

An Analysis of Fundamental Causes of Asian Crisis

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Introduction

In recent months, many economists have started to predict the beginning of the end of the Asian crisis and the recovery of these economies. For example, Paul Krugman (1999) has predicted the recovery and a possible growth of the Asian economy. The Asian crisis, which started in July 1997, has not been in the center of media coverage of world economic news. Instead, attention has been shifted to Russia's chaotic economy and Brazil's downfall and recovery efforts. This may be a good time to objectively evaluate the Asian crisis (or the Asian financial crisis) simply because people are no longer emotionally affected by the sensational stock market crashes and exchange rate downfalls.

In this paper, the fundamental causes of the Asian crisis will be analyzed in details in terms of the saving-investment behaviors, the exchange rate regimes, the monetary policies, and the burden of external debts in the high growth oriented ASEAN member countries (namely, Indonesia, Malaysia, and Thailand) and South Korea. The Asian financial crisis exposed the weakness of Asian financial market structure, especially the banking sector. But as it is now well known, the exposure of the weakness of the banking sector is not limited to those late blooming developing countries. Case in point is the serious troubles of the whole banking system in Japan.

The financial crisis is a symptom or a consequence of some fundamental distortions in economic system and policies. The problem of over-investment and its built-in instability based on the Harrod-Domar growth model will be analyzed in this paper. The over-investment within the framework of the pegged exchange rate regime and capital liberalization had fueled the boom in these Asian economies, with the boom

being infused by direct foreign investment and short-term bank loans in the first place. Subsequent excessive monetary and credit expansions had created bubble economies. It was inevitable that the burst of economic bubbles in the form of stock market sell-outs and capital flights would take place and the exchange rates would be driven down dramatically.

Some spillover effects of the Asian financial crisis to China, Hong Kong, and Japan will be discussed in the paper as well. It is important to point out in the outset that the real Asian economic crisis is the long lasting (for almost one entire decade) recession in Japan and the inability of the Japanese government to utilize monetary and fiscal policies to boost domestic spending.

1. The Background

Miracles of East Asian rapid growth had been extensively analyzed in development literature. In the World Bank Policy Research Report 1993, “The East Asian Miracle,” the Japan-led high-performing Asian economies (HPAEs) are classified into two subclasses: the Four Tigers (Hong Kong, Singapore, South Korea, and Taiwan) and the newly industrialized economies (the NIEs, consisting of Indonesia, Malaysia, and Thailand). Japan’s 1997 per capita GNP was ranked second in the world, and the Four Tigers’ per capita GNP rankings were 4th for Singapore, 13th for Hong Kong, and 25th for South Korea, with Taiwan unranked but is well above South Korea according to Taiwan’s government statistics. All four countries belong to the high-income economies according the World Bank classification.

The three NIEs are the latecomers of HPAEs. Their growth started only in the last two decades. These countries share a common characteristic of having a sustained rapid

growth. However, the range of their per capita GNP ranks spreads from 35th for Malaysia in the upper-middle income group, 50th for Thailand in the high end of the lower-middle income group, to 75th for Indonesia near the bottom end of the lower-middle income group.

Thus, the economies in these two groups share a common phenomenon of rapid growth but they occupy a wide spectrum of GNP range. Another common denominator for all these HPAEs is the fact that the engine of rapid growth was the growth in the export sector. Since 1997, crisis started in the three NIE members and South Korea, the last of the Four Tigers. The following table shows the expansion of exports from 1991 to 1996 (the year before the crisis) for these four countries. China's rapid growth is unique because China's open economy in the last twenty years has been under the monitoring of a strictly authoritarian political regime and China still belongs to the class of low-income developing economies.

