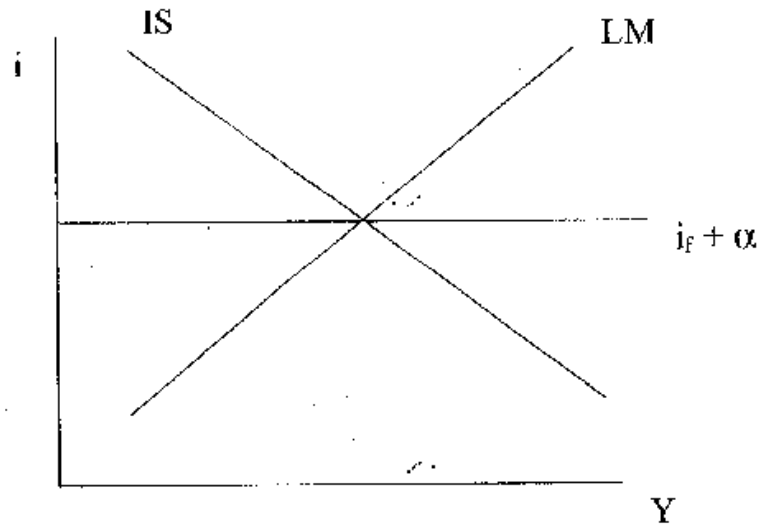
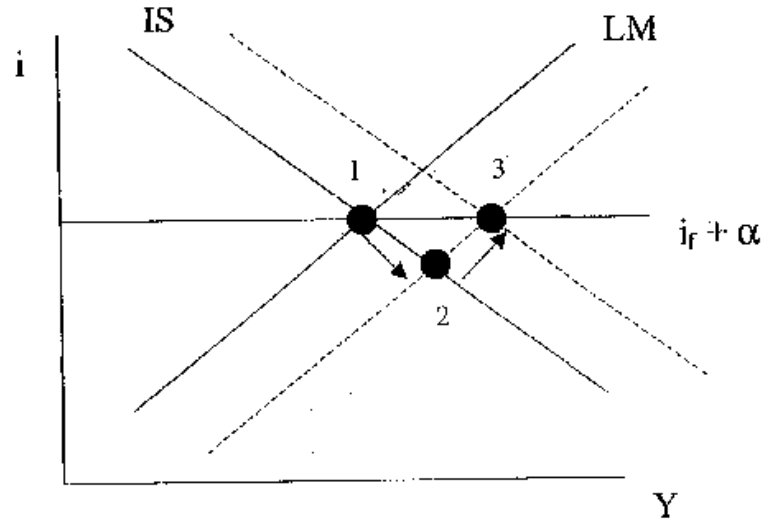
IS-LM Model: Small, Open Economy



Interest rates must equal world rate (i_f) + country risk (α)

IS-LM Model: Small, Open Economy with Flexible ER



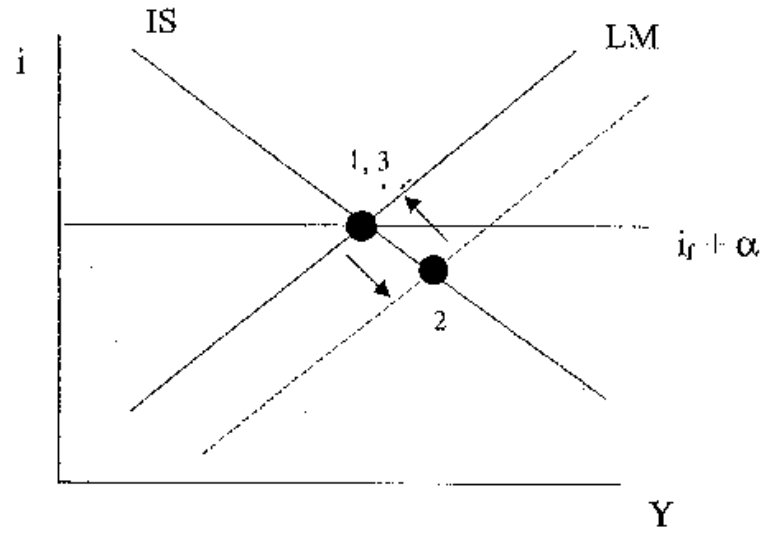
1⇒2⇒3: Expansionary monetary policy: VERY EFFECTIVE

