The Asian Financial Crisis: A Comparative Analysis of Taiwan Experience [1]

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Abstract

In this paper, we analyze why the Taiwan economy performed relatively well during the Asian financial crisis. In particular, we discuss in details the operations of monetary policy in Taiwan during various phases of the crisis. Our empirical analysis indicates that sound macroeconomic fundamentals, such as trade surplus, low inflation rate, low short-term foreign debt, timely increases in private consumption and investment, as well as conservative fiscal and monetary policy all contribute to weathering the financial crisis. What is more important is that huge foreign reserve and budget surplus enabled the Taiwan government to defend the local currency and domestic market. The successful technology upgrading of industry and entrepreneurial resilience also helped contain the financial crisis.

1 Introduction

The Asian financial crisis broke out in Thailand in July 1997, and then spread rapidly throughout the neighboring countries. According to the WEFA forecast, among the severely affected countries, Thailand, Indonesia, Malaysia and South Korea all will have negative economic growth in 1998. Even Japan, having maintained stable growth since World War II, is predicted to have negative 1.8 percent growth in GDP. As for Taiwan, the economic growth rate will drop from 6.77 percent in 1997 to about 5 percent in 1998. Apparently, Taiwan did not suffer as much as other Asian countries. Why so? How could Taiwan avoid heavy damage?

The Asian financial crisis has attracted a great deal of attention of economists. Corsett, Pesent and Roubini(1998),Flood and Marion(1998), Krugman(1998), Kaminsky and Reinhart(1997), Radelet and Sachs (1998), Sach, Tornell and Velascc(1996) all analyze the causes and impact of the crisis. Cambridge Journal of Economics devoted an entire recent issue (vol 22, no 6) to Asian financial crisis. These papers examine the entire South Asia region and all the countries in trouble. However, to our best knowledge, no one focuses on Taiwan, except for papers appearing in local journals, such as Kuo and Liu (1998), Siew(1998) and Schive(1998).

This paper attempts to provide insight into this important question by examining the Taiwan economy's characteristics and policy responses in the wake of the Asian financial crisis. We shall first investigate the causes of the financial crisis and then explain the policy actions that Taiwan has taken. Finally, the possibility and extent of the impact of Asian financial crisis on Taiwan in the future will be examined.

The rest of the paper is organized as follows. Section 2 briefly discusses the causes of the Asian financial turmoils. Section 3 explores the possible explanations of why Taiwan performed relatively well during the storms. Section 4 describes the monetary policy actions during the crisis. Section 5 is the conclude section.

2 Causes of Asian Financial Crisis

In this section, we shall analyze the factors that contribute to triggering the Asian financial turmoils. They can be summarized as bellows:

1. Real appreciation of Asian currencies and persistent current account deficits
   As is seen from Table 1, countries such as Thailand, Malaysia, Indonesia, South and Korea, which were seriously affected during the turmoil, have had persistent current account deficits. From Table 2, we see that up until 1996, the currencies of these countries were pegged to US dollars and were all over-valued. This resulted in sharp fluctuations in the

exchange rate when the crisis hit the economies.

2. High foreign debt ratios and highly liberalized financial markets
   Almost all Asian countries except Japan are developing countries. Abundant capital is needed for economic development. From Table 3, we find that the balance of foreign debt maintained a strong upward trend in the last few years. If the influx of capital is used for domestic intermediate and long term investment, then it will benefit economic growth. However, since 1990, the opening of financial markets in most South Asian countries have resulted in the inflow of speculative short-term capital. The subsequent outflow of the short-term capital destabilized the developing financial markets.

3. Collapse of bubbling stock and real estate markets
   Since the 1980s, South East-Asia economies have enjoyed rapid economic growth, accompanied by the loosening of monetary policies, and thereby high inflation rates. The highly dense population, fast economic growth, high inflation rate, imperfect financial markets, and lack of investment channels stimulated real estate and stock markets. In the 1990s, when the economies slowed down, the outflow of foreign capital caused the stock and foreign exchange markets to crash. In Asian countries, where stock and real estate are often used as collateral, the sharp declines in asset prices caused credit crush and the collapse of financial markets.

4. Loosely regulated and fragile financial sectors
   Since the Second World War, a number of Asian countries have been longing for political stability, leading to a strengthening of the link between political interest groups and financial tycoons. Besides, absence of rigorous lacking financial regulations and auditing system and proper manpower, managing experience and inadequate information deepened the impact of financial crisis when the economic trends were reversed. For examples, in 1997, the bad loan ratio of Thailand reached 19.3%, the highest among Asian countries. The bad loan ratios for 1998 are expected to reach 15.0% for Indonesia, 30% for 15%, 7.0% for Philippine, 36.5% for Thailand, 4.0% for Singapore and 4.5% for Taiwan.

5. Speculators' attack and slow reactions by financial authorities
   It is clear that the speculators ignited the Asian financial storms. But failing to recognize the significance of the speculators' attacks and considering the financial crisis as temporary disorder, the authorities missed an opportunity to stop the financial crisis from worsening.

