

Financial Systems, Crises and
Remedies:
An Overview of the Vulnerabilities
in the East Asian Crises

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INTRODUCTION

In the 1970s through the 1990s, four of the economies of East Asia (Korea, Thailand, Indonesia and Malaysia amongst others) were dubbed the “Asian Miracle”, with average annual GDP growth rates ranging from 6.9 percent in Indonesia to 8.4 percent in Korea. With massive increases in per capita incomes and huge decreases in the poverty level, the economic performance of these countries has been a remarkable success. In mid 1997 however the Asian miracle started to collapse when the Thai baht was devalued. By that year, most of the regional currencies were overvalued and fixed exchange rate regimes and excessive short-term capital inflows led to a real exchange rate appreciation. Ballooning current account deficits and overinvestment were accompanied by inadequate financial sector supervision and poor financial management. The maintenance of relatively fixed exchange rates led banks and corporations to borrow large amounts of unhedged international capital denominated in foreign currency and when Asian currencies faced downward pressure, bad banking practices, high foreign debt and corruption caused currency stabilization efforts to fail and the value of major Asian currencies fell sharply. Even the top performing Asian stock markets could not withstand the shock. Many bankrupt banks closed down and the economy suffered from falling GDP growth rates, rising unemployment and a fall in consumer and investment demand.

This paper will introduce financial systems from scratch, talking about currency and financial crises, as well as exchange rates which played a major role in the Asian

financial crises, and will analyze financial vulnerabilities with its external and internal factors. The purpose of this paper then is two fold. In the main, it aims at answering the important debate of whether the 1997 Asian crisis was a financial or a currency crisis or both and if it was a currency crisis, then which currency crisis generation model best describes it. There is much debate about the school of approach to which the Asian crisis belongs. Was it for example macroeconomic imbalances and policy errors combined with vulnerability that led to the crisis or was it rather a matter of a general shift in the confidence of foreign creditors that eventually led to financial panic and huge capital outflows. Also if confidence was the problem was its source a lack of adequate regulation and supervision of financial institutions? The debate of what caused the Asian crisis will go on for years to come. This paper will thus present both sides of the coin while formulating arguments.

This paper will be divided into two main parts. The first part will give the solid theoretical background to the second part by introducing financial systems, its main components and functions. It will also define exchange rates by giving the main differences between pegged and floating exchange rates. Both currency and financial crises will be analyzed in detail with the vulnerabilities that lead to there causes, in order to give us a better understanding of the second part.

The second part of this paper will introduce two schools of thought that caused the East Asian Crises, and mainly focus on the vulnerabilities that led these countries to Crises. The analysis will start with describing the role the political interference, and then analyze both external and domestic vulnerabilities in detail supported with factual tables.

This part will also include a section of currency and financial crises that will relate the second part to the first part of the paper. Finally the paper will end with concluding the above arguments and deciding the nature of the East Asian Crises.

II - FIRST PART

1 – Financial Systems:

In order to recognize a situation of crisis and set the background to the analysis of the East Asian crises, an understanding of financial system should be obtained. Financial systems are the combination of all financial institutions and markets together, which have an essential and predominant role in the functioning of the economy.

Financial systems are necessary and essential to economic activity and growth. At the *microeconomic* level, they facilitate the process of savings and investment, because they reduce the risk of loss to savers, reduce transaction costs and provide investors with funding amounts and repayment schedules convenient to them. By taking in deposits and making loans, they allow the smoothing of the economic agents' cash flow fluctuations. They also ensure the convertibility of foreign currencies. At the *macroeconomic* level, through the process of intermediation, financial institutions mobilize and allocate resources across space and time directing these resources to the highest value use. Currently they minimize various financial risks and reduce transaction costs. In the process of intermediating they gather and distribute information monitoring their loans and investments to ensure that resources they allocate are well used. When the financial system operates well and is sufficiently deep and mature, it ensures a close to optimal allocation of resources and risks to the economy. In contrast, badly functioning systems often misallocate resources ultimately undermining growth and productivity.

In Today's economy, Financial systems mainly consist of a central bank, banks, NBFIs (non-bank financial institutions), and financial markets. In majority of the countries particularly in the developing ones, the banking sector holds a major part of the financial assets. The Central bank is the ultimate manager of the financial system. Since we are introducing the role and the functions of a financial system, let us briefly discuss the main elements of this system.

- **The Central Bank:**

The Central bank which is also known as the reserve bank or monetary authority, is an entity responsible for the monetary policy of its country or of its group of member states, such as in the European Union. Its primary responsibility is to maintain the stability of the national currency and money supply by means of monetary policy in order to reach the paramount objective of price stability and low inflation. The central bank uses various monetary policies to that end including required reserve ratios, which directly affect the money multiplier, and manages most of the interest rate structure. It acts as a banker to the country's banks and to the non bank financial institutions; hence it is a lender of last resort to guarantee the *liquidity* of the financial system.

It may also have supervisory powers to ensure that banks and other financial institutions do not behave recklessly or fraudulently. A central bank is usually headed by a Governor, President in the case of the European Central Bank or Chief Executive/Managing Director in the case of Hong Kong Monetary Authority and Monetary Authority of Singapore.

Other main objectives of the central banks may include financial stability and growth, development, full employment, external equilibrium, price stability (managing inflation), and an equitable income distribution. In addition, many banks are responsible for handling the government's budgetary and for managing the country's external monetary affairs, in particular the *exchange rate* which we will discuss in more details.

- **Banks and financial instruments:**

A bank is a financial intermediary, whose essential function is to intermediate between two sets of contracts it issues: deposit contracts between depositors and itself and loan contracts between borrowers and itself. Banks have some other essential functions like:

- Mobilize and allocate resources efficiently
- Create asset and liability instruments
- Price different forms of financial assets
- Provide liquidity to depositors, savers and borrowers
- Risk management by processing some information.

Financial intermediation remains the core functions of the banking system. As industrial economies have developed, two main types of banks emerged: universal and commercial banks.

Universal banks hold claims of different nature on companies, including debt and equity, which leads them to participate directly in the corporate governance of the companies they fund. Whereas *commercial banks* finance companies exclusively through

short and medium term debt, leaving to the financial markets, long term debt and equity finance.

Finally, one should add that development banks were government owned institutions. When banking sectors were relatively underdeveloped, development banks was promoted to solve one form of apparent failure.

- **Non- Bank Financial Institutions:**

NBFIs as a group tend to be less homogeneous than banks. Originally, the term “Non bank financial institutions” was applied to those that did not create monetary claims. One of the most common denominator is that while gathering financial resources, they do not take retail deposits relying rather on the money market, like large CDs, bonds. In mature financial systems a part of NBFIs sub sector is involved in securities trading and in the mobilization and allocation of long term resources. NBFIs play an important role in the financial system. On one hand they complement that banks provide, on the other hand they compete with banks in overlapping areas of operations, forcing banks to remain efficient.

- **Financial Markets:**

Financial markets are markets trading financial assets such as securities; shares and bonds, as well as financial contracts such as futures and options. Financial markets usually consist of the following:

- Stock exchange for trading companies
- Money market for trading short term loans

- Foreign exchange market for trading currencies
- Number of specialized markets for trading derivatives

The two main types of securities markets are the primary and the secondary markets. The primary market is the market in which newly issued securities are sold by underwriters and issuers like investment banks and prime name companies. The secondary market is the market in which, already issued and outstanding securities are traded.

The essential functions of financial markets are to; allow change of ownership of companies without disrupting their operations. Larger companies can borrow directly from the market without having to go through an intermediary such as a bank. A predominant function of a financial market will be to manage liquidity and risks by investing in a large number of firms and holding diversified portfolios. They will process and disseminate information to stakeholders and ensure corporate governance by providing stakeholders with legal rights and means to supervise and discipline corporate managements. All these functions are benefiting companies in various ways, such as lowering their transaction costs, increase their access to immediate capital, as well as providing them with loans so companies and governments do not have to wait for intermediaries, and should not be constrained by the reserve requirements of banks. The development of financial markets is often closely linked to some major factors listed as followed; macroeconomic stability, liberalization of financial systems, markets transparency and depth, cost of capital and differential between equity and debt yields, companies leverage and quality of bankruptcy procedures.

By the nature of their operations, banks and other financial institutions are relatively high leveraged. Non financial companies are leveraged as well but substantially less so. The higher leverage of financial institution has two predominant implications. First, their buffer stock is relatively thin, therefore it is only a temporary embankment against insolvency, and the quality of management will be a major determinant of the institution's strength. Second, high leverage is a situation that leads financial institutions towards risky, high yielding investments, since for a given profit; a lower equity base increases the return on equity.

The key factor in the developing procedure is the effectiveness and quality of the legal, regulatory and prudential framework to the financial market, which we will be discussing it while analyzing the Asian financial crisis.

- **Functions of the financial systems:**

The following points summarize the functions of a financial system:

- Mobilize and allocate resources efficiently, from domestic or foreign origin, across time and space; which requires an efficient pricing of risk.
- Offer liquidity to assets and liabilities holder.
- Minimize financial risks.
- Serve as a conduit for monetary policies.
- Operate the payment systems.
- Facilitate the trading, hedging, diversifying and pooling of risk.
- Gather process and disseminate information.

- Monitor managers and ensure good corporate governance; and through all these functions;
- Reduce transaction costs;
- Thereby, facilitate economic activity and growth.

Financial markets are fundamentally different from other markets, because they involve intertemporal transactions, like the exchange of money today for a promise of repayment in the future.

An important factor contributing to the well being of the financial system will be its *supervision and regulatory framework*. A legal regulatory and prudential framework consists in all the laws and regulations governing the financial system its constituent parts and its agents. It is obvious that if the legal framework, including supervision is inadequate, the effectiveness of the financial system will be undermined and the functions of the system will be weakened.

- **Main Types of Financial Systems:**

Over time, national financial systems were influenced by financial histories, laws, philosophies and perceptions to financial instability and crises. Nowadays, financial economists refer to two types of financial systems: *market based* and *banks based*.

- **Market based:** Market based financial systems are those involving relatively large financial markets in relation to the banking NBFIs sub-sector.

- **Bank based:** Bank based financial systems are those in which the banking and NBFIs sector play a predominant role.¹

In bank based financial systems, the role of financial markets and its share of total financial assets are both significantly smaller than in market based financial systems. The distribution of financial assets is different in market based and bank based financial systems. In market based financial systems, the value of securities is market determined and economic agents holding them are exposed to market fluctuations in these values. In bank based financial systems, the value of claims of financial institutions is stable. From a macroeconomic point of view, economies having market based and bank based financial systems show differences in debt patterns. A developed securities market provides companies with equity finance that is permanent with no contractual payments attached. In economies having market based financial systems; the overall proportion of debt in the total financial assets is complemented by a significant amount of equity. Economies having bank based financial systems, show a greater proportion of debt, both in short and long term in total financial assets. Such economies are more leveraged and thereby more vulnerable to external and internal shocks. And we will see more of this while discussing the East Asian crisis.

East Asian turmoil was a combination of currency and financial crises. Hence, after the introduction of the main components and functions of a financial system, we will discuss the role of the exchange rate regime to better understand its effect on currency crisis.

¹ Popiel Paul A., Management of Financial Systems and of Financial Crises, Department of Economics, Carleton University. Fall 2004.

2 – Exchange Rates:

A definition of an exchange rate would be the price of one currency expressed in terms of some other currency. In other words, the exchange rate between two currencies specifies how much money one currency is worth in terms of the other.

