

INTERNATIONAL MONETARY ECONOMICS

LECTURE NOTE 6: EXCHANGE RATE REGIMES

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Types of exchange rate regimes, distinguished on whether the Central Bank target the nominal exchange rate and how much variation it permits

- ▶ Perfectly flexible: *USD/EUR, USD/CHF* rates
- ▶ Fixed
 1. A perfectly fixed parity. Hong Kong, S. Arabia
 2. A target zone: EMS, Bretton Woods
 3. A managed float: Singapore

I. Feasibility

In the absence of legal restrictions a *flexible* system cannot exist (Kareken and Wallace)

$$u(c_t) + u(c_{t+1})$$

$$p_t c_{t+1} + m_{t+1} + e_t n_{t+1} = p_t y_t \quad (1)$$

$$p_{t+1} c_{t+1} = m_{t+1} + e_{t+1} n_{t+1} \quad (2)$$

FOC

$$m_{t+1} : [-u'(t) + u'(t+1)]m_{t+1} = 0$$

$$n_{t+1} : [-u'(t)e_t + u'(t+1)e_{t+1}]n_{t+1} = 0$$

$$\implies (e_{t+1}/e_t) = 1 \text{ in order for } m_{t+1}, n_{t+1} > 0$$

Qualification: Uncertainty; $E_t u'(t+1)e_{t+1}/e_t = E_t u'(t+1)$

In the presence of legal constraints a fixed exchange rate system may not be feasible

- ▶ Dellas, 1985

Inflation tax on pegging country's foreign reserves may discourage the holding of foreign reserves. Without foreign reserves, a fixed regime may not be sustainable.

- ▶ Due to speculative attacks-inconsistent policies

II. The implications of a fixed system for inflation and interest rates

a) Interest rate equalization

$$i - i^* = E_t s(t + 1) - s(t) = 0$$

b) Inflation equalization

$$p(\hat{t}) - p^*(\hat{t}) = s(\hat{t}) = 0$$

Mechanism: Trade competitiveness

Qualification: Changes in relative prices and inflation.

Inflation differences due to relative price changes may not cause a change in trade competitiveness

- ▶ A dilemma: Under free capital mobility, cannot have both monetary independence and a fixed exchange rate
- ▶ Macroeconomic implications of a peg
- ▶ Unilateral peg-vs symmetric peg (from P. de Grauwe, Monetary Union)
- ▶ The effect of various shocks
 1. Home recession, unilateral (Fig. 1)
 2. Home recession, bilateral (Fig. 2)
 3. Home speculative attack, uni vs bi (Fig. 3)
 4. A foreign interest rate shock

FIGURE: PPPb

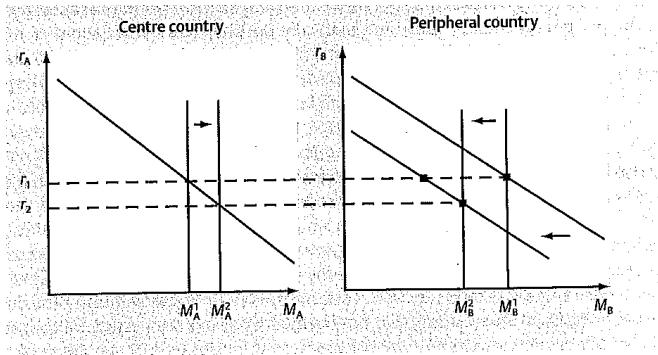


FIGURE: PPPb

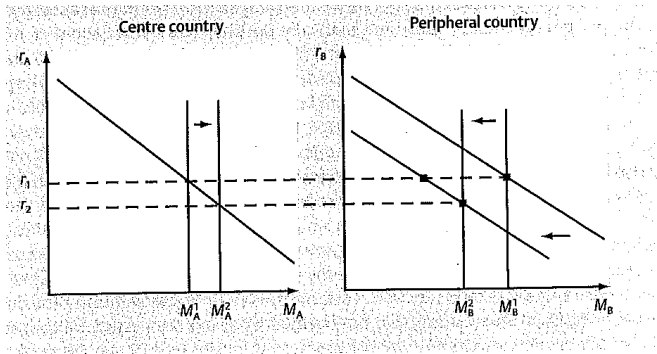
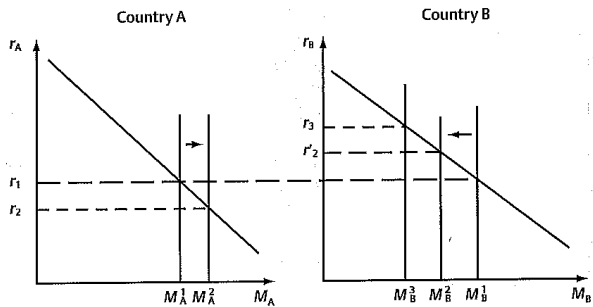


FIGURE: PPPb



The optimal exchange rate regime

Under optimal monetary policy, the flexible always does better

Under various policy rules, the comparison is ambiguous.

