The Asian Currency Crisis

S. M. Ashiquzzaman*
Ali Ehsan Protik**

Abstract: The East Asian currency crisis is one of the major economic events of the previous century. It marred the end of the spectacular growth of this region maintained for over three decades. It sparked a new interest among economists who have long been trying to model currency crisis. These models of currency crisis broadly fall into two generations. The first generation models explain currency crisis as the result of inconsistencies between domestic policies and the attempt to maintain a fixed exchange rate. Weak macro fundamentals are the precondition for a crisis in these models. The second generation models, however, allow for the possibility of multiple equilibria. They explain how a bad equilibrium or a crisis occurs of a self-fulfilling speculative attack. Finally, a careful examination of the macro fundamentals and vulnerabilities in the East Asian Economies shows that the second generation models better explain the crisis in these economies.

Introduction

In the last three decades the world has witnessed five major currency crises, three of which are in the 1990s. The first two of these five crises are the developing country debt crises in Mexico (1973-1982) and in Argentina (1978-1981). The other three are the more recent ones, the crisis in the European Monetary System (EMS) in 1992-93, the Mexican peso crisis in 1994-95 and its effect throughout Latin America (commonly known as the Tequila effect') and the East Asian crisis in 1997 and its impact throughout different parts of the world. These crises have drawn immense interest from economists who have long been

*Associate Professor, Department of Economics, University of Dhaka.
** Research Officer, ICDDR,B : Center for Health and Population Research

trying to model currency crisis. Like many other real life economic phenomena, currency crises are complicated to model since each episode has its own merits and characteristics.

Despite the complexities the literature on currency crises is robust. Each currency crisis episode has initiated the build up of new models with new features. It is however, possible to divide the traditional currency crisis models in to two generations. The first-generation models were in response to currency crises in developing countries such as Mexico (1973-1982) and Argentina (1978-1981) which show how a fixed exchange –rate policy combined with excessively expansionary pre-crisis fundamentals push the economy into crisis. The second-generation models are designed to capture features of the speculative attacks in Europe and in Mexico in the 1990s. A clear distinction between these two generations of models in that the first generation models are *exogenous* policy models and the second generation models are *endogenous*' policy models.

These currency crisis models were under serious scrutiny after the eruption of the East Asian crisis. East Asia's exceptionally well growth records provoke, according to many, a some what different explanation to the crisis that hit the region. In this paper however, we will attempt to review the traditional currency crisis literature with a view to analyzing whether they are well enough to explain the Asian case. It will be shown, after elaborating on the literature, that the first generation models are not appropriate to explain the Asian case. But the second generation models, which are based on the logic of manic and self-fulfilling prophecies do capture the main features of the East Asian crisis.

We have structured the rest of the paper in the following way. In section II a standard first generation

model is explained. In section III, the second generation models and the mechanism of a self-fulfilling crisis are explained. Section IV analyzes the macro fundamentals of the affected countries in the 1990s. The vulnerabilities in the affected countries, which should be at the root of crisis the triggering events that should initiate and attack on the currency according to the second generation models, are discussed in section V and VI respectively. We make some concluding remarks in section VII.

First Generation Models

Currency crisis literature began with the work of Krugman (1979) and was subsequently developed by many authors, notably Flood and Garber (1984).[1] Their models are now labeled as the first generation models that show how fundamentally inconsistent domestic policies lead an economy towards an eventual currency crisis.

In the most popular version of the model, it is assumed that the government of the targeted country issues money uncontrollably to finance a permanent budget deficit. The government is also assumed to peg the nominal external value of the domestic currency using a limited of foreign reserve, which stands ready to buy or sell at the target rate. As the government continues to print money to finance the budget deficit, reserves will fall because the private sector is willing to hold all the new money the government prints, some of which exchanged for foreign currency that is viewed as an asset. As the reserve approaches exhaustion, speculators would know that the price of foreign exchange, fixed up to now, would begin to rise. This would make holding foreign currency more attractive than holding domestic currency, leading to a sharp rise in the exchange rate. But foresighted speculators, realizing that such a rise was in prospect, would sell domestic just before the exhaustion of reserve and in so doing advance the date of

that exhaustion, leading speculators to sell even earlier, and so on. Thus whole a currency crisis will occur sooner or later because of deteriorating fundamentals and inconsistent policies, its timing will depend on the speculative attack by private agents. An speculative attack on a governments' reserves is viewed by Krugman (1979) 'as a process by investors change the composition of their portfolios, reducing the proportion of domestic currency and raising the proportion of foreign currency' (Krugman, 1979; p.312).