- **Real and Nominal Exchange Rates:**

The **real exchange rate** is the exchange rate of a currency expressed in constant price terms to make allowance for the effects of *inflation*. So, when a country experiences a higher rate of domestic inflation than its trading competitors, then its exports will become more expensive and its imports cheaper than domestic products, unless its exchange rate depreciates to offset fully the inflation differential. In situations where exchange rates are fixed by international agreement or determined by market forces that do not reflect relative inflation rates, then nominal exchange rates can differ significantly from real exchange rates. A country's real exchange rate is the more important measure of that country's international competitiveness.

In the standard view, fiscal imbalances work through the real exchange rate; a budget deficit leads to a real appreciation, which reduces the competitiveness of a country's industry and thus leads to a trade deficit.²

The *nominal exchange rate* is the exchange rate of a currency expressed in current price terms; that is, making no allowance for the effects of *inflation*. In other words, the *nominal exchange rate* only takes into account the rate at which one currency can be exchanged for another, without regards to the price of goods and services in either

² Krugman Paul, *Currencies and Crises*, The MIT press, Massachusetts London, England. 1992.

country. Whereas the *real exchange rate* between two countries' currencies is a broad summary measure of the prices of one country's goods and services relative to the others.³

Generally speaking, financial and corporate communities prefer relatively fixed exchange rates to floating exchange rates, since it enables them to enter into trade and financial transactions at known foreign exchange prices so that the profit and loss implications of these deals can be calculated in advance. The disadvantage with such a system is that governments often tend to delay altering the exchange rate, either because of political factors, or because they may choose to deal with the balance of payments difficulties by using other measures so that the pegged rate gets seriously out of line with underlying market tendencies. When this happens, speculation against the currency tends to build up leading to highly disruptive short term capital flows that destabilize currency markets and force the central bank to spend large amounts of its international reserves to defend the parity. If one currency is forced to devalue under such pressure, this may produce a domino effect as other weak currencies are likewise subjected to speculative pressure.

In order for us to analyze exchange rates, we first have to be familiar with the multinational institution that supervised the operation of the first post war exchange rate regime called the Bretton Woods system.

³ Krugman Paul and Maurice Obstfeld, *International Economics, theory and policy*, sixth edition.

- **Bretton Woods System:**

The Bretton Woods system of international monetary management established the rules for commercial and financial relations among world's major industrial states. The Bretton Woods system was the first example in world history of a fully negotiated monetary order intended to govern monetary relations among independent nation-states. It was set up in 1947 following the Bretton Woods conference in 1944. Setting up a system of rules, institutions and procedures to regulate the international monetary system, the planners at Bretton Woods first established the International Monetary Fund (IMF) and later the International Bank for Reconstruction and Development (IBRD).

The chief features of the system were, first, an obligation for each country to adopt a monetary policy that maintained the exchange rate of its currency within a fixed value in terms of gold; and secondly, the ability of the IMF to bridge temporary imbalances of payments. In the face of increasing strain, the system eventually collapsed in 1971. This was a system of fixed exchange rate liked to *gold value*.

Having described the Bretten Woods system, we can go back to the analysis of the exchange rates. The choice between fixed and flexible/floating exchange rates has been one of the most fundamental issues in international finance. For most countries today, however, the choice between fixed and flexible exchange rates is increasingly becoming debatable. Exchange rates between currencies have been highly unstable since the collapse of the Bretton Woods system of *fixed* exchange rates, which lasted from 1946 to 1973. Under the Bretton Woods system, exchange rates were fixed at levels determined by governments. Under the *floating* exchange rates we have had since 1973, exchange rates are determined by people buying and selling currencies in the foreign-

exchange markets. The instability of floating rates has surprised and disappointed many economists and businessmen, who had not expected them to create so much uncertainty.⁴

So what is the difference between fixed and floating exchange rates?

- **Fixed Exchange Rates:**

Under *fixed exchange rates*, currencies are assigned a central fixed par value, terms of the other currencies in the system, and countries are committed to maintaining this value by supporting buying and selling. Under a fixed exchange rate regime only the central bank has the ability to influence the value of the country's currency. In other words, under the fixed regime, pressure on the exchange rate to devalue or appreciate will be met by the use of monetary policy to stabilize money supply. This is because in a fixed exchange system the domestic currency is pegged either to a hard currency or a basket of currencies. Once an exchange rate is fixed countries are expected to maintain this rate for fairly lengthy periods of time but may devalue their currencies or revalue it if their balance of payments is respectively in chronic deficit or surplus. However, it has been found that fixing the exchange rate limits the effectiveness of macroeconomic policy as well as policy options.⁵

- **Floating Exchange Rates:**

Floating exchange rates is a mechanism of exchange rates between countries' currencies that involves the value of each country's currency in terms of other currencies

⁴ Krugman Paul, The Library of economics and liberty; The concise encyclopedia of Economics.

⁵ Obstfeld Maurice and Rogoff Keneth; The Mirage of Fixed Exchange Rates. Journal of Economic Perspectives, Vol.9 No.4 Autumn 1995.

being determined by the forces of the demand for, and supply of currencies in the foreign exchange market. Over time, the exchange rate of a particular currency may rise or fall depending, respectively, on the strength or weakness of the country's underlying Balance of payments position and exposure to speculative activity.

Hence, a floating exchange rate reflects the market price of a currency. So if the domestic interest rate increases then all things being equal the domestic real exchange rate will appreciate in a floating regime. Therefore the domestic exports will look expensive and result in the favor of foreign competition.⁶

- **Managed Float:**

There is no currency in the world whose value is absolutely and entirely determined by the foreign exchange market; in cases of extreme appreciation or depreciation, a central bank will intervene to stabilize the currency. Thus, the exchange rate regimes of floating currencies may more technically be known as a *managed float* or *dirty float*, where the currency is not traded extensively in international markets. *Dirty float* is the manipulation by the monetary authorities of a country's exchange rate under a floating exchange rate system primarily in order to gain a competitive advantage over trade partners. Thus, the authorities could intervene in the foreign exchange market to stop the exchange rate from otherwise appreciating in the face of market forces or, alternatively, they could deliberately engineer a depreciation of the exchange rate.

⁶ Mankiw, N. Gregory, et al. Principles of Macroeconomics, first edition. Harcourt Brace and Company Canada, 1999.

- **Pegging or Floating Exchange rates:**

Maurice Obstfeld gives three main reasons why would a government peg its currency's foreign value. First, the unpredictable volatility of a floating exchange rate, both from a short term perspective and a long term one, can cause damage. Many economists believe that exchange rate uncertainty reduces international trade and discourages investment. Second, for some economies it may be a way to control inflation by pegging the exchange rate to a low inflation currency. A third reason for pegging applies to countries disinflating after periods of price level instability. For such countries, fixed rates have the attraction of anchoring price inflation for internationally traded goods and providing a guide for private sector inflation expectations.⁷

The theory behind the *nominal anchor* is that by allowing the nominal exchange rate to devalue ahead of the real exchange rate the price of exports will for a time remain lower than that of imports. The difference in the two exchange rates helps to encourage exports and control the level of inflation. Anne Krueger related the exchange rate to inflation when she writes that the basis for this policy is that "...in an open economy, the domestic price of tradable goods is determined via the (nominal anchor) exchange rate, and so, when the exchange rate is adjusted more slowly than the rate of inflation, it serves as a 'nominal anchor', bringing down the overall rate of inflation."⁸

One commonly used method to achieve price stability is to peg the value of its currency to that of a large, low-inflation country. In some cases, this strategy involves pegging the exchange rate at a fixed value to that of the other country's currency so that

⁷ Obstfeld Maurice and Rogoff Keneth; The Mirage of Fixed Exchange Rates. Journal of Economic Perspectives, Vol.9 No.4 Autumn 1995.

⁸ Krueger, Anne, and Aaron Tornell. The Role of the Bank Restructuring in Recovering From Crises: Mexico 1995-98. NBERE Working Paper Series. (Cambridge, MA: National Bureau of Economic Research, 1999),6.

its inflation rate will eventually fall to that of the other country. In other cases, the strategy involves a crawling peg or target in which one country's currency is allowed to depreciate at a steady rate against that of another country so that its inflation rate can be higher than that of the country to which it is pegged. Although sticking to a fixed or pegged exchange rate regime can be a successful strategy for controlling inflation, the asymmetric information view of the Asian crisis illustrates how dangerous this strategy can be for an emerging market country with a large amount of foreign-denominated debt.⁹ Frederic Mishkin states that under a pegged exchange-rate regime, when a successful speculative attack occurs, the decline in the value of the domestic currency is usually much larger, more rapid and more unanticipated than when depreciation occurs under a floating exchange-rate regime. For example, during the Asian crisis, Indonesia saw its currency to decline less than one-quarter of its pre-crisis value, in a very short period of time. The deterioration of nonfinancial firms' balance sheets led to a deterioration in bank balance sheets because borrowers from the banks were now less likely to be able to pay off their loans. The results of this collapse in the balance sheets were thus sharp economic contractions. A possible risk from an exchange-rate peg could be that by providing a more stable value of the currency, it might give foreign investors a sense of lower risk and thus encourage capital inflows. Furthermore, if the supervisory process of the financial system is weak, which is often the case in emerging market, so that the government safety net for banking institutions creates incentives for them to take on risk, the likelihood that a capital inflow will produce a lending boom is that much

⁹ Mishkin Frederic S., Lessons from the Asian crisis, National Bureau of Economic Research, Cambridge, April 1999.

greater. With inadequate bank supervision, the likely outcome of a lending boom is substantial loan losses and a deterioration of bank balance sheets and a possible financial crisis. A flexible exchange rate regime has the advantage that movements in the exchange rate are much less nonlinear than in a pegged exchange rate regime. Consequently, a depreciation of the exchange rate may provide an early warning signal to policymakers that their policies may have to be adjusted in order to limit the potential for a financial crisis.¹⁰

3 – Currency and Financial Crises:

Since currency crisis have been frequently associated with financial crisis, especially for the past 25 years, we will successfully discuss them both using our analysis in the previous section. It will be best to start this discussion with defining each of currency and financial crises in a brief way.

A currency crisis may be said to occur when a speculative attack on the exchange value of a currency results in a devaluation of the currency or forces the authorities to defend the currency by expanding large volumes of internal reserves or sharply raising interest rates. *A financial crisis* refers to a situation of a systemic insolvency in which actual or potential bank runs or failures induce banks to suspend the internal convertibility of their liabilities or which compels the government to prevent this by extending assistance on a large scale.

Finally, for the record we mention the *foreign debt crisis* which is usually described as a situation in which a country cannot service its foreign debt, whether sovereign or

¹⁰ Mishkin Frederic S., The dangers of exchange rates pegging in emerging market countries, International Finance, 1998.

private¹¹. In many instances however, elements of currency, banking and debt crises may be present simultaneously, as in the recent East Asian crisis and the Mexican 1994-95 crisis.

- **Currency crisis:**

Currency crisis is defined by Morris Goldstein as: ‘a situation in which an attack on the currency leads to a substantial reserve loss, or to a sharp depreciation of the currency-if the speculative attack is ultimately successful-or to both.’¹² Paul Krugman writes: “There is no generally accepted formal definition of a currency crisis, but we know when we see them. The key element is sort of circular logic, in which investors flee a currency because they fear that it might be devalued, and in which much of the pressure for such a devaluation comes precisely from that capital flight”¹³. A currency crisis could be defined as a substantial nominal currency devaluation or depreciation. So in this situation, either the government decides not to support the currency *or* the central bank is unable to support the currency and so it devalues, thus it is forced to adjust to meet its true market value. Currency crisis involves a sudden movement of the exchange rate and sharp change in capital flows.¹⁴

¹¹ Aziz Jahangir, Caramazza Francesco and Salgado Ranil; Currency Crises: In Search of Common Elements, International Monetary Fund Working Paper, African, Asia and Pacific, and Research Departments. March 2000.