3 How Taiwan weathered the financial crisis

Taiwan performed relatively well as compared with neighboring countries in the sense that its stock prices (Table 4), currency value (Table 2) and real economic growth rate did not fall as much as in other countries. In this section, we shall investigate the reasons. For the ease of exposition, we shall analyze the impact of the crisis on real and financial sectors and policy responses.

3.1 Impacts on the real sector

3.1.1 Foreign trade sector

The GDP of Asian developing countries account for about 22.5 percent of world GDP. The figure dropped to 7.3 percent when excluding China and India, both of which are only slightly affected by the crisis. The exports from Asia are about 4.4 percent of total world exports. Europe's exports to Asia account only for 7 percent of her total exports and 2 percent of her GDP. Though the total exports of US to Asia are as high as 20 percent of her total exports, they are only 2 percent of her GDP. Thus, the direct impact of shrinking import demand of Asia caused by the crisis on the rest of the world is not significant. However, the indirect effect on Latin America, East Europe and Russia and Taiwan cannot be ignored.

It is well known that the Asian financial crisis resulted in sharp depreciation of Asian currencies. The depreciation created strong competitive pressures on Latin America and Eastern Europe which all have labor-intensive industries similar to Asian countries. Consequently, the exports from these countries dropped significantly, and further slowed down the recovery of the world economy. Besides, Asia accounts for about 40 percent of total exports and 6.3 percent of GDP for Japan. The diminishing export demand further weakened Japanese aggregate demand and delayed its recovery process.

From the analysis above, we conclude that though the Asian economy is only a small part of the world economy and the direct impact via trade is not significant, the indirect effect and thus, the total effect, are much more profound.

Tables 5 and 6 summarize the exports and imports of Taiwan to the rest of the world. Southern Asian countries accounted for about 15 percent of Taiwan exports and imports in 1997 excluding indirect trade via Hong Kong. It appears, at first sight, the deterioration of these economies should not have a significant impact on Taiwan exports. However, overall Taiwan exports during the first ten months of 1998 deteriorated by 8.1 percent as compared with same period last year. A closer look at the table indicates that exports to all areas except for US and Europe show a negative growth. This is because of the stable economic growth of US and European countries and partly became of the changing structures of the Taiwan. Taiwan exports composed of of high-tech, intermediate-tech and low-tech products were 27, 38 and 35 percent in 1990, and 39, 39, and 22 percent in 1996, respectively. In other words, the percentage of intermediate- and high- tech exports of Taiwan increased to about 80 percent in six years. This explains why the competitive devaluation of other Asian currencies during the financial crisis has not severely damaged Taiwan's exports.

3.1.2 Domestic demand

Strong domestic consumption and investment explain why Taiwan was able to maintain 5 percent economic growth in 1998. The Institute of Economics, Academia Sinica, predicts that the domestic consumption will grow by 7 percent and domestic investment by a remarkably high 16.5 percent in 1998. It is interesting to examine the sources of strong domestic demand in Taiwan during the financial crisis. It is not that the financial crisis has little impact on domestic demand but that other factors have canceled out the impact. Let us turn first to domestic consumption. First, starting from January 1, 1998, Taiwan switched from the one-and-half day weekend to two-day weekend every other week. The increased leisure time contributed to a rise in domestic consumption. Second, households appeared to have confidence on the ability of the economy to weather the Asian financial crisis. Therefore, real consumption grew by as high as 8.13 percent in the first quarter of 1998. As the impact of the financial crisis grew, export order and exports both fell, and domestic financial crisis began to emerge, consumption turned downward. It's growth rate fell to 6.78 percent in second quarter and further down to 6.17 percent in third quarter of 1998.

As for domestic investment, the scenario is similar. The high profits of the electronic industry induced firms to adopt a rapid expanding strategy in order to compete for market share. As a result, real investment grew by as high as 39.14 percent in the first quarter for 1998. However, as the domestic financial credits started to evolve, and monetary policy was tightened, big investment projects such as high speed railway, electricity power plants, and semiconductor plants were either delayed or scaled down. The growth rate of investment dropped to 19.8 percent in the second quarter and further down to 17.84 percent in the third quarter of 1998.

3.1.3 Financial sector

Tables 2 and 4 show the dramatic impact of Asian financial crisis on the financial markets in Asia. Both currencies and stock prices fell sharply. Taiwan could not escape the declines in its currency value and stock prices, although the magnitudes of the declines were smaller than other neighboring countries. We shall investigate the issue in details below.

1. Stock market

Why Taiwan stock was not hurt as much by the financial crisis can be explained by two factors. First, Taiwan has already experienced collapse of the stock market during the Missile Crisis in 1996. The Taiex an index of stock prices, climaxed at the 12000 points in February 1990, then it dropped significantly because political struggles, rebounded later, and then dove again during 1996. In the meantime, the bank runs in several grass-root financial corporations and security firms frequently hit the stock market. As a result, investors were used to unexpected events and did not react with panic during the financial crisis, and the government improved its monitoring of financial institutions. As is indicated by Table 4, Taiex dropped by 20.52 percent during the period between June 30, 1997 and November 30, 1998 which is the mildest among Southern Asian stock markets. Second, the government intervened the stock market in order to minimize the impact of financial crisis. When the financial turmoil started to hit the Asian stock markets, foreign capital withdrew out of Asian markets in large scale. Also, domestic investors turned pessimistic and moved capital from local stock markets to bank deposit in term of US dollars. Both caused the Taiex to dive. To stabilize the stock market, the Taiwan government increased the loan ratio and injected a significant amount of funds into the stock market in the fourth quarter of 1997. As a result, the Taiex rose to 9300 points in the first quarter of 1998. Considering the goal achieved, the government funds were removed then. However, as the impact of credit crunch has begun to emerge, several big firms experienced financing trouble, Taiex fell again. In November, 1998, The government funds were brought in again to keep the Taiex from falling below 6000 points.

