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Thailand– Risk without Rewards:
A Case Study on Liquidity Risk and Moral Hazzard

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ABSTRACT

The crisis began alongside the setting of several decades of outstanding economic performance in Asia, and the difficulties that the East Asian countries faced were not primarily the result of macroeconomic imbalances. Thailand had an incredible growth performance that was clearly maintained by the banking sector, even if this sector was also clearly unprepared for the financial liberalization of its capital accounts. This financial liberalization would become responsible for a credit-asset crisis, raising the vulnerability to the responses of foreign investors and lenders. It has been noted that the Thai crisis in 1997 was generally one of private sector debt. This affected the extent and functionality of investments as increased competition and mismanagement of financial risk led to unsafe banking practices. There was inadequate regulation and supervisions of financial institutions promoting incentives for risk-taking, and as capital flows were reversed the subsequent liquidity crisis was enhanced by currency depreciations and interest rate hikes. A combination of tight monetary policy and relatively fixed exchange rates created incentives for banks and corporations to borrow large amounts of international capital, much of it short-term, denominated in foreign currency. Developments in the advanced economies kept interest rates low in those economies, which contributed to the build-up of the crisis.

In this context it could be said that liquidity risk was ongoing due to poor crisis management, whilst the existent moral hazard problems were more consistent with the increased risk-taking opportunities that were made possible. The general question is why liquidity risks and moral hazard were present when no expected rewards seemed plausible at the cost of these events happening.

Keywords Thailand: financial crisis; financial liberalization liquidity risk; market risk; moral hazard; Minskian regimes; Foley model

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TABLE OF ABBREVIATIONS

BIBF- Bangkok International Banking Facilities

BOT – Bank of Thailand

CEIC – CEIC Data Company Ltd

CEPA- Center for Economic Policy Analysis

GDP- Gross domestic product

IMF – International monetary fund

LOLR – Lender of last resort

NPL- Non-performing Loans

SET- Stock Exchange of Thailand

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1 INTRODUCTION

The central dilemma to the crisis in Asia begins with the root to the existing problems, that being the problematic need for ownership of capital and the need to control capital. Through the ownership of capital many lending options can be offered, thus introducing a market for credit. The disturbing issue lies in the control of this capital, since liberalization in capital controls leads to a separation of the possession of it. This split then in turn creates costs, such as the stimulus of moral hazard. The potential for a lack of supervision over the control of capital also demands the need for regulations, to minimize the split over the management of resources. In this sense both liquidity risk and moral hazard are both coordination problems.

As the Thai economy grew at an amazing rate, the requirement for sufficient information among other things encouraged the need for direct control of the decision-making over capital. Capital that need be used for investments, banking, and for government policies to ensure social stability (safety nets for unemployed, health issues, education among other things). When greater liberalization was imposed on capital movement, a greater wedge was created over the ownership and thus the control of capital. This then caused a greater uncertainty and greater inflows and outflows of capital to other countries and within different sectors. Because of this reason the thesis will in large observe the ideas associated with crisis prevention and to a greater extent the ideas of crisis origins. The focus will impinge on financial management since Thailand suffered great losses due to the loss of large-scale financial resources. Liquidity risk and moral hazard contributed largely to the loss of Thailand's financial resources. Since financial management focuses greatly on limitations to the assurance of financial assets, it will have a key part in this paper.

1.1 Aim

This paper will deal with the assumption that liquidity risk and moral hazard had a great impact on the calamity that Thailand was subject to during the Asian crisis. The title risk without rewards refers to these two theories of liquidity risk and moral hazard, which will be the focus of greater investigation. The idea is to determine the extent of which each event contributed to the crisis, and to examine the responsibility of their impacts prior to and during the crisis.

The idea is to investigate the theories associated with traditional financial crisis and to compare this with newer theories as to why Thailand and the East Asian countries were subject to this type of financial crisis. The more orthodox theories of the crisis seem to see the crisis as a traditional financial crisis where macroeconomic policies were responsible for the international illiquidity that affected Thailand. Therefore, the assumptions of liquidity risk will be engulfed within the traditional crisis theory, and moral hazard theories will be represented within the framework of the modern approaches since moral hazard I believe has a central roll here.

I also believe there cannot be such a large scale liquidity risk without the presence of some type of direct or indirect induced moral hazard, it will be difficult to place too much responsibility on either for the outcome of the crisis in Thailand. It is somewhat like the question of which came first, the chicken or the egg. It is probably sounder to perceive that a moral hazard can bring about a liquidity risk, whereas it would be less likely that a liquidity risk cause moral hazard.

Bearing in mind that Thailand was the first country in Asia to be affected by the Asian crisis when the baht plummeted in June of 1997, there seems to already be a prevalence of a liquidity risk at this point. So the question thereafter is when moral hazard did become an increased negativity to the crisis and which actors could have been responsible for this. Much critique has been placed on the IMF because of its bailout packages, and others may blame the Thai government or international lenders and the regulations and activities of the Thai banking sector.

With this said the first section of this thesis will deal with Thailand's economic background. The second section will focus on the aspect of liquidity risk and its impact on Thailand, and then the third section will analyze the impact of moral hazard on the Thai economy. Lastly the two will be assessed against each other, so as to get a greater picture of which induced risk

may have been a greater liability to the events that had a negative impact on Thailand during the Asian crisis. Thus it will be noted that this crisis does not bear the direct resemblance to a traditional financial crisis, but rather has the rendering of a newer type of financial crisis.

1.2 Method and Disposition

The paper has been structured so as to firstly view the economic background to the crisis, and get an overview about which macroeconomic conditions existed, and get a sense for which policies were at risk or malign for the Thai economy.

Thereafter, the views of financial crisis and different perspectives to the onset of the crisis will be looked at, to get an understanding about what schools of thought are present and how they depict the origins of the crisis. The paper will then narrow in on the two conditions of liquidity risk and moral hazard since they are largely depicted in this paper as the two principal risk factors leading to the crisis in Thailand, and in the Asian crisis in general.

