

Anatomy of the East Asian Financial Crisis

by

Jiangning Ma

(Student No. 2626518)

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Supervisor: Professor **Marcel Mérette**

ECO 7997

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ABSTRACT

The suddenness and harshness of the East Asian financial crisis in 1997 and 1998 have drawn enormous attention from many economists and international organizations. This paper provides an analytical framework that uncovers the turnaround in East Asia's economic fate from the so-called "The East Asian Miracle" to an unexpected large-scale financial crisis. The main goal is to identify the underlying roots of the East Asian financial crisis and thus to draw lessons from its causes. The paper starts with an overview on East Asia's past economic record and the evolution of the crisis. After examining the warnings and signals of East Asia's deteriorating economic fundamentals before the crisis, the paper investigates the reasons of the crisis by analyzing four related issues: exchange rate regime choices, capital account liberalisation, the "fundamentalist" view and the "self-fulfilling" view. Based upon the empirical results from the "Early Warning System" model, the paper concludes that weak economic fundamentals played a major role on the explosion of the East Asian financial crisis. However, the market panic did aggravate such economic vulnerability and turned it into a severe regional crisis through the channels of inappropriate exchange rate regimes and the liberalised capital markets.

Key words: East Asian financial crisis; causes

1. INTRODUCTION

Built up from World War II's trauma, East Asia has carried out a series of effective economic reforms and averaged nearly double digit growth rates during past several decades. It created a world economic miracle with great improvement in regional living standards. From 1975 to 1995, the poverty number in East Asia dropped significantly from 720 million to 350 million (World Bank, 1998). During the same period, the percentage of total regional population below the poverty line was reduced from almost 60 percent to around 20 percent. The dynamic and healthy economic development has attracted large-scale foreign capital and technological investments into this region. It was hoped that a virtuous development cycle would emerge in East Asia.

However, an astonishingly severe financial crisis was quietly approaching. Five years have passed since the nightmare of the East Asian financial crisis¹ started in July 1997 with the sudden devaluation of Thai baht. Global investors were sensitive and risk averse to the economic downturn. East Asia was not an exception, even with of economic stability records. The investors played a devastating domino game characterised by huge capital outflows from East Asia. Following Thailand's trouble, Indonesia, Malaysia, the Philippines and Korea all were pulled into this financial crisis. China's Hong Kong and Taiwan, Singapore and the mainland of China also experienced some degree of economic slowdown.

Exploding initially as a currency crisis in a single country, Thailand, within only couple of months in second half of 1997, the East Asian crisis evolved into comprehensive currency, debt and financial crises tangled together in the whole region. It not only left painful memories of economic turmoil, but also caused enormous fiscal and financial cost to rebuild shattered economies. A real output slump, corporate bankruptcies, banking system collapse, equity market shrinkage, large currency depreciation and a 20-year high unemployment rate all resulted in severe economic contraction and recession in East Asia.

¹ The subjects of the East Asian financial crisis are Thailand, Indonesia, Malaysia, the Philippines and Korea. This paper mainly focuses on these five crisis-hit economies from mid 1997 to mid 1998. Hereafter, Korea refers to the Republic of Korea, often called South Korea.

This paper proposes to uncover the turnaround in East Asia's economic fate from an admirable miracle to a formidable crisis. Because "... how one diagnoses the causes of the crisis affects what one prescribes as the cure"², the objective of the paper is to identify the underlying roots of the East Asian financial crisis and thus to draw lessons from its causes.

Section 2 reviews past East Asian successes to shed light on the crisis factors with the development of macroeconomic fundamentals. In section 3, I describe the whole process of crisis formation. Specifically, section 3.1 discusses early warnings from senior economists well before the crisis. In section 3.2, I examine pre-crisis signals in the deteriorating economic situation: terms of trade, current account deficits, capital inflow flood, and accumulated short-term foreign debt. Section 3.3 replays the evolution of the crisis events from the beginning of 1997 to the first half of 1998. At last, in section 3.4, I state the adverse crisis impact on global and regional economies.

After reviewing East Asian economic history and the crisis process, I analyze the roots of the East Asian financial crisis from four aspects in section 4. Section 4.1 discusses the role of exchange rate regimes in the crisis. Did East Asia choose an inappropriate exchange rate system – soft pegged to the US dollar, to invite speculative attacks on their currencies? In section 4.2, I discuss the issue of capital market liberalisation and capital controls in East Asia. One conspicuous change in East Asian economic circumstance before the crisis is the onrush of huge capital inflows into the region in the middle of 1990s. Between 1994 and 1997, short-term capital flows to East Asia alone accounted for 60 percent of that type of flow to all developing countries (World Bank, 1998). Did huge short-term foreign capital bring into East Asia rewards or risks? In section 4.3 and section 4.4, I refer to theoretical models of currency crises to anatomize the East Asian financial crisis. Is the "fundamentalist" view or the "self-fulfilling" view more suitable to explain the East Asian crisis? In which way did East Asia fail; basic structural distortions or just irrational global financial market panic? Finally, section 4.5 overviews the above four crisis explanations to sum up the research findings. Section 5 concludes the whole paper with the lessons learned from the East Asian financial crisis.

² Dr. Kurt Schuler expressed this view at the *CATO Institute Policy Forum*—"What Next for Argentina", held on February 8 2002.

2. LOOKING BACK: SUCCESSFUL EXPERIENCES

“All these countries have spent 40 years trying to build up their economies and a moron like Soros comes along.” Malaysian Prime Minister Mahathir Mohamad said on August 23 1997, placing the blame for the East Asian financial crisis on the speculative currency attack by U.S. hedge fund manager George Soros.

40 years of aspiration and efforts to escape from poverty and to catch up with western industrialised countries have created so-called “The East Asian Miracle” summarised in a World Bank 1993’s publication. Compared to the industrialised countries, East Asian countries took much less time to achieve the goal of doubling their income per capita as reported in Table 1.

Table 1. The High Speed Economic Development Measured by Doubling Its Income per Capita

Country	Years to double its income per capita	Starting year
United Kingdom	58	1780
United States	47	1839
Japan	35	1885
Korea	11	1966
China	10	1977

Source: Frankel (1998).

Before the mid-1997 crisis, East Asia had drawn great attention from the world for its decades of sound regional economic performance and sustained high rate of economic growth. According to the World Bank (1993), such economic development success on a regional scale is extremely rare. Looking back on this exciting period of East Asian development is not only worthy of nostalgia, but also to shed light on the roots of the later crisis. On the one hand, high-speed economic development achieved a lot. On the other hand, due to the leaping process, it inevitably led to some unsolid economic fundamentals and structural problems.

2.1. East Asian Development Pattern – the Flying Geese Paradigm

The Flying Geese Paradigm is initiated by Akamatsu (1932) to explain the acceleration of the Japanese economy, which allowed it to catch up with Europe and America. Now this development pattern has been widely accepted as an explanation of the accelerated pace of East Asian economic development. The model has been clearly described by Ozawa (1995) and mentioned also by Rowthorn (1996) as follows,

This metaphor of a flying geese formation is popularly used to describe a regional pattern of economic development in East and South East Asia, with Japan as Asia's 'lead' goose, the NIE ... as second-rank geese, and the ASEAN-4 ... as third rank geese, and China and Vietnam (and mostly recently, India and Pakistan as possible) fourth rank geese. The dynamic growth of East and South East Asia is thus depicted as a concatenated forward march which appears well co-ordinated and functionally arranged in a flying formation of wild geese. As *The Economist* put it, 'When geese migrate, they fly in V-formation. The pattern is a favourite analogy of Japanese civil servants for the economic development of East and South East Asia...'.
(Rowthorn, 1996, page 1)

Right after the World War II and before the first oil shock, under the Bretton Woods System, the world economy returned to a fixed exchange rate centred on the US dollar. The stable exchange rate and era of peaceful development created a post-war economic golden age with the world economy growth rate at around 5 percent a year. This performance doubled the pre-World War I rate of economic growth (Eichengreen and Sussman, 2000). In the wake of Japan's economic takeoff in 1950s, Korean, Taiwan, Hong Kong and Singapore, usually referred to as "first-tier" newly industrialising economies (NIEs), worked to speed up their economic development in the mid-1960s. In the 1980s and 1990s, the world saw a second round of high performing Asian economies appearing in Indonesia, Malaysia, Thailand and the Philippines. They are classified as "second-tier" newly industrialising countries (NICs) or "ASEAN-4".

Petri (1993) mentions that East Asian miracle happened in the same geographical area and it had a contagious effect on each other. He relates this contagion hypothesis to the Japanese "flying geese" model. According to the contagion theory, East Asia's success lay in close regional contact through geographic proximity. This advantage in physical distance facilitates the regional economic integration through healthy imitation of successful policies, the spread of advanced technologies and sound business strategies and the expansion of direct intra-regional investment based on similar cultural and economic background. In section 4.4, I will revisit this contagion

hypothesis to analyze the contagious financial turmoil that spilled over East Asian economies during the period of crisis in 1997 and 1998.

2.2. Macroeconomic Stability

To keep economy developing steadily, macroeconomic stability plays a critical role to prevent the economy from becoming over hot or over cold. East Asia's good macroeconomic control was reflected in low rates of inflation compared with high growth rates and fiscal discipline. In Appendix, it is shown that after the initial economic development stage, all East Asia's high performing economies, with the exception of the Philippines, succeeded in keeping control of inflation rates to a single digit. This supports the view that East Asian governments did not monetize their economic development. They usually had medium and long-term economic plans. The success in anchoring domestic price level ensured real economic development rewards that improved the regional standards of living. Moreover, Hong Kong, Singapore and Taiwan authorities had rather austere fiscal policies. They had run budget surpluses for decades.

2.3. High Saving Rates

One impressive and common feature of East Asian economies is high saving rates. As reported in Appendix, all East Asian countries had either nearly or well over 20 percent of GDP level in domestic saving rates and kept that record throughout the economic progress. High level of saving rates is not only an exciting statistical phenomenon, but also a symptom of success. High saving rates mean that East Asian countries can accumulate physical capital effectively at home and mobilise the capital to those investment projects with the highest return.

The reasons for remarkably high saving rates in East Asian economies are largely:

- the conducive culture background in East Asia; Chinese culture and Confucian traditions have an important impact on economic behaviours at both the micro and the macro levels (Petri, 1993).
- high economic growth rates causing rapid income growth, which boosts domestic saving rates
- low inflation rate and high real interest rate

The macroeconomies of East Asia were relatively stable during the economic expansion. The low inflation rate helps realise positive real interest rate, which encourages financial savings.

- high public savings

High aggregate saving rates result not only from private saving behaviour, but also from positive government fiscal balances. In East Asia, the public sector contributes to national savings through raising taxation or cutting public expenditures. Table 2 lists public and private savings of high performing Asian economies (HPAEs)³ and other selected developing economies. In addition, except for Korea and Taiwan, which had explicit deposit insurance institutions established in the early 1980s, East Asian governments implicitly insured deposits to strengthen savers' confidence in the financial system. Usually, when a financial institution was having liquidity troubles, the government stepped in to bail it out through designing merging plans with stronger banks or directly acting as a lender of last resort. As these economies were growing rapidly, the fiscal cost of public rescue was low. World Bank (1993) estimates that the fiscal cost of public rescue in East Asia was 0.5-1 percent of GDP, while that figure was 2.3 percent in the United States, 2.5 percent in Turkey, 3 percent in the Philippines, and 26 percent in Chile.

³ World Bank (1993) defines eight economies: Japan; the "Four Tigers" – Hong Kong, the Republic of Korea, Singapore, and Taiwan; and the three newly industrialising economies (NIEs) of Southeast Asia, Indonesia, Malaysia, and Thailand as high performing Asian economies (HPAEs) based on a remarkable record of high and sustained economic growth.

Table 2. Public and Private Savings of HPAEs and Other Selected Developing Economies*(Percentage of GDP)*

Economy/Year	Public Savings	Private Savings
HPAEs		
Indonesia, 1981-1988	7.7	14.0
Japan,		
1945-1954	5.3	12.0
1955-1970	6.2	17.2
1971-1980	4.6	20.1
1981-1988	5.1	15.8
Malaysia,		
1961-1980	3.2	18.7
1981-1990	10.3	19.1
Singapore,		
1974-1980	5.5	22.6
1981-1990	18.5	24.0
Thailand,		
1980-1985	14.3	4.7
1986-1987	8.6	14.6
Other Developing Countries		
Brazil,		
1980-1985	5.1	10.5
1986-1987	6.9	12.5
Mexico, 1980-1987	4.3	17.5
Pakistan, 1980-1987	16.9	-9.7

Source: extracted from World Bank (1993), Table 5.6.

2.4. High Investment Rates

Investment rates were also high in East Asia. East Asian countries are equipped unequally in terms of initial endowments of natural resources. Some economies like Singapore and Hong Kong are poorly endowed. Others like Thailand, Malaysia and Indonesia have ample natural resources. However, both types of economies placed great importance on human capital investment. The improvement in labour quality through education pays back in absorbing technological progress to scale the economy up to a higher industrial level.

Besides labour resources, physical capital was also heavily invested in through private and public accumulation. A rapid increase in domestic savings as a share of GDP can easily channel the society's wealth into financial assets. Also, East Asian governments invested effectively in public infrastructure -- transportation, telecommunication and public housing to create a market-friendly investment environment and to accommodate a high-speed economic growth.

Investment entails risk, however, in East Asia some governments have implemented certain risk-sharing mechanisms to reduce the uncertainty associated with private investment. For instance, Korea had firms and banks work out plans to save troubled institutions; Malaysia recapitalized firms through financial repression such as keeping down real interest rate to lessen corporate borrowing costs; Korea and Taiwan used credit guarantees to foster small and medium-sized enterprise development. It is worth noting that for many targeted projects, governments' support played a critical role on investment. According to World Bank (1993), in the 1980s, Korean heavy and chemical industry projects incurred financial difficulties due to severe excess capacity. Korean government injected new and subsidised bank loans, amounting to about 16 percent of commercial bank loans, to 78 distressed firms. It also helped those firms reschedule their outstanding loans.

Government involvement in business can help companies get through difficult times, but it also results in highly leveraged companies⁴ and moral hazard problems⁵, which planted dangerous seeds for the later financial crisis.