1⇒2: LM out⇒Y⇑ & i⇓ BUT $i<(i_f+\alpha)$⇒money outflow⇒ER depreciates

2⇒3: Depreciation⇒X⇑ and M⇓ ⇒ trade surplus ⇒ IS out

Overall effect: Y⇑⇑ and i unchanged

IS-LM Model: Small, Open Economy with Fixed ER



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2⇒3: Reserve outflow ⇒ Money supply ⇓ ⇒ LM in

Overall effect: Y and i BOTH unchanged

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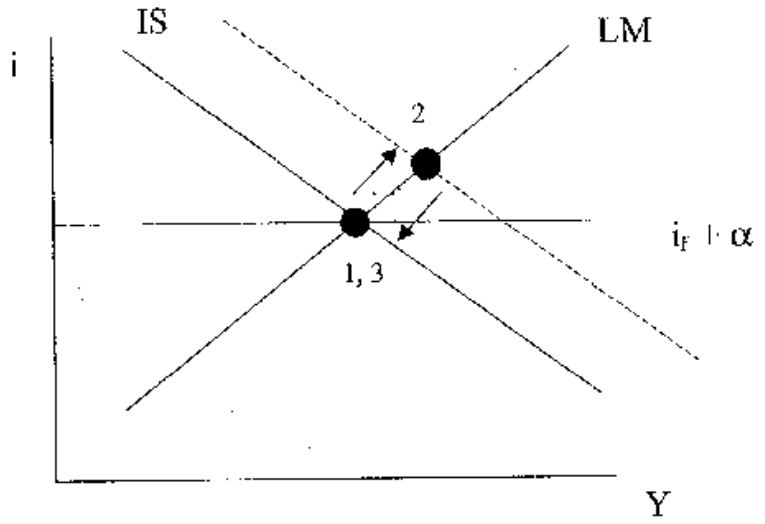


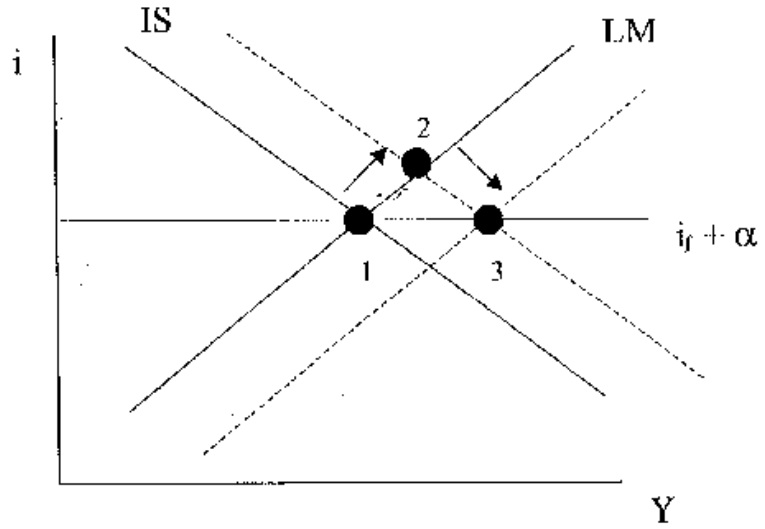
1⇒2⇒3: Expansionary fiscal policy: NOT EFFECTIVE