The liquidity risk analysis will be based on the few fundamentals that have been stated as general conditions for such a risk to be present, such as exchange rate risks and credit risks among others. Moral hazard will be looked at through Minsky's financial fragility hypothesis, but will also include Foley's interpretation of the hypothesis since I find Foley's model to present a better representation of the happenings in the Thai financial system.

Once we have observed the two conditions specifically we will then try to analyze the two of them against each other, to comprehend the interaction of the two within the Thai financial system. Lastly, a conclusion of the findings will be presented concerning which type of crisis generally failed the Thai economy and more specifically why moral hazard was a greater contributor to the crisis than the liquidity risk that followed.

2 ORIGIN AND DEVELOPMENT OF THE FINANCIAL CRISIS

2.1 Thailand's Economic Background

The region was incredibly stable with growth rates much better than any other economy in the world. Poverty was being reduced and considering its latest track record, the region was referred to as the “East Asian Miracle”. The minimalist architecture of the Washington Consensus was not really followed by the “East Asian Miracle” countries.

The argument was that the “miracle” was only an advantage of having saved efficiently and invested effectively. Although no other countries have been able to follow this line of policy, it is understandable that the governments in East Asia have made an outstanding judgement in economic policy. The increasingly hasty measures to liberate the financial and capital markets were the primary causes of the crisis, even though imprudent policy from the governments of the countries did have its role in the disaster¹.

Kirida Bhaopichitr has given a great overview of Thailand's road to economic crisis in the 1997 December issue of *The Nation* (Bangkok). She gives a detailed recollection of the financial system from the mid 1980's up until the crisis, of which I will give you a summary over so as to get a deeper understanding over why the crisis actually hit.

Since the mid 1980's, as growth improved, Thailand also began to liberalise its economy. In 1990 capital controls were altered to allow the freedom of funds flowing to and from the Thai economy. Three years later the Bangkok International Banking Facilities (BIBF) was founded, which enabled foreign and local commercial banks in Thailand the possibility of loaning in foreign currencies from abroad. Furthermore, the banks could then lend to local or foreign money managers, hence large inflows of currency entered Thailand.

The Thai baht was pegged at 25 to the dollar and interest rates were much higher than in other countries². Bank and finance companies found advantages by lending capital from abroad to become creditors for local interests. No exchange rate risk was expected for the Bank of Thailand (BOT) considering that the value of the Baht was pegged to a basket of currencies of which the US dollar consisted of 80%. At this stage few macroeconomic

¹ Raghavan, Chakravarthi

² Large private firms in Thailand chose therefore to finance investments by lending from abroad.

policies have troubled the Thai economy, but the existence of a pegged exchange rate and the liberalization of capital controls are indirectly showing to be problematic policies as loans become channelled to bad investments. The Thai economy though was beginning to show signs of weaknesses as imports were increasing relative to exports, as Thailand began to lose its competitive edge. In my point of view moral hazard is to blame at this phase of Thailand's economic performance, since loans were used in financing sectors with low productivity (real estate for instance) and were unhedged against currency fluctuations. As the miracle growth from the Thai economy was beginning to lose progress, the economy was now starting to feel the impact of an over exhausted financial system.

Until 1995 the financial sectors and real estate had become increasingly overvalued and this would set the economy in a critical juncture, as a scandal evolved concerning the Bangkok Bank of Commerce³. In 1996 the Bangkok Bank of Commerce encouraged foreign lenders to revalue the loans they had made to Thai investors. As the US economy strengthened, less Thai exports were reaching this market, and as the dollar appreciated in relation to other currencies the Baht being fixed to the dollar enhanced the dissuasion of Thai exports to other markets.

When real estate prices eventually became subject to great losses, the economy began to fall deeper into a recession, which was already being felt by the current account deficits. Many firms suffered as flawed debts became increasingly noticeable, and especially because these investments had been incorporated with loans from foreign lenders. As foreign lenders also became more aware of the situation the Thai economy suffered the loss of foreign resources, as capital inflows diminished⁴.

Unable to defend the Baht more than US\$30 billion in foreign reserves had been used by July 1997⁵. This was not enough to control the situation and on 2 July the Bank of Thailand decided that the Baht be controlled with a "managed float" scheme rather than have it pegged as it had been for the past thirteen years. But as this system meant the Baht be valued according to the demand and supply for its money in world markets, this would only influence the Baht to depreciate even more relative the US dollar. Causing payments of loans to become even costlier and means of obtain foreign funding impossible.

In summary, for a period of ten years, the baht was being traded for about 25 to the dollar. Suddenly it dropped by 25%, and speculation with currencies spread throughout the Asian

³ Bhaopichitr (1997), p.2

⁴ Raghavan, Chakravarthi

⁵ Bhaopichitr (1997), p.3

economies threatening to dissolve many financial institutions. Although this began as an exchange rates catastrophe it had become a financial crisis within a short period of time, and was fatal to the sturdy backbone of the once thriving Asian nations. At the outbreak of the crisis the US and others expressed little concern for the collapse of the Baht, and more pressure was placed on liberalizing the financial sector. Consequently, Asian countries believed this was the source of the crisis⁶.

Considering the hot cash from the liberalization policies and the fact that their policies to prevent further confusion were clearly a deviation from those the IMF proposed. The need for international capital would be far greater than diverting from IMF policy.

Unlike the case for Malaysia, taking into consideration that Malaysia had successful results by keeping interest rates low and by minimizing the flow of speculative money from the economy, Malaysia's recession became shorter and less destructive.

⁶ Stiglitz (2002) p.93

3 THEORETICAL FRAMEWORK OF CRISIS

Most existing theoretical models of financial crisis generally fall into four categories: fundamentals-based models, expectations-based models, multiple equilibria models, and moral hazard models⁷. Conventional currency-crisis theory tends to depict the problem as an exchange rate predicament influenced therefore by monetary policies. Orthodox approaches see the crisis as brought about by macroeconomic difficulties or due to fiscal deficits. There is a regular view that government policies or regulations and lenders of last resort (such as IMF) tend to create situations in which speculation becomes increasingly preferred. If it was assumed that governments used a restricted supply of reserves to peg its exchange rate in order to finance budget deficits, a speculative attack would be made possible. Since investors expected reserves to decline. On the other hand a government may battle the idea of pegging exchange rates by either substituting short-run macroeconomic flexibility for long-term credibility or vice versa. This can be costly as seen by interest rates increases to preserve the consistency of its policies. Speculation occurs if the market believes the policies will eventually fail or simply because it is a self-fulfilling intuition⁸.

