# Bubbles, Panics and Crashes: An Introduction to Alternative Theories of Economic Crisis

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## Lecture 2
## Asian and Emerging Market Crisis

# The Asian Crisis (1997-1998)

- A classic example of a crisis with pegged (fixed) exchange rate regime, perfect capital mobility and no financial market regulations leading to a sudden stop.

- Similar crisis in Mexico (1994), Venezuela (1994), Argentina (1995), Russia(1998), Turkey (2001)

- The scale is much larger in the Asian Crisis (Korea, Indonesia, Thailand, Malaysia, Philippines, Taiwan)

- An important element in the Asian crisis is the Asian Model of Industrialisation and Growth

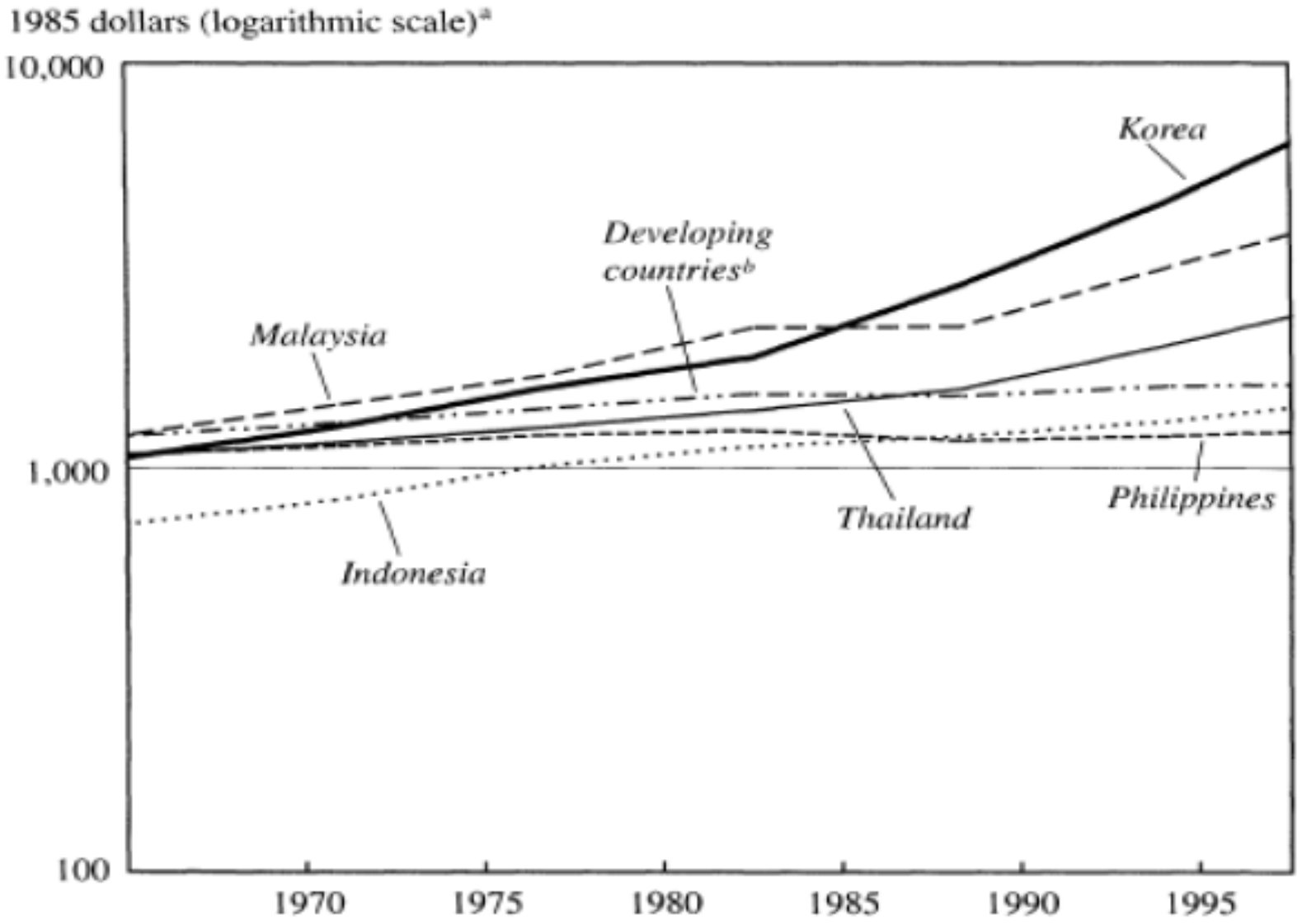
- Best observed in South Korea and Taiwan, to a lesser extent in Malaysia.

- Keep in mind that all these Asian countries had very high savings out of disposable income. (Averaging around 30%)

- Direct government involvement in the allocation of savings. (Large state-owned banks)

- The government directed the investment strategy of large corporations in order to increase export-competitiveness. (Korean chaebols)
- Preferential low-interest credit to these corporations.
- Tax breaks and subsidies, tariff protections.
- Fixed (or pegged) exchange rate regimes across the board. Currencies pegged to the dollar.
- In this way, the industries could move to the production of higher value-added products
- However, such a policy was only possible with very high leverage ratios for these giant corporations. (2:1, 3:1 in some cases)

**Figure 3. GDP per Capita, Selected Asian Countries, 1965–96**




Source: GDP data for 1965-91 are from the Penn World Tables, mark 5.6, available on the worldwide web page of the National Bureau of Economic Research. For 1992-96, GDP levels are constructed by applying growth rates from World Bank, *World Development Indicators* (available on CD-ROM) to the respective 1991 GDP levels.

a. Conversion to dollars uses purchasing power parity (PPP) exchange rates.

b. Comprises eighty-five countries.