2.5. Outward Orientation Policy

East Asia's success was appropriately switching macroeconomic direction from import-substitution to export-led growth. Export-led growth is not found only in East Asia's new industrialising economies. Europe and Japan relied on it to boost economic development in the early 1900s and 1950s. Short of natural resources, the first-tier NIEs chose an outward orientation policy to knock at the world market door. The second-tier NICs made use of their ample natural resource endowment to explore the world trade market. To facilitate export, East Asian governments carried out favourable credit, commercial, investment and trade policies to help bring the infant industries into global markets.

⁴ A leveraged company is a company that relies more on outside borrowing than on its own equity to finance its assets operation. A highly leveraged company is very likely to have financial trouble when interest rates rise or if the investment returns are low, which could not cover the borrowing cost.

⁵ According to the definition of Krugman and Obstfeld (2000), "the possibility that you will take less care to prevent an accident if you are insured against it is called moral hazard". Here, moral hazard problems refer to the excessive risk taking on investment through borrowing and lending under the implicit government bailout guarantees in East Asia.

To push export growth, East Asian countries had preferential export financing and subsidies mechanisms to ensure exporters easily access to credit. They also used tax and incentives, such as tax rebates for export goods, to help exporters. For instance, Thailand gave export-oriented firms both full tax exemptions on imported machinery, equipment, and raw materials. Thailand also refunded all taxes related to the production for export.

East Asian countries welcome foreign direct investment (FDI), especially export-oriented FDI. FDI not only brings advanced technology and management experience, but also creates more export and employment opportunities. In Malaysia, during the 1983-1985 period, FDI approvals averaged US\$300 million per year. By 1988, the total approvals on FDI rose sharply to US\$2 billion in Malaysia. The policy of attracting FDI in East Asia has brought rewards since 1970s. For instance, Malaysia has become the world's third largest producer of semiconductors and its net exported semiconductors amounted to US\$3 billion in 1986. In Thailand, FDI jumped by a tremendous 41 times from 1970 to 1988. The average export propensity of foreign firms in Thailand went up from 10 percent in 1971 to more than 50 percent in 1988.

After the liquidation of Sterling Area in 1971 and the collapse of Bretton Woods System in the early 1970s, most of East Asian economies chose soft peg⁶ to the US dollar as their foreign exchange rate arrangement. A fixed exchange rate effectively anchored domestic inflation rate and also facilitated regional trade and investment growth. Although Japan is an important economic force in Asia, the Japanese yen has not become a key pegging currency in Asia as the US dollar is to America and the Deutschmark to Europe. The reasons are mainly as follows:

- (1) The U.S. is the most important export market for East Asia.
- (2) The political and military power of the U.S. keeps its dollar creditworthiness as an international currency (Kwan, 1998).
- (3) The open and well-developed dollar-based American financial market ensures convenient, low cost and low risk currency exchanges (Kwan, 1998).

⁶ Soft peg exchange rate system is also called a fixed-but-adjustable exchange rate regime. It is different from hard peg system, such as currency board regime. For the real fixed exchange rate regime, "We use the terms fixed or pegged exchange rate to refer to any system in which a monetary authority announces buying and selling rates for its currency in terms of a foreign currency and promises to trade in unlimited amounts at that rate." (Obstfeld and Rogoff, 1995).

(4) East Asian countries want to build up investors' confidence towards their currencies by pegging to an international currency, US dollar. Although Japan is the world's second-largest economic power, only 5 percent of international transactions use the Japanese yen as a settlement currency (US dollar settlement accounting for 48 percent) as of 1997.

(5) East Asia's historical experience of Japanese colonialism has led to resistance to the idea of forming a yen-bloc under the sole leadership of Japan (Kim, 1994).

However, following its economic progress, Japan has become its primary source of imports and principal supplier of capital. It thus might be more suitable for East Asian countries to consider putting more weight on the Japanese yen in their currency baskets.

2.6. Asian Economic Miracle: Yes or No? – Total Factor Productivity Debate

Between 1960 and 1985, Hong Kong, Korea, Singapore and Taiwan increased their real income per capita more than four times, while Indonesia, Malaysia and Thailand realised their goal of doubling real income per capita. Which force created this economic achievement? Did investment increase or productivity improvement drive the East Asian economic miracle?

According to a World Bank (1993) study of eight high performing Asian economies (HPAEs)⁷, the accumulation of physical and human capital, initial income levels and population growth accounted for between 60 percent and 90 percent of the remarkable economic growth rate in the HPAEs, except for Hong Kong (44 percent). So a large part of East Asian growth is investment-driven.

To assess growth in productivity, World Bank (1993) examines total factor productivity (TFP) and its growth rate. TFP measures the amount of output growth after subtracting the growth due to physical capital accumulation and labour force growth. Use an international cross-economy production function:

$$Q = A F(K, E, L),$$

where A is total factor productivity, K represents physical capital, E measures human capital endowments and L represents labour services in natural units. World Bank (1993) finds that East

⁷ Note HPAEs include four crisis-hit countries in the East Asian financial crisis: Thailand, Korea, Indonesia and Malaysia.

Asian economies had high absolute levels of TFP compared with eighty-seven economies. However, considering the output contributions of TFP growth, HPAEs consist of two groups: Indonesia, Malaysia and Singapore were the investment-driven economies with low TFP contribution; Japan, Korea, Hong Kong, Thailand and Taiwan were the productivity-driven economies with high TFP contribution. World Bank (1993) concludes “Productivity change has been higher than in other developing economies and is important to the East Asian success story. But it is not the dominant factor.” In other words, in the past decades, East Asian economies had superior rates of investment accumulation, and successfully allocated physical and human capital into high productivity activities.

Supporting the World Bank (1993) findings, Young (1994) uses the Summers and Heston (1991)⁸'s purchasing power parity data set to refute the idea that East Asian miracle was built up by extraordinarily high productivity growth under outward-oriented policies. He points out that labour force participation rates in Hong Kong, Singapore, Korea and Taiwan sharply increased after World War II. In the case of Hong Kong, between 1960 and 1985, the aggregate participation rate rose from 39 percent to 53 percent. For the capital investment factor, he looks at the investment to GDP ratio. He finds that between 1960 and 1980, Taiwan, Korea and Singapore respectively doubled, tripled and quadrupled their investment-to-GDP ratios. He concludes that East Asian economic growth gained much from rapid factor accumulation and good sector resource reallocation, rather than on the improvement of real total factor productivity. By this token, East Asia's success is not a miracle based on productivity improvement.

3. FACING THE CRISIS: UNEXPECTED NIGHTMARE

The salient feature of East Asian financial crisis is its suddenness and unexpectedness. Except for few warnings before the crisis, nearly all people and organisations did not anticipate such a harsh crisis happening in East Asia given the previous sound economic fundamentals. Was the East Asian financial crisis an unfortunate economic accident? Or could we find out some clues of the crisis elements before the crisis? This section tries to answer these questions with the benefit of hindsight. Furthermore, this section reviews the events happening during the pre-crisis, crisis and

⁸ For more details, see Summers, Robert and Heston, Alan (1991), The Penn World Table (mark 5): an expanded set of international comparisons, 1950—1988, *Quarterly Journal of Economics* 106, May, pp. 327-368.

post-crisis periods. The objective of this section is to help readers understand how a healthy regional economy developed to a troubled crisis playground.

3.1. Warnings before the Crisis

---- Warning I: Prediction of East Asian Economic Slowdown

As early as in 1994, the economist Krugman stated that East Asian did not create a real economic miracle, which would have been based on large productivity improvements. He predicted that the superior economic growth in East Asia was doomed to become a drastic slowdown due to diminishing returns. Krugman (1994) shares with Young (1994) the same idea that after taking into account rapid investment in inputs, the East Asian growth rate in output was unimpressive.

And yet there are surprising similarities. The newly industrialising countries of Asia, like the Soviet Union of the 1950s, have achieved rapid growth in large part through an astonishing mobilisation of resources. Once one accounts for the role of rapidly growing inputs in these countries' growth, one finds little left to explain, Asian growth, like that of the Soviet Union in its high-growth era, seems to be driven by extraordinary growth inputs like labour and capital rather than by gains in efficiency.

(Krugman, 1994, page 70)

Krugman emphasizes that economic expansion based on input growth rather than improved productivity would suffer diminishing returns. His rationale rests on two points. First, there are two sources of economic expansion: increase in input factors and increase in the output per unit of input. According to economic growth accounting, increase in the output per unit of input is the only force which can push an economy to achieve sustained growth in a nation's per capita income.

Second, economic expansion built up from input-driven growth has a limit and will eventually have diminishing returns. Krugman (1994) illustrates this idea by using the Singapore case to generalise East Asian economic prospect. Between 1966 and 1990, at a rate of 8.5 percent per annum, the economy of Singapore developed three times as fast as that of the United States. During the same period, its employed people of the total population nearly doubled from 27 percent to 51 percent. The educational level of the working force improved remarkably in Singapore: in 1966, more than 50 percent of the workers had not received formal education; by 1990, about 66 percent of the workers had secondary education background. This was a great leap

in the country's comprehensive education qualification. But it was also a one-time input factor improvement; Singapore's education achievement cannot be repeated. Krugman (1994) points out that the prospect of most Singaporeans holding Ph.D. degree is unlikely. Moreover, a significant increase from current outstanding 40 percent investment as a share of output to a crazy 70 percent share in the future is also unlikely.

Since East Asia's high employment growth and high capital investment are eventually subject to decline, the economic growth rate will slow down if these countries cannot increase their output per unit of input to explore productivity efficiency. Empirical results obtained by Kim and Lau⁹ confirms "the hypothesis that there has been no technical progress during the post-war period cannot be rejected for the four East Asian newly industrialised countries¹⁰". Young (1994)'s study also shows that the productivity performance of the four Asian countries is not impressive after accounting for the rapid growth of inputs.

In the 1990s, the East Asian "Tigers"¹¹ increased their overseas capital investment. Krugman (1994) argues that since they still have wage competitiveness compared to more advanced countries, they could get high investment returns domestically. The capital outflow certified that they had started to experience diminishing capital returns at home based on input-driven growth. Krugman (1994) concludes with the prediction that the development of the East Asian input-driven economies will slow down. Although it was just a warning of economic growth slowdown, it was an important reminder that the world should not be over-optimistic by expecting high investment returns from East Asia forever. In fact, the financial markets largely ignored Krugman's warning. The overseas capital still poured into East Asia, driving a consumption and investment boom in 1995 and 1996. Most of East Asian economies showed up large current accounts deficits in 1996. When East Asia dramatically slowed down its economic pace in 1996 and 1997, the deterioration of current accounts deficits was unsustainable, followed by the massive reversal of global capital inflows.

⁹ See two papers by Lawrence Lau and Jong-IL Kim, "The sources of growth of the East Asian newly industrialised countries", *Journal of the Japanese and International Economies*, 1994, 8, pp. 235-271. and "The role of human capital in the economic growth of the East Asian newly industrialised countries", mimeo, Stanford University, 1993.

¹⁰ Kim and Lau's empirical test focuses on Hong Kong, Singapore, Korea, and Taiwan.

¹¹ East Asian "Tigers" refer to Hong Kong, Singapore, Korea, and Taiwan.

---- Warning II: Expecting Pressure on Fixed Exchange Rates

Most of East Asian economies adopted an adjustable fixed exchange rate pegged to the US dollar before the crisis. Obstfeld and Rogoff (1995) discuss the technical feasibility of fixed exchange rate regime under today's global integrated capital markets. They notice that only small numbers of economies successfully kept their exchange rates within stringent ± 2 percent bands with open capital markets for five years or more. Table 3 summarizes their results as follows,

Table 3. Countries That Have Maintained Fixed Exchange Rates for Five Years or More

Country	<u>Major economies with open capital markets</u>		
	Fixed against	Fixed since ($\pm 2\%$ bands)	Fixed since ($\pm 1\%$ bands)
Austria	German mark	Sept 1979	Jan 1990
Hong Kong	US dollar	Oct 1983	Oct 1983
Luxembourg	Belgian franc	1945	1945
The Netherlands	German mark	March 1983	Aug 1992
Saudi Arabia	US dollar	March 1985	June 1986
Thailand	US dollar	July 1990	March 1994

Source: Obstfeld and Rogoff (1995), Table 2.

They mention that Thailand had pegged the US dollar with a broader band since 1984 and within ± 2.5 percent band since January 1987. Although Hong Kong and Thailand had had stable pegging records for more than 10 years under a fixed exchange rate system, Obstfeld and Rogoff (1995) point out some vulnerability in the fixed parities for these two economies. In the case of Thailand, they note the currency mismatch between Thailand's increasing yen-based trading and its baht-dollar close pegging. Since Hong Kong faced an uncertain political future after reverting to Chinese political control in July 1997, they are concerned that Hong Kong could become a "prominent target" for a speculative currency attack.

A basic implication of this literature is that governments that are unable to make credibly binding promises about the exchange rate will be tempted to validate a skeptical market's depreciation expectations.

(Obstfeld and Rogoff, 1995, page 81)

Obstfeld and Rogoff (1995) explicitly express that there is no guarantee these fixed rates will remain valid in the near future.

The 1997 summer's crisis warranted Obstfeld and Rogoff (1995)'s concern. The crisis first exploded in Thailand under a severe speculative attack on the Thai baht. Thai central bank had to let baht float, which triggered the East Asian financial crisis. Hong Kong dollar also underwent a speculative attack at the exchange market in 1997.

---- Warning III: Prediction of an Upcoming Financial Crisis

Before East Asian financial crisis, a prediction of an upcoming regional crisis in East Asia could not be credible based on the past economic booms in East Asia. Even though few economists held pessimistic views on the future of East Asia before the crisis, Park (1996) explicitly anticipates the possibility of regional financial crisis caused by speculative currency attacks in East Asia.

East Asia experienced a net inflow of US\$261 billion foreign capital during the period 1990-1994. 24 percent of this inflow was foreign portfolio investment, three times the amount observed during the period between 1983 and 1989. Foreign capital was attracted by East Asia's rapid economic growth, regional stability, and high rates of capital return, stable nominal exchange rate, positive interest rate differentials, regional ambitious investment demand and the liberalisation of capital market. Park (1996) warns that large part of the massive inflow of foreign capital had the nature of speculation, volatile over the short-term. He worries that under open capital market in East Asia, such large amount of capital inflows, especially in the form of portfolio investment, could be withdrawn from the market altogether without forewarning. Meanwhile, he expresses concern that the financial liberalisation in East Asia may increase the regional vulnerability to speculative attack and the threat of financial crisis in the whole region.