The idea of this paper is to assume a modern crisis was present in Thailand although the symptoms of a classic crisis are clearly visible, but were not brought about due to “bad fixes” of the exchange rate or unsound monetary and fiscal policies. To understand this conception the five fundamental aspects of a classic crisis⁹ will be addressed below:

- i) International illiquidity- seen as the mismatch between assets and liabilities, which in turn leads to collapses in the financial system.
- ii) Financial liberalization- the illiquidity of economies is based on the notion that the opening of capital accounts enables resources to be intermediated to foreign and domestic interests. With increased vulnerability a creditor’s panic can cause a bank run as loans become “rolled over”.

⁷ Chan-Lau and Chen (1998) p.7

⁸ Krugman (1998) p.2

⁹ Chang and Velasco (1998), p.3-4

- iii) Bad policy- governments may have surpluses or small deficits, and therefore money-financed deficits may only become fiscal problems ex post. Since bailouts costs worsen the fiscal position of the economy.
- iv) Fixed exchange rate collapse- This occurs due to pegged exchange rates and the need to stabilize banks cannot be simultaneous goals. Expansionary policies are needed to defend the banks, as the central bank pursues the interest of keeping interest rates low and in order to act as a lender of last resort.
- v) The punishment is larger than the crime- Weak fundamentals and small exogenous changes can alter asset prices and economic activity. For instance, if the real exchange rate is overvalued or changes occur in the terms of trade and world interest rates. Eventually to the point of large credit crunches or costly asset liquidation.

These aspects did fit the experiences of the Thai crisis however fiscal policies were quite sound, although the real exchange rate did decline as did the current account deficit the years preceding the crisis. There were two familiar patterns to the Asian crises¹⁰:

a) *Korean example*: Tight controls during the early days of the transformation gave Korea a slight advantage over speculator attacks. On the contrary, the US pressured Korea to allow firms to borrow from financial institutions abroad. As news of the Asian crisis became evident, these financial institutions were quick not to roll over their loans. Earlier these firms would have been eagerly accepted to take loans from the same institutions, but rumours of diminishing reserves and financial difficulties left Korea in a situation far worse than necessary.

b) *Thai example*: Mostly a speculative attack, although this was pooled with a high short-term indebtedness.

3.1 Exchange Rate Regimes

The analysis of the Thai crisis would not be complete without having discussed the complexity of exchange rate choices. Thailand had been praised for its fixed exchange rate

¹⁰ Stiglitz (2002) p.94

and fiscal wisdom creating a good atmosphere for an export-led expansion¹¹. Although in the aftermath of the crisis critique was given largely due to the fact that Thailand had chosen to implement a fixed exchange rate, thus weakening the possibility of stabilizing the value of the Baht at its most critical phase. Thailand had for a longer period fixed its currency to the dollar and a basket of other monies to discourage uncertainty and encourage trade and investments by being a part of a larger currency area. This was at the time prior to the crisis a reasonable idea since exports were thriving in the markets of Japan and the US, but also meant that any changes in the inflation, interest rates and such of the world markets could threaten the outcome of its own prosperity.

The greatest advantages of a pegged exchange rate were symbolized in the reduction of transaction costs and exchange rate risk. If this risk was present the financial solvency would be at risk since the idea of a volatile currency would discourage trade and investments thus not providing a credible anchor for monetary policy. With a floating exchange rate on the other hand, there are larger possibilities to pursue independent monetary policies even though the currency has a tendency to be more volatile¹². With a fixed exchange rate, the interest rate is used to curb monetary practices in order to target the absolute price level whilst controlling inflation and the growth of nominal incomes.

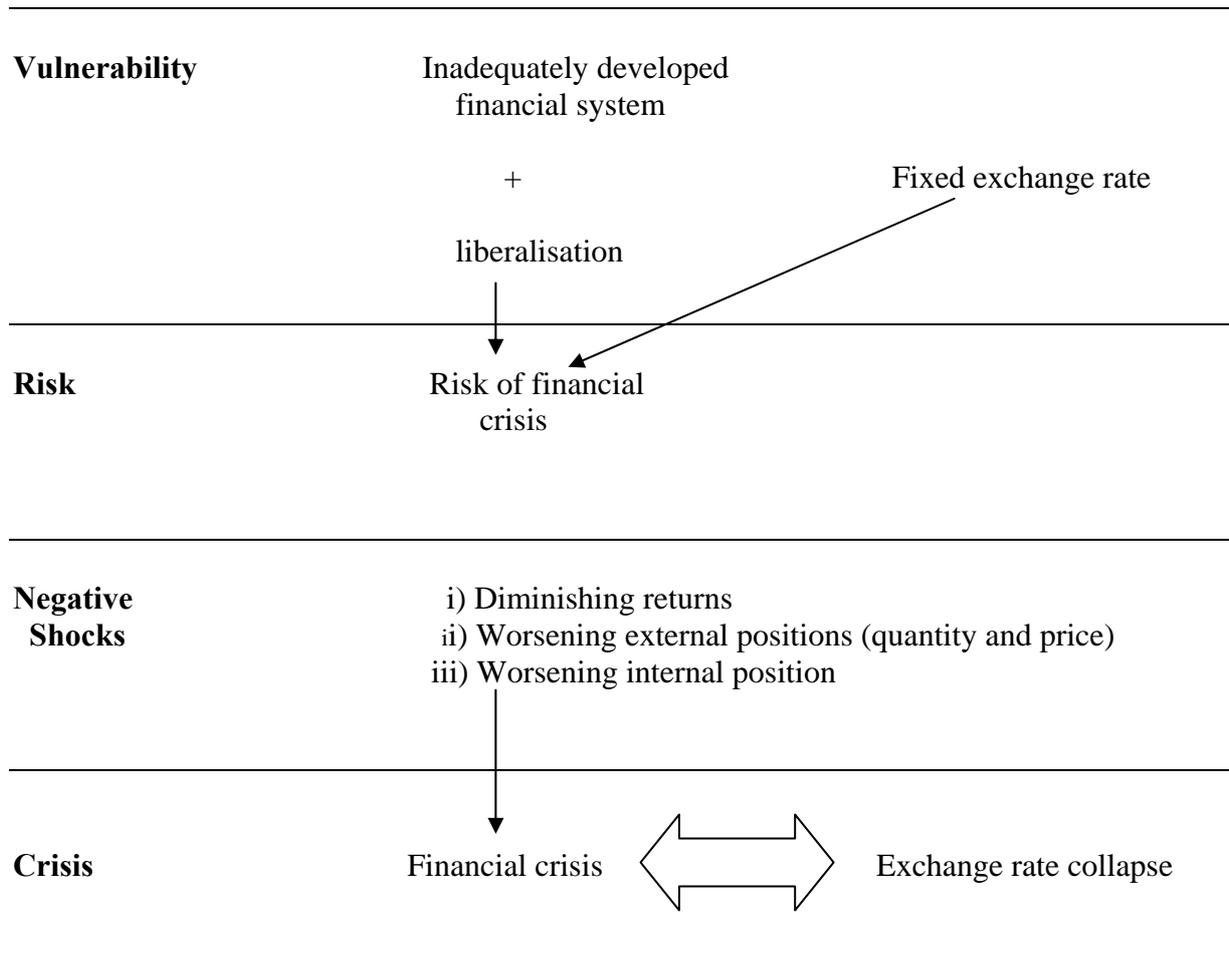
Using monetary policies that are structured around the fixed exchange rate system can be troublesome, and therefore might rely on the effectiveness of fiscal policies¹³. Since the exchange rate was pegged and investment and consumption booms could be expected after capital account liberalisations, an inflexible monetary policy requires an effective contractionary fiscal policy. When investments collapse aggregate demand will fall dramatically, thus the (real) exchange rate falls in order to restore aggregate demand with the total supply in an economy. This encourages an increase in net exports because of weakened investments. As these external shocks begin to take effect the productivity growth and over-investments can promote diminishing returns (see figure 1 below).