- Financial account liberalization in the beginning of 1990s is the turning point in the Asian Crisis.
- Opening of the economy to foreign capital inflows
- No regulation on the capital flows
- The period also coincides with the deflationary episode in Japan, the Japanese Central Bank reduces interest rates to near–zero levels, European economies also implement expansionary monetary policies to combat slow growth
- Abundance of liquidity due to these policies begin flowing into Asia

- Inflows to five major crisis economies average 6% of GDP between 1990-1996.
- Domestic credit begins expanding rapidly, most of the expansion is financed by foreign borrowing by banks and corporations.
- As well as this borrowing, foreign portfolio investment flows into these countries
- This creates an extremely fragile financial system in these countries as foreign debt begins to soar. (reaching 28% of GDP in Thailand, 21% in Philippines, 10% in Korea)

**Table 5. Debt to Foreign Banks and Foreign Exchange Reserves, Selected Crisis Countries, 1995–97**

Billions of dollars

| Year and country | Debt by sector | | | | Short-term debt | Reserves | Ratio: short-term debt-to-reserves |
|---|---|---|---|---|---|---|---|
| | Total | Banks | Public | Nonbank private | | | |
| End 1995 | | | | | | | |
| Indonesia | 44.5 | 8.9 | 6.7 | 28.8 | 27.6 | 14.7 | 1.9 |
| Malaysia | 16.8 | 4.4 | 2.1 | 10.1 | 7.9 | 23.9 | 0.3 |
| Philippies | 8.3 | 2.2 | 2.7 | 3.4 | 4.1 | 7.8 | 0.5 |
| Thailand | 62.8 | 25.8 | 2.3 | 34.7 | 43.6 | 37.0 | 1.2 |
| Korea | 77.5 | 50.0 | 6.2 | 21.4 | 54.3 | 32.7 | 1.7 |
| Total | 209.9 | 91.3 | 20.0 | 98.4 | 137.5 | . . . | . . . |
| End 1996 | | | | | | | |
| Indonesia | 55.5 | 11.7 | 6.9 | 36.8 | 34.2 | 19.3 | 1.8 |
| Malaysia | 22.2 | 6.5 | 2.0 | 13.7 | 11.2 | 27.1 | 0.4 |
| Philippines | 13.3 | 5.2 | 2.7 | 5.3 | 7.7 | 11.7 | 0.7 |
| Thailand | 70.2 | 25.9 | 2.3 | 41.9 | 45.7 | 38.7 | 1.2 |
| Korea | 100.0 | 65.9 | 5.7 | 28.3 | 67.5 | 34.1 | 2.0 |
| Total | 261.2 | 115.2 | 19.6 | 126.0 | 166.3 | . . . | . . . |
| Mid-1997 | | | | | | | |
| Indonesia | 58.7 | 12.4 | 6.5 | 39.7 | 34.7 | 20.3 | 1.7 |
| Malaysia | 28.8 | 10.5 | 1.9 | 16.5 | 16.3 | 26.6 | 0.6 |
| Philippines | 14.1 | 5.5 | 1.9 | 6.8 | 8.3 | 9.8 | 0.8 |
| Thailand | 69.4 | 26.1 | 2.0 | 41.3 | 45.6 | 31.4 | 1.5 |
| Korea | 103.4 | 67.3 | 4.4 | 31.7 | 70.2 | 34.1 | 2.1 |
| Total | 274.4 | 121.8 | 16.7 | 136.0 | 175.1 | . . . | . . . |

- Most of the debt is short–term and needs to be rolled over regularly (excessively high debt–foreign exchange reserves)

- A considerable amount of new loans is directed to real estate markets, while foreign portfolio investment goes to the stock and bond markets, creating a potential for bubbles.

**Table 3. Short-Term Debt and Reserves, Selected Developing Countries, 1994 and 1997**

Millions of dollars

| | *June 1994* | | | *June 1997* | | |
|---|---|---|---|---|---|---|
| *Country* | *Short-term debt* | *Reserves* | *Ratio: debt-to-reserves* | *Short-term debt* | *Reserves* | *Ratio: debt-to-reserves* |
| Argentina | 17,557 | 13,247 | 1.325 | 23,891 | 19,740 | 1.210 |
| Brazil | 28,976 | 41,292 | 0.702 | 44,223 | 55,849 | 0.792 |
| Chile | 5,447 | 10,766 | 0.506 | 7,615 | 17,017 | 0.447 |
| Colombia | 3,976 | 7,718 | 0.515 | 6,698 | 9,940 | 0.674 |
| India | 5,062 | 16,725 | 0.303 | 7,745 | 25,702 | 0.301 |
| Indonesia | 18,822 | 10,915 | 1.724 | 34,661 | 20,336 | 1.704 |
| Jordan | 647 | 1,291 | 0.501 | 582 | 1,624 | 0.358 |
| Korea | 35,204 | 21,685 | 1.623 | 70,612 | 34,070 | 2.073 |
| Malaysia | 8,203 | 32,608 | 0.252 | 16,268 | 26,588 | 0.612 |
| Mexico | 28,404 | 16,509 | 1.721 | 28,226 | 23,775 | 1.187 |
| Pakistan | 1,708 | 2,307 | 0.740 | 3,047 | 1,249 | 2.440 |
| Peru | 2,157 | 5,611 | 0.384 | 5,368 | 10,665 | 0.503 |
| Philippines | 2,646 | 6,527 | 0.405 | 8,293 | 9,781 | 0.848 |
| South Africa | 7,108 | 1,755 | 4.050 | 13,247 | 4,241 | 3.124 |
| Sri Lanka | 511 | 1,983 | 0.258 | 414 | 1,770 | 0.234 |
| Taiwan | 17,023 | 90,143 | 0.189 | 21,966 | 90,025 | 0.244 |
| Thailand | 27,151 | 27,375 | 0.992 | 45,567 | 31,361 | 1.453 |
| Turkey | 8,821 | 4,279 | 2.061 | 13,067 | 16,055 | 0.814 |
| Venezuela | 4,382 | 5,422 | 0.808 | 3,629 | 13,215 | 0.275 |
| Zimbabwe | 704 | 534 | 1.319 | 731 | 447 | 1.635 |

Source: Authors' calculations. Data on short-term debt are from Bank for International Settlements (1998); and on reserves, from IMF, *International Financial Statistics*, various issues.

