

# Currency Crises: Theory and Evidence

Lecture 3  
IME LIUC 2009

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- The most dramatic form of exchange rate volatility is a currency crisis – when an exchange rate depreciates substantially in a short period.
- A **currency crisis** must have 2 features: the exchange rate depreciation must be large relative to recent experience, and the nominal exchange rate depreciation must also affect the real exchange rate. Currency crises are frequent: 250 between 1978-2003.
- Currency crises cause substantial economic upheaval and usually sharp falls in y.

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## Currency crises lead to dramatic decline in GDP

(IMF, IFS, March 04)	GDP growth		
	Year before crisis	Year of crisis	Year after
Argentina (01)	-0,8	-4,4	-10,9
Indonesia (97)	8,0	4,5	-13,1
South Korea (97)	6,8	5,0	-6,7
Philippines (97)	5,8	5,2	-0,6
Russia (98)	1,4	-5,3	6,3
Thailand (97)	5,9	-1,4	-10,5
Turkey (01)	7,4	-7,5	7,8

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## What do we know about exchange rate crises?

- **First generation models.** Crises are the result of inconsistency between fiscal and monetary policy and the exchange-rate commitment (Mexico 1982)
- Es, a fixed-exchange rate policy combined with over-spending and real exchange rate appreciation weakens the current account and pushes the economy into crisis. The focus is on the current account and the crisis is triggered more or less mechanically once reserves reaches a critical level.

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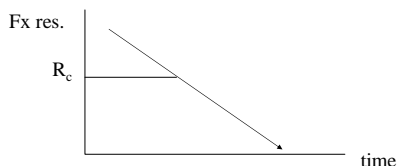
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## Speculative attack comes in advance of FX reserves depletion

- The currency crash will occur before the central bank runs out of reserves. In particular, at a critical level of reserves ( $R_c$ ), the attack will occur and the currency will drop



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- **Second generation (SG) models.** Responses to crises like the ERM in 1992
- SG models suggest that currency crises are not inevitable but depend upon the beliefs of foreign exchange traders. If a sufficient numbers of investors believe a currency is overvalued, then the government will find it too costly to defend the exchange rate and a devaluation will occur. If only a few investors believe a currency is overvalued, it may be possible for the government to maintain a fixed exchange rate.
- Elements of self-fulfilling panic are key in sg models.

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- The sg models are **multiple equilibria** models. They formalize a scenario in which there are two possible outcomes: a crisis and a non-crisis equilibrium
- Who are the players?: the speculators and the government. They face each other in the currency market, each side trying to second-guess the other.
- Speculators are concerned with assessing the pressures on the government and its likely reaction to them.
- The government for its part is assessing the likely effect of its actions on market sentiment.

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- The main features of the sg models are the following:
  - 1) the government would ideally be in a different state, therefore the desired level of exchange rate is different from the actual one and there is a **cost (L1)** in defending the parity (high unemployment)
  - 2) this **cost (L2)** is higher when devaluation is expected than when it is not (high prices, high interest rates)
  - 3) There is a **cost** in devaluing (**Q**) (loss of credibility)

The objective of the government is to minimize the **cost**

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- The solution depends on the magnitude of  $L_1$ ,  $L_2$   $Q$  and on market expectations.
- **NO** reference to the fundamentals
- If  $Q < L_1 < L_2$  then devalue
- If  $L_1 < L_2 < Q$  then resist
- If  $L_1 < Q < L_2$  then expectations matters We have **multiple equilibria** and where we will end up depends entirely on whether the market expects it to devalue or not.

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Market expectations	Government Behavior	
		Resist    Devalue
	Resist	$L_1 < Q$
Devalue		$L_2 > Q$

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- ### ERM Crisis 1992
- The ERM was a system of fixed exchange rate among European countries. Each currency had a central exchange rate around which its value could vary within certain bands.
  - In the early years of the ERM, realignments were frequent, but by the early 1990s devaluations were increasingly rare.
  - The reunification of Germany is at the base of the ERM collapse.
  - ERM countries affected by the crisis: Finland, Italy and UK.
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### Inflation and fiscal deficit in European Countries 1990-92