Relationship to Poole's analysis

Currency crises, speculative attacks

- ▶ Few countries have been able to maintain fixed regime. Typically small, dependent
- ▶ Technical feasibility of defending a fixed regime
- ▶ Shrink MB Interest rate Foreign borrowing
- ▶ At least for the industrial countries it is always technically feasible to defend a fixed parity
- ▶ Nevertheless, quite often parities are not defended

- ▶ Defense can prove very costly for a number of reasons
- ▶ High short term public debt (Italy)
- ▶ Troubled financial sector (Sweden)
- ▶ High unemployment (Spain)
- ▶ Link of short rates to mortgage rates (UK)
- ▶ Concern about capital losses (CH)

Theories of currency crises

1. Fundamentals:

Governments cause them (Krugman, Flood and Garber). They are the result of inconsistency between domestic economic policies and the exchange rate commitment. Expansionary policies -for instance, fiscal policy that is monetized by the central bank- create a balance of payments deficit which is financed by the foreign reserves of the central bank. With limited reserves, sustained attrition is bound to lead to their exhaustion and hence to the abandonment of the fixed parity. The process of reserve depletion is not smooth. Once reserves have fallen below a critical low level, there is a speculative attack that depletes the remaining reserves and forces the government to float -or devalue- the currency. The parity would not have survived even in the absence of a speculative attack. The attack merely hastens the inevitable collapse but it does not cause it.

2. Arbitrary, self-fulfilling speculative attacks: Markets are to blame (Flood and Garber, 1984, Obstfeld, 1986). A fixed parity is susceptible to a collapse even when economic fundamentals are presently fine and are also expected to remain sound as long as the fixed regime is maintained. As long as there is no massive selling of the domestic currency that exhausts the -limited- foreign reserves of the central bank (or puts the CB in a tough spot), the regime survives. If, however, the speculators start perceiving the currency as vulnerable and decide to sell, and if that happens during a period of some even small structural difficulty -for instance, if the attack coincides with a moderate deterioration in the balance of payments- the government is forced to let the currency go.

An example from Dellas Stockman, JMCB, 1993

$$M_t^d/P_t = a - bi_t \quad (3)$$

$$M_t^s = D_t + R_t \quad (4)$$

$$D_t = \tilde{D} + u_t \quad (5)$$

$$Eu_t = 0, Euu' = \sigma^2 \quad (6)$$

$$P_t = S_t P_t^* \quad (7)$$

$$i_t - i_t^* = E_t S_{t+1}/S_t - 1 \quad (8)$$

$$(9)$$

The following assumptions describe the behavior of policy:

(a) Actual and expected domestic monetary policy is the same across different exchange rate regimes; it does not change following the occurrence of a speculative run; and it is such that if a speculative attack did not cause the introduction of capital controls, the fixed regime would be indefinitely viable. Hence, only runs induced by the expectation of future controls can cause the collapse of the fixed regime.

(b) If official reserves are brought below a certain critical value, \tilde{R} , then the government's optimal response is to impose capital control: A tax, r , on purchases of foreign assets by domestic residents from the central bank (but not to foreign assets that the domestic residents sell to either the central bank or other residents). The tax is analytically equivalent to a currency devaluation.

$$P^* = 1, i^* = 0$$

If capital controls are ruled out, then the fixed regime will never collapse as a result of inconsistent monetary policy

$$\text{prob}(u_t < a\bar{S} - \tilde{D} - \tilde{R}) = 1$$

Under this assumption, attackers lose money if policy switches to flexible, as the currency appreciates

The expected exchange rate is

$$E_t S_{t+1} = (1 + qr)\bar{S} > \bar{S}$$

where q is the probability that u_t exceeds some critical level u , and u is determined by

$$u = (a - bi)\bar{S} - \tilde{D} - \tilde{R}$$

$$i = qr$$

$$q = \text{prob}(u_t > u) = \text{prob}(u_t > (a - bqr)\bar{S} - \tilde{D} - \tilde{R})$$