Table I: Value of Exports, 1991-1996 (million US\$)

| Country | 1991 | 1996 | 1996/1991 (%) |
|-----------|--------|---------|---------------|
| Indonesia | 29,142 | 49,814 | 171 |
| Thailand | 28,232 | 54,408 | 193 |
| Malaysia | 33,712 | 76,881 | 228 |
| S. Korea | 71,870 | 129,715 | 180 |

Source: IMF International Financial Statistics, Feb. 1999

2. History Repeats

It has been well documented by J. K. Galbraith (1993) that modern economies have experienced sizable speculative waves and bubbles in the past. The most notable one was the 1929 stock market crash in the United States and the subsequent decade-long wide spread depression of the 1930s. In post World War II Asia, rapid export-led growth of Japan and Taiwan in the 1980s eventually resulted in the bursting of two bubble economies in Japan and Taiwan at the beginning of the 1990s. The causes and effects of these two bubbles were analyzed in Fan and Fan (1994) and the last sentence of the paper states:

“The effect of speculative bubbles in other NIEs in Asia could be quite different from the ones in Japan and Taiwan but these countries should carefully avoid bubble creations as these countries travel down the road of their economic growth.”

The Japanese economy has been suffering for almost ten years since the bursting of its economic bubble. Taiwan’s economy has fared better due to its special trade situation, i.e., the exponential growth of the Sino-Taiwan cross-strait trade in favor of Taiwan’s export.

Thus, the 1997 Asian Financial Crisis was in a way a repeat performance by the HPAEs. Even though the financial crisis exposed the weakness of the financial system including both bank and non-bank financial institutions, the fundamental causes lie elsewhere.

3. The Over-investment

Following the spirit of a basic Harrod-Domar model, the full employment of capital

overtime requires that the economy maintains a rate of investment growth equal to the ratio of the savings (s) over the capital requirement (v), i.e.,

$$(1) \quad (dy/dt)/y = (dI/dt) / I = s/v$$

It is well known that this “warranted” rate of growth is rather unstable (i.e., the razor’s edge property). Suppose the actual rate of growth in investment exceeds the warranted rate, i.e.,

$$(2) \quad \{(dI/dt)/(I)\}^a > s/v,$$

where the superscript a denotes the actual value. Then

$$(3) \quad (1/s)(dI/dt) > (1/v)(I).$$

This implies that additional demand for output (i.e., the multiplier 1/s multiplied by the change in investment, dI/dt or ΔI) exceeds the additional production capacity (the investment, I, divided by the capital requirement, v). The excess demand further stimulates the investment activities until the system can not sustain itself any longer and collapses. Additionally, (1) indicates that the high growth rate depends upon high savings ratio, s, given the technology, v.

With a high savings ratio, resources can be mobilized for investment in infrastructure, plants and equipment to improve the productivity as well as production capacity.

However, these NIEs had consistently higher investment ratio than the savings ratio so that resources had to be borrowed from abroad. Using the pre-rapid growth 1980 and the pre-crash 1995 data, Table II below shows obvious high savings ratios and over-investments in these countries. The table shows that savings ratios in these countries were high in the 1980s but were in general greater than investment so that net exports (NX) are still either positive or mildly negative. In the 1990s, however, savings ratios have grown

even higher than in the 1980s but not as fast as the growth of investment so that the net exports became negative and in larger size. These countries have relied on resources provided from abroad as reflected in the growing size of negative net export. This situation exactly describes Equations (2) and (3) above. Thus, a precondition for the collapse of the economic system has been created.

Table II: The Savings - Investment Gap

$$(T - G) + (S - I) = NX (<0) \text{ (as \% of GDP)}$$

| Country | 1980 | | | 1995 | | |
|-----------|------|----|----|------|----|----|
| | I | S | NX | I | S | NX |
| Indonesia | 24 | 37 | 13 | 38 | 36 | -2 |
| Thailand | 29 | 23 | -6 | 43 | 36 | -7 |
| Malaysia | 30 | 33 | 3 | 41 | 37 | -4 |
| S. Korea | 32 | 25 | -7 | 37 | 36 | -1 |

Sources: World Development Report 1982, 1997.

4. Pegged Exchange Rates, Capital Inflows, and International Reserves

The over-zealous investment boom and the huge trade and current account deficits have been essentially financed by enormous capital inflows including direct foreign investments in the form of joint ventures and portfolio investment in the form of stocks and bonds. The growing size and the gaining popularity of the numerous Pacific Rim mutual funds and country-specific funds signify that billions of dollars have poured into the booming economies.