¹² Goldstein, Morris, Kaminski, Graciela L. and Reinhart Carmen, Assessing financial vulnerability-An Early Warning System for Emerging Markets, Institute for international economics, Washington DC, June 2000.

¹³ Krugman Paul, Currency crises, The University of Chicago press, National Bureau of Economic Research, 2000.

¹⁴ Caprio Gerard Jr., Banking on Crises: Expensive Lessons From Recent Financial Crises, Development Research Group, The World Bank, June 1998.

In the past thirty years, academics and financial economics have successively produced three models of currency crisis, which are referred to as the “three generation models” of a currency crisis.

First, in the early currency crisis models there was a mechanical linkage that would assume that the speculation led to a depletion of foreign exchange reserves, which would eventually force the central bank to give up its defense of the original parity. Then the “second generation” crisis model came in by emphasizing on the problems of macroeconomic policies instead of the mechanical exhaustion of foreign exchange. This model was followed by the third generation model which focused on the issues involving financial intermediaries and liquidity effects, having the idea that such crisis are essentially bank runs that manifest themselves through the foreign exchange market.¹⁵

In summary, a currency crisis is generated by a massive flight of investors from a specific currency because of a loss of credibility of the monetary authority or contagion among investors or frequently both.

A/ First Generation Model:

The *first generation model* views the currency crisis as the unavoidable outcome of vulnerable policy stances or structural imbalances. This shows that the exchange rate regime is a component of a broader policy package, and this policy is true if and only if it does not conflict with other monetary and fiscal policies. In this model, we would expect the stock of foreign reserves to fall over time. When the reserves are exhausted, the central bank will have the domestic currency to float. This exhaustion of the reserves

¹⁵ Krugman Paul, Currency crises, The University of Chicago press, National Bureau of Economic Research, 2000.

takes the form of sudden reduction instead of a gradual one. A currency crisis in this model, takes the form of a speculative attack, leading the agents to buy the entire stock of foreign reserves that the central bank is willing to commit to defend the fixed exchange rate. Hence, the central bank is forced to float the currency.

The earliest version of the first generation model was presented by Paul Krugman in 1979. The focus of the Krugman model is on the fundamental inconsistencies between economic policies pursued at home and maintenance of a pegged exchange rate. The implication is that the increases in the central bank's holding of government securities will be offset by the fall in its foreign currency reserves, as the developing decline in domestic interest rates resulting from monetized deficits induces investors to hold larger quantities of foreign bonds at the expense of domestic bonds. Such a process is unsustainable since persistent with deficit financing by the government will sooner or later leave the central bank with no foreign exchange reserves to maintain the exchange rate peg.¹⁶ A weakness of this theory is that they represent policy in an undimensional way and assumed a very passive government; by definition, the authorities monetize the budget deficit while the central bank follows suit by drawing reserves without considering the other developments in the economy. In any economic situation, the range of policies available to the authorities is wider and involves some form of policy trade offs given the macroeconomic objectives.¹⁷ Economists have summed up the major factors of this model and came up with the three main conclusion; first, traders actions are based on rational expectations, formed in the context of the continuing expansionary policies followed by the fiscal and monetary authorities. Second, given the

¹⁶ Rakshit Mihir, *The East Asian currency crisis*; Oxford university press 2002.

¹⁷ Popiel Paul A., *Management of Financial Systems and of Financial Crises*, Department of Economics, Carleton University. Fall 2004.

inconsistencies between domestic economic policies and the fixed exchange rate system, meaning no amount of foreign exchange reserves held by the central government will prevent or postpone the currency crisis. Third, the canonical models suggest that if the equilibrium exchange rate, driven by the fundamentals, deviates from the pegged exchange rates, speculative attacks and currency crisis become inevitable.¹⁸

In the first generation of currency crises, the viability of an exchange rate peg is determined by exogenous variables which are not correlated to the behavior of economic agents.

B/ Second Generation Model:

The core of the *second generation model* is the interaction between expectations and actual outcomes, in which the market expectations directly influence macroeconomic decisions; hence this is an endogenous approach, since the actions of the policy makers represent optimal responses to macroeconomic shocks in this model.¹⁹ The second generation model emphasizes two main important points for the eruption of the currency crises: the role of expectations and self fulfilling prophecies on the part of the financial economists, and the role of policy makers in their choice among a variety of policy options and regulations. In this model, the economic policies of the government are often but not always sound. The government does not passively allow the central bank to defend the currency but instead chooses from all available policy actions. Given a set of policy actions a cost benefit analysis allows the policy makers to choose the one that best fits their economic priorities.

¹⁸ Rakshit Mihir, *The East Asian currency crisis*; Oxford university press 2002.

¹⁹ Pesenti Paolo and Tille Cedric, *The economics of currency crises and contagion*, FRBNY Economic Policy Review, September 2000.

This model shows that the balance of payments crises may be purely self fulfilling events rather than the inevitable result of macroeconomic policies. Such crises will collapse an exchange rate that would have been viable. They reflect a situation of an indeterminacy of equilibrium that will arise when agents expect a speculative attack to cause a strong change in the macroeconomic policies of the government, rather than irrational private behavior, because speculative attacks on the currency will take place only when the fixed exchange rate is inevitable. The second generation model emphasizes the vulnerability of exchange rate systems even in the presence of sound fundamentals. Policy makers and economic agents expect that governments will not be able to maintain a fixed exchange rate, although the macroeconomic fundamentals were not inconsistent, and currency crisis may become self fulfilling prophecies if investors expect that the authorities will abandon the peg when speculative attacks are severe enough. Such attacks may force the authorities to do so even if the foreign exchange reserves are still at a high level. In such a case, there are no inconsistencies in the fundamental policies before the currency crisis strikes. Speculative attacks will never occur when the market conditions are consistent.²⁰ While self fulfilling expectations play a pivotal role in the second generation models, we must emphasize that they do not suggest that a currency can face speculative attack under all circumstances, irrespective of the state of economic fundamentals. In the second generation model a successful speculative attack is possible, but not inevitable.

According to this model, devaluing or floating a currency gives the government freedom to follow more expansionary policies; yet in Asian currency crises were

²⁰ Obstfeld Maurice; Rational and Self Fulfilling Balance of Payments Crises, The American Economy Review, Vol. 76, No. 1, March 1986.

followed by severe recessions. Therefore, most researchers concluded that a different model is needed to resolve the problem, with a focus on the issues involving financial intermediaries and liquidity effects.

C/ Third Generation Model:

The *third generation model* is best understood as an asset crisis arising from the mismanagement and unsupervised activities of financial institutions. This model integrates the vulnerability of the financial system, and starts with inconsistencies in balance of payments, which will cause domestic and international liquidity problems. The most significant issue in this model is the mismatch of assets and liabilities in both domestic and foreign currency terms.

The third generation model emphasizes the link between banking and currency crises. Problems in the banking sector will precede currency crisis, and the currency crises deepens the banking crises. The old literature focused on the inconsistencies between fiscal and monetary policies, and the exchange rate commitment. The new one stresses a self fulfilling expectations and herding behavior in international capital markets. But the point of this entire argument is that neither the old literature nor the new one have emphasized on the interaction between banking and currency crises despite that most of the countries that have had currency crises were triggered with a domestic banking crises. This situation is called the *Twin crises* where the Thai, Indonesian, and Korean crises could be a perfect example for this particular case. During the 1970's, when the financial markets were highly regulated, economical analyses show that there were no linkages between balance of payments and banking crises. In the 1980's, we can

see the relationship between a currency and a banking crisis. Analytical results show four important factors which explain the consequences of this situation.

- A collapse of a currency leads to a banking (financial) crises, thus generating a cruel spiral (loop hole).It starts with the crash of the currency, leading to the banking crises.
- Banking crises will lead to balance of payments crises, but this does not mean that it will cause a currency crises.
- Weak and fragile economic policies, will lead to a crises, and that is when the massive speculative attack will take place.
- When comparing the twin crises with those in which the currency and banking (financial) crises occur separately, we will notice that economical fundamentals were more fragile, and the crises were way more severe and harsh in the first case.²¹

A currency crisis has an adverse affect on the banking sectors when financial institutions' liabilities are denominated in foreign currency. When financial institutions lend domestically in the local currency, a devaluation exposes them to great currency mismatch and a deterioration of their balance sheets.²² In turn, a banking (financial) crisis can lead to a currency crisis among others through the burden it imposes on the fiscal side of the economy. In sum, a country's vulnerability to currency crisis depends strongly on the health and stability of its banking and financial sector. The adverse consequences of a

²¹ Kaminsky, Graciela and Carmen Reinhart. "The Twin Crises: the Causes of Banking and Balance of Payments Problems," Board of Governors of Federal Reserve System, International Finance Discussion Paper. The American Economic Review. June 1999.

²² Caballero and Krishnamurthy (1999) and Krugman (1999) point to another impact of a currency crisis on balance sheets: devaluation reduces the foreign currency value of the borrower's collateral, thereby curtailing the country's access to additional funding.

devaluation are therefore more severe if financial institution's balance sheets are plagued with nonperforming loans, or if financial intermediaries borrow heavily in foreign currencies at short period of times.²³ In the event that the number of short term foreign assets in the system is less than the amount of short term foreign liabilities, the financial system can become systemically and internationally illiquid. A financial institution will be considered illiquid when it no longer has the cash required to cover its liabilities and expenses.²⁴

The central role of financial intermediaries as we have mentioned earlier have a number of important functions and implications. First, microeconomic indicators will help predict the likelihood of a currency crisis better than the standard macroeconomic indicators. Second, special attention should be paid to effective supervision and regulation of financial intermediaries in the process of capital market liberalization, since weak supervision can increase a country's vulnerability to external crises by magnifying existing distortions and weaknesses. Reduction in borrowing costs due to financial deregulation and external liberalization can lead banks and firms to borrow heavily in foreign currencies and funnel the funds toward the acquisition of highly risky assets or towards the financing of low profit investment projects or both. Weak supervision and poor regulation will make such excessive borrowing possible.

Third, explicit or implicit government guarantees to the private sector magnify a moral hazard problem faced by financial intermediaries.²⁵ If banks expect the authorities to intervene in the case of massive financial distress, they will engage in excessively

²³ Pesenti Paolo and Tille Cedric, The economics of currency crises and contagion, FRBNY Economic Policy Review, September 2000.

²⁴ Rakshit Mihir, The East Asian currency crisis; Oxford university press 2002.

²⁵ Corsetti, Giancarlo, Paolo Pesenti, and Nouriel Roubini. "Paper Tigers? A Model of the Asian Crisis." European Economic Review 43, no. 7 (June): 1211-36, 1999a.

risky borrowing and investment.²⁶ The expectation of financial bailouts will also lead the foreign investors not to consider the riskiness of the projects that are financing in and hence a fixed exchange rate regime is basically unstable and contains the seed of its own collapse. This is because the evident stability of the exchange rate peg leads financial institutions to overlook currency risk, and induces them to borrow heavily in foreign currencies without hedging their exposures.

While currency crisis is strongly dependent on the exchange rate and the economic policies of a financial system, *financial crisis* differs conceptually from a currency crisis.