## Carry Trade

- In its simplest form, carry trade can be viewed as borrowing in a low-yielding currency and investing it in a high yield one.
- The investor bears the FX risk in return for high yield.
- E.g Japanese banks borrow at 0% from Central Bank of Japan.
- They lend to Icelandic banks at 1%, which invest in domestic currency for 15% return, and get a real return of 14%, assuming that the exchange rate remains constant. (Yen-indexed mortgages)

- What happens to real and nominal exchange rates with carry trade under fixed and flexible exchange rate regimes?
- In a fixed exchange rate regime as in Asia before the crisis , nominal exchange rate is fixed. Therefore, the carry trader bears NO risk IF the central bank can credibly target the exchange rate.
- Cheap credit in a boom of carry trade (and an increase in domestic money supply) increases domestic demand and leads to inflation, asset-price bubbles, real exchange rate appreciates.

- The appreciation of the real exchange rate increases imports and reduces exports, thus leading to a trade and current account deficit.

- This is exactly what was happening in Asian Economies (Korea, Indonesia, Malaysia, Thailand and Philippines)

- Between 1990–97, real exchange rates appreciated over 25% in all these countries except Korea (12%appreciation)

**Table 1. External Financing of Five Asian Countries, 1994–98**[a]

Billions of dollars

| *Item* | *1994* | *1995* | *1996* | *1997*[b] | *1998*[c] |
|---|---|---|---|---|---|
| Current account balance | −24.6 | −41.3 | −54.9 | −26.0 | 17.6 |
| External financing (net) | 47.4 | 80.9 | 92.8 | 15.2 | 15.2 |
| Private inflows (net) | 40.5 | 77.4 | 93.0 | −12.1 | −9.4 |
| Equity investment | 12.2 | 15.5 | 19.1 | −4.5 | 7.9 |
| Direct | 4.7 | 4.9 | 7.0 | 7.2 | 9.8 |
| Portfolio | 7.6 | 10.6 | 12.1 | −11.6 | −1.9 |
| Private creditors | 28.2 | 61.8 | 74.0 | −7.6 | −17.3 |
| Commercial banks | 24.0 | 49.5 | 55.5 | −21.3 | −14.1 |
| Nonbank | 4.2 | 12.4 | 18.4 | 13.7 | −3.2 |
| Official inflows (net) | 7.0 | 3.6 | −0.2 | 27.2 | 24.6 |
| International institutions | −0.4 | −0.6 | −1.0 | 23.0 | 18.5 |
| Bilateral creditors | 7.4 | 4.2 | 0.7 | 4.3 | 6.1 |
| Resident lending and other (net)[d] | −17.5 | −25.9 | −19.6 | −11.9 | −5.7 |
| Reserves change, excluding gold[e] | −5.4 | −13.7 | −18.3 | 22.7 | −27.1 |

Source: Institute of International Finance, "Capital Flows to Emerging Market Economies," January 29, 1998.

a. Table entries are sums over data for Korea, Indonesia, Malaysia, Thailand, and the Philippines.

b. Estimate.

c. Forecast.

d. Includes resident net lending, monetary gold, and errors and omissions.

e. A negative value indicates an increase.