¹¹ Corbett & Vines (2004), p.16

¹² Williamson (1999), p.6

¹³ Corbett & Vines (2004), p.10

Figure 1: Depicting the stages to a crisis with a pegged exchange rate during financial liberalisation



* Source: Corbett & Vines (2004), p.2

In Indonesia it was shown that contagion from other crisis areas could spread, because at the time Indonesia was regarded as having sound exchange rate policies but was just as well devastated by the ongoing events that unfolded in Asia. In this sense one cannot regard a floating exchange rate as being optimal since other aspects also need be taken into consideration when choosing the exchange rate regime¹⁴.

Misalignment from the equilibrium exchange rate is an important factor, whether it is short-run volatility or long-run variability. Floating has a greater chance for misalignments, but a fixed cannot guarantee the absence of disparity. External outcomes from a country of which the currency is pegged can cause misalignments, such as inflation and changes in this country's terms of trade. Promoting either some form of over- or undervaluation of the currency that has pegged its exchange rate. When Thailand switched to a floating exchange

¹⁴ Williamsson (1999), p.3

rate in 1997, this was evident as the currency devaluated even more because it was seen to have been over-valuated causing greater distress to the economy. Probably because pegged exchange rates are more vulnerable to speculative attacks.

However, a floating exchange rate would be preferred considering the theorem of the impossible trinity. That it is problematic to have a fixed exchange rate with a national monetary policy combined with the free mobility of capital. Although the theory of optimum currency areas allows this view when smaller more open economies may wish to fix their currencies to a larger monetary area rather than having a floating independent exchange rate¹⁵.

In Thailand's case the pegged rate had enabled the Thai economy to achieve enormous growth, but had also made the economy vulnerable to external shocks and speculative attacks. Eventually, the exchange rate should have been made to float prior to the crisis, so the necessary policies could have been more efficient in dealing with the negative shocks but hardly anyone had predicted this sort of outcome. It certainly had an impact on moral hazard because speculative attacks had been present prior to the crisis, and when the Baht was left to float, its devaluation left many stunned since the Baht was more over-valued than expected causing financial panic to aggravate the situation.

During the Asian crisis the Thai government appeared to be in fiscal balance. There was neither any reckless credit structuring nor irresponsible monetary expansion, inflation rates were kept quite low and unemployment was at a reasonable level. There appeared to be no reason to remove the fixed exchange rate and use expansionary monetary policies.

Exchange rate pegging was possibly a bad macroeconomic decision, but cannot be seen as the primary problem to the onset of the crisis. On the other hand, it did become an increased burden on the economy as the events depicting a crisis unfolded:

*“A more orderly arrangement might well have been possible
As well as desirable at an earlier stage, but in the heat of the
Crisis, no practical alternative was seen to floating, especially
In Korea and Thailand, where the initial efforts of the
Authorities to defend their exchange rates resulted in the
Exhaustion of reserves and removed much of their room for
Manoeuvre [sic]”¹⁶.*

¹⁵ Williamson (1999), p.7

¹⁶ Ian S. McDonald, Editor-in-Chief, IMF Survey (1999), p.2

(excerpts of a statement issued on January 18 by Brazilian finance minister Pedro Malan)

To this extent the crisis should not be illustrated as a traditional currency crisis given that the problem was not caused by fiscal deficits, but rather by financial intermediaries. In my view the problem was rooted largely in domestic induced moral hazard which in turn brought about a market risk as the problems of poor investments increasingly became exposed to lenders of funds. The market risk is based on four factors¹⁷, and as these factors influence the value of investments the business sentiments in an economy will be altered as it was in Thailand. These four factors are:

- [Equity risk](#), or the risk that stock prices will change.
- [Interest rate risk](#), or the risk that interest rates will change.
- [Currency risk](#), or the risk that foreign exchange rates will change.
- [Commodity risk](#), or the risk that commodity prices will change.