- **Financial Crisis:**

Financial crisis is a situation of insolvency on the part of the financial system, a situation that most of the time is a systemic one. Such a crisis is usually triggered by individual or systemic illiquidity emerging in a financial system, which often is symptomatic of underlying, individual or systemic insolvency. Another definition of a financial crisis could be: “A situation of insolvency in the banking system featuring a collapse in asset prices especially in equity and securities market”²⁷.

A root of every financial crisis is financial distress, which is a situation of individual or systemic insolvency. By *insolvency* we mean the inability of an individual

²⁶ Dooley, Michael. “A Model of Crises in Emerging Markets,” National Bureau of Economic Research, working paper No. 6300, December 1997.

²⁷ Caprio Gerard Jr., Banking on Crises: Expensive Lessons From Recent Financial Crises, Development Research Group, The World Bank, June 1998.

or an enterprise to pay debts as they fall due.²⁸ It also means an excess of liabilities over assets.

Financial distress is common in developing and transition economies. Financial distress can persevere for years, and it is a result of bad supervision and weak regulatory system, because nevertheless, for the past fifteen years, the main cause of bank insolvency are considered to be deficient management, faulty supervision and regulation, government intervention.

Financial distress precedes financial crisis, which can be individual or systemic, covert or overt. *Systemic financial distress* is often considered a situation in which the total non performing assets of the institution in relation to the total assets are either equal to or greater than the capitalization of the financial system. This can range between “seven and twelve percent of risk weighted assets”.²⁹ Though distress can be triggered by individual illiquidity on the part of one financial institution, financial crises are often systemic and indicative of inconspicuous or covert, insolvency. This is what Caprio and Klingebiel refer to as “silent forms of distress”.³⁰ *Covert financial crises* also known as silent crises, is when financial institutions are already insolvent but remain liquid due to central bank supplying liquidity support or short term loans which help these institutions remain liquid. An *overt crises* is one in which the investors and the general public are aware of the situation and can result in runs on the bank. An overt crisis can lead to a

²⁸ Popiel Paul A., Management of Financial Systems and of Financial Crises, Department of Economics. Carleton University. Fall 2004.

²⁹ Popiel Paul A., Management of Financial Systems and of Financial Crises, Department of Economics. Carleton University. Fall 2004.

³⁰ Caprio, Gerard Jr., and Daniela Klingebiel. “Bad insolvency: Bad luck, Bad policy, or Bad Banking?” Annual World Bank Conference on Development Economics. Washington DC: the World Bank, 1996.

collapse of a part of the financial system, in the event of a run on the banks, or if illiquidity becomes a factor.

We can easily recognize the case of an over banking run; A banking panic, which occurs when “*bank debt holders at all, or many, banks in the banking system suddenly demand that banks convert their debt claims into cash to such an extent that the banks suspend convertibility of their debt into cash*” (Calomiris and Gorton 1991, p.5). One of the main characteristics of the over run banking is that it happens suddenly and ends quickly.

In the end, even with an incentive compatible regulatory framework, bad luck and bad macroeconomic policies cannot be eliminated, and they will occasionally threaten even the strongest banking system.³¹

To sum up the discussion of currency and financial crisis, we can conclude that each crisis might be a trigger factor for the other. The causality lays both ways in both types of the crisis building paths. The devaluation of the currency has a strong adverse effect on the solvency and liquidity of the devaluing country’s companies and financial institutions, a situation that may lead to a financial crisis.³² Conversely, financial distress might deter the authorities from implementing monetary and interest rate measures required by a weakening exchange rate or an exchange rate under speculative attack from fear of triggering a financial crisis.

³¹ Caprio, Gerard Jr., and Daniela Klingebiel. “Bad insolvency: Bad luck, Bad policy, or Bad Banking?” Annual World Bank Conference on Development Economics. Washington DC: the World Bank, 1996.

³² Falkena H.B., Kok, W.J., Luus, C.W. and Morgenrod, P, The Equity Market, the institute of financial markets, Essays on South Africa’s financial markets,1993.

A good example of a currency crisis involving contagion effect that led to a currency crisis will be the East Asian crisis that hit Indonesia, Malaysia, Thailand and the Republic of Korea, which we will discuss in more details.

While a currency crisis and a financial crisis are usually triggered by some shocks, both external and internal, these vulnerabilities (shocks) will make this economy susceptible to crises.

4 – Vulnerabilities to Currency and Financial Crises:

- **Vulnerabilities to Currency crises:**

Vulnerabilities to currency crisis are situations which could ultimately lead to a speculative attack on the currency. Virtually all of the factors that contribute to causing currency crises could be categorized as external sector vulnerabilities. The categories are as follows:

1. Decline in trade
2. Export slowing down
3. External liberalization
4. Overvaluation of real exchange rate
5. Widening of current account deficit

Currency crises are usually defined as “large changes in some indicator of actual or potential currency value. Some studies focus on episodes of a large depreciation alone, while others include episodes of speculative pressure in which the exchange rate did not always adjust because the authorities successfully defended the currency by intervening

in the foreign exchange market or raising domestic interest rates.³³ External sector vulnerabilities that lead to currency crises usually include a decline in terms of trade, which may arise when there is an appreciation of the exchange rate. This will lead to a shifting of trade away from domestic exports and in turn affecting the trade account. A change in the interest rate will have an impact on the current account since the aforementioned increase in the foreign interest rate may cause the domestic exchange rate to appreciate, making it more expensive for foreigners to purchase domestic goods, hence leading to a capital account deficit. The way that the exchange rate is managed could also weaken the financial system. As mentioned in the earlier section of exchange rates, fixed exchange rates over time can make the system vulnerable to external shocks. Fixed exchange rates regime rely more on investors' confidence than the flexible regime does.

The exchange rate policies can be accompanied by excessive borrowing in foreign currencies. If private and public liabilities are not properly hedged against risks, they can prove disastrous in the event of devaluation. Often these loans are short term which makes them volatile as they mature quickly, in some cases faster than the loans on the asset side of the balance sheet. This is known as a situation of mismatched maturity and reflects poorly on the management of the institution.

Another common vulnerability will be the *liberalization of the capital account*. It opens the account up to foreign transactions and a foreign market it may not be systemically prepared to meet. This raises the stakes as well as the potential for contagion in the event of financial distress. Financial liberalization combined with moral hazard incentives that induce banks to take on particularly risky portfolios, including unhedged

³³ Glick Reuven, Moreno Ramon and Spiegel Mark M. "Financial Crises in Emerging Markets". Cambridge University Press. Federal Reserve Bank of San Francisco. 2001.

foreign currency liabilities. Financial liberalization and deposit insurance may fuel a lending boom involving both foreign and domestic credit expansion that eventually leads to a banking and currency crisis. International financial liberalization is a logical step in the progression from a closed to an open economy and is likely to imply a shift from a fixed to a more flexible exchange rate. When a country has reached a point where macroeconomic and financial conditions are sound, restrictions on the market determination of the exchange rate do not improve the country's position in the eyes of international investors, and may burden the domestic economy with the cost of limited flexibility.

An important component of external vulnerability will be the credibility of the government with the regard to its ability to suffer or inflict pain in defense of the currency. Weak banking systems and low reserves will not let authorities to defend their currency. A country with low reserves cannot tolerate capital flight, but weak banking systems make interest rate defenses more costly, and therefore an attack on such an environment can become self-fulfilling.

- **Vulnerabilities to Financial crises:**

Financial vulnerability is a situation of weak solvency. Before the Asian crisis, most of the countries were financially vulnerable (fragile). If fragility is not corrected, it will lead to insolvency or financial distress. A distress will eventually lead to illiquidity and therefore the collapse of the institution. Illiquidity is one in which a financial institution lacks the cash required to cover its expenses or depositors withdrawal. An insolvent financial system may remain liquid and an illiquid financial institution may be

solvent. The key point is that the insolvent financial institution which has a positive cash flow will continue to operate, as long as it still has the depositor's confidence. On the other hand, an illiquid financial institution, even though it is solvent, will not continue operating. In case of individual or systemic illiquidity, the central bank will inject money in the economy, and provide liquidity to these financial institutions to continue operating.

A failure of a financial institution may result from the inability of the borrowers to honor their contracts, which prevents the financial institution from reimbursing its depositors. A mismanagement of the intermediation process or the liquidity position of the financial institution may also cause a failure of the financial institution. A failure of a financial institution starts with financial fragility or vulnerability. Financial vulnerabilities are also known as domestic vulnerabilities, and could be categorized as followed.

1. Political interference
2. Asymmetry of information; adverse selection and moral hazard
3. Weak legal regulatory and prudential framework
4. Bad financial management

1. Political interference:

In a democratic environment, the political economy input into policy making reflects the people's political, economic and social choices and the policy implementation pattern resulting from the mandate of elected representatives to implement these choices through a series of enacted or regulatory measures. In less effective democracies, policy makers, political lobbyists and bureaucrats may well prevail in placing power sharing and individual interests above the overall welfare ones for significant periods of time. Such

situations undermine the functioning of the legal, regulatory and prudential framework, weaken institutional autonomy and lead to micro interference in managerial functions.

The political or bureaucratic interference of may occur either at the level of the financial system, the central bank and other regulatory and supervisory institutions or at the level of the individual financial institution.

➤ **At the level of financial system:**

At the level of the financial system, political or bureaucratic interference will mainly pervade the central bank's and other regulatory and supervisory institution's decision-making and management processes. With the successive stages of domestic and external liberalization international financial authorities placed increased emphasis on the autonomy of the financial authorities, that is the central bank and other regulatory and supervisory agencies with a view of strengthening monetary and financial policy design, implementation effectiveness and regulation and supervision independence. Numerous studies have substantiated the benefits of this autonomy in terms of policy and governance effectiveness and thereby economic growth.

➤ **At the level of the institution:**

At this level, interference happens mainly through political or bureaucratic micro-management. As a result state-owned banks and other financial institutions pose special governance problems as they present a particularly conducive context for micro interference in management and operations. Typically, state-owned banks performed very poorly. For instance, in May 1999, when non-performing loans were at their peak in Thailand they represented 42.8 percent of total assets in private banks and 69.6 percent of

total assets in state-owned banks; the latter had therefore a level of non-performing loans 62.6 percent higher.³⁴

2. Asymmetry of information:

Asymmetry of information is a situation in which one party to a financial contract has better information than the other party and, or lacks sufficient information to make a valid judgment. An enterprise, which intends to borrow, has better information about its financial situation and prospects than the financial institution, which is asked to lend. Therefore, the latter may not be in a position to assess adequately the credit risk; if it grants the loan in these conditions it runs the risk of the non-repayment of the loan. Conversely, depositors may not have sufficient information to assess the situation of a financial institution and for that reason may chose to follow individually the behavior of other depositors who they believe to be better informed.³⁵ When one depositor withdraws its money from a financial institution because she or he believes rightly or wrongly that the institution is distressed, others may follow creating a liquidity problem for that institution. The financial crisis that occurred in Thailand in the 1980s began with precisely such a transmittal effect.³⁶ Asymmetry of information may be cause *adverse selection* and *moral hazard*, two more problems, which often contribute to financial distress and financial crisis.

³⁴ Popiel Paul A., The East Asian Miracle and the East Asian Financial Crisis. Lecture at the Annual Musky Fellowship Gathering at the Duke's Center for International Development. Sanford Institute of Public Policy. Duke University. Spring 2002.

³⁵ Mishkin Frederic S., Understanding financial crises: A developing Country Perspective, in Annual World Bank Conference on Development Economics 1996, Bruno Micheal and Pleskovic Boris, Eds., World Bank, Washington DC, 1997.