Along with the voluminous capital inflow attracted through high rate of economic growth, these countries also enticed foreign capital through the liberalized capital flow procedures as well as stable exchange rates to minimize foreign investors' exchange risks. For example, Thai baht was around 25 to one US dollar during 1991-1996 and Indonesian rupiah depreciated only less than 20% during the same period. Similarly, Malaysian ringgit and Korean won either appreciated or depreciated by no more than 10% against US dollar during the given period. Meanwhile, Japan, the Asian super economic power, started a long recession. Many of its manufacturing sectors out-priced themselves with high labor cost and the ever-strengthening yen against US dollar. Japanese yen appreciated from 125 to less than 100 in 1994 and 1995.

The Japanese direct foreign investment and loans to these Asian countries increased rapidly so that these NIEs could more than offset the huge current account deficit and accumulate sizable international reserves. Of course, capital inflow was not limited to those coming from Japan. Capital from Hong Kong, Singapore, Taiwan, as well as European and the United States also poured in these countries.

Moreover, billions of dollars in hedge funds and other mutual funds moved into these countries to take advantage of the skyrocketing stock prices. This short term capital inflows planted one of the seeds of stock market crashes and exchange rate free falls in 1997.

As central banks accumulated international reserves and expanded the domestic money supplies with almost in-satiable demand for credit (loans) expansion, they have also provided the necessary condition for the creation of bubble economies.

**Table III: Current Account Balance and Growth of
International Reserve (million US\$)**

| Country | Current Account | | Gross International Reserve | |
|-----------|-----------------|---------|-----------------------------|--------|
| | 1980 | 1995 | 1980 | 1995 |
| Indonesia | -566 | -7,023 | 6,803 | 14,908 |
| Thailand | -2,076 | -13,554 | 3,026 | 36,939 |
| Malaysia | -266 | -4,147 | 5,755 | 24,699 |
| S. Korea | -5,273 | -8,251 | 3,101 | 32,804 |

Sources: IMF International Financial Statistics

5. Excess Money and Domestic Credit Expansion

The booming stock markets and the sharp increases in real estate prices were fueled by excessive expansions in domestic credits and money supplies even though there were real growth in GDPs in these countries. The significance of these rapid expansions can be better understood when one compares them to those of Japan and Singapore. During similar period Japan's M_1 increased by 56% but the domestic credit increased by only 8% because the bubble economy had already collapsed. Singapore's M_1 expanded a sizable 119% because Singapore's economy was right in the middle of these three booming NIEs. Similarly, Hong Kong's expansions were 68%, 90%, and 152%, respectively for M_1 , M_2 , and D.C. With plenty of liquidity and booming real GDP, the optimistic domestic and foreign investors pushed up the stock market prices and the real estate prices. Because of the expansion of domestic credit and financial activities, the bank and non-bank financial sector expanded rapidly. In the environment with deeply entrenched

dictatorship (Indonesia and S. Korea), one party authoritarian regime (Malaysia), and succession of military oriented political parties (Thailand), the intertwined loan relationship has fostered highly risky lending situation in these countries. It would take only the bursting of the bubble economy to trigger a thunderous collapse of financial structure, with domino effects taking place immediately afterwards.

**Table IV: Money Supply and Domestic
Credit Expansion (1990-97)**

| Country | | 1990 | 1997 | (1997-90)/1990 |
|-------------------------------|----------------|---------|---------|----------------|
| Indonesia (Billion Rupiah) | M ₁ | 23,819 | 59,272 | 149% |
| | M ₂ | 60,811 | 275,184 | 353 |
| | D.C.* | 95,899 | 372,910 | 289 |
| Thailand (Billion Baht) | M ₁ | 195.4 | 423.7 | 117 |
| | M ₂ | 1,333.7 | 3,303.0 | 148 |
| | D.C. | 1,988.2 | 5,682.8 | 186 |
| Malaysia (Million Ringgit) | M ₁ | 25,405 | 73,718 | 190 |
| | M ₂ | 51,256 | 153,557 | 200 |
| | D.C. | 172,698 | 340,365 | 97 |
| S. Korea (Billion Won) | M ₁ | 15,905 | 34,450 | 117 |
| | M ₂ | 52,802 | 154,841 | 193 |
| | D.C. | 102,108 | 279,491 | 174 |

Sources: IMF International Financial Statistics (1998).

* D.C. stands for domestic credit.