1⇒2: IS out⇒Y⇑ & i⇑ BUT i>(i_f+α)⇒money inflow⇒ER appreciates

2⇒3: Appreciation⇒X⇓ and M⇑ ⇒ trade deficit ⇒ IS in

Overall effect: Y and i BOTH unchanged

IS-LM Model: Small, Open Economy with Fixed ER



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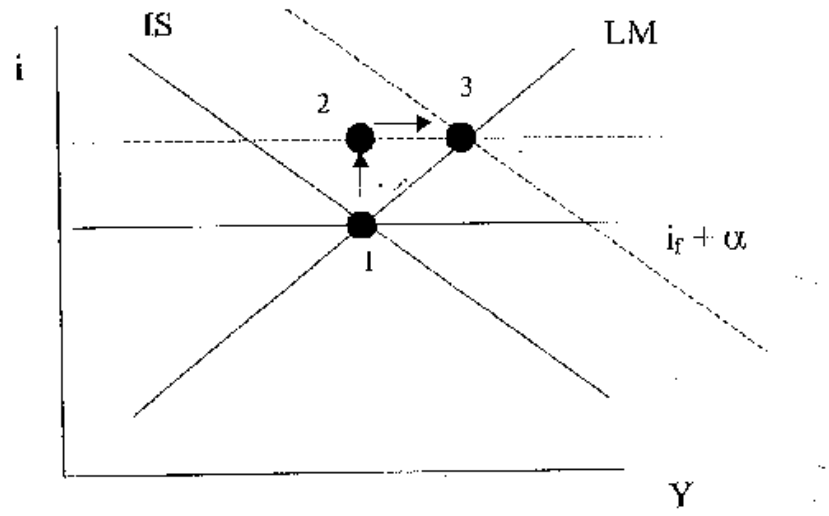
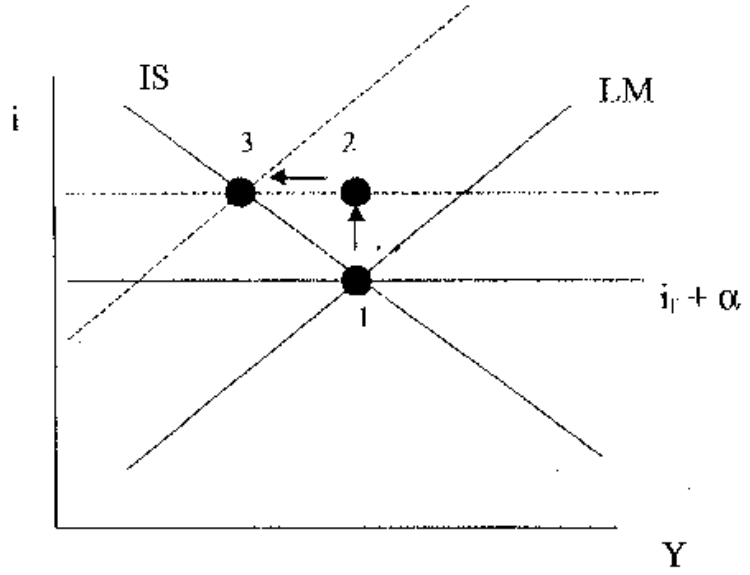


1⇒2⇒3: "Risk increases"-could be country risk or investor jitters
1⇒2: $\alpha\Uparrow$ so $(i_f+\alpha)$ up ⇒ $i<(i_f+\alpha)$ ⇒money outflow⇒ER depreciates
2⇒3 Depreciation⇒X⇑ and M⇓ ⇒ trade surplus⇒ IS out
Overall effect: Y⇑ and i ⇑

IS-LM Model: Small, Open Economy with Fixed ER



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2⇒3 Reserve outflow ⇒ Money supply $\Downarrow$ ⇒ LM in
Overall effect: Y unchanged and i $\Uparrow$

Some Key Points from the IS-LM Model

I. Large open economy or any country w/capital controls

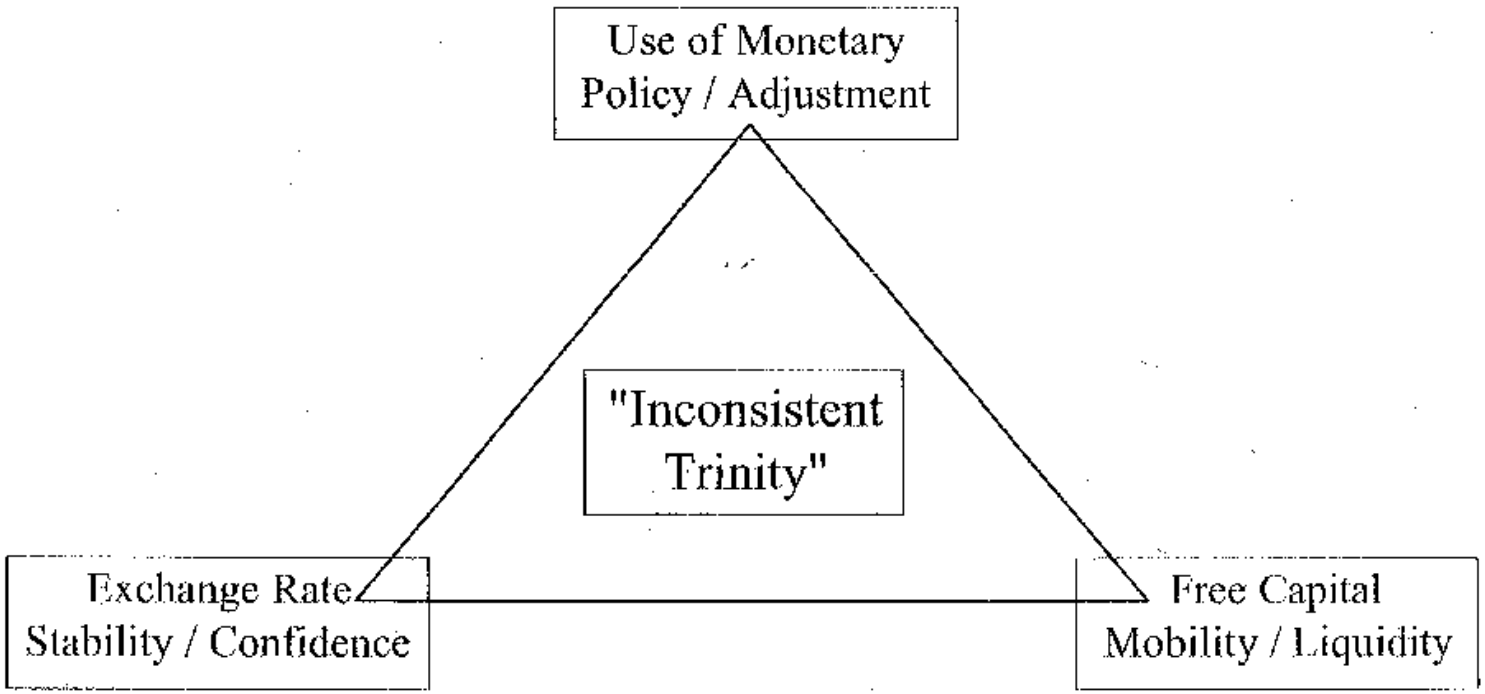
- Monetary policy works: monetary expansion $\Rightarrow Y\Uparrow$ and $i\Downarrow$
- Fiscal policy works: fiscal expansion $\Rightarrow Y\Uparrow$ and $i\Uparrow$