Thus, the first generation models explain currency crises as the result of a fundamental inconsistency between domestic policies-typically the persistence of money financed budget deficits-and the attempt to maintain a fixed exchange rate, This inconsistency can be sustained if the foreign exchange reserve is sufficiently large. But when these reserves become inadequate speculators force the abandonment of the peg with an abrupt speculative attack (Krugman, 1998b).

The standard first generation model then combines a linear behavior rule by the private investors-the money demand function-with linear government behavior-domestic credit growth. All of this linearity interacts with the condition that perfectly foreseen profit opportunities be absent in equilibrium to produce a unique time for a foreseen speculative attack (Flood and Marion, 1998). But it is no surprise that nonlinear behavior rules by one or more agents can lead to multiple equilibria in any economic model. First generation models failed to take these nonlinearities into account.

Second Generation Models

Second generation models emphasize multiple equilibria arising from nonlinearities in government

behavior. It is recognized that in reality the range of possible policies open to a government operating under a budget deficit is much wider than is described in the first generation models. Meanwhile, the central banks have a variety of tools other than exchange market intervention available to defend the exchange rate. One example in particular is tightening domestic monetary policy. But of course there are certain costs associated with each of these policies and defending a peg is a matter of trade – off between them rather than a simple matter of selling foreign exchange until it is exhausted Important contributors of second generation models are Obstfeld (1986-1994, and 1996), Calvo and Mendoza (1996), Sachs, Tornell and Velasco (1996).

Self-fulfilling Crises

In a standard second generation model, rational government choose their macroeconomic policies and choose whether or not to retain a fixed exchange rate by comparing the costs and benefits of maintaining a fixed exchange rate. The benefits of maintaining a fixed exchange rate include reduced inflationary pressure, a stable environment that facilitates trade and investment and a signal of commitment to international cooperation (as in the European Monetary System). On the other hand, the costs of a fixed exchange rate include a high interest rate that increases the real value of domestic debt burden government and high unemployment when wages are sticky.

Given the costs and benefits maintaining the fixed exchange rate, the logic of a currency crisis is as follows. If private expect that the government will not maintain fixed exchange rate, then domestic bondholders will demand a higher interest rate in anticipation of a currency devaluation. Labor unions might demand higher wages,

thereby making domestic industries uncompetitive. Such actions would rise the governments' costs of maintaining a fixed exchange rate, encouraging it to abandon the peg. Expecting devaluation speculators would try to get out of the domestic currency ahead of that evaluation. But in so doing would worsen the governments' tradeoff, leading to an earlier devaluation that ends the fixed exchange rate regime well before the fundamentals would appear to make devaluation necessary. Thus the speculators' expectation of devaluation is confirmed and hence is self-fulfilling.

This conclusion led Krugman (1996) to attack (although not speculatively) the second generation models by saying that new models of speculative attack hold that such attacks on fixed exchange are not, as has previously been thought, response to underlying fundamental weaknesses of the currency regime. Rather, they are self-fulfilling events that can undermine otherwise sustainable regimes; some economists seem even to believe that no fixed rate is safe from such attacks" (Krugman, 1996; p.375). In a comment on Krugman (1996) in the same issue, maurice Obstfeld argues that, "the theory does not assert that exchange rates can be attacked any time, any place, irrespective of the state of economic fundamentals. But the theory does suggest that we broaden our definition of fundamentals to encompass the incentives and constraints under which governments operate preexisting economic problems make governments that peg exchange rates more vulnerable to the pain that speculative anticipations in and of themselves, can inflict" (p.394).