	Fiscal deficit (% GDP)			Inflation (%)		
	1990	1991	1992	1990	1991	1992
Spain	3.3	4.5	4.1	6.5	6.4	6.4
Fin	5.4	1.1	5.5	5.8	5.6	4.1
Ire	2.3	2.4	3.5	2.1	8.5	5.5
Swe	-4.2	1.1	7.8	9.9	10.3	2.3
Ger	2.1	3.3	2.6	2.7	3.7	4.7
Fr	1.5	2.0	3.9	2.8	3.2	2.4
Italy	11.2	10.2	9.6	6.3	6.9	5.6
UK	1.5	2.8	6.5	8.0	4.7	3.5

Source: IMF, IFS, Sept. 2000

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## Critics to s.g. models

- The s.g. models do not explain speculator behavior.
- The ambiguity represented by multiple equilibria arises out of the initial context. From the outset, we assume a government in a specific type of disequilibrium (a non-optimal exchange rate). As a result, it faces the temptation to break out by devaluating.
- What is the role played by currency speculators here? It could be argued that they play a beneficial part, by extricating the government from the hole into which it has stumbled.

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## Searching for a third generation of models: the Asian crises of 97-98

- The new-style crises involve doubt about the worthiness of the **balance sheet** of a significant part of the economy-public or private and **the exchange rate**
- The Asian crisis highlighted that currency crises are often associated with banking crises (twin crises) and that currency crises were driven by sharp and unexpected movement of the **capital account** rather than traditional current account imbalances.
- A third generation of models based on balance sheet analysis was developed.

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## Explanations of the Asian crises

- There are two main strands of third generation models
  - A **first strand**, closer to the second generation of models, focuses on “non fundamental” runs. The key sources of the crises were sudden shifts in market expectations and confidence
  - A **second strand**, emphasizes that **weak balance sheets** were the results of distortions:
    - Weakly supervised and regulated financial systems
    - Moral hazard driven by implicit and explicit government guarantees leading to over borrowing and over lending and excessive current account deficits
    - Fixed exchange rates distorting external borrowing in the direction of short-term foreign currency debt.and that **weak fundamentals** triggered the crises

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- **The moral hazard problem**
- At the *corporate level*: political pressure to ensure high growth had led to a long tradition of public guarantees to private projects :
  - → *Markets operated under the impression that investment return was insured against shocks,*
  - → *over-investment low productivity*

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- At the *financial sector level*: domestic banks borrowed excessively abroad and lend excessively at home
- Why? Long list of structural distortions: lax of supervision and weak regulation, corrupt lending practices, non-market criteria for credit allocation:
  - *mounting non-performing loans*

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- At the *International level*: over-lending by international banks, with apparent neglect of the standard of sound risk assessment
- Why? Expectations of a bail-out either by the government or international financial institutions
- → *Accumulation of short-term, unhedged foreign-currency denominated liabilities*

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- The core implication of **moral hazard** is that an adverse shock to profitability does not induce financial intermediaries to be more cautious in lending. Quite the opposite, the anticipation of a future bail-out provides an incentive to lend more (Krugman)

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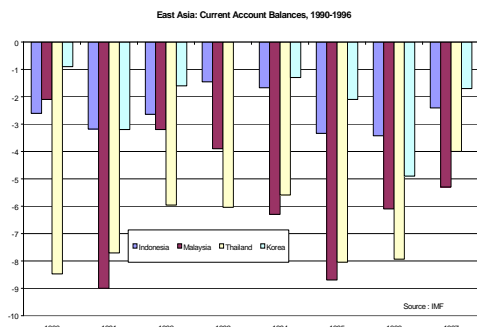
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### Weak fundamentals: CA deficits




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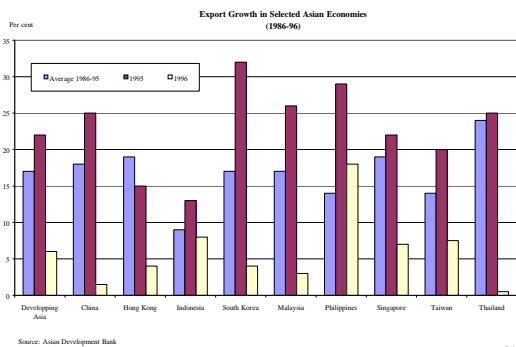
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### Weak fundamentals: drop in export