³⁶ Popiel Paul A., Management of Financial Systems and of Financial Crises, Department of Economics. Carleton University. Fall 2004.

- **Adverse Selection:** Adverse selection is a problem of asymmetry of information which precedes a transaction. This is a situation where the party which is most likely to produce an undesirable outcome is the most likely to be chosen as contract partners.
- **Moral Hazard:** Moral hazard is a problem of asymmetry of information, which follows a transaction. This is a situation in which one party has distinct incentives to default on a contract or an obligation.

3. Weak legal regulatory and prudential framework:

This is a frequent institutional cause of financial fragility and distress. It may be that the legal and regulatory part of the framework is inadequate; it may also be that existing supervision is simply insufficient. With financial distress expanding, existing supervisory arrangements cannot cope with the worsening situation. In general, when financial distress becomes a threat to the stability of the financial system the supervisory agency shies at bringing the problem in the open for fear of being criticized. Experience has shown that in many restructuring programs the reform of the legal, regulatory and prudential framework has lagged behind other elements of the program with the result that the existing framework cannot cope with the changing situation. And this can be explained, at least for part, by the difficulty and scope of the task. For example, in Thailand, the insufficient emphasis placed on the rationalization and strengthening of the legal, regulatory and prudential framework as well as on its adaptation to a fast growing and diversifying financial system not only prolonged the financial crisis in the 1980s, but

was a major cause of the disastrous crisis of 1997. In some case the right framework exists but forbearance voids much of its role.

4. Bad financial management:

The main microeconomic cause of financial distress and crises are fundamental failures in the information process and mismanagement. The quality of management of a financial institution remains a key factor to a financial institution health and strength, hence to its capacity to withstand shocks and avert financial distress. Good management can weather the storm of adverse macroeconomic developments while bad management can lead a financial institution into insolvency even when the economic situation is excellent. Bad management is a key factor in financial fragility and distress.

The first category of causes of microeconomic nature, which, though, can have a macro outcome, can be grouped around the central concept of asymmetry of information whose main proponent is Professor Frederic S. Mishkin.³⁷

5 – Conclusion:

A number of economists discuss the possibility of causality running from banking problems to currency crises. Obstfeld (1994) for example, argues that a currency crisis may lead to problems in a vulnerable banking sector if policy makers respond to the

³⁷ Mishkin, Frederic S., Asymmetric information and financial Crises: A historical prospective. In financial markets and financial crises, R.G. Hubbard, Eds. University of Chicago press, Chicago, Illinois, 1991.

pressure on the exchange rate by sharply increasing interest rates.³⁸ A common feature of these mechanisms is that banks are already vulnerable because of:

- Large unhedged foreign liabilities and/or a maturity mismatch between asset and liabilities.
- A shock arising from the currency market pushes them over the edge.

A currency crisis shock can adversely alter the banking sector *directly* by causing a deterioration of bank balance sheets if the currency depreciates, or *indirectly* by causing the central bank to raise interest rates to defend the currency. The joint occurrence of twin crises may reflect a response to a common factor. Chang and Velasco (1999) emphasize the role of international illiquidity, defined as a situation in which a country's consolidated financial system has potential short term obligations that exceed the amount of foreign currency to which it can have access on short notice. They argue that an international liquidity shortfall may be a sufficient, though not necessary condition to trigger a crisis.³⁹

Domestic bank runs, currency crises, and debt crises are all similar to the in the way that each process involves creditors trying to unload their holdings of an asset before others beat them to it. In the case of international lending in foreign exchange, a *panic* could arise from the concern that the central bank of that particular country may hold insufficient reserves to pay off all short term foreign exchange claims. Whereas in the case of a debt crises, a *financial panic* can arise when the creditors are not willing to

³⁸ Obstfeld Maurice. "The logic of Currency crises". Cahiers Economiques et Monetaires, Banque de France, 43:189-213, 1994.

³⁹ Chang, Roberto and Andres Velasco. "Liquidity Crises in Emerging Markets: Theory and Policy," National Bureau of Economic Research Working paper 99-15, October 1999.

rollover their loans because they have the fear that borrowers will not be able to fulfill their debt obligations unless others rollover their loans as well. In a closed economy, depositor's confidence can be sustained if the government is able to supply enough liquidity to the financial institutions to prevent losses to depositors. However, the case will differ in the open economy situation, since the injection of the liquidity could destabilize the exchange rate and induce a run on the domestic currency.

This discussion closes the first part of the paper which looked at the main "concepts" which are relevant to the East Asian crises. Hence, the second part of the paper will discuss the Asian crises accordingly.

III - SECOND PART

1 - Overview:

In the 1970s, the economies of the East Asian countries (Korea, Thailand, Indonesia and Malaysia) was dubbed the “Asian Miracle”, with average annual growth rates from 6.9 percent in Indonesia to 8.4 percent in Korea. The economic performance of these countries has been a remarkable success in the economic history. By 1997, most of the regional currencies were overvalued and pegged exchange rate regimes and excessive short-term capital inflows led to a real appreciation of the exchange rate. The current account deficits were large and driven by both overvaluation and overinvestment. A combination of inadequate financial sector supervision, poor assessment and management of financial risk, and the maintenance of relatively fixed exchange rates led banks and corporations to borrow large amounts of foreign capital that they rarely hedged

Currency devaluations, bad banking practices, high foreign debt and corruption have all caused the value of major Asian currencies to fall by up to 60%, and the stock market declined by 40%. The above forced the closure of many financial institutions. Furthermore, the economy suffered from falling GDP growth rates, rising unemployment and a fall in consumer and investment demand.

In this part of the paper we are going to discuss the causes of the Asian crisis, concentrating both on financial and currency crisis, and the factors behind each one of them that led to this severe situation of the Asian financial system.

2 – Two Schools of Thought:

It is possible to relate the causes of the Asian crisis to two different approaches or two schools of thoughts.

- The first school posits that the macroeconomic imbalances and policy errors combined with the vulnerability of the financial systems caused the crisis.⁴⁰ In Thailand, macroeconomic problems played a major role, especially the current account deficit that was large and the overvalued exchange rate. The weaknesses in the crisis countries resulted from the interaction of weak domestic financial institutions with large capital inflows. Overinvestments in marginal projects were a result of moral hazard problems in the domestic financial institutions and perhaps poor lending practices among creditors.⁴¹
- The second school posits that sudden shifts in the expectations and confidence of international lenders and investors followed by a contagion (financial panic), (which implies that if foreign creditors became convinced that other creditors will not roll over their claims, there were not enough reserves to cover the maturing obligations) led to the crisis. Panics may be self fulfilling. This was a result of the illiquidity of the banking system. The only ways to resolve this problem was by providing liquidity, and assure investors that they could safely maintain their investments.⁴²

⁴⁰ Popiel Paul A., The East Asian Miracle and the East Asian Financial Crisis. Lecture at the Annual Musky Fellowship Gathering at the Duke's Center for International Development. Sanford Institute of Public Policy. Duke University. Spring 2002.

⁴¹ Krugman, Paul. "What happened to Asia?," PK Home Page, January 1998.

⁴² Radelet, Steven, Jeffrey Sachs, April 1998, "The East Asian Financial Crisis: Diagnosis, Remedies, Prospects" Brookings papers on economic activity: 1, Brookings institution, pp 1-90.

This section of the paper will focus on both external and internal vulnerabilities to the Asian crisis, relating to the discussions in the first part of the paper. The discussion will start with the political instability in the East Asian countries, and follow with the detailed explanation of both external and domestic vulnerabilities supported with factual data and tables.

3 – Main Causes of the Crisis:

A/ Political Instability:

In the mid 1990s, the four Asian countries were suffering some sort of political instability, which sent negative signals to the international markets. Thailand was suffering from weak government system that led to some macroeconomic instability. In Korea, there was a time of elections, in Indonesia there were macroeconomic policy uncertainties. These political developments did not cause the crisis itself, but they were worsening the relation between the international lenders and borrowers, and consequently were considered factors to the crisis.

B/ External Vulnerabilities:

1. Deterioration in international trade:

The year 1996 was a year in which many emerging Asian economies experienced a significant slowdown in export receipts. In 1995 Thailand's export rose by 23 percent, and the following year, exports were almost flat. In South Korea, exports grew less than a 4 percent in 1996, which is much less than the earlier year where it experienced a 30 percent growth rate. It was believed that the reason for the slowdown of the exports was a

result of a decline in the growth of world trade and an inventory glut in the global electronics industry.⁴³

An appreciation of the US dollar in 1996-1997, to which the Asian currencies were pegged to, led to deterioration in their competitiveness.

Another factor that contributed to the slowdown of the export is the competition faced by the Asian economies from China and Mexico. Some analysts perceived a shift in regional comparative advantage toward China and from the Asian economies.

Table 1.	<i>Real effective exchange rate overvaluation</i>	<i>Current account balance (percentage of GDP)</i>		<i>Merchandise exports (annual percentage growth)</i>	
	June 1997	1995	1996	1995	1996
Thailand	6.7	-7.9	-7.9	23.1	0.5
Indonesia	4.2	-3.3	-3.3	13.4	9.7
Malaysia	9.3	-10	-4.9	20.3	6.5
Korea, South	-7.6	-2	-4.9	30.3	3.7

Source: IMF, international Financial Statistics; IMF, World Economic Outlook; JP Morgan website, 1998; Council for Economic Planning and Development, Republic of China, Taiwan Statistical Data Book, 1997.

The decline in the world prices of semi-conductors, and various degree of overvaluation of the real exchange rates are other important factors contributed to the export slowdown. This is illustrated in Table 1. This slowdown led to a major decline in terms of trade causing a reduction in domestic income. Consequently, current account deficits had gone up and foreign borrowing increased.⁴⁴

⁴³ Goldstein Morris, The Asian Financial Crisis: Causes, Cures, and systemic implications, Policy Analyses in International Economics. June 1998.

⁴⁴ Popiel Paul A., The East Asian Miracle and the East Asian Financial Crisis. Lecture at the Annual Musky Fellowship Gathering at the Duke's Center for International Development. Sanford Institute of Public Policy. Duke University. Spring 2002.

2. Terms of Trade:

The sharp appreciation of the US dollar relative to the Japanese yen and the European currencies since the second half of the 1995 led to deteriorating cost competitiveness in most Asian countries whose currencies were effectively pegged to the dollar. As from 1996 terms of trade for the Asian countries began to fall. The following table will represent the terms of trade in percent change:

	1996	1997	1998	1999
Indonesia	-4.0	13.3	-35.5	-10.0
Korea	-12.3	-11.3	-3.6	0.5
Malaysia	2.5	-1.4	24.4	1.1
Thailand	1.1	-19	-5.5	-2.4
The four countries weighted	-3.5	-3.9	-8.4	-2.6

Source: Paul A. Popiel, 2002, "The East Asian Miracle and the East Asian Financial Crisis". Duke University

3. Current Account Deficit:

Most of the Asian countries whose currencies collapsed in 1997 had experienced extensive current account deficits in the 1990s. The two countries with the largest and most determined current account imbalances were Thailand and Malaysia, where they experienced deficits for over a decade. Based on NIA (national income account) data, the current account in Thailand was over 6% of GDP in every single year in the 1990s, and approached 9% of GDP in 1995 and 1996. In Malaysia, the deficit was above 10% of GDP in 1993, while slowly falling to 3.7% of GDP in 1996. Indonesia started with a large imbalance in the current account of 4% of GDP in 1990-1991, and the deficit shrank in 1992-1993, but the imbalance got bigger once again reaching up to 4% of GDP in 1995-1996. In Korea the current account deficit was low in the beginning until 1993.