The upshot of the above analysis is that, countries are only vulnerable to a self-fulfilling speculative attack when economic fundamentals--- such as foreign exchange reserves, the governments' fiscal situation and the political commitment to defend the peg--- are sufficiently weak. Thus, one can think of a range of strong fundamentals in

which a crisis will not occur, and a range of extremely weak fundamentals in which it will certainly occur. There is however, an intermediate range in which a currency peg might survive, or it might fall victim to a speculative attack. Such speculative attacks, reflect not irrational private behavior, but an indeterminacy of equilibrium that may arise when agents expect a speculative attack to cause a sharp in government macroeconomic policies" (Obstfeld, 1986; p.72). Thus, it is the intermediate rage where we might have multiple equilibria. To facilitate understanding let us present an example in the next section based on game theory.

Multiple Equilibria in Self-fulfilling Crises: An Example[2]

Let there be a government who commits a finite stock of reserves, R. to peg the exchange rate and two agents who are private holders (speculators) of domestic currency, each having a domestic money resource of 6, which can be sold to the government for foreign currency or held. Thus each of the two speculators has two strategies hold and sell. To sell and take a position against the current rate, speculators bear a cost of 1.It is further assumed for simplicity that before the speculative attack, 1 unit of domestic currency is exchanged for 1 unit of foreign currency. Using the above information we construct three one-shot non-cooperative games corresponding to three different states of foreign reserves.

- In game 1, where the government's foreign exchange reserves R are equal to 20, even if both the speculators sell their resources of 6 to the government, its reserves remain at 8 and it is able to maintain the peg. Thus a speculator who speculates receives a payoff of –1, regardless of what the other speculator does (since

speculating involves a cost of 1). But if a speculator holds, then her payoff will be 0, regardless of what the

		Speculator 2 Hold	Speculator 2 Sell
Speculator 1	Hold	0,0	0,-1
	Sell	-1,0	-1,-1

Game 1: High Reserve Game (R=20)

		Speculator 2 Hold	Speculator 2 Sell
Speculator 1	Hold	0,0	0,2
	Sell	2,0	½, ½

Game 2: Low Reserve(R=6)

		Speculator 2 Hold	Speculator 2 Sell
Speculator 1	Hold	0,0	0,-1
	Sell	-1,0	3/2, 3/2

Game 3: Intermediate Reserve Game (R=10)

other speculator does. Hence, speculation (in our example 'sell') is a strictly dominated strategy, which a rational agent plays, The unique Nash equilibrium of the game thus involves each speculator holding ---the currency peg necessarily survives.

In game 2 where the government's foreign exchange reserves R are equal to 6, either speculator alone can take out the currency peg. Let us assume that in the event of giving up its peg the government devalues by 50 percent. It a speculator has sold all his domestic currency then his payoff will be equal to the amount of reserves she can buy at the existing exchange rate times the size of the devaluation. minus the cost of speculating. Thus her payoff when she sells while the other speculator holds will be (6 x.5)- 1=2. If both of them sell. each gets half the government's reserves and

thus a payoff of (3 x.5)-1=$^1/_2$. But if a speculator holds then her payoff will be zero regardless of what the other speculator does. Hence, holding is a strictly dominated strategy and the unique Nash equilibrium involves each speculator selling the fixed exchange rate collapses.[3]

- Now we came to the all important game 3, where the government reserves R are equal to 10. Here, neither speculator alone can run the government's reserves down although both can if they sell together, in which case the government is forced to devalue say by 50 percent. So, if a speculator sells alone she gets payoff of −1, while the one who holds gets a payoff of 0. But if both attack, each gets half of the government's reserves and hence a payoff of (5 x.5)-1=3/2. It is clear that this

Game two Nash equilibria. In the first, neither believes that the other will sell and thus each of them holds receiving a payoff of the currency peg survives. In the other, each of them believes that the other will sell and thus each of them sells receiving a payoff of 3/2 the currency peg falls. Hence the attack equilibrium has a self-fulfilling element because the exchange rate collapses if attacked, but services otherwise. It should be clear that this conclusions hold not only forR=10 but for 6<R<12.