Foreign investors turned pessimistic about the economic development of South Asia and began to withdraw from Asian markets. The large-scale abrupt withdraw of capital ignites the Asian financial crisis in July 1997. At that time, foreign capital composed more than 30 percents of most Asian stock markets while it only accounted for about 3 percent in Taiwan. Thus, unlike other Asian countries, the withdrawal of foreign short-term capital only caused a minor drop for Taiex.

2. Foreign exchange market

Now we turn to foreign exchange market. Table 2 shows that the depreciation of New Taiwan dollars is the slightest among Asian currencies except for China. This can be accounted by the following reasons. From Table 1, we observe that Taiwan has managed to maintain trade surplus most of the time since 1960. However, in the 1990s, as the value of the US dollar became strong, New Taiwan dollars gradually depreciated against US dollars. On the contrary, the currencies of countries such as Malaysia, Thailand and Indonesia were pegged to US dollars, causing the trade deficit to accumulate. This partially explains why the New

Taiwan dollar has strong resistance when the financial situation turned sour.

The sound macroeconomic fundamentals gave strong support for New Taiwan dollars. Due to the high saving rate, the private sector has accumulated a significant amount of wealth. Since the control of movement of foreign exchange by the monetary authority is weak, as the financial situation turn downward, people rushed to exchange New Taiwan dollar for US dollars. This exerted great pressure for New Taiwan dollar to depreciate. It is well known that to protect her currency, the central bank must have sufficient foreign exchange reserve. The persistent trade surplus over the last thirty years has resulted in accumulation of foreign exchange reserve by over US$80 billion for Taiwan. Other Asian countries were not as lucky as Taiwan. The trade deficit and large volume of foreign short-term weakened the abilities of their central banks to defend their currencies when needed.

3.2 Fiscal policy

It is not difficult to find out that that most Asian countries constantly stimulate aggregate demand in order to accelerate economic development. Fiscal authorities often stimulate government expenditure by budget deficit financing, whereas monetary authorities adopt the loose monetary policies. They increase monetary growth rates to finance the demand for expanding economic growth. As a result, high inflation rates often accompany high economic growth rates for these countries. Taiwan adopted a similar policy prior to 1990 but has switched to a different policy regime since 1990. This also partially explains why Taiwan is less damaged during the crisis.

Before 1990, Taiwan adopted a policy similar those of other Asian countries. Government expanded expenditures to stimulate economic growth. The growth rates of government investment and consumption often were kept at two digits (Table 10). In particular, during the period between 1991 and 1992, the government started the six-year National Economic Plan for several major infrastructure projects. To finance the NT$ 8.2 trillion projects, the government issued a large number of government bonds. As a result, the budget deficit rose rapidly. Fortunately, the authority recognized the possible consequence of ever growing budget deficits and cut down expenditure afterwards. The growth rate for real government consumption has been kept under 5 percent. This would certainly slow down the economic growth somewhat but also lower the inflation rate. The low inflation rate stabilizes the real estate and stock markets, and thereby significantly reduces the chance for a bubble economy. On the other hand, in other Asian countries, governments frequently adopted an expansionary policy, causing the inflation rate to rise beyond 5 percent and the bubble economy to form. The collapse of the bubble strongly damaged the economy.

4 Monetary policy during the financial crisis

Before 1994, Taiwan maintained a two-digit monetary growth rate just as other Asian countries. M1B once grew as high as 30.1 percent, pushing up the stock and real estate prices. In just a few years, they multiple by 4 to 5 times. At the same time, the consumption price index often grew by more than 3 or 4 percents per annum. To control inflation, the Taiwan monetary authority has strictly controlled the monetary growth rate and explicitly set the M2 target since 1994. Next year the Central Bank of China explicitly set the target zone for the monetary growth rate and lowered the target rate gradually as direct financing became more important. The target zone for the annual monetary growth rate has been between 6 and 12 percent in 1998. Sound fiscal policy together with conservative monetary policy helped stabilize inflation in recent years. On the other hand, most Asian countries adopted a loose monetary policy. From Tables 11 and 9, we see that a high M2 growth rate induced a high inflation rate. Rapid economic growth together with high inflation brought about the bubble economy. As soon as the financial situation worsened, the bubble collapse. Stock market and real estate market dive into the bottom, foreign short term capital moved out and foreign exchange rate decline significantly. Also, bad loan accumulated, firms experienced financial difficulty, and finally ignited the financial crisis.