Starting 1993, Korea started experiencing a large current account deficit, approaching 5% of GDP in 1996. Other Asian countries such as Hong Kong and China started experiencing a current account deficit starting from 1993, after having a surplus in their accounts. Whereas Taiwan's current account was in a surplus in the 1990s. The following tables will provide data regarding the current account deficits in Indonesia, Korea, Malaysia and Thailand, both according to national income account and balance of payments perspective.⁴⁵

	1990	1991	1992	1993	1994	1995	1996	1997
Indonesia	-4.4	-4.4	-2.46	-0.82	-1.54	-4.27	-3.3	-3.62
Korea	-1.24	-3.16	-1.7	-0.16	-1.45	-1.91	-4.82	-1.9
Malaysia	-2.27	-14.01	-3.39	-10.11	-6.6	-8.85	-3.73	-3.5
Thailand	-8.74	-8.01	-6.23	-5.68	-6.38	-8.35	-8.51	-2.35

	1990	1991	1992	1993	1994	1995	1996	1997
Indonesia	-2.82	-3.65	-2.17	-1.33	-1.58	-3.18	-3.37	-2.24
Korea	-0.69	-2.83	-1.28	0.3	-1.02	-1.86	-4.75	-1.85
Malaysia	-2.03	-8.69	-3.74	-4.66	-6.24	-8.43	-4.89	-4.85
Thailand	-8.5	-7.71	-5.66	-5.08	-5.6	-8.06	-8.1	-1.9

Source: International Financial Statistics

These data provide some evidence that the currency crisis may have been associated with a competitiveness problem. In the 1990s, the countries that had large

⁴⁵ Corsetti, Giancarlo, Paolo Pesenti, and Nouriel Roubini. "What Caused the Asian Currency and Financial Crisis? Part 1: A Macroeconomic Overview," paper presented at the CEPR/ World Bank Conference "Financial Crises: Contagion and Market Volatility," London, 1998.

account deficits were the ones who were most vulnerable to shocks and consequently the most crisis-prone, such as Thailand, Indonesia, Korea and Malaysia. In contrast, countries with smaller deficits or surplus, did not suffer comparable depreciation. For example China had a stable currency value in 1997. The Hong Kong parity against the US dollar was strongly defended against heavy shocks and attacks. In sum, overvaluation of the real exchange rates helped to deepen the current account deficit. The process of borrowing from abroad did not help this situation either, as a result the balance gaps were building up.

4. Foreign Capital Inflow:

The Asian crisis countries experienced major capital inflows in the 1990s, Ranging from 3% of GDP in Korea to about 10% in Malaysia on a sustained basis. The resulting credit and investment booms were a result of weak domestic financial institutions that were undercapitalized and poorly regulated.⁴⁶We will discuss credit booms and poor financial regulation in more detailed in the causes of the financial crisis. The following table will provide us with the necessary data concerning the capital inflows.

	1991-1995	1996	1997	1998
Indonesia	3.5	6.3	1.4	-3.1
Korea	2.8	5.1	-3.1	N/A
Malaysia	12.1	7.5	1.3	-6.3
Thailand	9.5	5.6	-8.8	-14.5

Source: WB World Debt Tables, IFS, and Fund staff Estimates.

⁴⁶ BIS (1998) for a discussion of the role of financial intermediation in the Asian crisis.

We can notice that Thailand had been a major recipient of foreign capital during 1991-95. These inflows reflected an increase in the supply of and demand for international capital. Supply rose because of the fall of the interest rates in the industrial countries; demand rose due to the increase in the domestic demand and associated investment booms in the four countries.

These inflows were stimulated because of four major developments:

- In every county, financial and external liberalization were designed in a way to encourage external debt especially short term external debt.
- Fixed exchange rates provided a sense of security to domestic and international lenders, borrowers and investors.
- Sterilization of capital inflows increased domestic interest rates and widened the difference between domestic and external rates.
- International banking may have played a role by mandating low risk ratings for autonomous borrowers.

5. Exchange rates:

A number of theoretical papers generally conclude that the appreciation of the real exchange rate is associated with a loss of competitiveness and a structural worsening of the trade balance, and therefore jeopardizes the sustainability of the current account. East Asia was no exception to this conclusion.

In Malaysia, the currency moved in a 10% range of 2.7 to 2.5 ringgit to the US dollar from 1990 to the beginning of 1997. In Thailand, the baht was fixed between 25.2 to 25.6 to the dollar from 1990 until 1997. Korea and Indonesia followed a more flexible

exchange rate policy. In Korea, the won depreciated in nominal terms between 1990 and the beginning of 1993. From 1993 until mid of 1996, it was quoted within a very narrow range of 800 to 770, and then it depreciated again, reaching 884 won per US dollar by the end of 1996. In Indonesia the policy was a real exchange rate targeting, with the nominal rupiah/dollar rate falling from 1900 in 1990 to 2400 by the beginning of 1997.

The following tables will present the nominal and real exchange rates of the Asian countries in our studies.

	1990	1991	1992	1993	1994	1995	1996	1997
Indonesia	1842.8	1950.3	2029.9	2087.1	2160.8	2248.6	2342.3	2909.4
Korea	707.76	733.35	780.65	802.67	803.45	771.27	804.45	951.29
Malaysia	2.7	2.75	2.55	2.57	2.62	2.5	2.52	2.81
Thailand	25.59	25.52	25.4	25.32	25.15	24.91	25.34	31.36

	1990	1991	1992	1993	1994	1995	1996	1997
Indonesia	97.4	99.6	100.8	103.8	101	100.5	105.4	62.4
Korea	96	91.5	87.7	85.2	84.7	87.7	87.2	58.6
Malaysia	97	96.9	109.7	111	107.1	106.9	112.1	84.9
Thailand	102.2	99	99.7	101.9	98.3	101.7	107.6	72.4

Source: J.P. Morgan.

We can see observe that the real exchange rate had appreciated by 19% in Malaysia, 12% in Thailand, 8% in Indonesia. In Korea, the won appreciated in real terms. This explains that all the Asian currencies excluding Korea had experienced a real appreciation. Another important observation that we can bring about is that an exchange rate appreciation *is* correlated with a worsening current account. Countries with appreciating currencies experienced a larger deterioration of the current account. The idea

to maintain a stable currency led to large capital inflows, but the strong appreciation of exchange rates, helped the current account deficits to grow.⁴⁷

Management of the exchange rate varied among countries, some followed a pegged exchange rate, and others followed a more flexible one. (Figure 1, will elaborate the evaluation of the exchange rates for these countries). But all countries aimed to ensuring the stability of the currency. Regarding all the policies concerning the stability of the exchange rates, they did not manage to prevent an appreciation of the real exchange rates as from 1995. There appear to be two main causes to the appreciation of the real exchange rate.

- Liberalization of the capital account in the four countries surveyed opened the door to the inflow of large volumes of funds. The capital inflows increased domestic demands and put pressure on the real exchange rate.
- A misalignment in relative prices, with prices of non-traded goods, increasing faster than prices of traded goods.

6. Short term external debt:

Several countries, specially Korea, Indonesia, and Thailand, built up high levels of short term external debt relative to reserves. Table 8 will show the short term external debt (percent of GDP), and table 9 will show the short term external debt (percent of international reserves).

⁴⁷ Corsetti, Giancarlo, Paolo Pesenti, and Nouriel Roubini. “ What Caused the Asian Currency and Financial Crisis? Part 1: A Macroeconomic Overview,” paper presented at the CEPR/ World Bank Conference “Financial Crises: Contagion and Market Volatility,” London, 1998.

	1993	1994	1995	1996	1997
Indonesia	11.4	11	12.9	14.3	15.9
Korea	8.4	10.6	12.9	13.5	11.1
Malaysia	11.1	8.7	8.5	11.2	15.1
Thailand	18.1	20.4	24.4	20.3	18.8

	1993	1994	1995	1996	Jun1997	Sep1997	Dec1997	1998
Indonesia	159.7	160.4	189.4	176.6	158.5	159.0	217.1	N/A
Korea	199.1	227.6	240.7	340.2	395.3	446.5	751.6	N/A
Malaysia	25.5	24.3	30.6	41	41.6	49.9	71.9	27.4
Thailand	92.5	99.5	114.2	99.7	119.9	131.4	133.1	86.7

Source: World Bank, IFS, and Fund staff estimates.

This build up can be referred to two main reasons:

- Financial and external deregulation was related in such a way that in some cases encouraged accumulation of short term external debt. In Korea regulations favored short term foreign borrowing by financial institutions and strongly discouraged corporations from borrowing directly. In Thailand, the Bangkok International Banking Facility, opened in 1993, facilitated foreign borrowing by residents. A major proportion of this lending was unhedged by borrowers and particularly for finance companies.
- Incentive that the fixed exchange rate regime and sterilization of capital inflows gave to intermediate foreign loans. Sterilization of capital inflows raised interest rates on domestic deposits, while the durable exchange rate regime led market participants to neglect the possibility of devaluation. The resulting interest

differential in favor of foreign borrowing led domestic banks to intermediate between foreign banks and domestic borrowers. The interbank market generally takes the form of short term credits, leading to a rise in short term liabilities. It may also be that foreign creditors were unwilling to take a long term exposure to these domestic institutions.⁴⁸

In conclusion, we can see some indications of increasing Asian vulnerabilities in the period prior to the crisis provided by the large and widening current account deficits, slowdowns in the exports, and real appreciation of the currencies in those countries as outlined in the first part of the paper under the vulnerabilities to the currency crisis. In the mid 1990's concerns about the region accumulate on several counts. Real exchange rates appreciated sharply between December 1994 and early 1997 by 15 percent or more in the studied countries. Exports slowed in the region and paralleling the real appreciation and slowdown in exports, the current accounts deficits in those countries was negatively affected.⁴⁹ The widespread perception of real overvaluation and the need to adjust current account imbalances affected the credibility of the commitments to exchange rate pegs in many countries as explained in the first section of this paper, and also raised some concerns among creditors about the ability of firms in these countries to repay their debts. All of these factors are categorized as external vulnerabilities that contributed to the Asian crises leading to a currency crisis which will be discuss in more details in the section of *currency and financial crises*.

⁴⁸ Berg Andrew, *The Asia Crisis: Causes, Policy Responses, and Outcomes*, International Monetary Fund, Asian and Pacific Department. Authorized distribution by Jonathan D. Ostry, October 1999.

⁴⁹ Glick Reuven, *Thoughts on the Origins of the Asian Crisis: Impulses and Propagation Mechanisms*. Federal Reserve Bank of San Francisco.