To summarize, "the state of fundamentals determines the existence and multiplicity of attack equilibria. In the simplest model of Krugman(1979), fundamentals are either consistent with long run fixity of the exchange rate or are not. Here the same is true for extreme values of fundamentals, but there is also a large middle ground over which fundamentals are neither strong as to make a successful attack impossible, nor so weak as to make it inevitable. In this case speculators may or may not coordinate on an attack equilibrium" (Obstfeld, 1996,: p.1014).

'Sunspots' and Herding

The last line of the previous section should provoke the question as to what induces the speculators to coordinate their expectations. Or in other words, if self-fulfilling crises are a real possibility, what sets them off? Here, we enter the terrain of 'sunspot' dynamics, in which any arbitrary piece of information becomes relevant if marker participants believe it to be. Sunspot is actually meant to represent extrinsic uncertainty. It is a random phenomenon that does not affect tastes, endowments or production possibilities (Cass and Shell, 1983). In this situation there is a strong possibility of 'herding behavior ` where each participant in the foreign exchange market act on the basis of the actions of others, not on the basis of the fundamentals as perceived by the individual participants. There are two explanations to herding behavior in the foreign exchange market.

According to one explanation it is assumed that each economic agent obtains information about the state of the economy (foreign exchange reserves for example) with a small error. Specifically, if the true state of the economy is R, the agent observes a news that lies in the interval [R-ϵ, R+ ϵ] , where ϵ is a small positive number and news are independent across agents, With noisy different information, it is never common knowledge that the fixed exchange rate is sustainable . In such a situation, each agent must consider the full range of possible beliefs held by others and must consider what to do if the parity is unsustainable is a high probability that other speculators believe the fixed exchange rate is unsustainable, and if it is not too costly to take a position against the currency, then it makes sense for the individual agent to speculate, even if she knows that the peg is otherwise viable. Holding onto the currency may yield a bigger gain if everyone else holds on as well, but it is a riskier prospect as it relies on

everyone else behaving similarly. Hence it pays the individual agent to join the herd (Flood and Marion, 1998).

The other explanation is based on the assumption of asymmetric information as described by Abhijit Banerjee. Herding in his model is defined as " everyone doing what everyone else is doing even when their private information suggests doing something quite different`` (Banerjee, 1992; p.798). Thus, herding relies on actual observations of others' actions, and the lack of common knowledge about the state of fundamentals plays an unimportant role. Although this model was not designed to explain currency attack we can mimic the story for the currency market as follows. Each agent has some information about the state of the economy and decides sequentially and publicly whether to hold the currency or sell it. If the first agents sell domestic currency for foreign currency according to their private information then the $(n+1)^{th}$ agent will take that as a signal that the peg is not sustainable. She will then choose to sell too ignoring her own information even if it is positive about the viability of the fixed exchange rate. Thus, the sequential decision rule results in herd behavior—if some traders start selling the currency, others will join the herd, moving the economy from the no-attack equilibrium to the attack equilibrium (Flood and Marion, 1998).

Fundamentals in the affected Countries before the Fall

Having discussed the two generations of crisis models we are now in a position to judge their applicability to the Asian Experience. We will first look at the macro fundamentals of the affected countries (Thailand, Indonesia, Republic of korea, Malaysia and the Philippines) to examine whether were any imbalances in these economies. Any sign of fundamental inconstancies will

provide of the first generation models. It is however worth mentioing that these countries pegged their rates to the US dollar as is assumed in both first and second generation models.[4]

The macro fundamentals of the affected and the non-affected countries (China, Hong Kong, Special Administrative Region of China, Singapore and Taiwan) are presented in table 1 to facilitate comparison. Data are provided for the period 1991-1997, the period leading up to the crisis. It can be seen that governments of the affected countries have maintained a responsible *budgetary position throughout 1990s*. The fiscal balance was positive until 1997, the year in the middle of which the crisis erupted. It is however mentioning that the fiscal balance in 1997 was negative for only Thailand, the country hit hardest by the crisis. Thus the deficit in fiscal condition of the affected countries in 1997 is likely to be the effect of the crisis rather than the cause. This implies that the standard first generation model is inapplicable in the Asian case.