As can be seen from Figure 1, the crisis caused local interest rates, the exchange rate and stock prices to fluctuate. Understanding that monetary policy plays a crucial role in stabilizing the stock and foreign exchange markets during the crisis, we devote the rest of this section to detail analysis of monetary measures taken by the Taiwan government to minimize the damage. The strategy of the Central Bank of China (CBC) in Taiwan in addressing the crisis can be explained by looking at three separate but consecutive periods.

4.1 Period 1 (July-October 16, 1997): Heavy Intervention in the Foreign Exchange Market

At the beginning, no one realized that the East Asian financial crisis world be so serious and last so long. The CBC optimistically thought that it should be able to stabilize the value of the New Taiwan (NT) dollar, given the good economic fundamentals. Thus, in order to dampen the prevailing expectations of a depreciation in the NT dollar, the CBC actively intervened in the foreign exchange market from July to October 16, 1997. During this period, as a means of determining a target foreign exchange rate to defend, the CBC at one point allowed the NT exchange rate to be fully determined by market forces for three consecutive days beginning on July 29. The NT dollar subsequently depreciated to a level which, based on the CBC's judgment, was appropriate to defend. In early August, the CBC also raised both the rediscount rate and the interest rate on accommodations against secured loans as part of an ongoing effort to stabilize the NT dollar. Over the following two-and-a-half months, the CBC actively intervene d in the foreign exchange market. As shown in Figure 1, the NT exchange rate had remained quite stable except for a once-and-for-all deprecation at the end of July.

During this period, the CBC also maintained the interbank call-loan interest rate at a relatively high level. However, it peaked at only 11.47 percent on October 7, a level much lower than those observed in other Asian economies. To sterilize its intervention in the foreign exchange market, the CBC often relied on open market operations, and once lowered required reserve ratios on September 25 to inject high-powered money into the banking system, so that the interbank rate could remain at 68%. most of the time.

In this period, local stock prices still maintained an upward trend almost until the end of August. However, as the East Asian financial turmoil escalated, world stock prices in general fell, and the CBC's intervention in the foreign exchange market resulted in a shortage of funds and a higher market interest rate. The Taiwan stock price index therefore dropped dramatically from a peak of over 10,000 at the end of August to around 7,000 at the end of October.

After heavy intervention for three-and-a-half months, as the financial turmoil in Southeast Asia showed no signs of abating and the US dollar further strengthened, expectations of a subsequent NT dollar depreciation among the general public intensified. Purchases of US dollars and foreign exchange deposits thus increased sharply. Between July and October, foreign exchange deposits increased by US$3.6 billion, or 27%. In September and early October, the CBC was often forced to sell out several hundred million US dollars in a single day to stabilize the exchange rate. During that period, the CBC spent more than US$7 billion on intervention. As a result, Taiwan's foreign exchange reserves shrank from US$90 billion at the end of June 1997 to US$82.9 billion at the end of October in that same year.

4.2 Period 2 (October 17, 1997-September 1998): Modest Intervention

The loss of public confidence in the local currency finally led the CBC to realize that Taiwan could not single-handedly stabilize the exchange rate. In order to avoid adverse impacts on the real sector and on financial markets resulting from heavy foreign exchange intervention, the CBC changed its policy on October 17 to allow the NT dollar exchange rate to be determined primarily by market forces. However, the CBC on occasions still intervened in the market on a smaller scale to avoid unnecessary depreciation and moderate undue fluctuations in the exchange rate.

Immediately following the policy change the NT dollar depreciated sharply. However, it soon stabilized, and then fluctuated along with the currencies of neighboring countries. During this period, the CBC usually modestly intervened in the foreign exchange market to smooth the fluctuations in the NT exchange rate, except for the sub-period of mid-May June 1998. Beginning in mid-May, the NT dollar was faced with heavy devaluation pressure, due to political instability and social unrest in Indonesia, the continued deprecation of the Southeast Asian currencies, the plunge in the value of the Japanese yen, and the withdrawal of foreign capital from the local stock market. The NT dollar subsequently fell to 34.9 against the US dollar in mid-June. Around this time, the CBC once again actively intervened in the foreign exchange market to defend the NT dollar.

To reduce the pressure of speculative attacks on the local currency, the CBC also blocked speculators' access to local currency funding in the interbank call-loan market, and prohibited local enterprises from engaging in non-delivery forward (NDF) transactions in May. Following the outbreak of the East Asian financial crisis, NDF transactions increased sharply, and part of the increase originated from the speculative motive. Although the CBC stipulated that the net NDF position of a local bank must not exceed one-third of that bank's foreign exchange position regulated by the CBC, some local banks, especially local branches of foreign banks, sought to circumvent the ceilings in order to meet the speculative needs of their clients. These banks, while selling a large amount of US dollar NDFs to their clients, also purchased NDFs from local enterprises and simultaneously sold DFs to them, so that their net NDF positions would not exceed the ceilings. However, these banks had to purchase US dollars from the spot market to hedge their own exchange rate risk. Consequently, the NT dollar devalued further, and self-fulfilling depreciation expectations set in. The prohibition on local enterprises' involvement in NDF transactions has since blocked this speculative channel, and thus shielded the local currency from being further attacked by speculators.