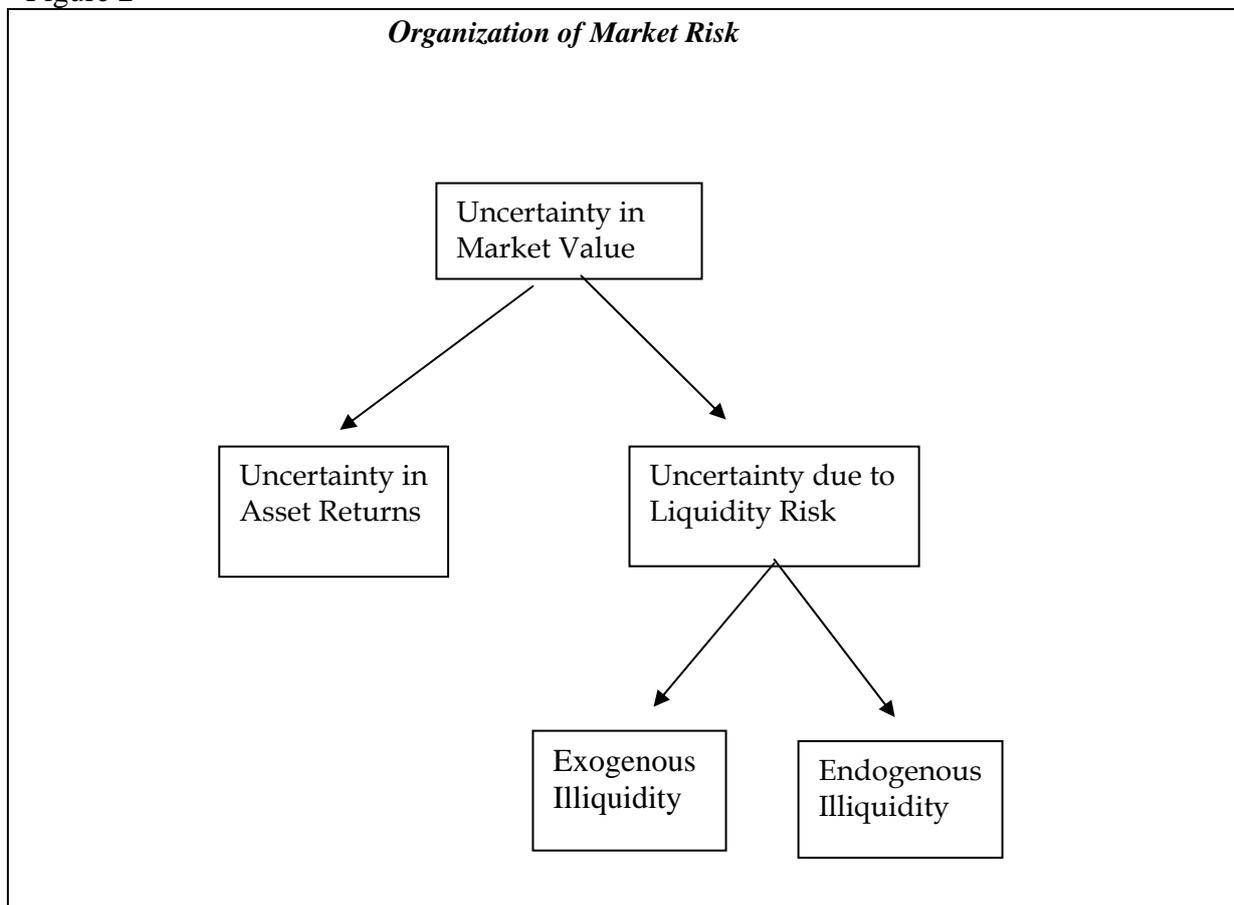
3.2 Liquidity risk analysis

A risk is usually defined as the uncertainty of future outcomes. A liquidity risk arises from a situation where a party holding the asset may not be tradable as nobody in markets wishes to trade that asset. Appearance of liquidity risk is very different from a drop of price to zero. In case of a drop of assets price to zero, the market is saying that the asset is worthless. Liquidity risk can be interpreted as exogenous which refers to an outer control not influenced by the trader or market maker, and an endogenous liquidity risk is controlled directly by the trader¹⁸. This endogenous risk can lead to a sudden unloading of large resources making it difficult for the market to restructure itself.

¹⁷ < http://en.wikipedia.org/wiki/Market_risk>

¹⁸ Bangia, Diebold et al (1999), p.2

Figure 2



The figure above exemplifies the market/liquidity risk horizon, in which case it can be seen that the two are conceptually correlated to each other in most instances. Liquidity risks occur when there are noticeable mismatches between liabilities and assets and are coherent with market risks, since investment values are miscalculated, and where credit crunches pressure loans where sources for debt repayment become limited. As capital becomes more scarce and non-performing loans increase the economy is pressured to a point where it is illiquid.

The Thai economy which had free interest rates as well as diminishing reserve requirements, and increased competition all played parts in creating an illiquid financial sector. Financial intermediaries were also being over-guaranteed and under-regulated by banks. This too encourages moral hazard as over lending and excessive risks become possible. And in view of the fact that international lenders pulled in loans and because local banks borrowed internationally to finance domestic loans, a great recession hit the domestic

market as many firms/banks were forced into bankruptcy. Another aspect of the liquidity risk was the fact that panic played a crucial role in bringing about a capital flight and causing bank runs as credit risks became an unavoidable catch-22. Asset liquidation was inescapable as banks were drained of resources due to non-performing loans. It is difficult to know whether the loans were poor at the time since they might have performed well without a liquidity crisis. But with low credit, high real interest rates and sharp real devaluations these components together can in addition produce “bad” loans¹⁹. This would mean that liquidity risks, although maybe not the main benefactors to the crisis, can be the more serious risk compared to that of a moral hazard as financial institutions are shut down. Another component that can worsen the liquidity of an economy is the type of exchange rate regime which is present. This paper will not continue this discussion as it is quite broad, and will be discussed more loosely in minor sections. The idea in this paper is to analyze to a greater extent the effects of moral hazard on the Thai economy.