Park (1996) notices that the greater part of foreign capital inflow has been properly channelled to finance investment projects in East Asia. According to national economic accounting, saving equals investment plus current account balance, that is, $S = I + CA$. As the regional saving rates were relatively stable and investment rose sharply, especially Malaysia, Thailand, Indonesia and Korea were showing the deterioration in current account. Current account deficits as a share of GDP were 2 percent in Korea and 10 percent in Malaysia during the period 1990-1995. He views the rise of current account deficits as an alarm bell. He predicts that if the foreign investors expect

increasing current account deficits, they will withdraw their investment and this would trigger a contagious financial crisis in East Asia.

Following a huge foreign capital inflow, the pressure on domestic currencies was to appreciate. Under a fixed exchange rate regime, in order to stabilise domestic currency exchange rate from appreciation, the authorities used domestic currency to buy foreign currency in the foreign exchange market. Through this intervention process, the monetary authorities actually injected more money into domestic circulation. To keep the money supply stable, the authorities carried out open market sales of government bonds to collect excess liquidity. This reduced the money supply and pushed interest rate up. The higher interest rate attracted more capital inflows. Park considers that if international investors believe the currency would be imminently devaluated, the market would collapse with capital flight.

Given the above perils, Park (1996) urgently suggests multilateral co-ordination in control of speculative capital movement in East Asia. He recommends that East Asia follows the IMF's measures to control the volume and characteristics of capital inflow, such as tax on short-term financial assets transactions, reserve requirement on foreign debts, restrictions on offshore bank loans and on consumption loans. At last, he emphasizes that no effective financial mechanisms existed in East Asia to protect the regional economy from a contagious effect if a financial crisis occurs in one of the member countries. Only after one year, Park (1996)'s prediction became true. It was pity that Park's warning did not gain enough attention from East Asian governments.

3.2. Signals before the Crisis

After the rapid development of the 1980's, East Asia made significant economic achievements. With increasingly declining labour cost comparative advantage over China, Vietnam and India, many East Asian economies started to transform their labour-intensive export and resource-based economies to capital-intensive and skills-intensive economies in the 1990s. Most East Asian economies explored global electronics and semi-conductor markets. This rapid economic structural transformation brought new challenges and new opportunities from a globally integrated economic and financial liberalization.

The 1997-1998 East Asian financial crisis gave the world an unexpected shock. The severe downturn shattered decades of rapid East Asian growth. In retrospect, something special occurred

in the middle of 1990s, especially in 1996 in East Asia. Some governments had noticed those vulnerabilities in their economies, such as short-term foreign debts and financial sector problems, and prepared to make plans to cure them.

The markets were ruthless. After noticing the regional economic problems of East Asia, global investors lost their confidence and suddenly pulled back their capital. The crisis broke out. Those problems were in fact present before. But they were overshadowed by the past excellent economic performance in East Asia. That is why some economists call East Asian crisis a "Crisis of Success". The following sections examine the early economic pressures, which built up to the explosion of the later crisis.

3.2.1. Terms of Trade Deterioration and Current Account Deficits

East Asian economies rely heavily on outward-oriented development. Exports were used as an engine to power economic growth. Meanwhile, East Asian open economies were strongly affected by the world trade market shock. Export growth, especially merchandise exports, slowed drastically in East Asian countries in 1996.

Thailand's export growth stagnated in 1996 compared with the average of 23 percent annual growth in 1994 and 1995. Growth in imports declined from 31.6 percent in 1995 to 4.1 percent in 1996. Trade deficit widened from US\$8 billion in 1995 to US\$10.5 billion in 1996. The current account deficits were US\$14.5 billion, accounting for 8.1 percent of GNP in 1996. In Malaysia, the merchandise exports dropped sharply from 29.4 percent growth rate in 1995 and 28.1 percent in 1994 to only 4.0 percent growth in 1996. Imports also shrank from 29.4 percent growth in 1995 to 1.3 percent in 1996. The current account was in deficit at 6.3 percent of GNP, with US\$5.9 billion in 1996.

Similarly, the severe contraction in the export sector was unexpected in Korea. Growth in merchandise exports fell to 4.1 percent in 1996 from the significant level of 31.5 percent in 1995. The current account balance rose up to 4.9 percent of GNP at US\$23.7 billion in 1996. In the Philippines, export growth slowed down from 29.4 percent in 1995 to 17.5 percent in 1996. Indonesia's export growth dropped from 13.1 percent in 1995 to 8.8 percent in 1996.

The collective slowing of export growth in East Asian countries mainly resulted from a steep drop in global semiconductor prices and real appreciation of home currency. Since the import price index stayed relatively stable, the East Asian countries experienced deterioration in the terms of trade and worsened their current account balances¹².

The weak global semiconductor price was the result of industry overcapacity. During the 1992 – 1995 period, personal computer market grew rapidly, and many new e-commerce businesses started up were introduced. Semiconductor chip manufacturers, including those in East Asia, invested heavily in the plant capacity between 1994 and 1997 and tried to capture the potential market. World production volume in semiconductor industry rose sharply in 1990s. Worldwide semiconductor sales jumped from US\$62.3 billion in 1992 to US\$104.6 in 1994. For example, in the Philippines, electronics products accounted for more than 50 percent of manufacture exports in 1996.

Meanwhile, technology was updated to produce “better, faster and cheaper” semiconductor products. Industry overcapacity caused weak semiconductor chip pricing. From 1995 to 1996, semiconductor chip prices fell about 20 percent. Global sales went from US\$144.4 billion in 1995 to US\$132 billion in 1996. The dual effects of price reduction and sluggish sales volume hit East Asian export industry heavily. As one of the world’s major semiconductor producers, Korea’s semiconductor exports contracted by about 20 percent in 1996, after a 70 percent growth rate in 1995.

Another major cause of poor export performance in East Asia is related to real exchange rate appreciation. Most of East Asian countries pegged their currencies to the US dollar. However, many of Japan’s manufacturing products compete with those from East Asia, especially in the electronics and semiconductor markets. So the fluctuation of Japanese yen against US dollar is very critical to the relative price competitiveness of East Asian countries’ exports. In the 1990s, due to the Japanese bubble economy, the price of yen fluctuated wildly. From 1990 to 1995, the yen sharply appreciated in nominal terms from 144.79 yen per dollar to 94.06 yen per dollar. This created a golden period for East Asian countries to expand their export industries. However, based

¹² Current account balance records the difference between a country’s exports and imports of goods and services. When its imports are more than its exports, the country has a current account deficit.

on an average GDP growth rate of close to zero in 1992-1995, Japanese government started to implement loose fiscal and monetary policies to stimulate economic growth. Strong depreciation of the yen followed. According to IMF (1997) data, the real effective exchange rate of Japanese yen against US dollar depreciated significantly by 16 percent between 1995 and 1996¹³. Because of the practice of pegging to the US dollar, most East Asian countries saw their currency appreciate in real terms against the Japanese yen, which eroded the competitiveness of their export prices.

3.2.2. Capital Flooded into East Asian Economies

As East Asian countries experienced growing current account deficits, their capital accounts bulged in mid 1990s. According to the principles of international economics, the balance of payments accounts include the current account and the capital account. The capital account records international transactions of purchases or sales of financial assets.

A current account deficit means that a country consumes more foreign goods and services than it provides to the rest of the world. The difference must be financed by selling domestic assets to the foreign countries in the future. It is similar to “exporting” assets, so it invites capital inflows to finance the current account deficits. The capital inflows are recorded as capital account surplus. Capital inflows take two forms to finance the current account deficits: debt financing or equity financing. Debt financing includes bond financing, commercial bank lending and official lending. Equity financing consists of foreign direct investment and portfolio purchasing of stock shares of firms. Compared to equity financing, debt financing is stricter with foreign obligations and more vulnerable to the possibility of a lending crisis.

Table 4 shows the trend of capital flows into selected Asian economies. Between 1990 and 1996, capital inflows into East Asian countries on average accounted for over 6 percent of their GDP.

¹³ The IMF index dropped down from 148.1 in 1995 to 124.4 in 1996 based on 100 index number in 1990.

Table 4. Selected Asian Economies: Capital Flows (1) *(in percent of GDP)*

	1983 to 1988(2)	1989 to 1995(2)	1991	1992	1993	1994	1995	1996
Indonesia								
Net private capital flow	1.5	4.2	4.6	2.5	3.1	3.9	6.2	6.3
Net direct investment	0.4	1.3	1.2	1.2	1.2	1.4	2.3	2.8
Net portfolio investment	0.1	0.4	...	...	1.1	0.6	0.7	0.8
Korea								
Net private capital flow	-1.1	2.1	2.2	2.4	1.6	3.1	3.9	4.9
Net direct investment	0.2	-0.1	-0.1	-0.2	-0.2	-0.3	-0.4	-0.4
Net portfolio investment	0.3	1.4	1.1	1.9	3.2	1.8	1.9	2.3
Malaysia								
Net private capital flow	3.1	8.8	11.2	15.1	17.4	1.5	8.8	9.6
Net direct investment	2.3	6.5	8.3	8.9	7.8	5.7	4.8	5.1
Net portfolio investment	...	...	...	...	...	...	...	...
Philippines								
Net private capital flow	-2.0	2.7	1.6	2.0	2.6	5.0	4.6	9.8
Net direct investment	0.7	1.6	1.2	1.3	1.6	2.0	1.8	1.6
Net portfolio investment	...	0.2	0.3	0.1	-0.1	0.4	0.3	-0.2
Singapore								
Net private capital flow	5.0	3.8	1.7	-2.7	9.4	2.5	1.3	-10.1
Net direct investment	8.7	6.0	8.8	2.1	5.5	4.8	4.9	4.3
Net portfolio investment	-0.5	0.1	-2.1	3.3	0.5	1.1	0.9	-16.2
Taiwan								
Net private capital flow	0.2	-4.0	-1.2	-3.2	-2.1	-0.6	-3.6	-3.2
Net direct investment	-0.2	-1.2	-0.3	-0.5	-0.7	-0.5	-0.4	-0.7
Net portfolio investment	-0.3	...	...	0.2	0.5	0.4	0.2	-0.4
Thailand								
Net private capital flow	3.1	10.2	10.7	8.7	8.4	8.6	12.7	9.3
Net direct investment	0.8	1.5	1.5	1.4	1.1	0.7	0.7	0.9
Net portfolio investment	0.7	1.3	...	0.5	3.2	0.9	1.9	0.6

Source: IMF, World Economic Outlook, Interim Assessment, December 1997, Table 1.

... means data unavailable

(1) Net capital flows comprise net direct investment, net portfolio investment, and other long- and short-term net investment flows, including official and private borrowing.

(2) Annual averages

From 1991 to 1996, Thailand's net private capital inflows rose to roughly 10 percent of the GDP compared with an average of only 3.1 percent per year between 1983 and 1988. In 1995, the figure in Thailand was as high as 12.7 percent of GDP. Most of those inflows were in the form of bank and financial institution borrowings. Those forms of inflow were facilitated by the deregulation of financial markets in Thailand. On September 16 1992, Bangkok International Banking Facilities

was founded to permit offshore lending and cross-currency local lending and business transactions. In Indonesia, the net private capital inflows went from 4.6 percent of the GDP in 1991 to 6.3 percent in 1996. Private corporations undertook the largest part of foreign borrowing through domestic banking facilities.

As the result of large foreign capital inflows and current account deficits, real exchange rate in East Asian economies appreciated in the mid-1990s. Radelet and Sachs (1998a) calculate that exchange rates appreciated over 25 percent in real term between 1990 and 1997 in Indonesia, Malaysia, the Philippines and Thailand. This appreciation was more pronounced after 1994 as the US dollar appreciated significantly against other major world currencies. With the fixed exchange rates system, several central banks intervened in the financial market to dampen the large swing on their exchange rates. This increased the level of exchange rate market uncertainty.

3.2.3. Short-term Foreign Debt Accumulated

An important factor in the unfolding of the East Asian currency crisis into a full-fledged financial crisis is debt financing, especially through short-term foreign overborrowing. In accounting theory, short-term loan is defined as the bank loan to be paid back within one year, usually in the form of three-month, six-month or one-year maturity. It is usually provided to fund temporary and short-term financial crunch for operation.

Table 5 shows that at the end of 1996, the short-term debt to international banks was US\$34.2 billion in Indonesia, US\$11.2 billion in Malaysia, US\$45.7 billion in Thailand and US\$67.5 billion in Korea. The short-term borrowings accounted for over 50 percent of East Asian countries' total outstanding foreign loans at the end of 1996.

Table 5. International Claims Held by Foreign Banks*(US\$ billion)*

Distribution by maturity and sector

	Total Outstanding	Obligations by Sectors			Short Term	Short Term Reserves	Short Term /Reserves
		Banks	Public Sector	Non-bank 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
Philippines	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		
Memo Item: Mexico							
end-1994	64.6	16.7	24.9	22.8	33.2	6.4	5.2
end-1995	57.3	11.5	23.5	22.3	26.0	17.1	1.5

Source: Radelet and Sachs (1998b), Table 5; initially from Bank for International Settlements.

Even with a high proportion of short-term loans, the debt pressure still depends on foreign currency reserves to service the forthcoming short-term debt. From table 5, it is clear that for Indonesia, Thailand and Korea, the ratio of short-term debt to foreign exchange reserves had exceeded 100 percent at the end of 1996. In the Korean case, the short-term debt was double the foreign exchange reserves.

The basic monetary data from IMF (1997) confirm that foreign assets and liabilities of commercial banks were unbalanced. As the end of 1996, in Korea the foreign liabilities accounted for 12.8 percent of GDP, whereas foreign assets were 10.1 percent of GDP in commercial bank's balance sheet. In the Philippines, these numbers were 21.9 percent and 12.5 percent respectively. The case of Thailand was even worse, with 23.3 percent of GDP as commercial banks' foreign liabilities and

only 3.4 percent of GDP as banks' foreign assets to back up those liabilities. Commercial banking in East Asia was highly leveraged.

Both the high proportion of short-term loans against foreign currency reserves and the unbalanced sheet of commercial banks were clear indicators that a liquidity crisis could occur at any moment in the region.