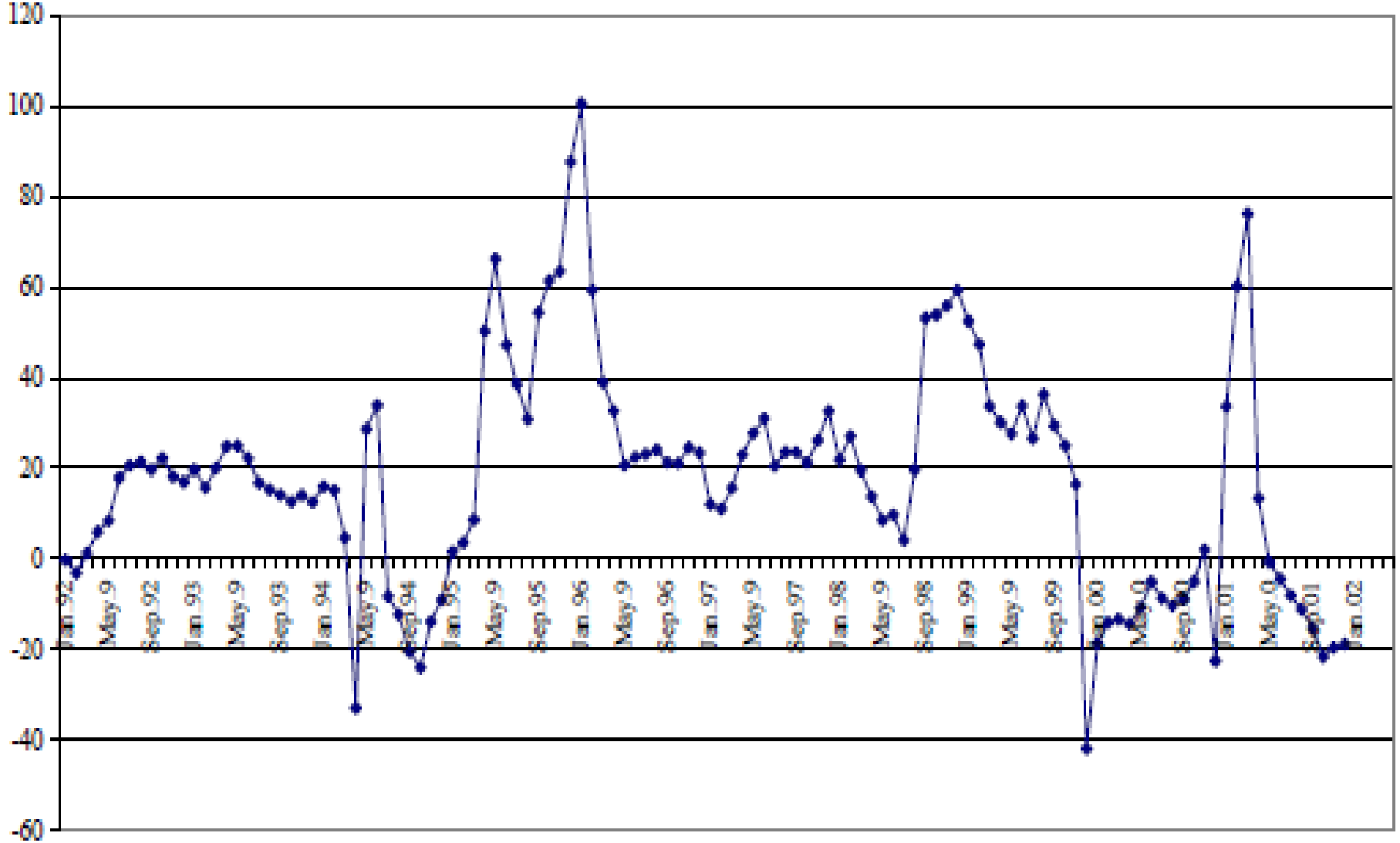
- In a flexible exchange rate regime, the CB does not intervene in the FX markets. Therefore, usually, the nominal exchange rate, as well as real exchange rate appreciates.

- Bear in mind: The carry trader is only interested in the nominal exchange rate.

- Therefore, a nominal appreciation increases the return even more from the carry trade.

- Borrow at 1% in foreign currency
- Invest for 15% in domestic currency
- If the domestic currency appreciates a further 5% nominally due to increased supply of FX in the market, the total return is 1.14 x 1.05 = 1.197.
- While this creates incentives for risk-taking, keep in mind the carry trader bears the FX risk, and this can be a serious problem if there's a maturity mismatch between assets and liabilities

**Figure 2. Rate of Financial Arbitrage (%)**



- Carry trade turns into a self-fulfilling mechanism in a flexible exchange rate regime, as more carry trade leads to more appreciation of the nominal exchange rate and increases returns.
- The implications for monetary policy are dire under both regimes
- Under fixed exchange rates, the Central Bank has to buy the excess foreign exchange, leading to a forced increase in domestic banks' and other financial agents' domestic cash reserves
- Under flexible rates, when the Central Bank increases the interest rates to fight domestic inflation, it creates more incentives for carry trade and ironically may fuel the domestic boom.(more on this in Credit Crunch)

- Further, the originating country's central bank cannot effect domestic demand by reducing interest rates, as funds flow abroad rather than stimulating domestic economy.
- In the Asian Crisis, the role of the Japanese Yen carry trade and the unwinding of this trade is crucial.
- The U.S dollar appreciated sharply against the Yen particularly after 1994.
- As Asian currencies were pegged to the dollar, they also experienced appreciation against the Yen

- This was an important factor, increasing the returns from the Yen carry trade, and triggering further borrowing in Yen.
- However, as short–term debt mounted up and exports fell due to appreciation (and increased international competition by China and Mexico to some extent), foreign investors fear non-payment of loans and get reluctant to roll-over debt
- At some point, there is a sudden stop as foreign flows reverse, there are speculative attacks on the currencies as foreign portfolio investment is withdrawn

Table 1. Descriptive Statistics of Different Type of Flows [1]