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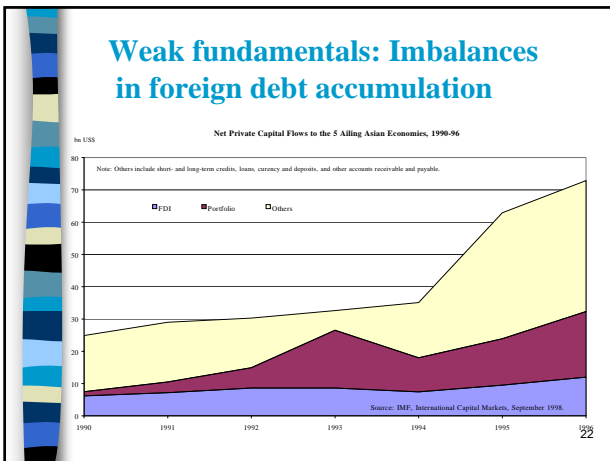
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## Weak fundamentals: Imbalances in foreign debt accumulation




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## In many countries reserves did not cover debt service plus short-term debt

### Debt Service plus Short-Term Debt (%of foreign reserves)

	1990	1993	1995
<b>Korea</b>	127.4	105.7	204.9
<b>Indonesia</b>	282.9	284.8	309.2
<b>Malaysia</b>	63.9	42.4	55.9
<b>Philippines</b>	867.6	212.6	166.6
<b>Thailand</b>	102.4	120.3	138.1
<b>HK</b>	30.5	20.6	16.8
<b>China</b>	55.3	113.7	49.6
<b>Taiwan</b>	23.9	25.2	24.2

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## Role of exogenous shocks

- A number of **country-specific and global shocks** contributed to severely deteriorate the overall economic outlook in the Asian region, exacerbating existing distortions:
  - The long period of stagnation of the Japanese economy
  - The fall in the demand for semi-conductors in 1996 and adverse terms of trade fluctuations
  - Sharp appreciation of the US\$ after 1995

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## A quick reconstruction of the crisis

- The first currency to come under attack was the Thai Bath, the currency of the country with the shakiest economic fundamentals
- Countries with economic fundamentals and export structure similar to the ones of Thailand followed: Malaysia, Indonesia and the Philippines.

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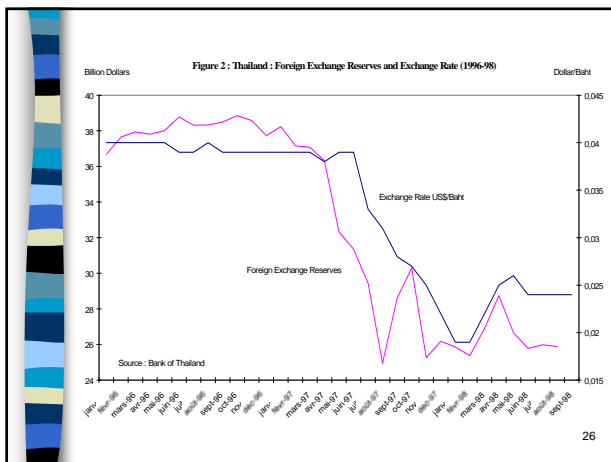
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- The key to understand the sharp devaluation of these currencies during the summer 97 is the first reaction of monetary authorities: to avoid a significant monetary contraction and a significant increase in domestic interest rates, because of the fragile financial conditions
- A relatively loose monetary policy induced a continuous spiral of currency depreciation
- Only after the currency had fallen considerably the authorities switched to tight monetary policy. It resulted in a credit squeeze that exacerbated the financial problems of banks and firms.
- Policy spillovers and contagion effects other new aspects of the crises

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### Strategy to recover: What was the role of Bretton Woods Institutions?

- Some countries (Thailand, Indonesia, Korea) asked for a loan to the IMF
- As a condition for the loan the IMF asked for: economic reforms, and tight monetary and fiscal policies
- Was this recipe right?
- Difficult to say ..

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- However, many critics have been moved to the IMF
  - 1) High interest rates were not effective in slowing down currency depreciation, but rather worsened the extent of the crisis by leading widespread banking and corporate bankruptcies. The appropriate policy response should have been one of loose money and low interest rates
  - 2) Fiscal policy requirements were unnecessarily and harmfully strict
  - 3) The Fund has been playing an excessively intrusive role in domestic affairs
  - 4) The Fund requirement to close insolvent banks led to runs on financially healthy banks
  - 5) The IMF intervention enhanced world-wide moral hazard

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