C/ Domestic Vulnerabilities:

1 - Government interference in the financial system:

As discussed in the first part, government interference in the management of financial institutions and in credit and resource allocation can only have negative effects. Government interference in the Asian financial system was pervasive. Each of the four countries (Thailand, Korea, Indonesia and Malaysia) experienced different degrees of government interference, undermining the management of the financial institutions and the efficiency of resource allocation. In Thailand, the government-business relationship has a long history to the interaction between Thai-Chinese entrepreneurs and merchants and Thai government officials. This process was gradually politicized in 1980's and 1990s. It was in that period when the weak government system depended on the political parties for their survival, including members having interests in financial institutions and companies. The process of politicization corroded the institutional structure of the financial system. In Indonesia, state owned banks had their hands on the commercial bank operations, to which the state left a little independence in lending decisions. In addition, the Suharto connection *forced* financing by state owned banks or politically connected private banks of projects of untested creditworthiness. It also *provided* an implicit guarantee in case the politically motivated financing goes wrong. For instance, when Bank Duda, became insolvent, it was rescued by institutions with close ties to Suharto circle. In Malaysia, the interference started from the policy of ethnic redistribution. When the second largest bank, Bank Bumiputra, established to further Malay ethnic interests became insolvent in 1985 following massive defaults on politically

connected loans, the state owned company, Petronas, rescued it. In Korea, the government played a predominant role in taking lending decisions which weakened the solvency of the financial system. A major part of the resources were being directed towards projects of questionable economic and financial viability. When these loans ran into trouble, the government of Korea would indemnify financial institutions through various policies. There was also the interference related to political power. This was the case of the Hanbo Chaebol investigation, which created a number of transaction problems between the Chaebol management and the managements of the financial institutions and a number of politicians.⁵⁰

2 - Predominance of banks and nonbank institutions in the financial system:

In the first part we have discussed bank-based and market-based financial systems and pointed out the positive and negative aspects of both. Economies having market based financial system; the overall proportion of debt in the total financial assets is complemented by a significant amount of equity. Whereas, the negative side for bank-based financial system is that they show a greater proportion of debt, both short and long term in total financial assets. Such economies will be more leveraged and therefore more vulnerable to both external and internal shocks.

The vulnerability of several East Asian counties which we are focusing our study on stemmed to a large extent from excessive amounts of short term foreign currency

⁵⁰ Popiel Paul A., The East Asian Miracle and the East Asian Financial Crisis. Lecture at the Annual Musky Fellowship Gathering at the Duke's Center for International Development. Sanford Institute of Public Policy. Duke University. Spring 2002.

debts in the economy. Combined with underdevelopment of securities markets, this situation had several negative consequences.

- On the supply side of finance, the dominance of banks and nonbank institutions developed the concentration of risk and rendered the four economies highly leveraged, and therefore financially fragile and consequently more vulnerable to external and internal shocks.
- On the demand side, enterprises had fewer alternative sources of finance. Their dependence on bank finance increased the intensity of the credit crunch, which aggravated the economic downturn in 1997.
- Finally, this situation led to over-leveraging of the economy.

For example, in Thailand, banks and financial companies together held about 85% of the total financial assets. In Indonesia, the securities market provided 25% of commercial finance while financial institutions provided 75%. In Korea, commercial banks, specialized banks and finance companies all together held 72% of total finance assets.

3 - Banking problems, financial deregulation, and institutional deficiencies:

In the first part of the paper, we have emphasized the importance of an adequate legal, regulatory and prudential framework. We also mentioned that the leverage is defined as the ratio of a financial institution's debt to its equity, and high leverage as a high reliance on debt financing. One of the major issues faced by those countries was that many loans made by banks and non bank financial institutions were of low quality. The following table will represent the end 1997 estimates of property exposure, collateral

valuation, non performing loans and capital of local banks, all as a share of total assets. Property exposure was estimated to be high in Malaysia and Thailand, and by the end of 1997, non performing loans were the highest in Indonesia, Korea and Thailand. In these countries, banks were harshly under capitalized, with capital to asset ratios as low as 6-8%.

	Property Exposure	Collateral Valuation	Non Performing Loans		Capital Ratio
			1997	1998	
Indonesia	25-30%	80-100%	11%	20.00%	8-10%
Korea	15-25%	80-100%	16%	22.50%	6-10%
Malaysia	30-40%	80-100%	7.5%	15.00%	8-14%
Thailand	30-40%	80-100%	15%	25.00%	6-10%

Source: JP Morgan "Asian Financial Markets" January 1998. Corsetti, Pesenti, Roubini.

This table clarifies the links between high shares of bad loans, an excessive exposure to the property sector, and overly optimistic estimates of the loans collateral. In the four countries, the official collateral valuations were in the range of 80-100% of assets. Asset deflation and the sharp drop in the value of the collateral generated the irreversible flow in the shares of non performing loans.

The capital inflows financing the regions current account deficit were largely intermediated by local banks. Domestic banks borrowed from foreign banks and then in turn, lent on to domestic firms, and when domestic firms experienced financial difficulties, domestic banks were faced with non performing assets and short term foreign currency liabilities. Such "overborrowing" and "overlending" patterns were the result of severe institutional and policy deficiencies. This is an evidence that the Asian banking

and financial systems were very fragile, vulnerable, both poorly supervised and regulated, and in a shaky condition even before the onset of the crisis.⁵¹

4 - Inadequacies of Regulation and Supervision:

The East Asian crisis unmasked inadequacies in the management, regulation and supervision of financial institutions. Banks had accumulated an unexpectedly large amount of risky and impaired assets, as well as of contingent liabilities, against which they held inadequate capital and reserves. In some cases, levels of lending to related parties were very high. Regulatory and supervisory forbearance prevented in fact the exposure of the extent of the impairment of balance sheets. In addition, standards for public disclosure fell short of what was necessary for economic agents to assess the fragility of financial institutions. Thus, the crisis identified a need to improve financial legislation; upgrade the supervision and regulation of financial institutions; review the strategies for dealing with troubled institutions; revisit the lender of last resort facilities, deposit insurance and the implied moral hazard; and set new standards for public disclosure.

The weak supervision of financial institutions combined with the weak management provided opportunities for moral hazard and fraud. In all four countries, financial systems lacked the incentive to manage risk effectively and bear the full costs of failure. This was the case with the banking system which carried out financial

⁵¹ Corsetti, Giancarlo, Paolo Pesenti, and Nouriel Roubini. “What Caused the Asian Currency and Financial Crisis? Part 1: A Macroeconomic Overview,” paper presented at the CEPR/ World Bank Conference “Financial Crises: Contagion and Market Volatility,” London, 1998.

intermediation in most Asian countries. Bank's risk capital was usually small, and owners of banks risked relatively little by lending for excessively risky if the projects failed. The reason that depositors did not check the lending decisions of banks is that they were offered deposit insurance. Even the banks themselves were given implicit guarantees of a government bailout in the case of an adverse financial condition. As a result, the presence of such a financial insurance, led to a moral hazard problem, which distorted the incentives to carry out a proper risk assessment of investment projects. The financial liability counterpart of the moral hazard problem in investment was the incentive for Asian financial institutions to expand their liabilities excessively, generally by borrowing from abroad.

The potential for loss in borrowing and lending was increases in most countries by inadequate financial supervision and regulation. Capital adequacy ratios and legal lending limits to individual borrowers or sectors tended to be insufficient or poorly enforced.⁵² The central elements to a prudential set of regulations were deficient. Loan classification standards were lax leaving a wide scope for definition non performance. For example, bad loans were defined as the portion of non performing loans not covered by collateral. Or bad loans were defined as the potion of nonperforming loans in defaults. Hence, financial systems in the four countries showed undue risk concentration of loans. State owned banks in Indonesia and Korea were allowed to break many prudential

⁵² William C. Hunter, George G. Kaufman, Thomas H. Krueger, *The Asian Financial Crisis: Origins, Implications, and Solutions*. The Federal Reserve Bank of Chicago. IMF. 1999.

regulations on a regular basis without a penalty. Evergreening thrived as cosmetic accounting concealed loan defaults while unpaid interest was being accrued.⁵³

Transparency was another major problem since both with information dissemination were inadequate. For example, in Indonesian, financial institutions' balance sheets were not transparent for outsiders to assess capital adequacy. In Malaysia few financial institutions disclosed lending to managers and associates. In Korea, no bank or non bank financial institutions followed IAS's accounting for reporting foreign currency gain and losses.

As a result, depositors and regulators had difficulty telling if loans were sound and if banks balance sheets were healthy. This situation led to undetected conflicts of interest and fraud, hindered the governance of financial institutions, and increased the incentives for risk taking.

Source	Indonesia	Korea	Malaysia	Thailand
Official Estimate	8.0	0.8	3.9	7.7
Berg	12.9	8.4	9.9	13.3
JP Morgan	11.0	17.5	7.5	17.5
Goldman Sachs	9.0	14.0	6.0	18.0
Corsetti et al	13.0	8.0	10.0	13.0

Source: Corsetti et al 1998, Berg 1999 and Varia, Paul A. Popiel 2002.

⁵³ Popiel Paul A., The East Asian Miracle and the East Asian Financial Crisis. Lecture at the Annual Musky Fellowship Gathering at the Duke's Center for International Development. Sanford Institute of Public Policy. Duke University. Spring 2002.

In Thailand, the regulation of commercial banks limited their credit expansion, but the financial liberalization in the 1990's led to the emergence of other only nominally regulated nonbank intermediaries that could circumvent credit limits. Thai policies provided strong tax incentives to offshore borrowing. In the 1990's, Thai finance companies accelerated their lending to the real estate and property sector, mainly financed with borrowing from foreign financial institutions.

In Korea, the financial system was in a massive crisis because of excessive lending to traded-sector corporations, that most of them went to bankrupt before the currency crisis hit in late 1997. Private banks in Korea were being controlled by chaebols, providing these corporations and firms privileged access to credit and aggravating the moral hazard problem.

In Indonesia, according to central banks statistics, from a total of 240 banks in April 1996, 15 did not meet the required 8% capital adequacy ratio, 41 did not comply with the legal spending limit, and 12 out of 77 licensed foreign exchange banks did not meet the rules on net overnight positions. In the 1980's, the banking system was dominated by five large state owned banks, accounting for 80-90% of all bank credit. In the 1990's following a wide-ranging series of reform in 1988/89, the private bank sector grew rapidly surpassing the state sector by 1994. In general, banks accounted for about two thirds of total corporate finance, while stock markets provided one third. Rapid growth within this regulation system, along with the struggle for market shares, resulted in a system containing an excessive number of small undercapitalized banks, which was vulnerable to poorly chosen fraudulent lending. With such a support from the government, the incentives of small undercapitalized banks were clearly biased toward

riskier project. As of end of 1995, state banks had an average non performing debt level of 17% compared to 5% for the private sector as a whole.

In Malaysia, the banking problems were not as bad as Indonesia, but there was excessive lending in highly risky projects, which rose in 1996-1997. In 1996, the proportion of nonperforming loans to total credits dropped from 3.9% to 5.5% in 1995, due to recoveries associated with economic growth and write offs. In 1996, there was an overall increase in bank lending by 27.6%. By the end of 1996, the banking system's exposure to the property sector and equity stood at 42.6% of total credits. Property and equity financing continued to rise rapidly in early 1997. The Malaysian central bank intervened, but the actions were too late. It was only on march 1997 when bank Negara announced ceilings on lending to the property sector and for the purchases of stocks and shares.

5 - Asset Price Bubble:

Both domestic financial liberalization and the high level of volatility of international capital flows enhanced the existing weaknesses in the financial system. These weaknesses in turn contributed to overinvestment and overlending and ultimately to the asset price bubble. Domestic financial liberalization and capital inflows could be the elements that pumped the bubble up.⁵⁴ So what may have been the reason that let the air out from the bubble and led to the burst?

⁵⁴ Kaminsky, Graciela and Carmen Reinhart. "The Twin Crises: the Causes of Banking and Balance of Payments Problems," Board of Governors of Federal Reserve System, International Finance Discussion Paper. The American Economic Review. June 1999.