6. External Debt and its Short Maturity

As mentioned above, capital inflows in the form of debts such as loans and bonds had grown rapidly and many enterprises, government as well as private, were even willing to borrow on short term in their contract negotiation. The accumulation of external debts

accelerated steadily especially in the 1990s. Moreover, the increase in short term debts was much faster for all four countries and the present value of debt as percentage of nominal GNP in 1996 were well over 50% (See Table V).

Table V: External Debts and Terms

| Country | | 1980 | 1985 | 1990 | 1996 | PV of Debt (% of GNP*) |
|------------|-------|--------|--------|--------|---------|---------------------------|
| Indonesia: | Total | 20,938 | 36,715 | 69,934 | 129,033 | 64 |
| | Long | 18,163 | 30,620 | 58,305 | 96,803 | |
| | Short | 3,142 | 6,049 | 11,135 | 32,230 | |
| Thailand: | Total | 8,297 | 17,552 | 28,088 | 90,824 | 56 |
| | Long | 5,646 | 13,230 | 19,765 | 53,210 | |
| | Short | 2,303 | 3,200 | 8,322 | 36,171 | |
| Malaysia: | Total | 6,611 | 20,269 | 15,328 | 39,777 | 52 |
| | Long | 5,256 | 17,466 | 13,422 | 28,708 | |
| | Short | 1,355 | 2,685 | 1,906 | 11,069 | |
| S. Korea: | Total | NA | 48,615 | 46,797 | 112,627 | 91 |
| | Long | NA | 30,890 | 23,710 | 57,963 | |
| | Short | NA | 17,169 | 22,790 | 54,292 | |

* For year 1996 for Indonesia, Thailand, and Malaysia, and 1994 for South Korea.

Sources: Asian Development Bank, Key Indicators of Developing Asian and Pacific Countries 1998, and World Development Report 1998/99.

In addition to the disproportional increase in short term debts, the burden on the international reserve for these countries was accentuated as the debt maturity of huge long- term debts was shortening. According to the prediction of the Bank for International Settlements (BIS), the size of international private bank debt expected to mature within a year has grown to a out of proportion. Any rational observer would come

to the conclusion that international reserves now in these countries' possession would not be sufficient to sustain the "pegged" exchange rates for long.

**Table VI: International Private Bank Debt and
International Reserves
(End of 1996, Billion US dollar)**

| Country | (1) Debt | (2) Maturing in less Than 1 Year | (3) International Reserves | (4) = (2)/(3) (%) |
|-----------|-------------|--|----------------------------------|----------------------|
| Indonesia | 55.52 | 34.24 | 18.25 | 188 |
| Thailand | 70.18 | 45.70 | 37.73 | 121 |
| Malaysia | 22.23 | 11.19 | 27.00 | 41 |
| S. Korea | 99.95 | 67.50 | 34.04 | 198 |

Sources: Bank for International Settlements and IMF International Financial Statistics.

The stage was set for the run for cover. No one really knows whom to blame. But with little restriction on capital mobility in a fundamentally pegged exchange rate regime and with stock markets at their peaks, the so-called "smart money" (e.g., the hedge fund blamed by the Mahathir of Malaysia) suddenly started to flee Thailand, Malaysia, Indonesia, and South Korea. As the capital was being pulled out from the markets and the countries, the vicious cycle of downfalls in stock market prices and exchange rates started in July 1997 in Thailand and was soon transmitted to Malaysia and Indonesia. The now famous Asian Financial Crisis was thus created.

**Table VII: Exchange Rates and Stock Markets --
July 1997- June 1999**

| Country | Beginning July 1997 | Year After July 1997 | July 14 1999 |
|--------------------|------------------------|-------------------------|--------------|
| Indonesia | | | |
| Exchange Rate* | 2450 | 15200 | 6750 |
| Stock Market Index | 593.2 | 483.1 | 664.9 |
| Thailand | | | |
| Exchange Rate* | 25.79 | 41.0 | 37.1 |
| Stock Market Index | 586.4 | 286.5 | 494.0 |
| Malaysia | | | |
| Exchange Rate* | 2.52 | 4.14 | 3.80 |
| Stock Market Index | 929.6 | 421.9 | 851.2 |
| S. Korea | | | |
| Exchange Rate* | 888.1 | 1334 | 1183 |
| Stock Market Index | 746.2 | 362.1 | 953.7 |

* Rupiahs per US dollar for Indonesia, Bahts per US dollar for Thailand, Ringgits per US dollar for Malaysia, and Wons per US dollar for S. Korea.

