulfilling. For example, suppose that people come to believe that the Indonesia Rupiah will not be valuable in the future. Investors will place a larger risk premium on Rupiah assets: θ will rise in Indonesia. This expectation will drive up Indonesia interest rates and will drive down the value of the Indonesia Rupiah. *Thus, the expectation that a currency will lose value in the future causes it to lose value today.* The next slide will demonstrate the mechanics.

An Increase in the Risk Premium



Is this really where the economy ends up? In the next slide, we'll see that increases in country risk are not desirable.

An increase in the risk premium associated with a country drives up its interest rate. Because the higher interest rate reduces investment, the IS^* curve shifts to the left. Because it also reduces money demand, the LM^* curve shifts to the right. Income rises, and the exchange rate depreciates.

There are three reasons why, in practice, such a boom in income ***does not occur***:

1. the central bank might want to **avoid the large depreciation of the domestic currency and, therefore, may respond by decreasing the money supply M.**
2. the depreciation of the domestic currency may **suddenly increase the price of domestic goods, causing an increase in the overall price level P.**
3. when some event increase the country risk premium θ , **residents of the country might respond to the same event by increasing their demand for money** (for any given income and interest rate), because money is often the **safest asset available**.

All three of these changes would tend to **shift the LM* curve toward the left**, which mitigates the fall in the exchange rate but also tends to depress income.

The Mundell-Fleming Model with a Changing Price Level

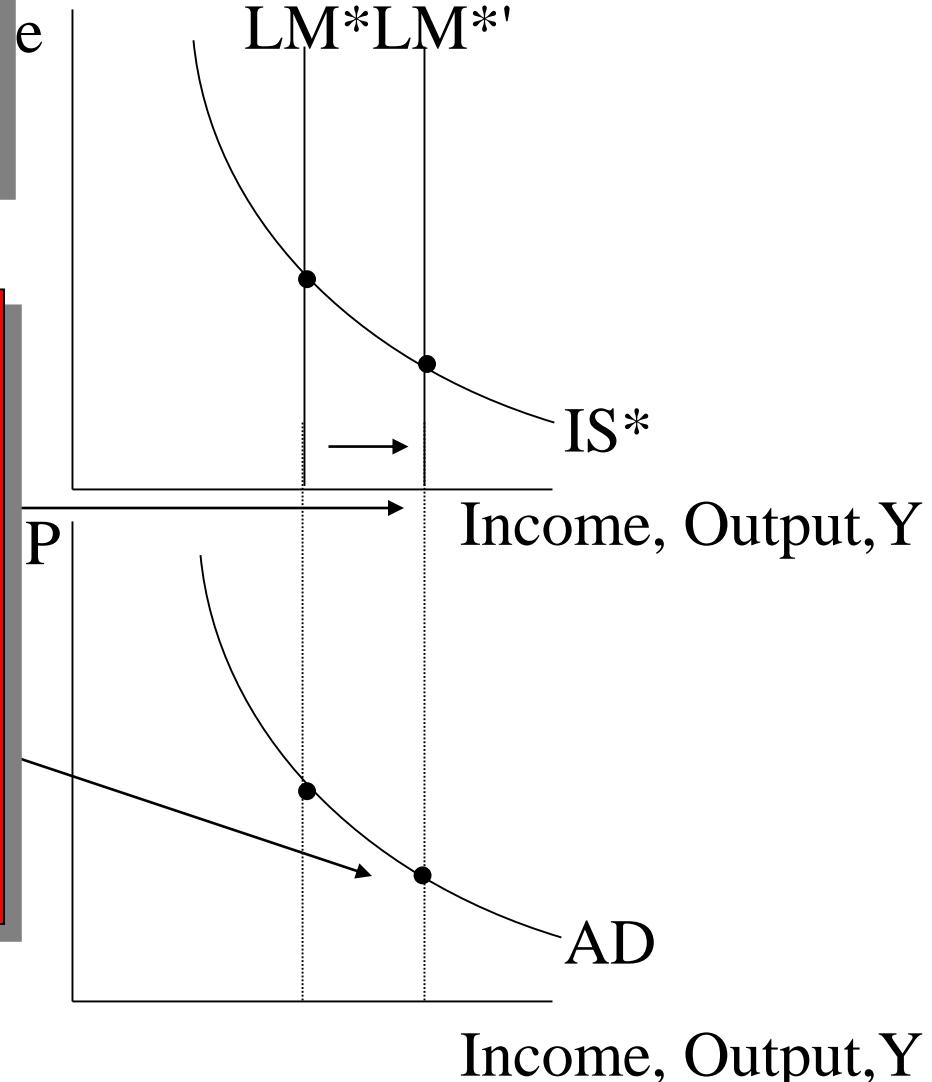
Recall the two equations of the Mundell-Fleming model:

$$\text{IS}^*: Y = C(Y-T) + I(r^*) + G + NX(e)$$

$$\text{LM}^*: M/P = L(r^*, Y)$$

When the price level falls the LM^* curve shifts to the right. The equilibrium level of income rises.

The second graph displays the negative relationship between P and Y , which is summarized by the aggregate demand curve.



Dalam model Mundell-Fleming untuk perekonomian kecil terbuka dan mobilitas modal sempurna, diasumsikan suku bunga domestik (r) sama dengan suku bunga dunia (r^*), dengan pengertian lain menerapkan hukum satu harga

Pertanyaan:

1. Jelaskan dalam sistem kurs mengambang, model tersebut memprediksi bahwa hanya kebijakan moneter yang dapat mempengaruhi output (Y), sedangkan kebijakan fiskal tidak dapat mempengaruhi output (Y).
2. Jelaskan dalam realitas, kenapa hukum satu harga ($r=r^*$) ini tidak berlaku.
3. Misalkan dalam model Mundell-Fleming tersebut dimasukkan perbedaan suku bunga. **Jelaskan** menurut prediksi model ini, jika ada kemelut politik maka akan menyebabkan output atau pendapatan naik dan mata uang domestik mengalami depresiasi.
4. Prediksi model tersebut (no.c) agak aneh dan biasanya tidak terjadi dalam realitas. Berikan 3 alasan kenapa prediksi model tersebut biasanya tidak terjadi.

Semoga bermanfaat
Sampai ketemu di **topik yang lain**
Terima kasih
(Salam, BJ)



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