3.3. Replaying the Process of the Crisis

Exploding in Thailand in July 1997, East Asian financial crisis has gone on for five years. Many early details of the crisis process may have been forgotten. The purpose of this section is to replay the evolution of the crisis, and to further understand the development mechanism of the crisis.

3.3.1. Pre-crisis Signals

The seeds of the crisis were planted in the early part of 1997. On January 23, 1997, Hanbo Steel, the fifteenth largest Korean conglomerate, filed for bankruptcy with US\$6 billion in debt. Following Hanbo's collapse, Sammi Group (a small conglomerate), Jinro Group (the nineteenth largest conglomerate), the Daenong Group (the eighth midlevel conglomerate), and Kia Motors (Korea's third largest car maker) filed for bankruptcy during the first half of 1997.

Not alone did the trouble happen in the manufacturing sectors in Korea, Thailand's exchange rate market incurred heavy speculative attacks on Thai's currency baht on May 14 and 15, 1997. Thailand and Singapore jointly intervened at the exchange market to ease the baht. After a week, Finance One, Thailand's largest finance company, collapsed. In June 1997, 16 liquidated finance companies had to stop operations and prepared to submit merger or consolidation plans according to the requirements of the Thai central bank.

3.3.2. The Triggering Event of the Crisis

On June 30, 1997, Thai Prime Minister announced that the baht would not be devaluated, hoping to calm the foreign exchange market. It did not work; after only two days, the Bank of Thailand suddenly let the baht float. The baht depreciated by 15 to 20 percent in a single day. This event triggered the start of the regional financial crisis in East Asia.

The neighbouring countries in Southeast Asia faced immediate intensive depreciation pressure on their currencies. Philippine and Malaysia's central banks actively defended their currencies in the market. The intervention had little effect in the face of a fast market downturn. One week later, the Philippine central bank expanded the floating range of the peso against the dollar. In Indonesia, Jakarta widened its rupiah's moving band from 8 percent to 12 percent. About two weeks later, Malaysia and Singapore abandoned their attempt to defend their currencies and allowed Malaysia ringgit and Singapore dollar to depreciate. On August 14 1997, Indonesia abolished the target band exchange rate system and moved to a floating system.

By the end of October 1997, the currency crisis had spread from Thailand to Malaysia, the Philippines, Indonesia, Singapore, Taiwan, and Hong Kong. The contagious depreciation had grown to encompass the whole East Asian region. Hong Kong was the only market keeping the Hong Kong dollar pegged to the US dollar despite severe speculative attacks. However, Hong Kong was not immune from the poor regional situation. Hong Kong stock market suffered a more severe fall than during the 1987 stock market crash. The crisis also quickly spread across the Pacific Ocean. The Dow Jones industrial average fell nearly 10 percent in October of 1997. The stocks and currencies markets in Latin America were shaken and incurred heavy losses as a result of the effect of the East Asian crisis. The crisis continued to spread and reached Russia. Russia's central bank had to quickly raise interest rates in November and December to keep capital from fleeing the country.

3.3.3. The Crisis Deepened in Korea

In November 1997, the Southeast currency crisis deepened further and began to touch Korea. The Bank of Korea had to intervene repeatedly to prevent the Korea Won from slipping against the US dollar. Several factors caused the crisis centre to move to Korea.

Internal factors include trade deficit, corporate bankruptcy, dwindling foreign currency reserves and uncertain political situation. Since 1996, Korea had experienced a high trade deficit, up to 4.36 percent of GDP. Eight of the country's 30 largest conglomerates went bankrupt between the beginning of 1997 and November 11, 1997. This worsened the domestic financial system. The Bank of Korea left insufficient foreign reserves to deal with currency intervention and had to be the lender of last resort for many troubled manufacturing firms at the same time. The foreign currency reserves were estimated at only US\$30.05 billion at the end of October 1997. A presidential

election was scheduled for December 18 1997. The uncertain political situation aggravated the economic turmoil.

External factors are the depreciation of Japanese yen against US dollar, Southeast Asian crisis shock, and the downgrade of Korea foreign debt rating. A strong upward trend of the US dollar against the Japanese yen pushed the Korea Won to depreciate. Korea and Japan are the two most closely linked Asian economies in terms of trade competition. Over 50 percent Korea exports compete directly with Japanese electronics, semiconductors, steel, chemicals and automobiles products. A weak Japanese yen threatens Korean export sector competitiveness. The market expected a similar downward in the exchange rate of the Korea Won following the Japanese yen depreciation against the US dollar. Moreover, the shock of the Southeast Asian crisis had moved into Korea market and eroded domestic and foreign investors' confidence. International ratings agencies downgraded Korea's foreign debts. They reported that around 80 percent of Korea's total US\$100 billion foreign debt were short-term.

On November 17 1997, the Korea Won without the central bank's support broke the psychological 1,000/dollar barrier. The crisis swept the East Asian region through currency depreciation and ongoing trade price war. Especially for Korea's exporters, as the foreign debt deadline was approaching, they were forced to cut prices to obtain all-important foreign currency. By December 11 1997, the Korea Won had depreciated to half of its value against the US dollar in the year 1997. Meanwhile, Standard Poor's sharply downgraded Korea's long-term foreign currency loans from A-minus to BBB-minus. On December 16 1997, Korea government abolished the daily 10 percent fluctuation currency band and let the currency Won float against the US dollar. The Won depreciated significantly and immediately against the US dollar. Again, Standard Poor's reduced Korea's long-term and short-term foreign currency ratings from investment grade to junk bond status. International lenders were reluctant to roll over Korea's around US\$80 billion short-term loans on December 23 1997. Korea faced a US\$15 billion debt payment due by December 31 1997, an additional US\$15 billion due by January 1998, and another estimated US\$20 billion debt due by February and March 1998. In an interview, new President Kim Dae-Jung admitted to worry about the possibility of the country going bankrupt.

Korea's currency crisis, with potential debt and financial crises on their way, drew special attention from the IMF and G7 countries. After all, Korea is the world's 11th largest economy. The size and

impact of its economy is greater than Thailand, Indonesia and Malaysia put together. In the early December 1997, the market got some positive news as the IMF announced a record-breaking US\$57 billion bailout for Korea. Up to that time, IMF had promised to provide rescue packages of US\$17.2 billion to Thailand and US\$40 billion to Indonesia to prevent an escalating crisis in the region.

On the Christmas eve, 1997, the IMF, the United States, and 12 industrialised countries gave US\$10 billion to help Korea to get through its December 31 debt obligation. On December 30 1997, as requested by the IMF on a volunteering basis, the world's major bankers worked together to reschedule Korea's debts. On January 16, 1998, international lenders officially signed a loan rollover plan on Korea's short-term debt to extend it to March 31 1998. After two months of effort, on January 29 1998, Korea had a preliminary plan to solve the liquidity crisis. Global creditors agreed to exchange about US\$24 billion in short-term debt to government-guaranteed loans with maturities of one to three years. On February 18 1998, Standard Poor's upgraded Korea's debt ratings. It gave a strong boost to the domestic stock market.

3.3.4. Indonesia, a New Round of Crisis in the Political and Economic Climate

Indonesia, the fourth most populous nation in the world, faced a new round of market pressure as a result of its political and economical situation at the second half of 1997. Domestically, Indonesia was facing natural disaster in the form of drought. Food prices inflated. President Suharto expressed the desire to run for the March Presidential election and to get a seventh five-year term. Internationally, Moody's Investor Service lowered Indonesian debt rating to a junk rating at the end of December 1997. Standard Poor's downgraded Indonesia's sovereign rating. The IMF put the blame on Indonesia for failing to carry out effective economic reforms¹⁴ to meet the conditions of US\$40 billion financial aid package. The IMF, the United States, and other industrialised countries strongly opposed the proposal of a currency board to fix the value of Indonesia rupiah at 5,000 US dollars as suggested by President Suharto. The IMF threatened to suspend the rescue program if Indonesia insisted on conducting a currency board exchange rate system.

¹⁴ In order to avoid further capital outflows and to restore market confidence and exchange rate value, the IMF's rescue programs in East Asia mainly focused on the defence of the exchange rates, the reform of the banking sectors and the service of private foreign debt. The key policy procedures included raising interest rates, contracting domestic credits, immediate bank closures and tight fiscal discipline.

Between July 1997 and early 1998, Indonesia rupiah lost more than 80 percent of its value against US dollar, from a 2,400 to a 15,000 per dollar level. Indonesia also suffered corporate overseas debt and bank liquidity problems (estimated at US\$66 billion). On February 22 1998, Indonesia abandoned its currency board proposal under heavy pressure from the United States, other G7 countries, and the IMF. In early March of 1998, Indonesian economy was close to hyperinflation chaos for the first time since the mid-1960s. Official statistics showed that food prices rose 16.07 percent and housing 10.03 percent in February. The month-to-month inflation rate doubled to 12.76 percent between January and February 1998.

On March 10, President Suharto was re-elected President of Indonesian. In mid May, social unrest, escalating inflation rates, higher interest rate, a weak rupiah, high unemployment rates and corporate bankruptcy characterised the Indonesian domestic situation. Three months of protests calling for political reform and the resignation of Suharto, who was thought to be responsible for the miserable Indonesia situation. On May 21 1998, President Suharto resigned. Vice President Habibie took over the position.

3.3.5 Neighbouring Countries' Facing Pressures

With their currencies depreciated drastically, most East Asian countries experienced growing foreign debt and collapsing financial system. The market was concerned that Asian currency crisis would develop into an Asian debt crisis.

On November 24 1997, Japan's fourth largest brokerage, Yamaichi Securities, had to close after being in business for 100 years, in debt for 3 trillion yen (US\$23.6 billion). The market panicked. The health of the whole East Asian financial system began to be seriously questioned. Later on, Japan's Economic Planning Agency declared in a monthly report that the Japanese economy was stagnant, the first time the Agency used those terms since January 1975. On January 12 1998, Hong Kong's big investment bank, Peregrine Investments Holdings Ltd. filed for liquidation. It reported that its failure was caused by its capital investment loss from projects in Indonesia. Meanwhile, Malaysia's central bank disclosed that two of the top ten banks and two finance companies needed billions of Malaysia ringitt capital injection.

3.4. The Harmed Economies after the Crisis

3.4.1. Global Economy

After the “tequila crisis” of 1994-1995 from Mexico to Latin American countries, the world economic performance in terms of world output dropped from 4.0 percent annual growth rate in 1994 down to 3.7 percent in 1995. The impact of East Asian crisis of 1997-1998 on the world economy was greater than that of the “tequila crisis”. It dragged world output from 4.2 percent annual growth rate in 1997 sharply down to 2.8 percent growth rate in 1998 and 3.6 percent in 1999. Only in 2000, the world output recovered back to 1996’s level at over 4.0 percent growth rate.

As East Asia is an important world trade area, the crisis also pulled down world trade volume in goods and services from 10.5 percent annual growth in 1997 to only 4.2 percent growth rate in 1998 and 5.3 percent in 1999.

3.4.2. East Asian Regional Economy

From 1997 to 1998, even till 1999, most of East Asian economy experienced a large fall in the real GDP growth rate. Table 6 reports this plummet. Except Taiwan, the other seven East Asian economies all registered negative growth rate of real GDP in 1998.

Table 6. Real GDP (annual percentage change)

Real GDP	Ten-year averages								
	1984-1993	1994	1995	1996	1997	1998	1999	2000	
Korea	8.2	8.3	8.9	6.8	5	-6.7	10.9	9.3	
Taiwan	8.3	7.1	6.4	6.1	6.7	4.6	5.4	5.9	
Hong Kong, SAR	6.5	5.4	3.9	4.5	5	-5.3	3	10.5	
Singapore	7.5	11.4	8	7.7	8.5	-0.1	6.9	10.3	
Indonesia	6.7	7.5	8.2	8	4.5	-13.1	0.8	4.8	
Malaysia	6.9	9.2	9.8	10	7.3	-7.4	6.1	8.3	
Philippines	1	4.4	4.7	5.8	5.2	-0.6	3.4	4	
Thailand	8.7	9	9.2	5.9	-1.4	-10.5	4.4	4.6	

Source: IMF, *World Economic Outlook - Recession and Recoveries*, April 2002

The real GDP annual growth rate of Korea sharply fell from 5.0 percent in 1997 down to negative 6.7 percent in 1998. Indonesia reversed its GDP growth rate at a large swing of nearly 18 percent from 1997 to 1998. Malaysia’s real GDP growth rate fluctuated from positive 7.3 percent growth rate in 1997 to negative 7.4 percent growth rate in 1998. East Asian economies severely contracted and dropped down to a recession whirlpool.

The crisis caused many East Asian companies suffering heavily loss and even reaching bankruptcy. For instance, nearly 66 percent of Indonesia corporations went bankrupt since the crisis started (World Bank, 1998). The associated social cost was skyrocketing unemployment. For the whole East Asian region, unemployment rate of each country showed a twenty-year high level. In some countries, the high unemployment rates had induced social instability and unrest. According to IMF (2002), in Korea, unemployment rate rose rapidly from 2.6 percent in 1997 to 6.8 percent in 1998 and 6.3 percent in 1999. Similarly, Hong Kong's unemployment rate approximately doubled from 2.2 percent in 1997 to 4.7 percent in 1998, and eventually reached a higher level at 6.2 percent in 1999.

The economic collapse caused demand weakening and production cutting in East Asia. The prominent falls in demand showed up in automobiles and construction sectors. OECD (1999) reports that in Thailand, there was a sharp decline in passenger car production by 79 percent at the first nine months of 1998. Also, during the same period, Malaysia reduced the production of transport equipment by 52 percent. In 1998, Korean domestic automobile sales of Hyundai, Kia and Daewoo dropped by around 50 percent.

Before the East Asian financial crisis hit the regional construction sector, the sector was overproducing based on investment and consumption booms. After the crisis, due to high interest rates and weak aggregate demands, many investment projects in East Asia had to be delayed or cancelled at all. This situation hurt the construction sector and related construction materials industry heavily in terms of demand and price dual falling. For example, major construction materials production in Thailand went down by 20 percent to 40 percent between January and September in 1998.

The regional poor economic performance with weak demand also affected world market demand, causing global price deflation. As reported in Table 7, the prices of world major construction metals fell greatly at the London Metal Exchange Market during the period of 1997 and 1998. Moreover, global oil price collapsed nearly 40 percent in 1998, reaching a 12-year low in nominal terms since the early 1970s.