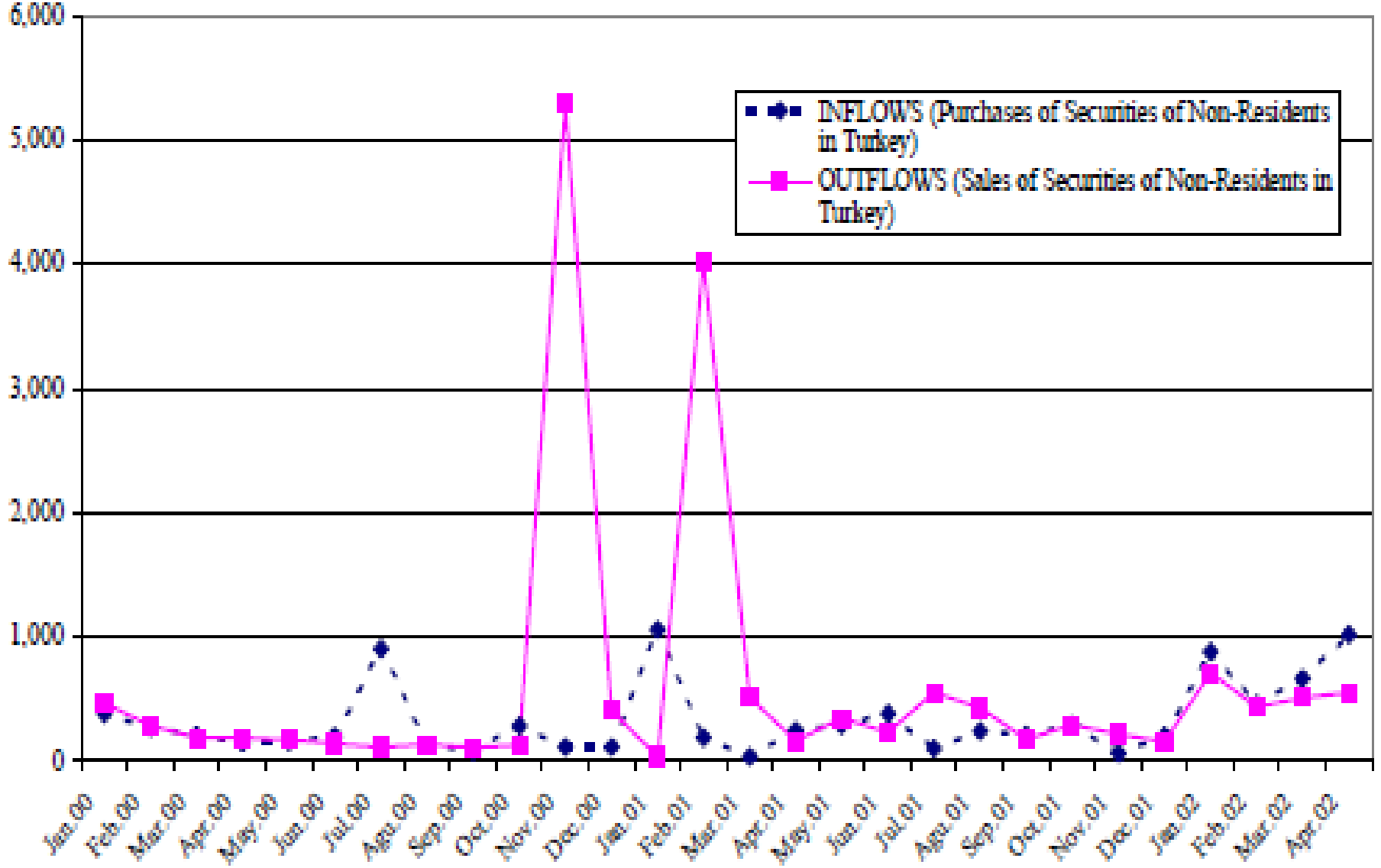
| Type of Flows | Average (mill.US$) | | % cum.1997/98 flows to cum.inflows (1990-96) |
|---|---|---|---|
| | 1990-96 | 1997-98 [2] | |
| Net direct investment | 3760.82 | 7740.06 | 44.10 |
| Net portfolio investment | 12805.13 | -1376.91 | -2.30 |
| Net bank flows | 7382.39 | -30441.60 | -88.36 |

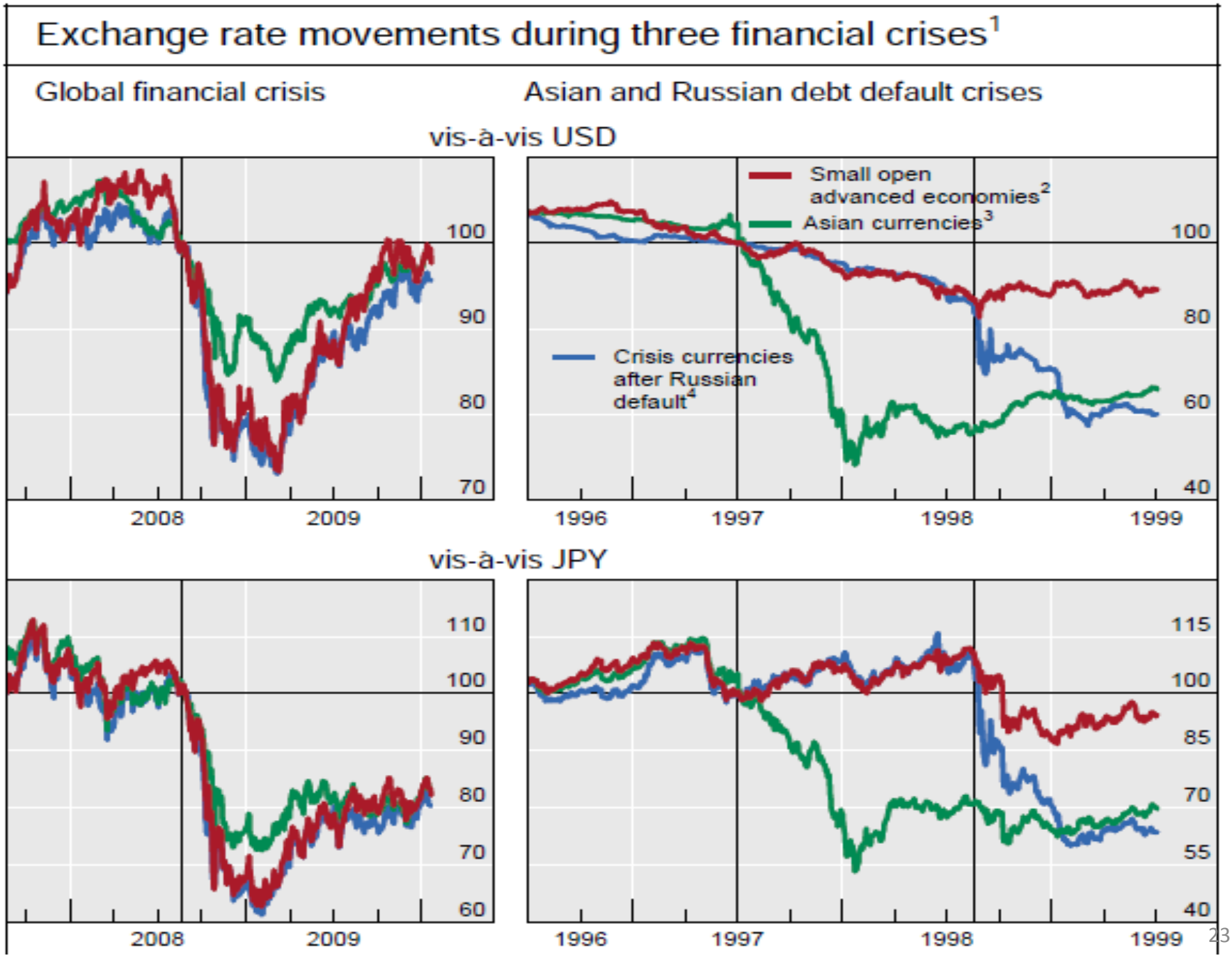
Source : IFS

[1] Aggregate figures of 4 countries (Indonesia, Korea, Philippines and Thailand).