Sources: The Economists, various issues.

As the data in Table VII above demonstrate, within one year the exchange rates fell at least 50%, and up to 500% in the case of Indonesia. The impact on the Indonesian economy has been most severe on account of the import induced inflation and/or the shortage of necessary goods. The demise of the thirty-year long Suharto dictatorship was the result of the economic chaos.

The declining stock market prices, the tumbling down of real estate prices (due to capital flight), and the over-extended financial institutions were all affected by the non-performing loans. Many major banks and non-bank institutions were forced to close or be taken over by the government. Bank failures in Indonesia were most severe because the

regulations have been weak and many privileged elite had been receiving loans based on personal relationship rather than economic merit of the loans.¹

7. The Spillover Effect

The analysis thus far has been focused on the initial four countries incapacitated by the financial crash. Ramifications on other countries have been wide and deep and deserve one's attention. First, the reversion of Hong Kong to China on July 1, 1997 coincided with the beginning of the Asian Financial Crisis (July 2, 1997 in Thailand). However, the Hong Kong Monetary Authority (the Currency Board) has maintained the 7.75 to one US dollar exchange rate and has overcome the speculative onslaught on Hong Kong dollar. It also tried to defend the free fall of the stock market by becoming the largest holder of the shares in one of the biggest stock markets in the world. It has been estimated that the holding of the Hong Kong Monetary Authority exceeds 10% of the total market capitalization. The Hong Kong Monetary Authority has to maintain a high interest rate in defense of the Hong Kong dollar. In addition, the manufacturing sector in Hong Kong has been gradually transferred into Guangdong and other provinces in China to take advantage of relatively cheap labor. The declining tourism caused mainly by the Japanese recession (or depression) and the 1997 Asian crisis pushed the Hong Kong economy into the worst situation since the end of World War II.

China's economy has been affected by the Asian crisis as well. Many of its booming international trade and investment companies (e.g., Guangdong International Trade and Investment Corporation, GITI), which had speculated heavily in Hong Kong stock market and real estate market, failed. However, China's major export market is the

¹ More detailed discussion would involve the rescue programs of the IMF and the World Bank which is not within the scope of this paper.

United States and China has been able to maintain large sum of trade surpluses against the United States as a result of drastic depreciation of its currency (RMB) against US dollar.² The trade surpluses in the 1994-1997 period and capital inflows into China have boosted its international reserve from 22.4 billion dollars in 1993 to over 150.7 billion dollars in April 1999. Even though China's trade with the South East Asian countries has been adversely affected by the currency depreciation in these countries, it is relatively unimportant compared to the China-US trade. Nevertheless, China's economic growth has been encountering a slow-down and the temptation for further depreciation of RMB has been mounting in spite of Premier Zhu's assurance to the United States that China would not depreciate its currency for at least a year.

Taiwan's economy is also affected, but to a smaller degree. The New Taiwan dollar (NT\$) has depreciated substantially from 27.5 to around 33 against US dollar which enables Taiwan to maintain a sizable export surplus against China and the United States. In spite of the substantial downturn in the stock market from around 10,000 to mid-6000s, the Central Bank of Taiwan launched an expansionary monetary policy. It also took an action similar to that of the Hong Kong Monetary Authority by mobilizing a sizable fund of over 50 billion US dollars to support a group of selected stocks to stop the downfall momentum in the stock market.

However, the most severe impact of the Asian crisis is felt in Japan. At the onset of the Asian crisis, Japan had not recovered from the 1990 burst of its bubble economy which was triggered by the stock market crash and the real estate market collapse. Since the Japanese banking sector has been burdened by extremely heavy bad loans (see Table

² RMB was depreciated from 5.800 to 8.446 against dollar in the 1993-94 period.

VIII), the domestic credit has not expanded at all. The size of domestic credit has merely grown from 626 trillion yen in 1991 to 676 trillion yen in 1997.