Table 1: Major Economic Indicators: Affected and Non-affected Countries, 1991-1997

	Affected Countries			Non-affected Countries		
	1991-95	1996	1997	1991-95	1996	1997
GDP Growth (%)	7.3	7.0	4.4	6.5	5.7	6.5
Inflation Rate (%)	6.1	5.8	5.1	4.9	3.7	2.5
Gross Domestic Saving (as % of GDP	33.9	33.3	32.8	31.8	31.5	31.3
Current account Balance (as % of GDP	-3.0	-5.0	-3.0	4.1	4.9	4.2
Fiscal Balance (as % of GDP	0.3	0.4	-0.2	-0.7	-2.0	1.4

Note: Affected countries include Thailand, Indonesia, Republic of Korea, Malaysia and the Philippines. Non-affected countries include China, Hong Kong, Special Administrative Region of China, Singapore and Taiwan

Source: ADB (1998)

In addition to maintaining a responsible fiscal position, the affected countries also maintained a spectacular growth rate of over 7 percent throughout 1991-1996. Although the growth rates abated a little in 1997, it was definitely not something that should have thrown a country into a crisis it did in Asia. The high growth rates of the affected countries were sustained by high rates of gross domestic savings. Gross domestic savings of the affected countries were over 30 percent of GDP throughout the 1990s. Above all inflation in these countries was very modest and was on a decreasing until 1997.

Among all these good fundamentals the only sign of trouble was the current account deficits of the affected countries. The average current account deficit of the five affected countries reached 5 percent of their combined GDP in 1996. But table 2 in the next section will show that there were some other countries like Chile, Sri Lanka, Columbia, Pakistan and Peru that had current account deficits as high as those of the five affected countries. But these countries were hit by a similar crisis. So it will be fair to say that a deficit in the current account is only a necessary but not sufficient condition for a crisis to take place.

Vulnerabilities in the Asian Economies: Roots of the Crisis

The analysis in the previous section makes it clear that the factors which, according to the first generation models, cause or precipitate a currency crisis were simply not present in the affected countries of Asia. Therefore, to find and explanation to the Asian crisis we must focus on the second generation models that admit the possibility of a self-fulfilling speculative attack. From the discussions in section III we know that a country should be in a vulnerable position for a speculative to be self-fulfilling.

We have shown that the macro fundamentals of all the affected countries were relatively strong and although all of them had large current deficits they were not the cause of the crisis. However these deficits made these countries vulnerable to a speculative attack. Several other factors, mostly in the financial sector, contributed towards this vulnerability

- All the affected countries had undergone significant financial liberalization in the late 19980s and early 1990s that directly contributed to the build up of a huge foreign capital inflow. Capital also poured in due to low interest rates in the US and Japan and the confidence that the high economic growth of the region will persist.
- The new liberalized environment gave rise to a significant number of financial intermediaries that channeled foreign funds to domestic firms leading to a credit boom. Much of these funds were borrowed in foreign currency to take advantage of the much lower dollar-denominated world interest rate. But a larger proportion of these funds were channeled to speculative investment projects like real estate and other non-tradable activities that generate return in domestic currency. Thus, domestic banks were running at a high default risk in the face of currency devaluation.
- The rapid expansion of credit was not matched by tight regulation and supervision. Financial decisions were strongly influenced by non-economic factors; there were weaknesses in the legal system and above all, there was lack of transparency.
- In such a situation, foreign creditors self-insured them by lending short-term loans to their Asian counterparts. Short-term loans significantly rose in Indonesia. Korea and Thailand. These short-term loans were easily rolled over when Asians' spectacular performances were

lauded by everybody. But since these short-term loans were lent onshore with payback periods, they were exposed to the risk of a run. One good indicator of this risk is the ratio of short-term debt to foreign exchange reserves. This ratio compares a country's short-term foreign liabilities to its liquid foreign assets available to service those liabilities in the event of a creditor run. Table 2 shows this ratio for a number of countries the including the affected countries. It can be seen that the ratio far exceeded 1 in Indonesia, Korea and Thailand. It was below one in Malaysia and the Philippines but not far below.