Table 7. Prices for Selected Metals, June 1997 and December 1998* (*US dollars per tonne*)

Product	Price in July 1997	Price in Dec 1998	Percentage change
Nickel	7062	3878	- 45.1
Copper	2612	1473	- 43.6
Zinc	1354	959	- 29.2
Aluminium alloy	1447	1045	- 27.8
Aluminium	1568	1249	- 20.3
Lead	614	501	- 18.4
Tin	5563	5255	- 5.5

* means cash prices, as established on the London Metal Exchange

Source: OECD (1999), Table 9; originally from London Metal Exchange.

With largely depreciated currencies and troubled financial sectors, imports in all East Asian economies declined substantially. Imports fell by about one-third in the five East Asian countries (Indonesia, Korea, Malaysia, the Philippines and Thailand). Meanwhile, although export sales volumes jumped, the sharp fall in the unit dollar price caused by large home currency depreciation led export revenues decline slightly. The combined result was trade balance surplus as showed in the following table 8. The magnitude and speed of the trade sector adjustment in East Asian economies were significant in 1998.

Table 8. Aggregate Imports and Exports of Indonesia, Korea, Malaysia, the Philippines and Thailand
by specified period, 1996-1998 (*US dollars billion*)

Period	Exports	Imports	Trade balance
1996	334.0	385.1	(51.1)
1997	351.3	364.0	(12.7)
Jan-Oct:			
1997	290.9	309.6	(18.6)
1998	279.9	208.5	71.4

Source: OECD (1999), Annex Table 14; originally from IMF (1998a) and official national sources.

4. ANALYZING THE CRISIS: PAINFUL LESSONS

How can a small scale such as the Thailand currency crisis of July 1997 escalate into a regional disastrous financial crisis? With the benefit of hindsight, the root of East Asian crisis is much broader and more comprehensive than it looks at a first sight. To prevent such a crisis from happening again, many economists and international organisations have proposed different reasons to anatomize the East Asian financial crisis. Obviously, nobody can thoroughly explain the whole story of the crisis. The current economics theories are not developed well enough to fully explain the reasons of speculative attack, financial panic and regional contagious effect, etc.

In this section, I discuss four major issues related to the crisis. Just as the Hindu fable of *The Blind Men and the Elephant*, using various perspectives will hopefully increase the degree of our understanding on the crisis. As the East Asian financial crisis first broke out in the foreign exchange market and then spread out through contagious currency depreciation, I first explore the appropriateness of exchange rate regime choices by the crisis-hit countries. Section 4.1 thus focuses on the exchange rate regime arrangements of pre-crisis and post-crisis in East Asia. As you will see, a mixed picture of the views among senior economists emerges.

Even though there is no consensus on the role of exchange rate regimes, most economists agree that the enormous capital inflows of the early of 1990s had an important impact on the development of the crisis. In section 4.2, I discuss the related issues of financial deregulation and capital account convertibility. Whether capital controls were necessary and effective to insulate East Asian countries from crises under increasingly integrated global economy? As the East Asian financial crisis originally was a currency crisis, I refer to two theoretical approaches in the theory of currency crises to analyze this event. In section 4.3, I refer to the “first-generation” of models of currency crises, called the “fundamentalist” view¹⁵. In section 4.4, I review the “second-generation” of currency crisis models to explain the East Asian crisis, which expresses a “self-fulfilling” view on the crisis. Finally, in section 4.5, I try to reconcile the different approaches to sum up reasons of the East Asian crisis.

¹⁵ Some economists have different names to call these currency crisis models, such as Oliver Jeanne (2000) uses “the speculative attack” model and “the escape clause” model to express the “first-generation” and the “second-generation” of currency crisis models.

4.1. What's Wrong with the Exchange Rate Regimes?

In the 1990s, a series of financial crises continuously exploded in Europe (1992-1993), South America (1994-1995), East Asia (1997-1998), Russia (1999) and Turkey (2000). One view is that an adjustable fixed exchange rate – “soft peg” under the deregulated financial environment is subject to a speculative attack and invites currency crisis.

Exchange rate regimes in the crisis-hit countries, except for Thailand, were officially reported as “managed floating exchange rate” before the crisis. Table 9 reports the regimes as compiled by the IMF. But according to the actual exchange market performance, except for Indonesia, the other four countries had currency regimes that were characterised by a soft peg to the US dollar with a very narrow fluctuation. Indonesia carried out a crawling peg exchange rate regime.

Table 9. Official Exchange Rate Regimes in the Asian Crisis Countries

Indonesia	November 1978 – June 1997 July 1997 – December 2000	managed floating independently floating
Korea	March 1980 – October 1997 November 1997 – December 2000	managed floating independently floating
Malaysia	January 1986 – February 1990 March 1990 – November 1992 December 1992 – September 1998 September 1998 – December 2000	limited flexibility fixed managed floating pegged arrangement
Philippines	January 1998 – December 2000	independently floating
Thailand	January 1970 – June 1997 July 1997 – December 2000	fixed independently floating

Source: Hernandez and Montiel (2001), Table 1; initially compiled from IMF, *Exchange Arrangements and Exchange Restrictions*, and several issues.

4.1.1. The Trilemma of the Exchange Rate Regimes for Open Economies

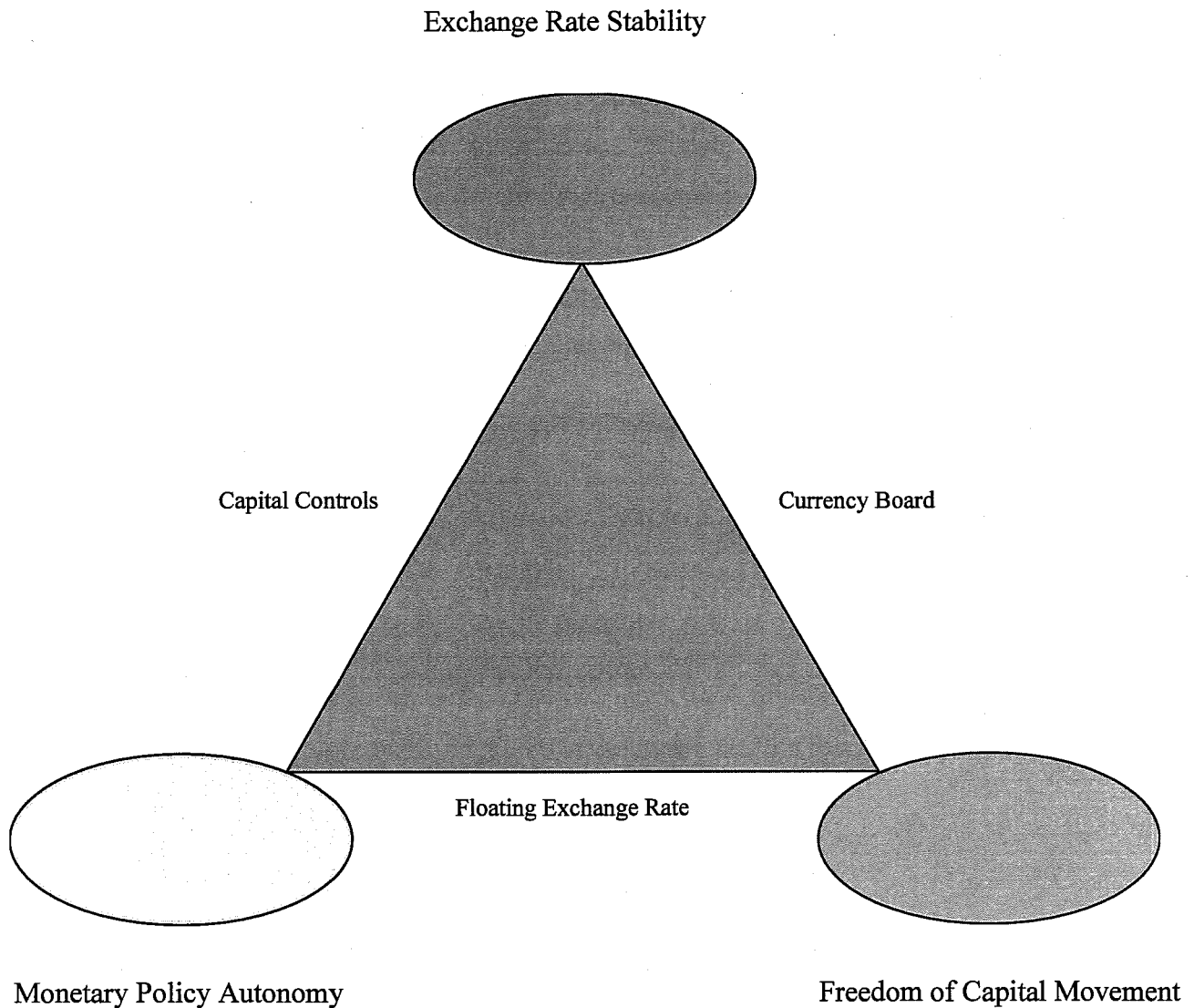
Every open economy would like to have all three attributes simultaneously

- fixed exchange rate

- autonomous monetary policy
- free capital mobility

However, the basic macroeconomic theory and empirical evidence have forced open economies to choose only two of them at one time. Krugman and Obstfeld (2000) call it the policy trilemma for open economies and use a triangle to describe the relationship of these three regimes in figure 1.

Figure 1. The Policy Trilemma for Open Economies



To solve this trilemma, the open economy can pick up one of the triangle's three sides in order to have its favourite combined economic policies.

Before the crisis exploded in the first half of 1997, East Asian countries seemed to successfully overcome this policy trilemma. They enjoyed more beneficial opportunities of accessing to international financial market with capital account convertibility. Meanwhile, under independent domestic monetary policy and active exchange rate intervention at the foreign market, they had kept their exchange rates soft pegged to the US dollar to anchor domestic price level. The following table 10 summarises the solution to the policy trilemma adopted by the East Asian countries before and after crisis. The 1997's crisis certifies that East Asia actually existed fundamental macroeconomic imbalance before the crisis erupted.

Table 10. How Economies Responded the Problem of the Impossible Trinity

Response	Fixed Exchange Rate	Free Capital Mobility	Independent Monetary Policy	Economies
Impossible Trinity	Yes	Yes	Yes	Pre-crisis Asia except for China and Hong Kong
Floating	No	Yes	Yes	Korea, Philippines, Thailand, Indonesia
Capital Control	Yes	No	Yes	China, Malaysia at Post-September 1998
Currency Board	Yes	Yes	No	Hong Kong

Note: China claims that its exchange rate regime is not a fixed exchange rate system but a flexible exchange rate system. However, the data reveal that it fluctuates very little against the U.S. dollar, and the market regards it as a de facto fixed exchange rate system. Korea, the Philippines, Thailand and Indonesia are categorized since the crisis as "floating", not "cleaning floating".

Source: Ito, Takatoshi (2001), Table 2.6.

4.1.2. The Pressures of Soft Pegged Exchange Rate Regime under Huge Capital Inflows

One of successful East Asian regional growth experiences is outward-oriented development pattern. To ensure this policy to be smoothly conducted, except for Hong Kong, nearly all East Asian economies chose a soft peg mainly to the US dollar after Bretton Woods System collapsed in the early of 1970s. Hong Kong adopted a currency board arrangement to fix the Hong Kong dollar at a rate of 7.8 equalling to per US dollar since 1983. It is actually a kind of extreme fixed exchange rate regime. Every Hong Kong dollar issued to circulate in the market is backed up by one US dollar foreign reserve at the note-issuing banks.

In short, a fixed exchange rate regime mainly contributes to facilitate trade and investment and to anchor domestic price level (McKinnon, 1999) through pegging to a currency with low-inflation record. A fixed exchange rate regime requires a disciplined monetary policy to realise the goal of fixed exchange rate.

Another important advantage feature of fixed exchange rate regime to the regional healthy economic development is to avoid a beggar-thy-neighbour trade policy¹⁶. Especially in East Asian economies, under the similar trade policy and targeted export markets, it is easy to initiate a trade war through competitively devaluating currency. Simultaneously pegging to the US dollar avoided this unhealthy development pattern in East Asia during the past decades.

Since a fixed exchange rate regime has so many good points, why do many economists blame it as one of crisis sources? The key answer is that under the pressure of free capital flows in the early 1990s, the soft pegged exchange rate system became more vulnerable to speculative attacks. To probe more deeply, Stiglitz (2002) argues that

The problem is that the amount of reserves required ensuring that a country can meet its commitment to maintain the exchange rate is enormous under full capital market liberalisation: it equals the total value of the money supply plus short-term, foreign-denominated credit, for any domestic currency can be converted into dollar on demand.

(Stiglitz, 2002, page 237)

¹⁶ The beggar-thy-neighbour policy is a kind of trade policy strategy. Krugman and Obstfeld (2000) define it as a strategic policy to "increase our welfare at other countries' expense". For example, regardless of other countries' trade interests, one country performs sharp currency devaluation in order to increase its export growth. The other countries would like to retaliate to this unilateral action on the world trade market through more aggressive devaluation in their currencies.

I summarize four pressures under fixed exchange rate regimes in East Asia before the crisis.

Pressure 1: real exchange rate appreciation

With the huge foreign capital inflow into East Asia in the early 1990s, regional currencies experienced real exchange rate appreciation, though nominal exchange rate remained unchanged. As real exchange rate appreciation pressure cannot be released through exchange rate market adjustment, it passed through importing sectors to fuel domestic consumer price level upward drifting.

Pressure 2: currency account deficit

Real exchange rate appreciation not only pushed imports up, but also raised the inflation pressure relative to foreign countries through high prices of the importing goods. This lessened export competitiveness in the long run (Ito, 2001). Moreover, as explained in section 3.2.1, the dual falling shocks in demand and production price at the world electronic market occurring in 1996 also aggravated the real side of structural change in exporting sectors. Current account deficits were prevalent among the dollar pegged East Asian economies in 1996.

OECD (1999) points out that by early 1997, the strengthening US dollar was widening current account deficits in East Asia. It increased the probability of an eventual pressure and perhaps intervention to devalue the regional currencies. Stiglitz (2002) claims that usually, a real exchange rate appreciation accompanies capital inflows and fixed exchange rate regimes. The real appreciation typically causes a trade deficit. He emphasizes if the trade deficit is increasingly larger and larger, the market expects the deficit to be “unsustainable” and to be corrected based on the overvalued exchange rates.