3.3 Moral Hazard Analysis

A financial crisis is a nonlinear disruption to financial markets in which adverse selection and moral hazard problems becomes much worse, so that financial markets are unable to efficiently channel funds to those who have the most productive investment opportunities.

Frederic S. Mishkin

Moral hazard arises "when someone can reap the rewards of their actions when things go well but does not suffer the full consequences when things go badly" (Alan Greenspan). In the analysis of moral hazard there are three styles of induced moral hazard, the type which is indirectly and directly induced and the type that refers to domestically induced moral hazard.

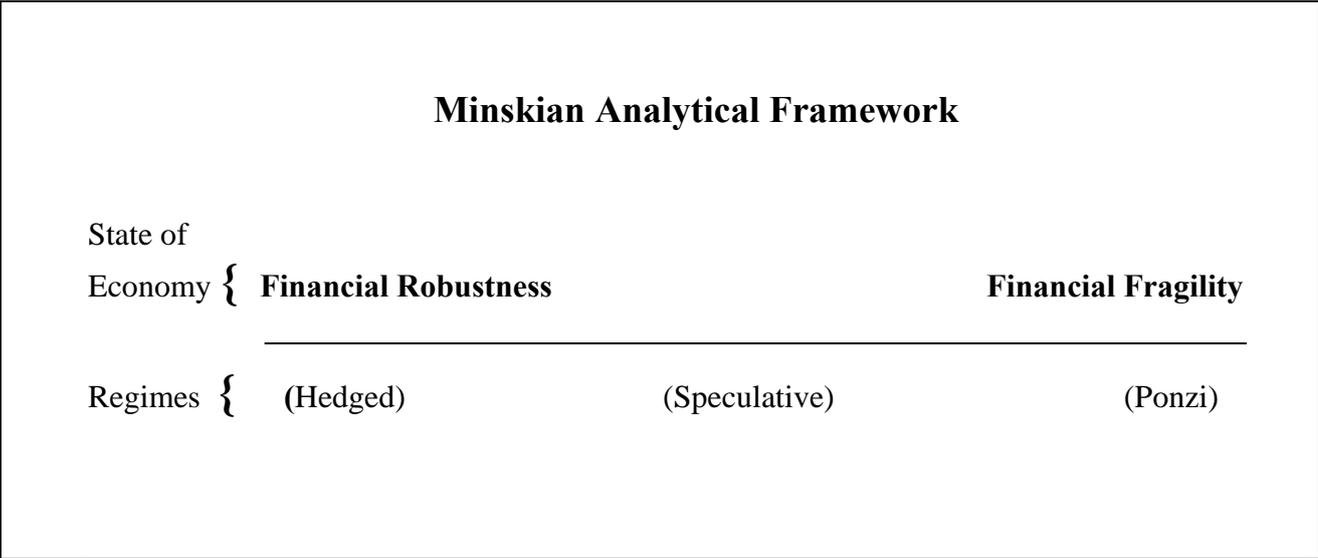
¹⁹ Chang & Velasco (1998), p.44

This paper tends to focus on domestic moral hazard and to a certain extent also indirect moral hazard.

3.3.1 Minskian Analysis

The Minskian financial fragility thesis deals with the relationship between debt service and cash flows, in this sense the economy is regarded as either progressing towards financial robustness or heading towards financial fragility (see figure 3).

Figure 3



Within this framework the economy, or rather businesses and industries are classified according to their sources and uses of funds:

Sources = Uses

profit + borrowing = investment + debt service

Minsky's classification of firms is based on three regime types: hedged, speculative, and Ponzi. A hedged firm has profits that are larger than the sum of investments and debt service payments. A speculative firm has enough profit to cover its debt service but not enough to cover both debt service payments and its total investments, and therefore uses new credit to fund its investments. That is why it experiences an increasing burden of debt. Ponzi firms have increasing debt burdens since they do not have enough profit to cover the required debt service payment.

When the economy is financially robust the industries are seen as being hedged, and as the economy becomes more fragile to financial distortions the industries first become more speculative. Until they finally are considered Ponzi regimes once the economy is financially fragile²⁰. The economy always enters the Ponzi regime prior to the onset of a financial crisis, and usually suffers a deflation of the stock market prior to the crisis. Much of the distortions the Thai economy faced were deeply rooted in the illiquidity of the financial system, although in my view a greater part of the shift between the Minskian regimes was more likely due to induced moral hazard creating falling rates of profit on productive investment. As rates of profit decline from productive investments (investments in production of goods and services) this is consistent with a shift to the speculative position in the Minskian analysis. To secure capital for investment and debt service, capital flows are diverted from productive to speculative investments. This strategy tends to be transitory to the Ponzi regime. Once the Ponzi regime has been reached a deflation of the stock market could be expected as it is followed by a financial crisis, characterized by negative rates of return on productive and speculative investments. Once a financial crisis is at hand currency devaluations occur as a direct result of this.

Hyman Minsky's Financial Instability Hypothesis suggests that after extended periods with minor recessions firms become less risk averse as financial decisions alter to adapt to an increased competitive environment. Investments are short-term as is the financing and the interest rates on short-term debt are less than those of long-term debt, which expands the debt structure and causes it to be of a short-term nature²¹. Firms then rollover financing as debts increase faster than profits on productive investments and as changes in interest rates alters

²⁰ Wray (2004)

²¹ Schroeder (2002) p.9

the demand for financing. The economy may therefore become vulnerable to interest rate increases and a decline in cash flows.