[2] For 1997, data is begun from the third quarter.

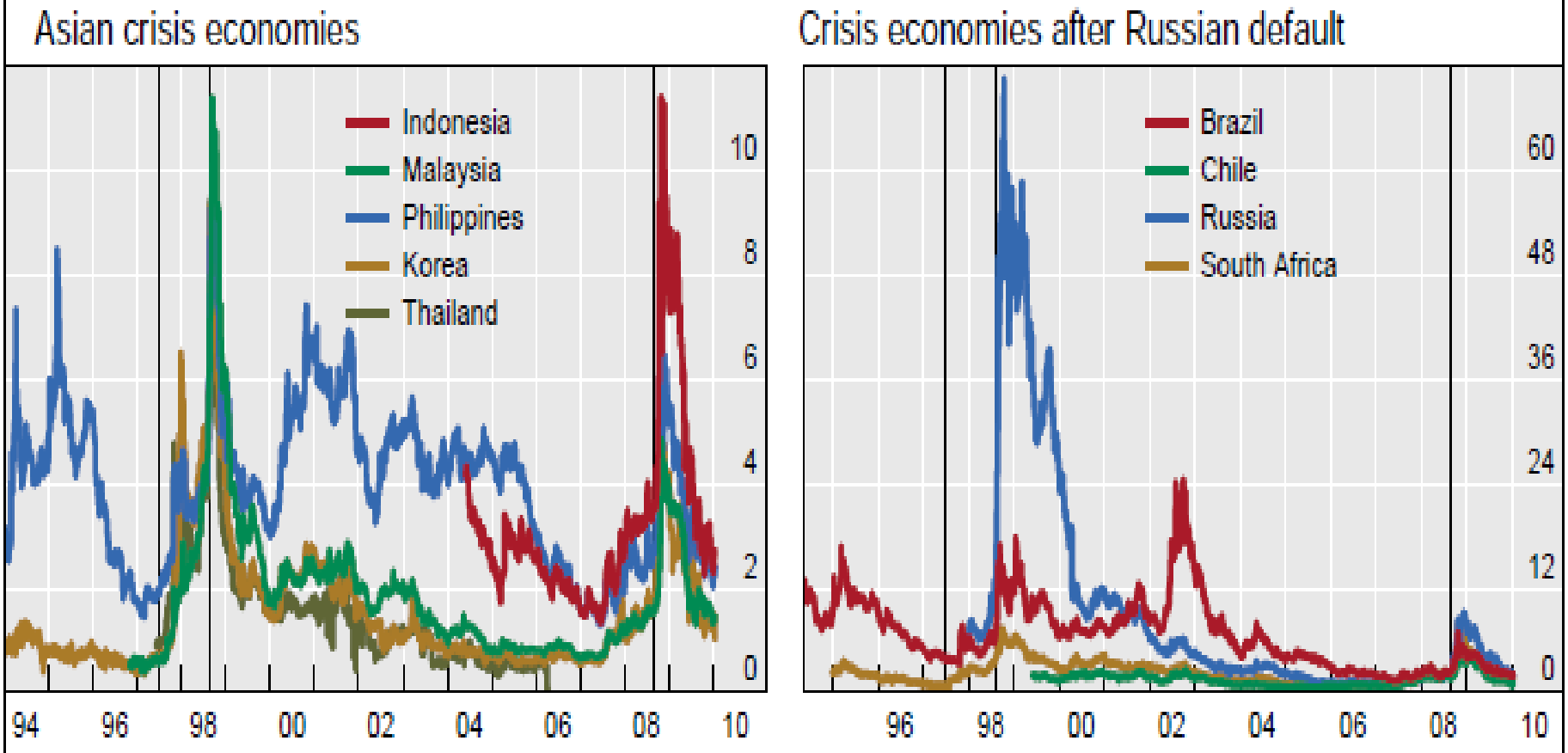
## Figure 1.b Portfolio Investments: Securities Purchases (Inflows) and Sales (Outflows) by Non-Residents in Turkey (Millions $)




Exchange rate movements during three financial crises[1]
Global financial crisis
Asian and Russian debt default crises
vis-à-vis USD
Small open advanced economies[2]
Asian currencies[3]
Crisis currencies after Russian default[4]
100
90
80
70
2008
2009
100
80
60
40
1996
1997
1998
1999
vis-à-vis JPY
110
100
90
80
70
60
2008
2009
115
100
85
70
55
40
1996
1997
1998
1999