**Table VIII: Bad Loans in Japan's Major Banks --
As Percentage of Equity**

| Bank | Bad Loans /Equity |
|-----------------------------|-------------------|
| Toyko-Mitsubishi | 122% |
| Sumitomo | 131 |
| Dai-Ichi Kangyo | 103 |
| Sanwa | 90 |
| Sakura | 115 |
| Fuji | 152 |
| Indus. Bank of Japan | 149 |
| Tokai | 161 |
| Asahi | 133 |
| Long Term Credit Bank | 177 |
| Mitsubishi Trust | 168 |
| Sumitomo Trust | 302 |
| Daiwa | 204 |
| Mitsui Trust | 219 |
| Nippon Credit Bank | 371 |
| Toyo Trust and Banking | 130 |
| Yasuda Trust | 327 |
| Chuo Trust | 159 |
| Nippon Trust | 206 |
| U.S. bank average (in 1991) | 58 |

Source: New York Times, June 27, 1998.

. Even though the Japanese monetary authority (the Bank of Japan) has increased its reserve money from 47.2 trillion yen to 62 trillion yen, the quasi-money measurement M_2 has been stagnant at 376.48 trillion in 1991 and 374.11 in 1997. Private consumption and investment simply did not show any sign of revival in response to a fall of interest rate to less than one percent.³

³ Japan's overnight rate, three- month money market rate, prime rate, and 10 year government bond yield were, respectively, 0.01%, 0.03%, 1.38%, and 1.67% on July 14, 1999. No wonder Paul Krugman uses the term "liquidity trap" in describing the Japanese situation in his 1999 new book.

Epilogue

Is the end of the Asian crisis in sight? The answer is a definite “No”. Some of the optimistic predictions are simply based on the recent stock market recovery in these countries. But this can be deceiving. With substantially depreciated currencies, a great deal of “local” capital flight has begun to flow back into the country and even some country-specific mutual funds from the United States are also taking advantage of the depressed local currencies to acquire "bargain" shares in these markets. It is no wonder that Indonesia, which was most severely affected by the crisis, would make the fastest stock market recovery. (See Table VII, last column.) By moving back the same amount of US dollars, investors can now buy 330% more shares on the average. Similarly, other stock markets also made substantial recovery. However, GDP is still growing negatively in Indonesia, Malaysia, Thailand, and Hong Kong. The only exception is in South Korea where the first quarter GDP in 1999 was 4.6% better than the same quarter a year before. Japan is the only industrialized high-income economy showing a near zero growth of GDP in 1998. (The Economist forecasts that Japan’s GDP growth will be 0.1% for 1999 and 0.1% for year 2000). In this globally linked economic world, the totality of the impact of any economic shock such as the Asian crisis can only be assessed, not by its dramatic nature, but by the relative size of these economies in the global context. The size effect of an economy can be approximately reflected in the size of an economy’s GNP. (See Table IX)

The growth performances of the four Asian Tigers, the NIEs, and China have been impressive since the 1980s and their downfalls in the late 1990s have also been dramatic in terms of their global ramifications.

**Table IX: Size of Economies –1997
(in Billion US Dollar)**

| Country | 1997 GNP |
|------------------|---------------|
| China | 1,055 |
| Asian NIEs | 482 |
| Indonesia | 215 |
| Thailand | 169 |
| Malaysia | 98 |
| Four Tigers | 995 |
| Hong Kong | 164 |
| Singapore | 96 |
| Taiwan | 250 |
| S. Korea | 485 |
| Subtotal | 2,532 |
| Japan | 4,472 |
| HPAEs | 6,304 |
| USA | 7,690 |
| EU (approximate) | 8,500 |
| World | 29,928 |

Source: World Development Report 1998/99.

But the stagnating nature of the Japanese economy has even greater impact on the performance of all other Asian economies and the whole world. Japan is not only not pulling the Asian economy forward, it is also dependent on the United States economy by maintaining a record setting trade surplus against the United States. Aside from the Asian countries discussed here, Latin America, Russia and European countries are not performing well either. Thus, it is a modest conclusion of this study that the Asian Crisis will really be over only when Japan is able to pull itself from its lingering recession (depression).

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