Under the above-mentioned measures and active intervention in the market by the CBC, the NT dollar remained relatively stable as compared with the Japanese yen, although there were widespread expectations in the market that the NT dollar would move closely with the Japanese yen. Then, owing to the joint intervention by the US and Japan in mid-June, the Japanese yen rebounded, and the NT dollar also soon stabilized relative to the US dollar.

In order to compensate for the NT dollar liquidity gap caused by foreign exchange market intervention, the CBC lowered required reserve ratios both on October 16, 1997, one day before it changed its exchange rate policy, and also on August 3, 1998. The CBC also released funds into the financial system during this period through open market operations, by lending to the Cooperative Bank and the Postal Savings Bank using their re-deposits in the CBC as collateral, through the release of postal savings re-deposits, and by engaging in foreign exchange swaps with local banks. As a result, the interbank rate was usually stabilized in the region of 6.8%.

During this period, the stock price index fluctuated roughly in line with the world stock market. To restore domestic investors' confidence in the stock market, the Ministry of Finance (MOF) adopted several administrative measures in October 1997, including relaxing the credit limits on stock investments. Partly because of these measures, the local stock price index remained stable around the level of 7,000 between October and December. Then, as New York stock prices recovered and the shortage of funds was resolved, local stock prices started to go up in December 1997. However, between April and August 1998, world stock prices fell, the NT dollar faced strong depreciation pressure, and foreign investors withdrew from the local stock market. Local stock prices again to plunge. In order to reverse sagging stock prices, the MOF again announced several measures in May, including lowering the minimum guarantee level for margin trading and relaxing bank requirements on loans that use stocks as collateral. However, these measures could not reverse the trend.

4.3 Period 3 (October 1998 -): Growth Promotion

The adverse impacts of the East Asian financial crisis on the world economy eventually spill over to the US, and forced the US government to modify its policy of maintaining a strong US dollar. The big losses suffered by certain hedging funds, such as Long Term Capital Management (LTCM), also contributed to the weakness of the US dollar. Thus, the NT$/US$ exchange rate rose from 34.638 on September 23 to 32.47 on October 30, and then stayed at around that level.

After the foreign exchange market was stabilized, and the rate of increase in CPI for 1998 was expected to be less than 2%, the CBC started to implement a moderately easy monetary policy by lowering required reserve ratios on September 29. The CBC also adjusted downward on three occasions the rediscount rate and the interest rate on accommodations against secured loans on September 29, November 11 and December 8, and released postal savings re-deposits. Its goal was to lower the market interest rates and to support the medium-and long-term funds required for private investment and public infrastructure. As a result, the interbank rate fell quickly from 6.521% on average in September to 5.401% in November.

The appreciation of the NT dollar has recently induced foreign capital to return to the local stock market. The CBC's easy monetary policy has also helped stimulate the local stock market. However, because of weak global stock markets, and the financial troubles encountered by several big local business groups, which further jeopardized a few financial institutions in November this year, local stock prices have not recovered much. The stock price index has fluctuated around 6,500   7,500.

To sum up, the CBC has responded to the Asian financial crisis in a flexible manner to cope with the external environment. After trying for three-and-a-half months to defend the NT dollar, the CBC eventually allowed market forces to determine the exchange rate, once it concluded that defending the rate had become an impossible task. But it has still intervened modestly to smooth the fluctuations in the market. Furthermore, during the period of foreign exchange intervention, the CBC allowed short-term interest rates to rise to a certain extent to assist in defending the exchange rate. It also made up for the shortage of funds through open market operations and by lowering required reserve ratios and adopting other measures. In this way, market interest rates did not rise to such an extent so as to adversely affect the real sector and the stock market as well as other financial markets.

Since October 1997, CBC's strategy has been to let the real sector, the money market, the stock market and the foreign exchange market share the adjustment burden together. The adverse impacts of the Asian financial crisis on the Taiwan economy have thus been reduced. As reported in Table 1, the NT dollar depreciated by 19.04% (14.24%) against the US dollar, while the stock price index fell by 16.41% (20.52%) between the end of June 1997 and the end of June (November) 1998. If we define the sum of the depreciation rate and the negative growth rate of stock prices as the "financial misery index", Taiwan's financial misery index according to Table 1 is about the lowest in the East Asian region. In other words, Taiwan has been relatively insulated from the financial crisis.

5 Conclusions

In this paper, we analyze why Taiwan performed relatively well during the financial crisis. Sound macroeconomic fundamentals, such as trade surplus, low inflation rate, low short term foreign debt, timely increase of private consumption and investment, as well as conservative fiscal and monetary policy all contribute to minimizing the consequence. What is more important is that huge foreign reserve and budget surplus equip the government with ability to defend the local currency and domestic market. The successful technology upgrade of industry and entrepreneurs' flexibility also help contains the financial crisis.

Though the most difficult moment of the financial crisis seems to have passed, the induced effect of credit crunch begin to emerge. Taiwan manages to survive the financial crisis and maintain moderate growth. However, since Taiwanese firms have long relied on high leverage operation and ignored the high risk of financial market, it will take a long time for the Taiwan economy to fully recover. The policy measures of government play an important role in Taiwan to meet the challenge of the financial crisis.