# US dollar-denominated sovereign bond strip spreads

In per cent



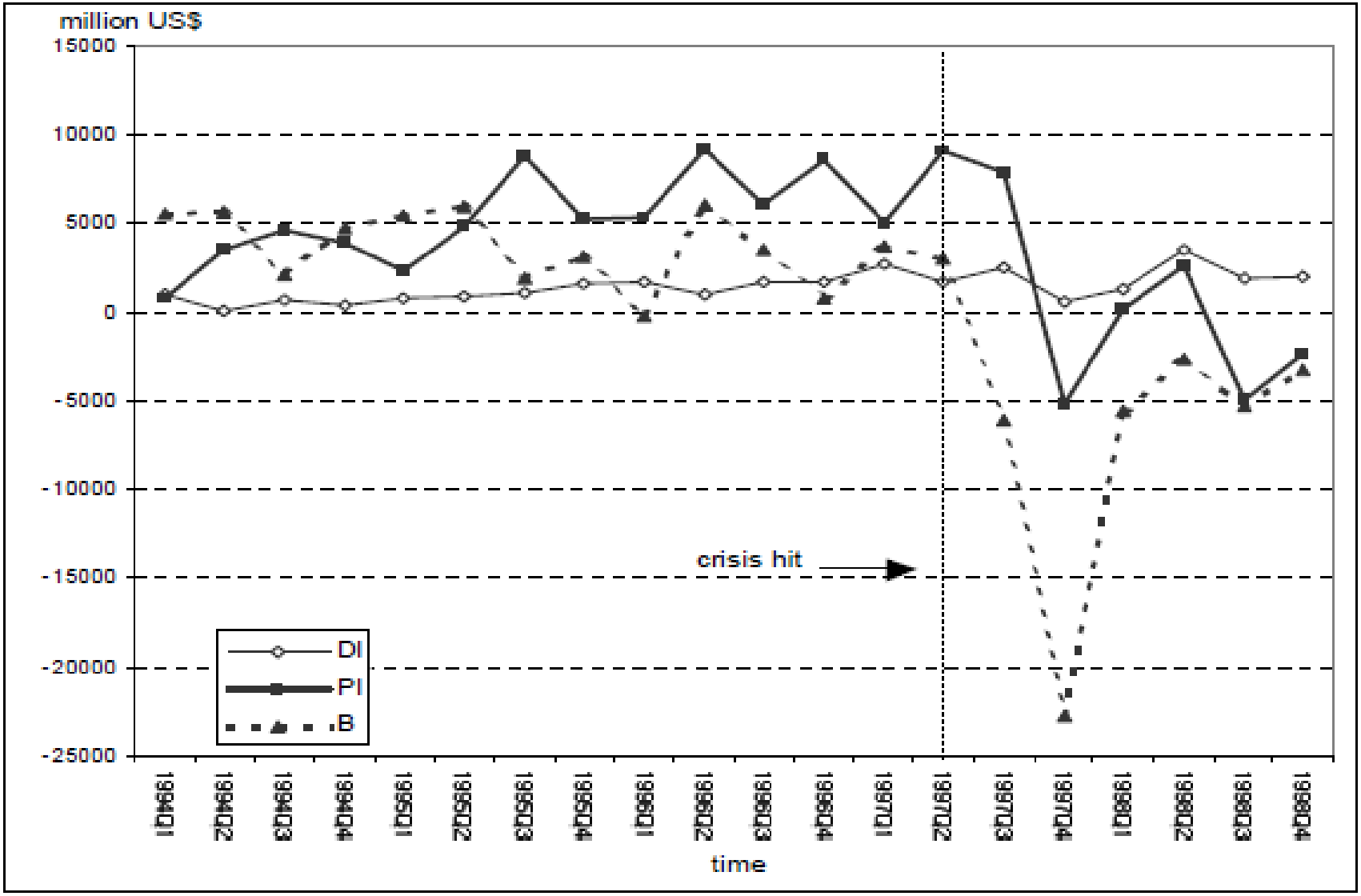

The vertical lines mark 2 July 1997, 17 August 1998 and 21 August 2008.

Source: JPMorgan Chase.

Graph 3

- This is the carry-trade unwinding phase. As Central Banks cannot defend the peg and the domestic currencies depreciate, the returns from carry trade fall(or turn into losses), which leads to further unwinding.
- The depreciation of the domestic currency increases the cost of foreign debts of domestic private banks and corporations, and lead to liquidity problems, insolvency and ultimately default.
- The same mechanism is more or less observed in all sudden stop experiences listed above, as well as the Asian Crisis.
- However, an equally important factor in the Asian crisis is the bank credits to Asian firms. This channel is not so dominant in other emerging market crisis

Figure 1. The Composition of Capital Flows in Indonesia, Korea, Philippines and Thailand (1994 – 1998)



- Orthodox Consensus:
- i) Lack of transparency between lenders and borrowers (banks–firms)
- ii)Weak regulation allowing banks to lend to highly leveraged companies
- iii)Poor exchange rate management (fixed exchange rate)
- iv)Moral hazard of expected bailout
- All these lead to inefficient allocation of investment, which in turn leads to a bust.
- While all these surely contributed to the crisis, NONE of them is the real reason.

- A significant amount of responsibility is laid on the big government and the state-led economic system by particularly IMF, World Bank, and FED
- However, keep in mind all data was readily available to private investors.
- Investors and lenders were aware of the foreign debt levels, short term debt,debt-equity ratios of companies and the prevailing corruption in some of these countries. (see Wade and Radelet &Sachs for a rebuttal of these arguments)
- Yet, capital flowed into the Asian countries until the very last days before the crisis.
- Why?

- “Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done.”

Keynes (1936)

- During the boom, entrepreneurs focus on the functioning of the credit expansion game, and develop knowledge about monetary policy, stock movements, indexes and other determinants of the future of the game
- When there's credit expansion, players of the game do not know when the bubble will end. Therefore, if they know that stocks/assets are overvalued they face a prisoner's dilemma situation where they have to take a decision between trying to play the expansion game and increase profits during the bull market or missing out the frenzy

- Excessive competition in the financial sector leads to herding behaviour, as money managers, bankers are competing fiercely for profits, and missing the frenzy might be costly.
- As herding behaviour sets in as well, the result is a surge in speculative activity with informed players waiting for the right moment to exit, and a sustained boom (this will come up in the Credit Crunch again)
- Therefore, the main reason underlying the crisis is the capital account liberalization with no regulation in such leveraged economies.