- In addition to the above situation, the affected countries maintained a fixed exchange rate pegged tot he US dollar to attract foreign capital. their currencies became overvalued when the US dollar started to appreciate against the yen, major European currencies and the Chinese renminbi after mid-1995. This overvaluation eroded the competitiveness of these countries.
- Overvalued currency coupled with a rise in the domestic wage cost, stiff competition from other countries (e.g. China) and a decline in world demand for semiconductors, the major export from the region slowed down the export growth.
- Slowdown in exports and the rise in the real exchange rates coupled with higher import growth both of consumption and investment caused these countries to run huge current account deficits. This also made them vulnerable to a shift in expectations.

According to the discussions in section III, we know that from his vulnerable position a country can move to a crisis situation or a bad equilibrium only if some events help coordinate the expectations of the market players. Let

us now look at the triggering events that helped coordinate creditors' expectations leading to a herd behavior and a speculative attack that became self-fulfilling.

Triggering Events and Creditors' Herding in Asia

The first sign of Asian meltdown was the collapse of Bangkok Bank of Commerce Ltd. in mid-1996 that exposed the weaknesses of the banking sector of Thailand. The control of the Bank was immediately taken over by the Thai Ministry of Finance. In January, Banbo Steel, a

Table 2: Selected Crisis Indicators

Country	Current Account / GDP (%) 1996	Real Exchange Rate (1990 = 100) 1996	Financial Institution's Claims on Private Sector/GDP (%)		Short-term Debt/Reserves	
			1990	1996	June 1994	June 1996
Argentina	-1.4	44	15.6	18.4	1.3	1.2
Brazil	-2.7	20	40.8	23.7	0.7	0.8
Chile	-4.1	61	47.0	57.0	0.5	0.4
Columbia	-5.5	...	30.8	41.2	0.5	0.7
India	-1.6	...	26.8	24.7	0.3	0.3
Indonesia	**-3.5**	**80**	**50.6**	**55.4**	**1.7**	**1.7**
Jordan	-3.1	...	64.4	65.3	0.5	0.4
Korea	**-4.8**	**88**	**56.8**	**65.7**	**1.6**	**2.1**
Malaysia	**-5.3**	**78**	**71.4**	**144.6**	**0.3**	**0.6**
Mexico	-0.6	95	22.7	21.6	1.7	1.2
Pakistan	-5.6	...	27.7	26.7	0.7	2.4
Peru	-5.9	...	10.1	19.6	0.4	0.5
Philippines	**-4.3**	**56**	**19.3**	**48.4**	**0.4**	**0.8**
South Africa	-1.6	...	85.0	137.7	15.0	3.1
Sri Lanka	-4.7	...	19.6	25.2	0.3	0.2
Taiwan	4.4	...	97.0	165.0	0.2	0.2
Thailand	**-8.0**	**80**	**83.1**	**141.9**	**1.0**	**1.5**
Turkey	-0.8	...	16.7	23.5	2.1	0.8
Venezuela	13.1	...	25.4	9.6	0.8	0.3
Zimbabwe	...	...	23.0	31.2	1.3	1.6

Source: Radelet and Sachs (1998a)

Korean *chaebol* announced bankruptcy leaving $6 billion bad debts. In the following months, two other Korean *chaebols*, Sammi Steel and Kia Motors were also bankrupt. These bankruptcies tremendous pressure on a number of merchant banks as they borrowed offshore to channel the fund to these and some other *chaebols*. After this, Somprasong Land, a Thai real-estate company defaulted on an Euro-bond in February 1997. All these made the foreign creditors uncertain about the solvency of the other corporations and banks in Thailand. Consequently, foreign creditors were reluctant to roll over the short-term loans resulting in a severe liquidity crisis.

A liquidity crisis generally occurs when a solvent but illiquid borrower cannot borrow fresh loans to pay his current debt obligations. Since the borrower is solvent the market could lend him fresh loans to repay existing debt, as he will probably be able to service the old and the new loans in future. But there will be a problem of collective action if each individual creditor is too small to provide all the loans needed to service the current debt obligations. In this case, if each creditor believes that the other creditors will not lend, then he will be better off not lending. Thus each creditor's *rational decision* will be not to lend and a liquidity crisis will follow. This is rather an unfortunate situation fromt he social point of view since the borrower is not fundamentally so weak as to make a liquidity crisis inevitable. Yet, he is unable to repay his existing debt as no single creditor can provide him the entire money he needs and every creditor believes that the other creditors will not lend. thus the situation is a rational equilibrium but undesirable from the society's viewpoint[5].