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Table 1: Trade balance and current account

	Thailand		Malaysia		Indonesia		Philippines		S. Korea	
	amount	chg(%)	amount	chg(%)	amount	chg(%)	amount	chg(%)	amount	chg(%)
Merchandise export										
94	44.5	22.2	56.9	23.1	40.2	9.9	13.5	18.5	93.7	15.7
95	55.4	24.7	72.1	26.6	45.5	13.1	17.4	29.4	123.2	31.5
96	54.4	−1.9	77.0	6.8	49.8	9.5	20.5	17.8	127.5	3.5
Merchandise import										
94	48.2	18.5	55.3	28.1	32.3	13.9	21.3	21.2	96.8	22.4
95	63.4	31.6	72.2	30.4	39.8	23.0	26.4	23.7	127.9	32.1
96	63.9	0.8	73.7	2.2	43.0	8.2	32.8	24.4	142.3	11.2
trade balance										
94	−3.7		1.6		7.9		−7.8		−3.1	
95	−8.0		−0.1		5.7		−8.9		−4.7	
96	−9.5		3.3		6.8		−12.3		−14.8	
current account										
94	−8.1		−4.5		−2.8		−2.9		−3.9	
95	−13.6		−7.4		−7.0		−2.0		−8.3	
96	−14.7		−3.6		−7.0		−4.8		−21.8	
	China		Hong Kong		Singapore		Taiwan		Japan	
	amount	chg(%)	amount	chg(%)	amount	chg(%)	amount	chg(%)	amount	chg(%)
Merchandise export										
94	102.6	35.6	151.4	11.9	97.9	25.8	92.2	9.4	383.6	9.3
95	123.1	20.1	173.8	14.8	118.5	21.0	110.7	20.0	421.8	11.6
96	120.5	1.5	180.7	4.0	126.0	6.4	114.8	3.7	400.5	−6.4
Merchandise import										
94	95.3	11.4	161.8	16.7	96.6	19.8	80.3	10.3	238.3	13.6
95	101.0	6.0	192.8	19.1	117.4	21.6	97.2	21.0	293.3	23.1
96	112.6	11.4	198.5	3.0	123.7	5.4	96.6	−0.5	317.1	8.1
trade balance										
94	7.3		−10.4		1.35		12.0		145.2	
95	18.1		−19.0		1.06		13.5		134.8	
96	12.5		−17.8		2.28		18.1		83.4	
current account										
94	6.9		2.1		12.2		6.2		129.1	
95	1.6		−4.3		14.5		4.8		111.6	
96	−4.8		−1.1		14.3		10.5		67.1	

Source: WEFA, World Economic Outlook

Table 2: Exchange rates

	Thailand	Malaysia	Indonesia	Philippines	S. Korea
1990	25.58	2.70	1842.81	24.31	707.76
1991	25.51	2.75	1950.32	27.48	733.35
1992	25.40	2.55	2029.92	25.51	780.65
1993	25.32	2.57	2087.10	27.12	802.67
1994	25.15	2.62	2160.75	26.42	803.45
1995	24.91	2.50	2248.61	25.71	771.27
1996	25.34	2.52	2342.30	26.22	804.45
1997	31.36	2.81	2909.38	29.47	951.29
1998*	43.35	3.96	9929.47	40.28	1471.66
	China	Hong Kong	Singapore	Taiwan	Japan
1990	4.78	7.79	1.81	26.89	144.79
1991	5.32	7.77	1.73	26.81	134.71
1992	5.52	7.74	1.63	25.16	126.65
1993	5.76	7.74	1.62	26.39	111.20
1994	8.62	7.73	1.53	26.46	102.21
1995	8.35	7.74	1.42	26.48	94.06
1996	8.31	7.73	1.41	27.46	108.78
1997	8.29	7.74	1.48	28.70	120.99
1998*	8.28	7.75	1.69	33.64	133.16

* Up to July, 1998

Source: IMF, International Financial Statistics

Table 3: Gross foreign debt and debt/export ratio

	Thailand		Malaysia		Indonesia		Philippines		Korea	
	amount	%	amount	%	amount	%	amount	%	amount	%
foreign debt										
94	48.1	12.6	29.5	13.0	96.5	8.3	40.0	11.4	56.9	30.8
95	56.8	18.1	34.4	16.6	107.8	11.7	39.4	−1.5	78.4	37.8
96	63.4	11.6	39.2	14.0	113.1	4.9	42.0	6.6	104.7	33.5
97	91.8	44.8	42.9	9.4	119.6	5.7	45.4	8.1	154.4	47.5
ratio of										
94	38.0		19.1		69.4		43.1		6.2	
95	30.7		14.8		63.0		39.4		5.4	
96	38.0		14.9		67.1		28.8		5.6	

	China		Hong Kong		Singapore		Taiwan		Japan	
	amount	%	amount	%	amount	%	amount	%	amount	%
foreign debt										
94	100.5	17.0	—	—	—	—	—	—	—	—
95	118.1	17.5	—	—	—	—	—	—	—	—
96	127.3	7.8	—	—	—	—	—	—	—	—
ratio										
94	24.6		—		—		—		—	
95	21.4		—		—		—		—	
96	23.3		—		—		—		—	

