Currencies crisis: 2° generation models

- In first generation models government has a unrealistic passive role

In 2° generation models the exit from a fixed exchange rate regime is the result of a strategic game between government and agents.

Government minimizes a loss function, given agents expectations

(1) $L = \left\{ \alpha(\hat{s} - s) + \beta\left(s^e - s\right) \right\}^2 + C(\Delta s)$

- $C(\Delta s)$ is the cost in terms of lost credibility when a country exits the fixed exchange rate regime

- $(\hat{s} - s)$ is the cost of exchange rate deviation from the equilibrium PPP level

- $\left(s^e - s\right)$ is il cost of keeping fixed the exchange rate when agents expect a depreciation

When the exchange rate remains fixed $C(\Delta s) = 0$

a) **Agents believe the exchange rate to stay fixed**
$s^e = \overline{s}$

If government maintains the fixed exchange rate
$s = \overline{s} \rightarrow \Delta s = 0 \rightarrow C = 0$
And the policy cost is

$$(2)\ L = \left\{\alpha\left(\hat{s} - \overline{s}\right)\right\}^2$$

If government allows the currency to depreciate
$s = \hat{s}$ and the policy cost is

$$(3)\ L = \left\{\beta\left(\overline{s} - \hat{s}\right)\right\}^2 + C\left(\Delta s\right)$$

It is convenient for the government to maintain the fixed exchange rate when

$$\left\{\alpha\left(\hat{s} - \overline{s}\right)\right\}^2 < \left\{\beta\left(\overline{s} - \hat{s}\right)\right\}^2 + C\left(\Delta s\right)$$

or

$$\left(\alpha^2 - \beta^2\right)\left(\hat{s} - \overline{s}\right)^2 < C\left(\Delta s\right)$$

b) **Agents expect the fixed exchange rate to break down,** $s^e = \hat{s}$

If government maintains the fixed exchange rate,
$s = \bar{s} \rightarrow \Delta s = 0 \rightarrow C = 0$
In this case, the loss function reduces to

(4)
$$L = \{\alpha(\hat{s} - \bar{s}) + \beta(\hat{s} - \bar{s})\}^2$$
$$L = \{(\alpha + \beta)(\hat{s} - \bar{s})\}^2$$

the fixed rate defence cost is now higher because

(5) $$\{\alpha(\hat{s} - \bar{s})\}^2 < \{\alpha(\hat{s} - \bar{s}) + \beta(\hat{s} - \bar{s})\}^2$$

If government give up the fixed exchange rate,
$s = \hat{s}$

(6)
$$L = \{\alpha(\hat{s} - \hat{s}) + \beta(\hat{s} - \hat{s})\}^2 + C(\Delta s)$$
$$L = C(\Delta s)$$

Goverment prefers to devaluate when

(7) $$\{(\alpha + \beta)(\hat{s} - \bar{s})\}^2 > C$$

c) Multiple equilibriums arise when

$$(8)\ \left(\alpha^2-\beta^2\right)\left(\hat{s}-\overline{s}\right)^2 < C < \left\{\left(\alpha+\beta\right)\left(\hat{s}-\overline{s}\right)\right\}^2$$

Define

$$F_1=\left(\alpha^2-\beta^2\right)\left(\hat{s}-\overline{s}\right)^2,\ F_2=\left\{\left(\alpha+\beta\right)\left(\hat{s}-\overline{s}\right)\right\}^2$$

1) If $C < F_1 < F_2$ it is always preferable to devaluate
2) If $F_1 < F_2 < C$ the fixed exchange rate is the best policy
3) If $F_1 < C < F_2$ multiple equilibriums exist

In case 3) the final policy choice about the best exchange rate regime depends on agents expectations (*self-fulfilling expectations*)

Currency crisis: 3° generation models

They where developed after the Asian crisis of 1997

- 1° and 2° generation models were not able to forecast that crisis:
  Economic “fundamental” were ok

  - A “moral hazard” problem arouse

Emerging Asian countries offered very high yields and attracted several foreign investment

Foreign investors felt insured by local governemt and investment riskiness increased

Asian local banks heavily borrowed in foreign currency (dollar debts)

Exchange rates were pegged to the dollar

Three main disequilibria:

1) An excess of risky investments because of moral hazard

2) A mismatch between short term liabilities and long term activities (house bubble)

3) A mismatch in the currency composition of debt (dollar denominated) and domestic credit (denominated in local currency)

The crisis of an important bank in Thailand gave rise to a massive outflow of capital that produced a sharp devaluation of local currency

The crisis spread over the whole Asian area and hit countries that international investors believed to have the same imbalances of Thailand

- **The “contagium” problem was very important**