II. Small open economy with a flexible ER

- Adjustment through the ER and trade balance
- Monetary policy works: monetary expansion $\Rightarrow Y\Uparrow\Uparrow$
- Fiscal policy does NOT work
- More vulnerable to **positive** investor sentiment ($Y\Downarrow$)

III. Small open economy with a fixed ER

- Adjustment through reserve flows & money supply
- Monetary policy does NOT work
- Fiscal policy works: fiscal expansion $\Rightarrow Y\Uparrow\Uparrow$
- Extremely vulnerable to **negative** investor sentiment ($Y\Downarrow$)


Use of Monetary Policy / Adjustment
"Inconsistent Trinity"
Exchange Rate Stability / Confidence
Free Capital Mobility / Liquidity

The effects of monetary and fiscal policy under fixed and flexible exchange rates (the IS/LM model in an open economy):

1. Under **fixed** exchange rate, **monetary policy** has no effects on output and interest rates (any attempt to shift the LM through OMO leads to a loss of Forex reserves that brings back right away the LM to its previous position)

2. Under **fixed** rates, a **fiscal expansion** has strong effects on output (since the shift of the IS leads to an endogenous shift of the LM).

3. Under **flexible** exchange rate, **monetary policy** has strong effects on output and interest rates.

4. Under **flexible** exchange rate, **fiscal policy** has no effect (or very small effects) on output and interest rates.

The effects of forex intervention on the value of the exchange rate.

Conventional view:

1. Sterilized interventions do not affect the level of the exchange rate since they do not affect the level of money supply and interest rates.

2. Unsterilized interventions do affect the level of the exchange rate because they lead to a change in money supply and interest rates.

Empirical Evidence from the 1980s:

1. Most countries (US, Japan, Germany) do sterilized interventions.
2. Such interventions do not seem to be successful in affecting exchange rates.

More recent evidence from interventions in the 1990s suggests that sterilized intervention seem to be effective (example: interventions to prop the value of the US$ in the second half of 1995).

So, why sterilized interventions may be effective in practice ?

1. They may signal that future monetary policy is going to be changed.
2. Caveat. Beware of the "Cry Wolf effect": if you say you are going to be tough, you'd better do it sometime.
3. Do not lean against the wind; do lean with the wind.
4. Surprise market participants and inflict harsh pain through strong intervention when they do not expect it.
5. Sterilized intervention may affect the level of the exchange rate even if domestic interest rate are unchanged if domestic and foreign bonds are not perfect substitutes in the investors' portfolio. Sterilized intervention changes the relative composition of the investors' portfolio of domestic and foreign bonds. If such bonds are not perfectly substitutable in portfolios, you get an equilibrium change in exchange rates as agents readjust their portfolios.
6. Sterilized intervention is more effective in the presence of capital controls.

Observation:
You do not need unsterilized FX interventions to defend your currency when it is under pressure. The same defense of the currency value can be obtained through domestic open market operations that reduce the money supply and increase the domestic interest rates. For purpose of currency defense, open market operations and unsterilized FX interventions are equivalent since they both lead to a reduction of the money supply and an increase in interest rates.