Source: WEFA, World Economic Outlook

Table 4: Rate of change of stock prices

	June, 30 1997 - June, 30 1998	June, 30 1997 - November, 30 1998
Taiwan	−16.41	−20.52
Korea	−60.04	−39.38
Singapore	−46.34	−28.74
Hong Kong	−43.78	−31.55
Thailand	−49.30	−31.19
Philippine	−37.34	−29.68
Malaysia	−57.71	−53.45
Indonesia	−38.46	−46.69
Japan	−23.17	−27.77

Source: Shea(1998)

Table 5: Percentages of export and import of Taiwan to selected Asian countries

	USA		Hong Kong		JAPAN		GERMANY		SINGAPORE	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
1990	32.34	23.03	12.75	2.64	12.39	29.26	4.76	4.96	3.28	2.58
1991	29.29	22.46	16.30	3.10	12.07	29.99	5.09	4.80	3.16	2.30
1992	28.93	21.91	18.92	2.48	10.92	30.22	4.42	5.44	3.07	2.35
1993	27.73	21.69	21.70	2.24	10.55	30.10	4.11	5.48	3.40	2.42
1994	26.16	21.14	22.85	1.80	10.98	29.04	3.49	5.61	3.62	2.83
1995	23.65	20.06	23.36	1.78	11.78	29.22	3.44	5.49	3.95	2.86
1996	23.17	19.51	23.11	1.66	11.78	26.85	3.14	4.91	3.94	2.72
1997	24.22	20.32	23.56	1.75	9.53	25.35	3.02	4.69	4.01	2.75
1998*	26.66	18.61	22.38	1.87	8.35	25.90	3.71	4.98	2.98	2.62
	MALAYSIA		PHILIPPINES		THAILAND		S. KOREA		INDONESIA	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
1990	1.64	1.84	1.21	0.43	2.12	0.82	1.80	2.45	1.86	1.69
1991	1.92	2.24	1.11	0.37	1.90	0.93	1.69	2.78	1.59	1.97
1992	1.96	2.54	1.26	0.42	2.22	1.15	1.41	3.19	1.49	1.95
1993	1.97	2.52	1.21	0.47	2.37	1.26	1.50	3.29	1.51	2.11
1994	2.39	2.73	1.31	0.54	2.62	1.30	1.87	3.53	1.54	2.48
1995	2.60	2.85	1.48	0.60	2.75	1.43	2.30	4.18	1.67	2.08
1996	2.55	3.48	1.67	0.82	2.41	1.63	2.30	4.06	1.69	1.84
1997	2.48	3.68	1.83	1.21	2.09	1.68	1.93	4.39	1.74	1.91
1998*	2.06	3.48	1.76	1.72	1.74	1.88	1.30	5.27	0.95	2.06

* From January to October
Source: Monthly Report for Export and Import of Taiwan

Table 6: Growth rates of export and import of Taiwan to selected Asian countries

	USA		Hong Kong		JAPAN		GERMANY		SINGAPORE	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
1990	-7.92	6.534	23.92	-34.02	-6.70	1.31	26.29	3.43	13.58	61.48
1991	2.52	12.06	44.76	34.48	10.25	17.76	20.89	11.16	8.95	2.61
1992	-0.90	4.84	16.46	-14.03	-9.24	8.29	-12.76	21.93	-2.27	9.89
1993	4.80	10.84	25.38	1.43	5.62	11.53	1.74	12.68	20.79	15.29
1994	3.48	8.34	15.53	-11.01	14.23	7.25	-6.85	13.82	16.77	29.63
1995	8.60	15.06	22.77	20.33	28.87	22.01	18.21	18.70	31.15	22.84
1996	5.52	-0.17	6.51	-4.10	7.67	-5.66	-1.59	-8.24	7.57	-2.35
1997	14.55	21.23	11.75	22.08	-11.30	9.85	5.50	11.12	11.38	17.49
1998*	16.19	-2.32	0.52	14.26	-7.61	9.29	29.37	13.26	-21.74	1.52

	MALAYSIA		PHILIPPINES		THAILAND		S. KOREA		INDONESIA	
	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
1990	62.42	14.95	6.31	-0.02	30.69	16.56	8.81	9.86	36.09	33.07
1991	32.22	40.19	4.39	-0.33	1.41	30.67	6.29	30.01	-3.24	33.59
1992	2.59	21.91	13.20	21.58	17.47	31.98	-16.31	23.61	-5.61	6.91
1993	9.41	10.86	5.45	25.27	16.76	23.47	15.87	15.42	10.62	20.82
1994	33.34	20.44	18.99	26.58	21.22	14.33	37.05	19.20	11.94	30.58
1995	30.50	27.01	35.44	35.66	25.92	33.91	47.94	43.53	30.56	1.60
1996	5.67	25.23	21.06	39.65	-5.76	16.87	7.31	-0.18	8.48	-8.98
1997	6.71	23.05	20.48	70.77	-4.96	19.92	-7.92	25.78	13.07	20.53
1998*	-12.26	1.02	1.58	52.82	-11.76	19.12	-28.93	28.07	-42.42	14.93