Pressure 3: dollar peg and yen/dollar fluctuations

The US dollar is mostly used as the invoice currency of denomination in East Asian exports and imports. Even Japan, the world's second largest economy, only used yen as an invoice currency for 35.7 percent of its exports, whereas it continued to put about 52.7 percent of its exports denominated in the US dollar. Before the crisis, East Asian countries had used appropriate monetary policies to keep their dollar peg rates quite stable.

The problem is that the United States is not the only trader and investor with East Asian economies. So a stable exchange rate against the US dollar cannot neutralise every external shock. Japan's impact on East Asia cannot be ignored, as Japan is the most important exporter to and the most important direct investor into the region. So McKinnon (2000) explicitly emphasizes, "For the smaller East Asian economies pegged to the dollar, fluctuations in the yen/dollar exchange rate have been the most important common external shock."

Besides, McKinnon (1999) summarizes two effects of the yen-dollar exchange rate movements on East Asian economies¹⁷. They are called the "net-export effect" and the "direct-investment effect". Specifically, on one side, if yen appreciates, the "net-export effect" will stimulate export sector growth in the East Asian countries based on their currency competitiveness against Japanese yen. On the other hand, the "direct-investment effect" with a strong yen will encourage Japanese direct investment into the East Asian area. These effects also work in the opposite direction. So the region is subject to substantial business cycles aligned with up and down movements of the Japanese yen against the US dollar.

The yen/dollar exchange rate fluctuated widely in the early 1990s, dropping from about 80 yen to the US dollar in mid-1995 to about 114-yen/dollar rates in mid-1997. So just before the crisis, the relatively weak yen trend put depreciation pressure on East Asian currencies against the US dollar and also weakened Japanese investment into the region.

Pressure 4: moral hazard and short-term foreign overborrowing

To ease large fluctuations in the exchange rate market under enormous capital flows, the East Asian economies not only relied on foreign exchange market intervention, but also adopted interest rate defence (Calvo and Reinhart, 2000). Before the crisis, interest rates in East Asia were much higher than the level in the U.S. and Japan. The interest rates differential between home and abroad with a fixed exchange rate cultivated an increasing moral hazard problem: short-term offshore borrowing in the unhedged US dollar, then lending to domestic market in home currencies to earn the interest rate disparity returns. It sounds like an easy and smart way for investors to make money; however, it bore huge currency and maturity risks with uncovered foreign currency debt.

¹⁷ For the original explanation, see Kwan, C. H., "The Yen, the Yuan and the Asian currency crisis: changing fortune between Japan and China", Nomura Research Institute, October 1998.

So what is the role of the soft pegged exchange rate regime on the dangerous moral hazard behaviour? A fixed exchange rate gave the market a safe illusion of currency risk (Ito, 2001). International investors felt that short-term overseas lending in the East Asian emerging market can work because they could anticipate the exchange rate movement during a short period. Besides, in the short term, the likelihood of devaluation in East Asia based on previous sound economic performance was small. The investors' illusion broke up when East Asian crisis was triggered by large regional currency depreciation. With actual foreign debts soaring up in terms of the US dollar, short-term foreign overborrowings were in default.

World Bank (1998) concludes that

But, the most important effect was the incentives the policies played a particularly large role in motivating capital flows. By reducing the perceptions of exchange rate risks, incentives to hedge external borrowing were suppressed and, moreover, the relatively narrow exchange rate movements created a bias toward short-term borrowing.

(World Bank, 1998, page 6)

4.1.3. Choosing the Right Exchange Rate Regime

After the crisis, the debate on the exchange rate regime choices became more alive than ever. The literature favours the polar view on the exchange rate arrangement on the emerging market. On the one side, "good" fixed exchange rate is better than floating exchange rate which is then more sustainable than a "bad" fixed rate (McKinnon, 2002). Here, a "good" fixed exchange rate is such as hard peg, currency board or dollarization, while a "bad" fixed exchange rate refers to adjustable and incredible soft peg or intermediate exchange rate. On the other side, Stiglitz (2002) advocates that without capital controls, the only exchange rate regime working well is floating exchange rate or total dollarization.

Although the polar view advocates performing a so-called "Hollow Middle" exchange rate regime, Williamson (2002) still thinks that intermediate regimes or "soft pegs" are feasible for the emerging market. In their article "Fear of Floating", Calvo and Reinhart (2000) analyze the reasons of the fear of the emerging countries regarding purely floating exchange rates. The major concerns in the developing countries are

- Lack of credibility on monetary policy, which causes very volatile money supply and interest rates, large swing of exchange rate movement, and low sovereign credit ratings

- The forthcoming heavier foreign debt obligations once the exchange rates freely float downward and depreciate significantly
- The large current account adjustment following a big fluctuation of exchange rate movement
- The greater inflation that follows with exchange rate slumps through higher importing prices.

It is a dilemma for East Asian countries to choose an appropriate exchange rate regime for their dynamic economies. According to Hernandez and Montiel (2001), the post-crisis exchange rate policy is not “real” floating arrangement in East Asia. In fact, Malaysia adopted a hard peg with capital controls to recover from the crisis, while the other four Asian countries still pursued an intermediate managed floating exchange rate as a second-best policy. The difference compared with the pre-crisis regime is increased flexibility of the exchange rate movement with more foreign exchange rate reserves to serve as back-up.

4.2. Capital Market Liberalisation and Capital Controls

“Indeed, liberalising a highly repressed economy has been likened to walking through a minefield: your next step might be your last.” (McKinnon, 1991, preface)

An important factor causing fixed exchange rate regimes collapse during the East Asian financial crisis is the sudden huge capital outflow. The turnaround of capital flows in the five crisis-hit East Asian economies was about US\$105 billion from a net inflow of US\$93 billion in 1996 to a net outflow of US\$12 billion in 1997 (IIF, 1998). The effect of the sharp enormous capital reversal on East Asia was devastating.

One of features of capital market liberalisation is to eliminate the restrictions on the free flows of short-term capital across a country’s border. With capital market opening in the early of 1990s, East Asian countries seemed to have no methods to deal with the unexpected capital reversal in summer 1997. In retrospect, many economists have argued that East Asia made a mistake opening up their capital markets too early to handle the volatile capital movements (Stiglitz, 2002 and Villanueva, 1999). A similar view is that the sequence of capital market liberalisation, such as liberalising short-term capital inflows before foreign direct investment, was inappropriate (Aghevli, 1999).

Some politicians expressed the same reserve on the capital market liberalisation in East Asia. In July 1998, during an interview with *Business Week*, Singapore's senior minister Lee Kuan Yew claimed that "Given the weakness of their system, the absence of proper banking laws and supervision, bankruptcy laws, and the rule of law generally, they [Asian countries now in trouble] would have been better off [if they had not opened up]." For example, Indonesia, the Philippines, and Thailand need to improve their lagged regulatory, supervisory, accounting, auditing, and disclosure systems (Claessens and Glaessner, 1997).

Based on the potential crisis risk, someone may wonder why East Asia opened up their capital markets if they were not adequately prepared for it. It all came from a natural deduction theory. Since East Asian miracle benefited much from liberalised international trade of goods and services through current account convertibility, it should gain more from free trade in financial and physical assets through capital account convertibility.

The most powerful advocates of capital market liberalisation in emerging markets were the IMF and the United States. They argued that free capital flows would foster efficient international investment and facilitate the spreadout of advanced technology and management experiences to emerging markets. Capital account convertibility would bring the developing countries easy access to global financial market and facilitate the realisation of development opportunities. All in all, the greater degree of economic openness and capital mobility is an engine of rapid economic growth.

4.2.1. Capital Market Liberalisation

East Asia had performed a series of ambitious steps in capital market liberalisation in the early 1990s according to this logic theory. Financial liberalisation encouraged mushrooming establishment of new financial institutions. For example, the number of private banks (including foreign and joint venture banks) in Indonesia climbed from only 74 in 1988 up to 206 in 1994 (Glick, 1999). With the onset of liberalisation, broad ranges of bank and nonbank activities were permitted without adequate prudent regulation and supervision. Especially, state-owned banks in Indonesia and Korea could operate beyond the prudential regulations without penalty (Glick, 1999). In Korea, lending rates were liberalised in 1993. Soon in 1994, the control on deposit rates was lifted. The banking competition in Korea was fierce through raising interest rates to attract funds (Bisignano, 1999). Meanwhile, the standards of credit assessment and investment quality analysis were slacker given ample overseas capital supply to the region.

After liberalisation, Asian banks and nonbanks could gain greater access to international financial markets. On one hand, under inflationary pressure, emerging markets in East Asia have difficulties in obtaining long-term financial loans in the global market (Matsushima, 2000). On the other hand, additional financing was needed to satisfy the demands in the regional investment and consumption booms. Enormous international hot money filled in the gap between supply and demand for financial funds. However, it mostly took the form of short-term maturity and foreign currency-denominated obligation. For example, in Thailand, private institutions could easily get foreign short-term financing at favourable rates through the Bangkok International Banking Facilities (BIBFs) after 1993. The total foreign banks lending to Thailand tripled from US\$23 billion in 1992 to US\$70 billion in 1996.

In Korea, the Foreign Exchange Management Law emphasizes the long-term foreign borrowing regulation, but ignores the restraints on the short-term foreign loans management (Bisignano, 1999). Due to inadequate credit ratings to raise long-term foreign capital, Korea merchant banks borrowed short-term bank loans overseas to fund long-term risk investments in Southeast Asia, Russia and Latin America. The maturity mismatch once reached huge proportion, with short-term loans accounting for 67 percent of their borrowing and long-term investment accounting for 95 percent of their lending.

Another result of capital market liberalisation is the onslaught of capital inflows. It not only caused real currency appreciation and home inflation pressure, but also expanded the current account deficits to cause the pegged exchange rate system more unsustainable. To keep the exchange rate stable and to avoid capital flight, the monetary authority had to use higher interest rates to defend the asset markets. It thus lost monetary autonomy to dampen adverse economy shock. Using Stiglitz's words,

Enhancing the mobility of capital thus has real consequences: it affects bargaining positions and the outcome of bargaining processes in ways that are advantageous to capital and disadvantageous to labor.

(Stiglitz, 2002, page 230)

East Asia had opened up their economic door much wider through capital market liberalisation and reasonably expected high economic returns. Unfortunately, a severe regional financial crisis

eventually occurred, throwing them into economic recession. This result caused some economists to advocate for certain capital controls to prevent the tragedy from repeating in emerging markets.

4.2.2. Capital Controls

After the East Asian financial crisis, it is no longer unfashionable to talk about capital controls that can prevent the destabilising effect of short-term capital flows. Capital controls are often blamed for the following adverse economic effects. It results in inefficient domestic and global capital allocation; it leads to bureaucracy abuse and market distortion on investment; it discourages foreign capital investment and reduces economic growth.

Now facing the trade-off between capital market efficiency and financial stability, more and more economists would like to think it over the positive side of capital controls. For instance, Krugman (1998) considers that temporary exchange control is an alternative plan to salvage East Asian economies from the crisis. He argues “Extreme situations demand extreme measures” because exchange controls can help the crisis-hit countries buy time to regain market confidence. Furthermore, exchange controls give the authority policy more latitude to break the link between domestic interest rates and exchange rates. He uses China as an example to illustrate the benefits of capital controls during the crisis period. If in the situation of capital controls, East Asian countries could cut interest rates to relieve highly leveraged financial institutions and corporations without concerns about free fall of exchange rates in the market.

Rodrik (1998) studies almost 100 countries over the 1975-1989 period to relate capital account liberalisation to three indicators of economic performance: per-capita GDP growth, investment (as a share of GDP), and inflation. His result shows that there is no positive correlation between capital account liberalisation and better economic performance. Rodrik explains that a fundamental operational difference exists between goods market and capital market. For the international trade of goods and services, the market follows a certain degree of “efficiency and predictability”. However, the operation of financial market is based on investors’ expectation about assets’ future valuation, which contains uncertainty, asymmetric information, and very bounded rationality. Market failure, moral hazard, financial panics and herding behaviours accompany capital markets to run boom-and-bust cycles. Without capital control, the closer linkage between domestic and global financial markets poses two major risks on immature emerging economies: increasing illiquid risk once the market changes future expectations and

raising systemic contagious risk from suffering markets to healthy markets. Rodrik (1998) concludes that capital control is a second-best policy to deal with the rationality of international capital market.

Stiglitz (2002) summarizes several purposes of intervention in capital markets. Appropriate capital controls function as a dam to stabilise the onrush of short-term capital inflows. Acting as a circuit breaker, capital intervention puts more cost on capital outflows to slow down the irrational movements. Furthermore, capital controls can expand the scope for monetary policy to design stabilisation solutions with lower costs for the crisis, such as cutting interest rates to stimulate the economy. It also can prevent massive domestic capital flight.

How to perform flexible and market-friendly capital controls? Stiglitz (2002) further proposes four major intervention mechanisms:

- Taxes on short-term capital inflows. The purpose is mainly to lessen speculative capital inflows and to encourage long-term foreign capital investment. The government may use a flexible subsidy as a complementary measure to encourage more capital inflows if needed.
- Regulatory controls on capital outflows. He illustrates Malaysia's capital control experience to address the crisis.
- Direct banking regulations or price-based banking mechanisms. Use bank regulations to limit foreign exchange exposure of banks and corporations. Adopt deposit insurance systems or risk adjusted capital adequacy requirements to cover more foreign currency risks.
- Tax non-deductibility of interest on short-term foreign denominated debt. It encourages private sectors to lessen foreign borrowings.

In short, capital market liberalisation brought more risks to East Asian emerging markets. It was an inappropriate time and with adverse effects to fully open-up domestic capital markets for them. Discretionary capital controls are beneficial to these immature markets to better withstand global external shocks.

4.3. The “Fundamentalist” View

“A strong wind can collapse a big tree only if its roots are rotten.”

-- by Nouriel Roubini when giving an online interview on the Asian crisis (2/1998)

As the East Asian financial crisis originally was a currency crisis, economists have set up two camps to explain the triggering reason by using two currency crises theoretical approaches. One is the “fundamentalist” view represented by Corsetti, Pesenti, and Roubini (1998) and Dooley (1999). The other one is the “self-fulfilling” view advocated by Radelet and Sachs (1998a, 1998b), Marshall (1998), Chang and Velasco (1999). One prominent difference between these two views is whether the East Asian financial crisis was provoked by rational speculative attacks based on deteriorating macroeconomic fundamentals or was self-fulfilling by irrational financial panic.