3.3.2 The Foley Model

I have decided that the approach of the Foley Model can incorporate a deeper understanding as to why moral hazard had such a deep impact on the events that lead to the crisis in Thailand. The Foley model has expanded on the ground work of the Minskian analysis by focusing on the financial dynamics of firms, as can be summarized by their balance sheet statements. A firm's solvency is characterized by its net worth, which is the composition of its assets and liabilities²²:

$$\text{net worth (N)} = \text{assets (A)} - \text{liabilities (B)}$$

Insolvency is dependent on the net worth of the firm, which must either be negative or zero. In order to implement cash flow statements to the equation, we will need to examine the changes in a firm's net worth (N) which is consistent with changes in its assets (A) and liabilities (B):

$$\dot{N} = \dot{A} - \dot{B}$$

In this sense cash flows in and out of firms can be analyzed over a period of time. The Foley model then uses changes in assets as investments (I) and changes in liabilities are accordingly seen as changes in debt, which is synonymous with new borrowing (D). When this is introduced into the cash flow statements of firms, we will see a likeness to the previous statement above from the Minskian analysis:

$$R + D = I + V$$

R is the profit of a firm and V is the firm's debt service payment, of which must be paid so the firm does not go bankrupt. A firm's solvency is based on the growth and profit rates of its

²² Schroeder (2002) p.13

assets, and also by the interest rate. To acquire this relationship into a formula the Foley model uses a few mathematical steps to obtain the profit, growth and interest rate since they play a decisive part in the observation of financial fragility. Firstly, subtract R from both sides of the equation giving use the following:

$$\mathbf{D = I + V - R}$$

Secondly, divide I and R by A (the firm's assets) and divide V by B (the firm's stock of debt):

$$\mathbf{D = (I/A) + (V/B) - (R/A)}$$

Now we can obtain the growth rate, profit rate and interest rate since:

- The profit rate $\mathbf{r = (R/A)}$
- The growth rate $\mathbf{g = (I/A)}$
- The interest rate $\mathbf{i = (V/B)}$

This enables use to acquire the following equation:

$$\mathbf{D = (g-r) A + i B}$$

To implement the equation so it matches the dynamics of a whole economy, or for the dynamics of a specific firm representing the organization of other firms, the capital stock (K) is used instead of A as the denominator for r and g. New external borrowing (D) will be depicted as the current account deficit, which is in actual fact the negative of the capital account if the balance of payments is zero.

The state of the economy based on Minsky's regimes can be portrayed in the Foley model (see figure 4) by using profit (r), growth (g), and interest (i).

Figure 4

Foley's Analysis With respect to Minskian Regimes		
Hedged:	$r > g > i$	
Speculative:	$g > r > i$	
Ponzi:	$i > r$	
{ Profit rate = r Growth rate = g Interest rate = i }		

For the economy to be “hedged”, profits (r) must be greater than the growth (g) and interest rate (i) since profits are used to service debt payments and new investments are financed with profits and borrowing. When the economy enters the speculative state it does so because the growth rate exceeds the rate of profit, and debt payments can be serviced as long as the interest rate does not rise enough to diminish profits from productive investments. The Ponzi state is reached once the interest rate surpasses the profit rate and the economy becomes financially fragile unless creditors are optimistic that the financial system can attain proceeds²³.

The Foley model is better understood with respect to the Thai economy once the incremental rate is incorporated. The Thai economy was hedged according to the average rates of profit, growth and interest in the long perspective, which gave Thailand the appearance of being undisturbed in the long-term the whole time during the crisis. A different picture is seen with incremental rates as the short-term profits from new investments were seen to be declining. As returns to the long-run Thai capital stock were promising the struggle for firms to find financing for short-term loans and new investments meant funding had to be found somewhere soon. Hence, speculative investments used resources from productive activities in the hope of obtaining funds fast. The incremental rate of return on productive

²³ Schroeder (2002) p.15

investments peaks around 1987 and drops quite a bit in 1989, around the time speculative investments on the Stock Exchange in Thailand (SET) steps up²⁴. As Thailand experiences the effects of a mild recession in the early years of the 1990's, the increased speculative activities tend to influence the speculation in real estate. Moral hazard may be explained by the fact that the Thai market was performing reasonable according to long-run perspectives, and because of amazing growth rates, investors assumed good defences could be achieved against poorer investments.

Table 1

Private External Debt

(end of period - billion US\$)

	1990	1993	1994	1995	1996
Medium and Long-Term	7.4	15.4	20.2	25.1	36.2
Non-Bank	7.3	12.7	13.7	16.9	23.2
Bank Debt	0.1	2.7	6.5	8.2	13.0
BIBF	0.0	1.4	3.0	3.8	na
Other	0.1	1.3	3.5	4.4	na
Short-Term	10.1	22.7	28.9	41.0	37.6
Non-Bank	6.2	12.3	7.4	7.3	8.7
Bank Debt	3.9	10.4	21.5	33.7	28.9
BIBF	0.0	6.4	15.1	23.7	na
Other	3.9	4.0	6.4	10.0	na
Total Private	17.5	38.1	49.1	66.1	73.8
as % of GDP	21%	30%	34%	39%	41%
Bank (% of total)	23%	34%	57%	63%	57%
Short-Term (% of GDP)	12%	18%	20%	24%	21%
Short-Term (% of total)	58%	60%	59%	62%	51%

Source: BOT

From the data in table 1 it is obvious that private external debt increases pretty much fourfold between 1990 and 1996, but the worrisome aspect is that short-term debt dominates this period. Even though medium and long-term private external debts are structured toward non-bank institutions and short-term debt tends to be controlled by banks, the dilemma is that private external debt has from 1990 to 1995 doubled its short-term debt percentage of GDP.

²⁴ Schroeder (2002) p.20

By 1995 almost 40% of GDP consists of total private external debt, and 62% of this was short-term.

Table 2
Ratio of Foreign Debt to GDP

	Long-term	Short-term	Total Debt
1990	21.77%	11.99%	33.75%
1991	22.52%	15.57%	38.09%
1992	21.46%	17.12%	38.58%
1993	21.43%	18.62%	40.06%
1994	22.28%	23.03%	45.30%
1995	21.93%	27.45%	49.38%
1996	27.32%	23.61%	50.94%

Source: BOT

By 1996 total foreign debt amounts to about 61% of GDP (see table 2) suggesting that foreign debt has almost doubled since 1990. Although long-term foreign debt has mostly been the majority of the total foreign debt to GDP, the doubling of the short-term foreign debt from 1990 to 1996 has occurred and is a direct effect of speculative investments.