* From January to October
Source: Monthly Report for Export and Import of Taiwan

Table 7: Ratio of trade balance to GDP

	1990	1991	1992	1993	1994	1995	1996	1997
Hong Kong	-		-	-	-	-	-	-
S. Korea	-0.9	-3.0	-1.3	-0.3	-1.0	-1.8	-4.8	-2.0
Singapore	6.0	9.4	11.4	7.6	17.2	17.0	15.4	15.2
Taiwan	6.7	6.7	4.0	3.2	2.7	2.1	4.0	2.7
China	3.2	3.5	1.3	-1.9	1.3	0.2	0.9	2.2
Indonesia	-2.8	-3.7	-2.0	-1.2	-1.6	-3.2	-3.4	-2.7
Malaysia	-2.1	-8.9	-3.7	-4.7	-6.2	-8.4	-5.0	-5.3
Philippines	-6.1	-2.3	-1.6	-5.5	-4.6	-4.4	-4.7	-5.2
Thailand	-8.5	-7.7	-5.7	-5.1	-5.4	-7.9	-7.9	-4.0

Source: Asian Development Bank

Table 8: Growth Rates of GDP

	1990	1991	1992	1993	1994	1995	1996	1997
Hong Kong	3.4	5.1	6.3	6.1	5.4	3.9	5.0	5.2
S. Korea	9.5	9.1	5.1	5.8	8.6	8.9	7.1	5.5
Singapore	8.8	6.7	6.2	10.4	10.5	8.7	6.9	7.8
Taiwan	5.4	7.6	6.8	6.3	6.5	6.0	5.7	6.8
China	3.9	8.0	14.2	13.5	12.6	10.5	9.6	8.8
Indonesia	7.2	7.0	7.2	7.3	7.5	8.2	8.0	4.6
Malaysia	9.7	8.7	7.8	8.3	9.2	9.5	8.6	7.5
Philippines	3.0	-0.6	0.3	2.1	4.4	4.8	5.7	5.1
Thailand	11.6	8.4	8.1	8.7	8.6	8.8	5.5	-0.4

Source: Asian Development Bank:Asian Development Outlook

Table 9: Inflation rates measured by Consumer Price Index

	1990	1991	1992	1993	1994	1995	1996	1997
Hong Kong	9.8	12.0	9.3	8.5	8.1	8.6	6.0	5.7
S. Korea	8.6	9.3	6.2	4.8	6.2	4.5	4.9	4.5
Singapore	3.4	3.4	2.3	2.2	3.1	1.7	1.4	2.0
Taiwan	4.1	3.6	4.5	2.9	4.1	3.7	3.1	0.9
China	1.3	3.0	6.4	14.7	24.1	17.1	8.3	2.8
Indonesia	7.8	9.4	7.6	9.6	8.5	9.5	7.9	6.6
Malaysia	2.7	4.4	4.7	3.6	3.7	3.4	3.5	4.0
Philippines	14.2	18.7	8.9	7.6	9.0	8.1	8.4	5.1
Thailand	5.9	5.7	4.1	3.3	5.2	5.8	5.9	5.6

Source: Asian Development Bank: Asian Development Outlook

Table 10: Percentage of government expenditure to GDP

	1990	1991	1992	1993	1994	1995	1996
Hong Kong	14.7	13.8	14.5	16.4	16.2	16.9	16.9
S. Korea	16.2	17.1	17.2	16.8	17.6	17.4	18.3
Singapore	17.8	15.0	15.2	13.3	13.0	12.9	12.8
Taiwan	14.9	15.7	20.0	17.9	15.9	15.1	14.3
China	22.2	15.7	14.0	13.4	12.4	11.7	11.0
Indonesia	18.7	17.3	17.2	16.3	15.9	14.9	14.8
Malaysia	29.5	27.8	27.4	24.9	23.7	22.4	22.0
Philippines	20.2	19.0	19.7	18.5	18.4	17.9	18.5
Thailand	13.9	14.4	15.7	16.5	16.1	15.4	14.3

Source: Asian Development Bank: Asian Development Outlook

Table 11: Growth Rates of Money Supply

	1990	1991	1992	1993	1994	1995	1996	1997
Hong Kong	22.4	13.3	10.8	16.2	12.9	14.6	10.9	8.4
S. Korea	17.2	21.9	14.9	16.6	18.7	15.6	15.8	14.7
Singapore	20.0	12.4	8.9	8.5	14.4	8.5	9.8	10.3
Taiwan	9.8	19.3	19.1	15.4	15.1	9.4	9.1	7.2
China	28.0	26.5	31.3	36.8	35.1	29.5	25.8	17.3
Indonesia	44.2	17.0	20.2	22.0	20.2	27.6	29.6	27.7
Malaysia	12.8	14.5	19.1	22.1	14.7	24.0	20.9	18.5
Philippines	15.3	15.7	11.0	24.6	26.8	25.2	15.8	20.5
Thailand	26.7	19.8	15.6	18.4	12.9	17.0	12.6	16.4

Source: Asian Development Bank: Asian Development Outlook

Figure 1.

Interest Rate, Exchange Rate and Stock Price