Following Krugman (1979), Flood and Garber (1984)’s “first generation” model of currency crises, the “fundamentalist” view regards the East Asian financial crisis as necessary and inevitable due to structural and policy distortions in East Asian economies. In order to understand the structure of incentives distorted by the corporate and financial sectors, Corsetti, Pesenti, and Roubini (1998) emphasize the roles of moral hazard interrelated at the *corporate*, *financial* and *international* dimensions.

At the *corporate* level, moral hazard problems were embodied in traditional government policy protections of domestic companies’ operations. Especially when facing adverse conditions, large-scale companies can always get help from governments through favourable public regulations or financial supports. This uncompetitive and protective climate encouraged a sustained process of investment expansion without carefully considering project risks and profit yields. In Korea, twenty of the thirty largest conglomerates could not cover their capital costs due to low investment returns in 1996. Before the crisis in 1997, seven of the thirty largest conglomerates were in a state of bankruptcy. With open capital markets, the corporate moral hazard included excess foreign capital accumulation, further enlarging current account deficits.

The *financial* aspect of the moral hazard in East Asia explained why over-borrowing, especially in the short-term, was common even when facing low investment profitability prospect. The

incentive was expressed clearly by Akrasansee (1998) in the case of Thailand, “The argument is very simple: International capital is cheap.” The marked interest rate differential between domestic and global financial market led severe mismatch in currency loans. East Asia borrowed foreign currency abroad while making domestic currency loans at home. The unhedged foreign borrowing was expected to be safe under the soft pegged exchange rate regime. The domestic excessive lending to high risk or low profitable projects was thought feasible because of the Asian relationship banking style¹⁸. The financial structural distortions were exaggerated due to slack supervision, weak regulations and immature financial architecture. All the above problems developed into increasing non-performing bank loans, which are presented in table 11. The accumulated non-performing loans in East Asia finally ballooned to a regional financial crisis.

Table 11. Non-performing Loans before the Crisis (as proportion of total lending in 1996)

Korea	8%	Thailand	13%
Indonesia	13%	Hong Kong	3%
Malaysia	10%	China	14%
Singapore	4%	Taiwan	4%

Source: Corsetti, Pesenti, and Roubini (1998), Table 21; original from *BIS Annual Report* and *Jardine Fleming*.

International banks were a major source of the *international* moral hazard in East Asia. They ignored sound risk assessment and poured their low cost money into East Asian markets. Much of their physical investment was not economical. The overlending syndrome was based on the logic that short-term international bank loans should be insured effectively by local governments or be bailed out by international organisations such as IMF treatment during the Mexico Crisis in 1995. The result was an over-100 percent ratio of short-term external liabilities to foreign reserves in Korea, Indonesia and Thailand before the crisis.

¹⁸ The Asian relationship banking style is one of the sins from the so-called Asian “Crony Capitalism”. The financial resource allocation is not a market-based system through arms-length transactions, but is conducted by the behind-the-scenes relationship between financial sectors, businesses, and the East Asian governments (Glick, 1999).

In addition to internal structural distortions caused by moral hazard incentives, four external shocks shook the regional economy. The four major global shocks were stagnation of the Japanese economy; declines in demand and price level of global semiconductors sector in 1996; a sharp appreciation of the US dollar in 1996; and China's increasing export competition with East Asian countries after the nearly 50 percent devaluation of the Chinese Yuan in 1994. All those shocks resulted in steep slowdown in exports and real currency appreciation, further weakening East Asian countries' external competitiveness in the world trade market. After examining a broad range of structural factors in East Asia, Corsetti, Pesenti, and Roubini (1998) conclude, "By early 1997, macroeconomic conditions had seriously deteriorated in most of the region".

As an illustration of moral hazard's unfavourable impact on incentives and financial management, we discuss next how a Thai's finance firm was put into trouble due to excessive reliance on the intervention capacity of the Thailand's central bank.

A Case Study: Thai's largest finance company: Finance One – boom and bust

Founded in 1980, Finance One became a US\$5.5 billion company by 1992. At the peak level, Finance One's securities firms dealt with more than 20 percent of Thailand's total stock market volume. Finance One was also the first Thai company issuing Eurobonds in the global market. Its owner, Pin Chakkaphak, was known as Thailand's "Takeover King" for the reputation of aggressive corporation acquisitions. "Everything Pin touched turned to gold", said a Bangkok business consultant.

The golden rule described by *The Times Asia* was, "Finance One also went after vast capital gains through leveraged acquisitions¹⁹ and takeovers. Put simply, Pin borrowed money to buy companies and then pledged these, at higher valuations, against biggest loans, which were used to buy more companies. The strategy carried great risk." As foreign funds flooded into Thailand in the late 1980s, Pin's strategy performed very well and his empire grew larger and larger. However, "It was a very big house of cards", said Graham Catterwell, former managing director of Deutsche Morgan Grenfell in Bangkok. Nearly two-thirds of the company's loans concentrated in

¹⁹ Leveraged acquisition is one of leveraged transactions which utilise debt financing. "Leveraged acquisition is the purchase by a company of additional assets of business", definition source from <http://www.mentorcapitalpartners.com/strategy.htm>.

property, hire purchase²⁰ and stock margin lents. When the Thai economy slowed down sharply in 1996, the company's loans soured and stock values plunged.

Even under this distressed financial condition, Finance One still could obtain new liquidity from international banks. A few months before Finance One had its operations suspended by Thailand's central bank on June 27 1997, ING Bank in Thailand had approved a part of the US\$160 million syndicated loan to Finance One. The reason for the imprudent lending to a troubled finance company was the promised role as a lender of last resort by the Bank of Thailand. Jan Cherim, country manager for ING Bank in Thailand, said, "Every time we saw the Bank of Thailand, they would tell us 'Finance One is OK, we're backing it all the way'. When they didn't, you had to question just about everything they had ever told you."

In fact, the Bank of Thailand really would like to have saved its largest finance company. In the first quarter of 1997, Central Bank's Financial Institution Development Fund (FIDF) injected more than US\$1.5 billion to bail out Finance One. Including lending to other struggling financial institutions, FIDF spent over US\$8 billion to cover a big financial black hole before the crisis erupted. The amount approached the equivalent of seven years' worth of Thai's fiscal surpluses.

The Bank of Thailand had tried its best to prevent financial system from collapsing. However, this time it needed to save itself first. Just before the Thai crisis exploded, the new finance minister was horrified by the true condition of Thai's foreign reserves. The official figure of the foreign reserves in Thailand at the end of 1996 was healthy US\$38.6 billion, equivalent to over seven months of imports. But the usable amount was just US\$1.14 billion, equivalent just to two-days worth of imports. The central bank's young and inexperienced chief currency trader had signed a large number of foreign currency forward contracts to fight the previous speculative currency attacks at the early of 1997.

In June 1997, the bubble burst: Thai largest finance company -- Finance One went bankrupt.

²⁰ "Hire Purchase is an agreement to hire a vehicle for a fixed period and to take ownership of the vehicle when the final payment is made.", definition source from <http://website.lineone.net/~abbeyvehicle/abbeyhirepurch.htm> .

Source: *Finance Times*, special reports: Asian crisis. "Thailand: bad loans, bad money", by Ted Badarke, May 19, 1998; *Times Asia*, "Thailand's scapegoat? --- Battling extradition over charges of embezzlement, a financier says he's the fall guy for the 1997 financial crash", by David Liebhold, December 27 1999, Vol. 154, No.25.

4.4. The "Self-fulfilling" View

The "self-fulfilling" view agrees that East Asia needed to correct macro and micro economic imbalances before the crisis. However, they cannot be convinced that poor macro-fundamentals fully explained such a large scale of financial crisis as it happened in the summer of 1997. They believe that financial panic caused moderate economic adjustments in East Asia to become a self-fulfilling crisis. Using Radelet and Sachs' words (1998a), "The essence of a panic is that a 'bad' equilibrium occurs that did not have to happen." They argue that the "fundamentalist" view is stuck when considering the suddenness and least anticipated crisis; the disconnect between the fundamental evolutions and the timing of the crisis; the unprecedented magnitude and deepness of the regional crisis, and the contagious spillover to the healthy economies such as Singapore and Taiwan.

4.4.1. The Suddenness and Least Anticipated Crisis

If macroeconomic fundamentals deteriorated into such a very bad condition in East Asia, the open markets should flash red lights to respond those bloating risks and dangers. However, according to Radelet and Sachs' studies (1998a), before the crisis, almost no such warnings were shared in the markets.

- 1) Capital inflows still flooded in East Asia throughout 1996, and continued into most crisis-hit countries until mid-1997. For instance, foreign bank lending in Malaysia rose a significantly 29.7 percent in the first half of 1997. Most of the capital injections were based on a faulty expectation that East Asia could maintain its robust economic growth.
- 2) The risk premia attached to East Asia's sovereign bonds and syndicated loans in the global financial markets were falling before the crisis.
- 3) The ratings of the long-term sovereign debt assessed by Standard Poor's and Moody's remained unchanged in most East Asian countries through 1996, till June 1997 or even upgraded in the Philippines case. The credit risk outlook for the East Asian region was "positive" or "stable".

- 4) The leading investment banks' economy forecasts did not indicate growing risk of poor market returns and slides in exchange rates in East Asia. Table 12 shows Goldman Sachs investment bank's exchange rate expectation released in August 1997, just one month after the crisis. No expectation of large swings on exchange rates movement in East Asia was demonstrated.

Table 12. Exchange Rate Expectations

Country	August Forecast: 3-month Horizon	October 29 Market rate
Indonesia	2500	3610 (44.4)
Malaysia	2.75	3.40 (23.6)
Philippines	28.00	35.10 (25.3)
Thailand	32.00	39.1 (22.2)

Note: Expectation error as percent of August forecast in parentheses

Source: Radelet and Sachs (1998a), Table 7b; originally from *August Forecast*, Goldman Sachs, *Asian Economic Quarterly*, August, p12; October market rate, *Economist Magazine*, November 1 1997.

- 5) IMF's overall market forecasts for the year 1998 did not disclose its concern on macroeconomic risk to the Asian region. Its *World Economic Outlook* Report distributed in October 1997 predicted 6.0 percent healthy growth in Korea and 7.4 percent for the other developing Asia countries in 1998.

The overall optimism to East Asian future prospects was completely contrary to the significant market downward performance. The "self-fulfilling" view concludes that the sudden and dramatic shift in market confidence on the eve of the crisis could explain this effect better. The basic idea is that economic agents expect the worst, and thereby cause it.

4.4.2. The Disconnect between the Fundamental Evolutions and the Timing of the Crisis

If a membership in the Organisation for Economic Co-operation and Development (OECD) is regarded as an acknowledgement of economic success for a developing country, Korea realised this achievement into the rich countries' exclusive club on December 12th 1996. However, the honour was followed by a domestic economic collapse just ten months later. The similar fate happened in Mexico. Mexico joined the OECD on May 18th 1994 and incurred debt crisis at the end of 1994. The timing of the crisis in Korea could not be worse and more inappropriate since

the 1997's Korean crisis was one of the heaviest financial crises for an OECD country. It made Korean people feel humiliated. It is difficult to fully justify by poor fundamentals the scale and the timing of the Korean crisis happened in the world 11th largest economy.

Another piece of evidence of the disconnect between the fundamental evolution and the timing of crisis is that high ratio of short-term foreign debt to foreign exchange reserves began showing up in mid-1994, but no crisis followed in East Asia after Mexico crisis. Table 13 lists that the ratios of short-term foreign liabilities to foreign exchange reserves in Indonesia and Korea both exceeded 1, and approached 1 in Thailand in June 1994. It means that during "Tequila Crisis" in 1995, there was a possibility to trigger an illiquidity crisis in East Asia if creditors called in their short-term loans to East Asian countries (Radelet and Sachs, 1998a). At that time, the total foreign exchange reserves could not cover all required foreign liabilities.

Table 13. Short-term Debt and Reserves, 1994 and 1997 (millions of US dollar)

Country	Short-term Debt	Jun-94		Jun-97		
		Reserves	Short-term Debt/Reserves	Short-term Debt	Reserves	Short-term Debt/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	70,182	34,070	2.060
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	475	14.964	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: Radelet and Sachs (1998a), Table 14; originally from Bank for International Settlements, IMF.

4.4.3. The Unprecedented Magnitude and Deepness of the Regional Crisis

Even the “fundamentalist” view admits that 15,000 rate of Indonesian rupiah to one US dollar was overshooting²¹ and can not be justified by the underlying Indonesia economic basis. The IMF’s poorly designed rescue plan and inappropriate government policy reactions were blamed in order to explain the depth of the crisis in Indonesia.

Rapid reversal of private capital inflows into East Asia also sped up the loss and panic in market confidence. According to Radelet and Sachs (1998a), the swing in bank loans into and out of East Asia during the period of 1996 and 1997 accounted for a remarkable 9.5 percent of GDP in East Asia. They point out that changes in the underlying economic fundamentals could not explain a reversal of that magnitude during such a short time period.

4.4.4. The Contagious Spillover to the Healthy Economies

Singapore and Taiwan both had ample foreign reserves, moderate foreign liabilities, and healthy financial systems. However, when global investors treated East Asia as a whole problem area at the onset of the crisis, these two relatively healthy economies also experienced exchange rate plunges and market adjustment pressure.

4.4.5. Why is Financial Market so Easily Panicked?

The nature of multiple equilibria²² in the East Asian financial crisis is attributed to the intrinsic instability in international lending and capital market. In some sense, we cannot eliminate boom and bust cycles to avoid crises as long as we have financial markets.

In the eyes of the “self-fulfilling” view, accompanying large-scale foreign capital inflows, East Asian financial crisis was a capital account crisis, not a current account crisis. Open capital accounts require a central bank to have ample foreign reserves backup to meet a fixed exchange rate task. Meanwhile, the deregulation of capital market with short-term liability pileup was not

²¹ According to Krugman and Obstfeld (2000), “The exchange rate is said to overshoot when its immediate response to a disturbance is greater than its long-run response.” In brief, “Exchange rate overshooting, which heightens the volatility of exchange rates, is a direct result of sluggish short-run price level adjustment and the interest parity condition.”