So the existence of FX interventions does not define whether you are trying to defend your currency or whether you are in a pure flex rate regime.

The Effects of Budget Deficits on Exchange Rates: Are budget deficits good or bad for the Dollar ?

Conventional (IS/LM) view:

1. A budget deficit financed with issue of bonds leads to an appreciation of the domestic currency under flex rates:

$DEF = dB\uparrow \rightarrow i\uparrow \rightarrow s\downarrow$.

2. A budget deficit financed through a monetary expansion leads to a currency depreciation:

$DEF = dM\uparrow \rightarrow i\downarrow \rightarrow s\uparrow$.

New Policy view (see Fed, WSJ, various media): Bond financed budget deficit lead to a weak US dollar, reductions of the US budget deficit will lead to a strengthening of the dollar.

Does the new view make sense ?

1. In the conventional view, budget deficit appreciate the currency but they also lead to current account deficits. Since, in the medium run, you need to restore external balance (current account surpluses to pay back your foreign debt), you need a nominal/real depreciation in the medium run to restore that competitiveness. So eventually, budget deficits do lead to a depreciation.

2. A reduction of the budget deficit will improve the current account and reduce the need for a depreciation to adjust the external balance.

3. Even a bond financed budget deficit might eventually be monetized some time down the line; so a larger fiscal deficit may lead to a immediate depreciation even if it is bond financed if investors expect an eventual monetization of the debt (seigniorage creation or inflation tax). Budget deficit reductions strengthen the $ since they do the reverse: they reduce the probability of a future high money growth rate (seigniorage) aimed at monetizing the deficit.

4. As a budget deficits lead to current account deficits and an increase in the foreign debt of the country, the country risk (default, inflation, devaluation) is increased and investors flee the domestic assets causing a currency depreciation (portfolio effect under imperfect asset substitutability).

Benefits and costs of capital controls.

Role of capital controls:

1. They are effective in reducing capital outflows when such controls are binding.

2. They allow you maintain a certain degree of monetary autonomy even under fixed rates; therefore interest rates at home are able to remain lower than otherwise.

3. They do not lead to as large a devaluation under flexible exchange rates.

4. Risk of early devaluation if they are expected to be introduced; you will get out of the country before the controls occur if you expect them to be introduced.

5. Reputation building helps to sustain future capital inflows. If people do not expect you to introduce controls in the future they are more likely to lend you and invest in your country.

6. Capital controls on inflows can be effective in stemming excessive capital inflows and prevent a nominal and real appreciation in early stages of a stabilization program when high domestic rates attract a lot of foreign capital (example: controls on inflows in Chile).

Benefits of capital controls on inflows:

When you have an exchange rate based stabilization program, at first inflation falls rapidly; therefore domestic interest rates fall even more than inflation. Since domestic interest rates remain higher than world rate and the exchange rate is fixed you get large capital inflows that would tend to appreciate the domestic currency if you had a flex rate regime. What are then the options of the central bank to deal with inflow ?

1. Prevent the nominal appreciation through FX intervention that buys the excess foreign currency that is entering the country. This intervention, if not sterilized, leads to a growth of the domestic money supply that feed aggregate demand and leads to higher inflation. So, not sterilizing the inflows has potentially inflationary effects that are dangerous for the stabilization because they lead to real appreciation and current account deficits.

2. First intervene to prevent the nominal appreciation but then sterilize the effects of the intervention on the domestic money supply through compensating open market operations (sale of government bonds) that reduce the money supply. The disadvantage of this sterilized intervention is that the money does not grow but the tight monetary conditions caused by the sterilization (high interest rates) lead to further capital inflows that are harder and harder to sterilize.

3. The third option is to allow the capital inflows to appreciate the domestic nominal exchange rate. The problem with this option is that it lead to a currency appreciation in spite of the fact that the domestic inflation is still higher than the world one. So it leads to a classic perverse cycle of real appreciation, current account worsening and eventual exchange rate collapse.

So, since all 3 options have some drawbacks, a potential solution that makes sense is to impose capital controls on the capital inflows (see Chile). Such controls have several advantages: they prevent excessive inflows that are hard to sterilize when intervention is sterilized; they prevent excessive inflationary growth of money supply if the interventions are not sterilized; they prevent the nominal and real appreciation that occurs if you do not intervene. So controls on capital inflows may prevent the perverse cycles of boom and bust of capital inflows and outflows that often lead to an exchange rate collapse.