3.3.3 IMF induced Moral Hazard

A great deal of debates has been presented regarding the role of institutions like the IMF, and the extent to which they induce moral hazard to crisis-prone emerging markets. Lane and Phillips (2002) summarize whether IMF financing encourages imprudence by borrowers and lenders by looking at a few questionable aspects. The first being the idea that financial institutions and banks become more reckless with lending, believing that if they end up in a critical state the IMF will back them up with financial support. In the light of this, the IMF

may be indirectly responsible for an increased risk-taking in the financial sector in the hope that the riskier activities will retain larger returns. Secondly, the idea that crisis-prone economies gain IMF assistance also promotes riskier activities and especially for a larger more developed economy such as Thailand. Therefore there will be little motivation to take early action in using proper policies, but will rather tend to continue a riskier approach until the onset of a crisis.

The IMF's temporary financial support will contain the total economic damage, and is provided under sufficient defenses. One key question that Lane and Phillips ask²⁵ is "how important is any moral hazard created by the IMF in influencing borrowers' and lenders' behaviour before a crisis"? Many have looked at bond spreads to try and determine whether economic behaviour has been influenced either prior to or after the knowledge of IMF assistance, but no significant results seem to be at hand to acknowledge that IMF induced moral hazard has been present. In this case it can be argued that knowledge of IMF assistance can already have been anticipated or that one cannot rate economic behaviour to IMF's desire to limit macroeconomic damage from a crisis²⁶. Considering Thailand had not used support packages for quite a while and since economic performance was such that little was expected that the Thai economy fall into a crisis. No need for assistance seemed plausible at the time until shortly before the onset of the crisis, therefore it is difficult to apprehend that moral hazard was induced through IMF influence²⁷.

3.4 Liquidity risk verses Moral hazard

By comparing the liquidity risk situation to that of the moral hazard state, it becomes apparent that the liquidity risk was greatly induced from the effects of moral hazards. Since Thailand had just previously noticed tendencies of speculator attacks (1991-1994), which has been expressed in the Minskian hypothesis and Foley model, the economy should not have loosened its regulations on capital accounts. As Thailand continually followed the consensus dictated by IMF policies, the increased moral hazard pressed Thailand into a Ponzi style regime forcing the government and lenders to realize that the apparent market risk was

²⁵ Lane and Phillips (2002)

²⁶ Mussa (1999), p.12

²⁷ Mussa (1999), p.15

unavoidable at this stage. Moral hazard was still present as speculators believed the economy was strong enough to defend a bigger recession, and banks trusted the central bank which probably misjudged the situation as minor or hoped the IMF and other lenders of last resort (LOLR) would come to the rescue.

The market risk began to seem an aggravated setback, and the Thai government believed the pegged exchange rate was obstructing alignments so as to defend the Thai baht from increased depreciation. Many debates have occurred on which exchange rate regime would have been effective, but in my opinion the pegged system present was not presenting that much of a setback and seemed to be the best approach. The Thai government felt the fixed rate was troubling the economy, but when they floated the exchange rate in July 1997 a greater dilemma appeared. It is at this stage I believe the ongoing moral hazard issues become a lesser part of the problem as greater exchange rate risk and currency risk strain the economic system to the point that the liquidity risk cannot be undone without the support from LOLR and huge “bail-out” packages.

4 CONCLUSION

There is always a constant battle between market conditions and the need for a robust social framework. As aid is fed to a country there is usually a choice between upgrading a countries welfare through macroeconomic policies (privatization, management of interest rates, exchange rates, inflation and such) and market oriented necessities. On the other hand, the choice is whether to improve existing educational standards, health and other such public areas which are just as important. The Asian countries had managed to excel giving enough attention to the public as the private, and enabling fantastic growth rates as well as improved standards of living. As Aids in Thailand began to reduce in numbers and education was improving for the better, growth rates were as high as 8% and these countries were considered miracles by the rest of the world.

Thailand had found a remarkable balance, but as the IMF began pressing an already productive nation into a more Washington based scenario, the new conditions placed on Thailand and the rest of Asia seemed to/did lead these economies to a fatal crisis.

An apparent argument is that the Asian nations took on a riskier approach than they should have as the IMF gave them assistance. For the same reason as car owners' drive riskier with insurance than without, the nations of Asia believed they could act riskier without taking necessary precautions. On the contrary, these nations were already performing far better than any other nations in the world and had no reasons to change strategies although these policies were far more risky than beneficial (as can be witnessed in prior IMF assisted economies, Latin America for example). The IMF's Washington consensus did pressure the Asian economies into a deeper recession than was essential, although the consensus I believe is more reasonable over longer periods since it benefits the economies over the long-run. Instability in a financial system can be introduced through borrowing to finance growth, and this act in itself can be brought about through induced moral hazard, as I believe it was in Thailand but not because of the IMF. The Thai financial institutions and firms were badly prepared for a situation of credit risks and cash flow exposures. The chosen policies of relatively fixed exchange rates were lacking the strength to rebuild financial distress, and were enhancing the sentiments of credit institutions and international lenders. Capital flight, non-performing loans, bankruptcies, and a contracting economy were essentially unavoidable

at this stage. Financial intermediaries therefore played a central role in the crisis since they pulled in loans, avoiding the risks at hand as cash flows were diminished. As resources became scarcer, investments were also cut back and profits became increasingly smaller. Less capital was obtainable and debt service payments increased in proportion, eventually pushing up interest rates as the demand for financing increases. The economy becomes increasingly illiquid and a debt-deflation situation occurs.

Since speculative investments tend to increase after periods of rapid growth and minor recessions, and since increased competition causes profit rates on productive investments to fall the economy reaches greater uncertainty. In Thailand this resulted in short-term investments with short-term loans. This is a sign of moral hazard as capital inflows are used more for short-term investments and to a greater extent for speculative rather than productive investments. At this stage the financial system becomes increasingly fragile since it relies on investor's confidence. As was stated earlier the Thai economy seems to have reached a speculative regime during 1991 to 1994, and from 1995 to 1998 it reached the Ponzi regime. It is for this reason the modern approach seems to be more appropriate in describing the onset of the crisis. Since direct or indirect induced moral hazard seems to be at fault for pressing a sound economy with stable macroeconomic policies into a Ponzi regime two years prior to the financial crisis, at which stage productive investments appear to be producing negative rates of profit.

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