- The Asian model of allocating credit before the liberalization made high corporate leverage ratios possible for these economies, and led to sustained growth.
- The liberalization led to an uncontrolled flow of funds to these economies, led to the appreciation of domestic currencies, inefficient allocation of credit and created the boom which was bound to burst at some point.

- **THE DYNAMICS OF SUDDENS STOPS ARE ALWAYS THE SAME IN EVERY COUNTRY. THE CHARACTERISTICS OF ASIAN ECONOMIES ONLY CONTRIBUTED TO THE MAGNITUDE OF THE CRISIS, THEY ARE NOT THE REAL REASON**
- The only main difference for the Asian crisis is that while most other crisis were led by a consumption boom (Mexico, Argentina, Turkey), the Asian crisis was led by an investment boom.
- Therefore, the crisis was more difficult to recover from.
- We will talk about a proper explanation of how easy credit creates a boom in the following lectures (Minsky)

- Contagion: Simply refers to the spreading of the crisis from one country to another
- In the Asian case, the crisis started in Thailand with the devaluation of the Thai baht and spread to the rest of the region.
- This is the reverse-herding behaviour as concerns about other economies start panic.
- Once again, this is the carry-trade unwinding phase. As Central Banks cannot defend the peg and the domestic currencies depreciate, the returns from carry trade fall (or turn in to losses), which leads to further unwinding.

## IMF POLICIES

- Following the crisis, all crisis-hit countries implemented IMF programs to recover (except Malaysia who showed IMF the door)
- First of all, IMF provided the funds so these countries could re-pay their foreign debt–no default alternative
- This itself creates a moral hazard: Financial agents who took the risk of lending to such highly-leveraged companies and banks did not suffer losses–this eliminates the self-correcting market mechanism
- In countries like Turkey, it was IMF that suggested a fixed-exchange rate stabilization programme which led to the speculative attack and devaluation
- Privatizing the gains – Socializing the losses

# Table 3. Financial and Fiscal Fragility in the Turkish Economy

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|---|---|
| *As Ratios to the GNP (%)* | | | | | | | |
| Current Account Balance | -1.4 | -1.3 | -1.4 | 1.0 | -0.7 | -4.8 | 1.4 |
| Foreign Debt Stock | 42.8 | 46.2 | 47.8 | 47.2 | 55.7 | 59.1 | 74.3 |
| Domestic Debt Stock | 14.6 | 18.8 | 21.4 | 22.5 | 29.3 | 28.7 | 68.1 |
| Budget Balance | -4.0 | -8.3 | -7.6 | -7.0 | -11.6 | -11.6[a] | -18.2[a] |
| Non-Interest (Primary) Budget | 3.4 | 1.7 | 0.1 | 4.7 | 2.1 | 4.2 | 5.1 |
| Public Sector Borrowing Req. | 5.2 | 8.8 | 7.6 | 9.2 | 15.1 | 12.5 | 15.4 |
| *Fragility Indicators* | | | | | | | |
| Short Term Foreign Debt / CB International Reserves (%) | 128.7 | 104.2 | 95.1 | 105.4 | 98.9 | 127.6 | 85.9 |
| M2Y / CB Inter. Reserves (%) | 354.0 | 314.1 | 287.8 | 321.8 | 329.4 | 381.4 | 380.6 |
| Currency Substitution[b] | 54.8 | 50.9 | 48.6 | 45.1 | 45.2 | 44.1 | 56.2 |
| Interest Paym. on Dom. Debt / Total Tax Revenues (%) | 43.9 | 59.2 | 41.7 | 61.0 | 66.4 | 63.7 | 103.4 |
| Interest Paym. on Dom. Debt / Net New Dom. Borrowing (%) | 93.7 | 83.1 | 63.5 | 97.9 | 87.5 | 137.8 | 47.2 |
| Net New Dom. Borrowing / Domestic Debt Stock (%) | 52.4 | 57.8 | 52.4 | 49.5 | 49.3 | 37.1 | 70.2 |

*Sources:* SPO *Main Economic Indicators* ; Undersecreteriat of Treasury, *Main Economic Indicators;*

a. Exclusive of transfers from the CB, interest revenues and privatization receipts.

b. (Rate of Dollarization): Ratio of foreign exchange deposits to total deposits of residents.

- Further, IMF policies are always the same recipe: Cuts in government spending, high taxes, high interest rates and further liberalization of the economy (compare these with the initial responses to the Credit Crunch in the U.S, Europe and U.K)
- This is the uniform policy of IMF for all crisis
- The same policies were implemented in Asia (Korea, Indonesia, Thailand)
- However, they simply aggravated the crisis rather than solving it
- Most Asian governments were already running either surpluses or minor deficits, debt/GDP ratios were already low

- Cuts in government spending and increase in taxes dampen the already-fallen domestic demand.
- High interest rates make it impossible for highly leveraged but profitable firms to borrow and re-finance. IMF urged that these companies are allowed to fail or be sold at very low prices.
- A wider opening of the capital account with no controls is like throwing wood into the fire!
- The result was an economy even more exposed to the mercy of financial inflows

- The “structural” reforms dictated by the IMF resulted in heavily indebted households after the crisis.
- Finally, the IMF policies caused a massive shift in the ownership of economic resources in Asia, as foreign investors purchased troubled firms at very low prices (see Crotty and Wade on this)
- In short, the Asian Crisis caused a massive transformation (or rather a completion of the transition that started in early 1990s) of Asian economies. A similar dynamic can also be observed in the experiences of other emerging market economies following speculative attacks