As a result of the domestic financial crisis there was a massive outflow of capital that put pressure not he foreign exchange reserve. Driven by the belief that the government might devalue, despite the government's repeated

assurance that it would not. Thai companies that had borrowed heavily abroad started dumping baht for dollars. The Thai government reacted by spending considerable amount of foreign exchange to defend the peg and to support the ailing banking sector without taking fundamental steps towards their closure or rehabilitation. This action made Thailand extremely vulnerable to a self-fulfilling attack as creditors recognized that Thailand's available foreign exchange reserves had fallen far below the outstanding short-term debt owned by foreign banks. In later June 1997. Thailand's largest largest finance company, Finance One Public Company Limited collapsed as the government removed support from it implying that all creditors local and foreign had to incur losses. This shock created panic among the creditors and accelerated their exit. In this way, the baht came under speculative attack and the Bank of Thailand, after defending the currency by spending $26 billion and thus loosing reserve, finally succumbed to the pressure and floated the baht on July 2, 1997. In the subsequent months Indonesia, Malaysia, the Philippines and Korea suffered a similar fate and the Thai crisis became the East Asian crisis.

Concluding Remarks

In this paper we have tried to explain the Asian crisis in 1997 with the help of the traditional currency crisis models. It has been found that the first generation currency crisis models do not fit well in the Asian case. But the second generation models can neatly explain how fundamentally 'not so weak' economies, like the East Asian economies, can go under when some unfortunate adverse events shift the expectations of the market participants. However, the literature and the empirical evidence from Asia suggest that only countries with considerable vulnerability are subject to self-fulfilling

speculative attack. Many factors can contribute towards making a country vulnerable. In the Asian case, for example, incomplete financial liberalization fixed or near fixed exchange rate and export slowdown were important ingredients of the recipe. Finally, we must argue that the analyses in his paper hold some important conclusions for a developing country like Bangladesh. It is quite clear that the process of financial liberalization should be carried out very carefully and slowly. And before opening up the capital account a country must strengthen its supervisor and regulatory framework. In addition, since short-term foreign capitals can make a country vulnerable to a sudden shift in market sentiment, the governments should encourage long term foreign capital inflows, foreign direct investment for example. Also the foreign funding should be used in productive investment projects. In this regard export oriented industries must be given proper attention since the foreign bebts are to be serviced by export earnings ultimately.

Notes

1. Krugman (1979) was inspired by the work of Stephen Salant and Dale Henderson ("Market anticipation of government Policy and the price of gold ", *Journal of political Economy*, 1978, 86:627-648) who built a speculative attack model in order to study attacks on a government -controlled price of an exhaustible resource like gold. Their was built following Harold Hotelling ("The economics of exhaustible resources", *Journal of Political Economy*, April 1931, pp.137-175).

2. This example is taken from Obstfeld (1996).

3. This example is very impressionistic since it is hard to find a speculator who can alone take out the currency peg. although it is not impossible to find one. The classic example is of course George Soros' attack on the British pound sterling in 1992. The pound have dropped out of the exchange rate mechanism in any

case; but Soros' actions may have triggered an earlier exit than would have happened otherwise. Such large speculators are called 'Soroi' according to Krugman (1996).

4. Thailand operates under a pegged rate while Korea, Indonesia and Malaysia maintains a crawling peg system. Although the exchange rate of the Philippine operates under a floating regime, market participants assume it to be pegged effectively to the US dollar for its very little variation over time.

5. A formal model along this line is presented in Diamond and Dybvig (1983) in the context of banking institutions. They seek to explain bank runs in which individual depositors all together suddenly demand withdrawals of their sight deposits and thereby push the bank into insolvency. The run occurs not when depositors fear that the bank has made a bad investment decision, but when individual depositors fear that other depositors are withdrawing their money from the bank, thereby driving the bank into illiquidity.

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