²² The nature of multiple equilibria means that the economy could settle down at a number of places without changing in the economic fundamentals.

followed up with careful financial supervisions and monitors in East Asia. These all exposed East Asian economies more vulnerability to a crisis attack.

Usually, financial panic also refers to herd behaviour in financial markets. Namely, a creditor takes his market action, not based on his own perceived debtor's fundamentals, but following the response of the other creditors' decisions on the debtor (Radelet and Sachs, 1998b). There are mainly two theoretical approaches to explain collective panic behaviour in financial market. One is the illiquidity-insolvency model; the other one is the asymmetric information hypothesis. The illiquidity-insolvency model judges the different nature of an illiquidity crisis and an insolvency crisis. An illiquidity crisis happens because debtors can not get fresh funds to serve imminent obligations, but they actually have the capability to repay the loans in the long run. Each individual creditor would like to continuously roll over short-term loans to the borrower if he expects other creditors to also extend their credits to the borrower. Otherwise, nobody wants to be the last person to call in the borrower's inadequate assets to fully service the debt. In other words, sudden collective changes in lenders' sentiment and action lead the market to self-fulfilling failure. Whereas, an insolvency crisis is different from an illiquidity crisis in that it breaks out because a borrower has lost his ability to generate enough investment returns to repay outstanding debts, even in the long run. An insolvency crisis certifies that the lending is a bad decision for creditors.

The approach based on the asymmetric information hypothesis tells us that different creditors have asymmetric information on the debtor's operational performance. The market instability reflects the fact that each lender may take other lenders' behaviour as a signal to decide his own next step, discarding his private information to warrant herding result in the financial market. Especially in East Asia, inadequate transparency in financial and corporate sectors might worsen this market panic trend.

4.5. Overview of the Four Crisis Reasons

The previous sections separately talk about four reasons identified to explain the East Asian crisis. However, those reasons actually interlinked to play a comprehensive role on the emergence and evolution of the crisis.

Notably, a fixed and adjustable exchange rate is unsustainable, especially under an open capital market. In an open economy, the growing integration with the global financial market means more challenges and opportunities at the same time.

Meanwhile, the “fundamentalist” view and the “self-fulfilling” view are not mutually exclusive (Jeanne, 2000). To realise a self-fulfilling crisis, economic fundamentals must reveal increasingly bad signs that would depress market confidence, thus destroy the initial economic balance. Glick (1999) observes that sometimes the market has difficulty distinguishing between confidence shocks and fundamental shocks. Part of market confidence comes from the endogenous judgement of fundamental performance. Confidence may fluctuate in relation to changes in the perception of fundamentals.

To discriminate between the “fundamentalist” view and the “self-fulfilling” view, Zhang and Dowling (2002a and 2002b) develop an early warning system (EWS) model. Their model tries not only to test the existence of economic fragility in the affected countries before the crisis, but also to confirm that such fragility in East Asia had developed into some “crisis-triggering level”. The EWS model is based on the signalling approach proposed by Kaminsky, Lizondo and Reinhart (1998). Based on theoretical considerations, literature research findings, and the availability of data information, the signalling approach uses a set of economic variables as currency crisis indicators. The methodology of the approach is to compare the behaviour of the selected crisis indicators in the period preceding a currency crisis with those from the historical record of the indicators in the period when no currency crisis is followed. If the performance of the indicators shows up a significant departure from their “normal” levels and the departure reaches a certain threshold value, the signalling approach treats those systematically value deviation of the indicators as a crisis warning “signal”. It anticipates that a currency crisis may take place in the near future.

The EWS model formulated by Zhang and Dowling (2002a and 2002b) uses 38 economic and financial indicators to test six East Asian countries: Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. The model is estimated by using monthly data from 1970 to 1995, then testing the out-of-sample prediction power by applying data from 1996 to 1997 to forecast the explosion probability of the East Asian crisis. The results show that half of 38 individual leading indicators of the EWS model reveal warning signals in all affected countries starting from the 1995 to 1997 period. For the overall composite leading index, five crisis-hit countries, Indonesia,

Korea, Malaysia, the Philippines and Thailand have persistent warning signals before 1997 crisis. But no signals from the overall composite leading index are issued in the Singapore economy.

Zhang and Dowling's conclusion (2002a and 2002b) supports the hypothesis of the "weak fundamentals" view that the economic and financial fundamentals deteriorated in East Asia and triggered the crisis. These negative fundamental signals were, namely, real appreciation of home currencies, large current account deficits, excessive external borrowings by banks, currency mismatch in the bank loans, excessive credit growth, economic slowdown and asset price bubbles. In the case of Singapore, they admit that regional contagion played a more important role on the depreciation of the Singapore dollar than the presence of poor fundamentals in the Singapore economy.

5. CONCLUSION

The destructive force of an economic crisis on a country and its people is no less devastating than that of a war. The East Asian financial disaster combined three types of economic crises; it was a currency crisis, a foreign debt crisis and a banking crisis (IMF, 1998b). In the case of the currency crisis, due to a soft peg to the US dollar, first Thailand, then Malaysia, Indonesia, the Philippines and Korea respectively incurred speculative attacks on their currencies. The regional central banks had to repeatedly intervene on the exchange markets to fight the attacks. The currency crisis caused huge losses in the foreign reserves and rapidly rising interest rates in the domestic market. The central banks' defence did not succeed, and they were forced to let their currencies float completely. Significant depreciation of the exchange value of regional currencies resulted in heavier foreign debt obligations and a decline in the terms of trade.

Facing increasing risk on the exchange markets in East Asia, global lenders suddenly stopped rolling over their credits to banks or corporations in the crisis-hit countries, given the non-transparent financial situation and unclear contingent liabilities of the corporations and banking sectors in East Asia. As the borrowing deadline was imminent, East Asian countries, especially Korea and Indonesia, could not pay back their foreign debts. Thus, a currency crisis became a foreign debt crisis in terms of the private sectors' inability to fulfil their obligations.

The market panicked. Not only did international investors withdraw their capital from East Asia, but the domestic residents also tried to move their capital out of the region. The large swing from capital net inflows in 1996 to net outflows in 1997 amounted to more than US\$100 billion in East Asia. Because of this, there were runs on banks and bank failures. Again, the East Asia crisis evolved into a banking crisis with the collapse on its financial system. One by one, East Asian countries sank deeper and deeper into a currency, debt and banking crisis morass.

East Asian financial crisis had pushed millions of people into poverty again. As a result of the crisis, people lost their jobs; the value of savings shrank due to the currency value plunge and the high domestic inflation; also, the equity investment went sour as the stock market collapsed.

The large devaluation of East Asian currencies caused other regions to face devaluation pressures. Following the aftermath of the East Asian crisis, the Brazil currency crisis occurred in 1999, and the Turkey lira crisis broke out in 2000. Recently, Argentina also endured a peso crisis and an economic depression. Financial crises erode assets wealth, currency value and people's confidence towards their currency, their economy and their future. Indeed, according to an IMF survey (1998b), since the early 1980s, with the increases of financial innovations and the opening of the capital accounts, financial markets have become more and more globalized and liberalised. Meanwhile, financial crises occurred more frequently, which had the deepening contagious effect and scope to damage more economies.

So what can we learn from the East Asian financial crisis under the instability of the global financial world? First, an adjustable exchange rate regime or say a soft peg system, causes trouble if a country does not have strong financial structure and ample foreign reserves. It induces moral hazard on foreign overborrowing without the appropriate hedging of the currency risk. Second, countries must be careful of relying too much on foreign capital financing, especially short-term loans, because this may cause maturity mismatch with borrowing in short-term and lending in long-term. Borrowing foreign currency loans from overseas also leads to currency mismatch, which is in the form of borrowing in the dollar term and lending in the regional currency term. The currency mismatch contains currency risk conditional on the regional exchange rate movements. In fact, overseas lending must be paid with limited foreign reserves. However, long-term foreign capital inflows, such as foreign direct investment, contribute economic stability and long-term benefits. Third, it is important for countries to plan their own tailor-made capital market

liberalisation pace with adequate legal and structural preparation beforehand. Furthermore, they should not exceed institutional capacity to handle global financial risks. Fourth, huge capital inflows may not be a good phenomenon to a developing economy with immature financial market experience. This often results in current account deficits, real currency appreciation, and domestic booms in investment and consumption, which may be unsustainable once all capital inflows become capital outflows. Fifth, a robust, competitive, and efficient financial sector is necessary and critical to a sustained economic growth. In some sense, East Asian past economic success was an improvement in the real side, but it still needs more effort with financial reforms to strengthen the financial sector construction (Moskow, 1999).

To conclude, weak fundamentals, especially the financial sectors' vulnerabilities, played a major role on the explosion of the East Asian financial crisis. Nevertheless, the market panic did greatly aggravate the effect of the deterioration of the East Asian economic foundations through the channels of the exchange rate markets and the open capital markets. The moderate economic adjustments evolved into combined currency, debt and financial crises.

Appendix: Selected Asian Economies: Basic Economic Data

(the percent of GDP unless otherwise noted)

	1975 to 1982		1983 to 1989		1990	1991	1992	1993	1994	1995	1996	1997
Hong Kong SAR												
Real GDP growth(1)	9.3	7.2	3.4	5.1	6.3	6.1	5.4	3.9	4.9	5.3		
Inflation(1)(2)	8.6	6.7	9.7	11.6	9.3	8.5	8.1	8.7	6.0	...		
Domestic saving	29.7	33.6	35.8	33.8	33.8	34.6	33.1	30.4	30.6	...		
General government bal.	1.5	1.6	0.7	3.2	2.5	2.3	1.3	-0.3	2.2	...		
Current account bal.(3)	1.9	8.3	8.9	7.1	5.7	7.4	1.6	-3.9	-1.3	...		
Indonesia												
Real GDP growth(1)	6.2	5.5	9.0	8.9	7.2	7.3	7.5	8.2	8.0	4.6		
Inflation(1)(2)	15.0	8.1	7.8	9.4	7.5	9.7	8.5	9.4	7.9	...		
Domestic saving	19.3	23.2	27.9	28.7	27.3	31.4	29.2	29.0	28.8	...		
General government bal.	...	-1.3	1.3	...	-1.2	-0.7	...	0.8	1.4	...		
Current account bal.	-1.2	-3.5	-2.8	-3.4	-2.2	-1.5	-1.7	-3.3	-3.3	...		
Korea												
Real GDP growth(1)	7.0	9.6	9.5	9.1	5.1	5.8	8.6	8.9	7.1	5.5		
Inflation(1)(2)	17.6	3.8	8.6	9.3	6.2	4.8	6.3	4.5	4.9	...		
Domestic saving	25.7	32.7	36.1	35.9	35.1	35.2	34.6	35.1	33.3	...		
General government bal.	-2.7	-0.3	-0.6	-1.6	-2.6	-1.0	1.0	...	...	...
Current account bal.	-4.6	2.5	-0.9	-3.0	-1.5	0.1	-1.2	-2.0	-4.9	...		
Malaysia												
Real GDP growth(1)	7.1	5.4	9.6	8.6	7.8	8.3	9.2	9.5	8.6	7.8		
Inflation(1)(2)	5.3	2.0	2.8	2.6	4.7	3.5	3.7	3.4	3.5	...		
Domestic saving	21.6	29.4	29.1	28.4	31.3	33.0	32.7	33.5	36.7	...		
General government bal.	...	-4.0	-2.2	0.1	-3.5	-2.6	2.5	3.8	4.2	...		
Current account bal.	-2.0	-0.7	-2.1	-8.8	-3.8	-4.8	-7.8	-10.0	-4.9	...		

(to be continued)

Appendix: Selected Asian Economies: Basic Economic Data (continued)

(the percent of GDP unless otherwise noted)

	1975 to 1983 to		1990	1991	1992	1993	1994	1995	1996	1997
	1982	1989								
Philippines										
Real GDP growth(1)	5.6	1.1	3.0	-0.6	0.3	2.1	4.4	4.8	5.7	5.1
Inflation(1)(2)	11.0	15.4	12.7	18.7	8.9	7.6	9.0	8.1	8.4	...
Domestic saving	19.9	18.1	18.7	18.0	19.5	18.4	19.4	17.8	19.7	...
General government bal.	-2.0	-2.8	-3.5	-2.1	-1.2	-1.6	-1.6	-1.4	-0.4	...
Current account bal.	-6.5	-0.3	-6.1	-2.3	-1.6	-5.5	-4.6	-4.4	-4.7	...
Singapore										
Real GDP growth(1)	8.0	6.9	9.0	7.3	6.2	10.4	10.5	8.8	7.0	7.8
Inflation(1)(2)	4.2	1.0	3.5	3.4	2.3	2.3	3.1	1.7	1.4	...
Domestic saving	33.4	42.0	44.1	45.4	47.3	44.9	49.8	50.0	50.1	...
General government bal.	0.6	4.8	11.4	10.3	11.3	14.3	13.7	12.0	8.4	...
Current account bal.	-8.8	1.8	8.3	11.2	11.3	7.4	17.1	16.9	15.0	...
Taiwan										
Real GDP growth(1)	8.5	9.2	5.4	7.6	6.8	6.3	6.5	6.0	5.7	6.9
Inflation(1)(2)	8.6	1.2	4.1	3.6	4.5	2.9	4.1	3.7	3.1	...
Domestic saving	30.2	35.0	29.3	29.5	27.8	27.7	27.1	28.0	28.0	...
General government bal.	...	1.3	0.8	0.5	0.3	0.6	0.2	0.4	0.2	...
Current account bal.	1.6	12.9	6.7	6.7	3.8	3.0	2.6	1.9	5.2	...
Thailand										
Real GDP growth(1)	7.0	8.1	11.6	8.1	8.2	8.5	8.9	8.7	6.4	-0.4
Inflation(1)(2)	9.0	3.1	6.0	5.7	4.1	3.4	5.1	5.8	5.9	...
Domestic saving	19.6	25.4	32.6	35.2	34.3	34.9	34.9	34.3	33.1	...
General government bal.	-5.8	-3.0	4.4	4.2	2.6	2.1	2.0	2.6	1.6	...
Current account bal.	-5.6	-3.2	-8.3	-7.7	-5.6	-5.0	-5.6	-8.0	-7.9	...

Sources: extracted from *World Economic Outlook --Interim Assessment*, December 1997 and October 1998

... means data unavailable

(1) Annual percent change ;

(2) Consumer price index ;

(3) includes only goods and non-factor services

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