As mentioned earlier in the first part of this paper, the second generation model of currency crisis and the liquidity based self fulfilling expectations suggests that anything could trigger of such an event; any arbitrary piece of information becomes relevant of the market participants believe it is relevant.⁵⁵

Macroeconomic fundamentals 1995 and 1996 in the form of declining international competitiveness and slower export growth had and adverse affect on the firms' cash flows. In the early 1997, the asset bubble started to burst specially in Thailand and Korea. Real estate and stock market prices were negatively effected distributing and sharp fall by 40 percent in Thailand and 30 percent in Korea, and then stock prices fell another 30 percent in Thailand (Hunter Kaufman and Krueger 1999). (Figure 2 will show those prices in more details). From 1995 to 1996, the share value of property companies fell by about 30 percent in Korea and 50 percent in Thailand. Drops in prices of equity and real estate signaled to low profitability of past investment projects. Sixteen Thai finance companies suspended operation in May 1997. In Korea, one of the largest chaebol; Hanbo Steel went bankrupt in January 1997, followed by several large companies. In Indonesia, confidence of the banking system had been weakened, and it became clear that the fall of the Thai baht was a problem that neither Indonesian leaders nor the authorities could control. All Asian countries were experiencing increasing financial weaknesses that already reached a critical point, and the air started to leak from the bubble prior the floating of the baht.⁵⁶

⁵⁵ William C. Hunter, George G. Kaufman, Thomas H. Krueger, *The Asian Financial Crisis: Origins, Implications, and Solutions*. The Federal Reserve Bank of Chicago. IMF. 1999.

⁵⁶ William C. Hunter, George G. Kaufman, Thomas H. Krueger, *The Asian Financial Crisis: Origins, Implications, and Solutions*. The Federal Reserve Bank of Chicago. IMF. 1999.

Large Asian firms, used to finance a major part of their investment by borrowing rather than issuing bonds or equity, and hence relatively large amounts of bank debts relative to equity compared to the Latin American countries. The high degree of leverage combined with few liquid assets held by most Asian firms, left the corporate sector vulnerable to adverse interest rate changes or other cash flow shocks affecting their ability to service debts. Once the crisis hit, the excessive leverage of non financial business and their resulting debt service problem in turn created problems for the banks and financial intermediaries. This problem started to spread over to the borrowers that were relying on these institutions for credit, consequently worsening the impact of the crisis. There are four important reasons that have led the Asian companies to be more highly leveraged than other developing countries. First, a main reason for the unstable growth of credit was the dominance of banks in financial systems and the noticeable underdevelopment of the securities markets (both share and bond markets). This laid most of the burden of corporate financing on banks and non bank financial institutions with the lack of diversification of financial instruments with subsequent concentration of risk. It also stimulated corporations to acquire banks stimulating foreign borrowing. The second reason would be the long history of close relationship between banks and companies related to the same family ownership. Third reason would be the government's involvement in resource allocation as discussed in the first part of the paper. Since the 1960's governments used policy loans to promote economic sectors and companies. Interest rates were below market rates, which help those companies to make significant amounts of profit by having maximum resources to debt financing. Governments bailed out insolvent companies on regular bases giving them signals to borrow beyond safe

financial thresholds. The last reason was the surge in foreign capital inflow, which was for the most not sterilized by the central banks.⁵⁷

	1994	1995	1996	1997
Indonesia	27.6	22.5	21.7	24.7
Korea	19.4	13.4	19.7	17.6
Malaysia	19.6	30.3	29.4	27.2
Thailand	37.3	24.2	14.3	22.3
The Four Countries weighted	24.2	18.6	20.1	20.9

Source: IFS, Paul A. Popiel.

	1993	1994	1995	1996	1997
Indonesia-Growth Rate	25.5	23.0	22.6	21.5	46.2
GDP Share	48.9	51.9	53.5	55.5	69.2
Korea-Growth Rate	12.9	20.1	15.6	20.0	22.0
GDP Share	54.2	56.9	57.0	61.8	69.8
Malaysia-Growth Rate	10.8	16.0	30.7	25.8	27.0
GDP Share	74.1	74.6	84.8	93.4	106.1
Thailand-Growth Rate	24.0	30.2	23.4	14.6	19.8
GDP Share	80.0	91.0	97.6	101.9	116.4
Four Countries-Growth Rate	17.4	21.9	19.9	19.9	27.5
GDP Share	59.0	63.0	65.5	69.9	80.8

Source: IFS, World Bank, Corsetti et al 1998, Paul A. Popiel

⁵⁷ Popiel Paul A., The East Asian Miracle and the East Asian Financial Crisis. Lecture at the Annual Musky Fellowship Gathering at the Duke's Center for International Development. Sanford Institute of Public Policy. Duke University. Spring 2002.

6 - Contagion:

Once the bubble burst, the financial panic story took its place. Domestic investors started to realize some weaknesses that they have not been aware of before, or just simply ignored them. It started with the crises which had an impact on both domestic and foreign investors. As the crises expanded, domestic residents became less motivated or even not to be willing at all to hold their assets in domestic financial institutions. On the other hand, foreign creditors became less willing to roll over their loans, causing a liquidity squeeze that led to the bankruptcy of Asian financial institutions as well as the private firms that borrowed from them. Hence, the loss of confidence became a self-reinforcing creditor's panic. The panic led the agents to sell financial assets and real estate declined, depressing asset prices furthermore. Governments had to spend a lot of money to bail out financial institutions and their creditors and there was not enough money. Consequently, the credibility of government guarantees declined, leading to even more drying up of money, raising bailouts costs even further more. Weak behavior of banks and governments led to policy uncertainties and financial panic.

Summing up the discussion about the domestic vulnerabilities to the East Asian Crises, we should remember the important problems discussed in the first part of the paper, such as government interference, inadequate supervision and framework, and the consequences that lead to such a vulnerable economy. In the financial fundamentals view, the main problem in East Asia was not macroeconomic imbalances, but rather structural financial system distortions associated with the Asian model of capitalism. The analysis above will indicate that the East Asian crisis was the result of bad lending and investment

practices that were fostered by the environment of relationship lending, disincentives to fully monitor risk and inadequate supervision and regulation of domestic financial institutions during the lending boom of the 1990's.⁵⁸ All these financial distortions in turn led to the build up of weak bank and nonbank balance sheets and increased the fragility of the East Asian financial systems.

4 – Currency and Financial Crises:

Relating the analytical framework to the theoretical part, this section will determine whether the East Asian crisis was a currency crisis, financial crisis or a combination of the two.

Going back to the first section, we recall the definition of a currency crisis as well as the vulnerabilities to these crises. We defined currency crises as a situation where a speculative attack on the currency will lead to a depreciation of the currency. We also mentioned that currency crises involve deterioration in the terms of trade, a slowdown in exports, overvaluation of the real exchange rate and a widening of the current account deficit. From our analysis, real exchange rates appear to have been somehow overvalued prior to the crisis; all countries involved except for Korea showed some signs of overvaluation by some measures. This situation certainly contributed to the large current account deficits in all of the Asian countries; however, the deficits themselves were not a problem. It is an important part to know whether the deficits were caused by declining savings rates or rising investment rates and whether the growth of exports will be strong enough for the future repayment of foreign debt. Countries such as Thailand and Korea

⁵⁸ Glick Reuven, Thoughts on the Origins of the Asian Crisis: Impulses and Propagation Mechanisms. Federal Reserve Bank of San Francisco.

suffered a noticeable slowdown in their exports, particularly in 1996 and 1997, despite the high rates of investment which were caused by the strengthening of the US dollar vis a vis the Japanese yen. Korea itself suffered a sharp decline in terms of trade. Most of the countries built up high levels of short term external debt relative to their reserves.

In conclusion, these factors satisfy the criterion that were mentioned in the first part making these countries vulnerable to external shocks, and as a result of these external factors being satisfied, the East Asian crisis was indeed a currency crisis.

Regarding financial crises, we defined it as a situation that could lead to a systemic insolvency of a financial system. In such a case, we mentioned that the effect of government interference and weak regulation and supervision of financial systems will have a major impact in causing financial crises. These countries experienced tremendous capital inflows in the 1990s, as shown in the following table. We conclude that most of the capital inflows, and the investment booms associated with them, were a result of weak domestic financial institutions that were undercapitalized and poorly regulated. Macro economics stability and high growth periods led to complacency by foreign creditor banks, borrowers and the authorities. Liberalization of the domestic financial system was not supervised by appropriate regulation and framework. At the same time, the Asian countries were experiencing a variety of governance problems, lack of competition in financial markets, ineffective supervision and major government involvement in economics affairs. The combination of weak financial sectors with strong capital inflows and credit booms created two probable problems: potential inefficiency of the resulting investments and financial fragility of an overleveraged corporate sector.⁵⁹

⁵⁹ Berg Andrew, *The Asia Crisis: Causes, Policy Responses, and Outcomes*, International Monetary Fund, Asian and Pacific Department. Authorized distribution by Jonathan D. Ostry, October 1999.

There was also a noticeable increase in the share of non performing loans in the banking system as is shown in the table below. Indonesia, Korea, Thailand and to a lesser extent Malaysia, had very high debt to equity ratios. An important aspect of the credit boom was a rise in financial fragility. A large growth in bank lending heavily collateralized by high priced property, non financial corporations which were highly leveraged, slowdown in growth, increase in interest rates, or a decline in asset prices would result in a large increase in bankruptcies, and accordingly to insolvency of financial institutions. There is little doubt that financial systems were systemically insolvent in those four countries. On the average, reported NPLs were at or above capitalization levels. And experience tells that reported NPLs are only a fraction of existing ones. Hence, in each country we had systemic insolvency of the financial system in the addition of covert or overt financial crises.

As was previously discussed in the first part of the paper, the first generation model is mostly known as the result of macroeconomic inconsistencies such as fiscal deficit combined with conflicting economic practices leading to an unbalance. Most of the macroeconomic fundamentals that drive first generation crises models did not provide a lot of reasons to expect such a major crisis. The budgets of these countries were either in balance or showing a surplus, and as a result, there was no evidence of bad governance in the form of budget deficits. Although there had been some slowdowns in real GDP growth in 1996, it was still at its average or above its 1990-94 rates. Thus, when the crisis began in the mid 1997, the Asian countries did not have large unemployment or other incentives to abandon the pegged exchange rate regimes in order to pursue a more expansionary monetary policy as suggested by the second generation model.

We can see that both the first and second generation models failed to describe the Asian crisis adequately. Going back to the theory section, the third generation model is best understood as an asset crisis arising from the mismanagement and unsupervised activities of financial institutions. The Asian crisis that erupted in those countries was a combination of both currency and financial crises, best described by the third generation model. Relating this case to our first part of this paper, we will see that the Asian crisis was a third generation model of crises known as the “twin crises”.

5 – Conclusion:

Arguments of the current debate concerning the origins of the Asian Financial crisis concern whether it was caused by financial panic and contagion unrelated to economic conditions or by weak economic conditions. Although the two views are not *mutually exclusive*, each one's policy implications vary greatly from each other. While financial panic was present, macro economical weaknesses played a predominant role in the time leading up to the crisis. The models that were suggested by the first and second generation crisis models did not give adequate indication of the impending calamity. This was a third generation type of a crisis, which puts a lot of emphasis on the foreign currency, increased exposure and illiquidity of the banking system.

To a large extent, the crisis can be explained “in terms of impulses and propagation mechanisms related to fundamentals, specifically general weaknesses and distortions in the financial sector”⁶⁰. Included in these were excessive risk taking,

⁶⁰ William C. Hunter, George G. Kaufman, Thomas H. Krueger, The Asian Financial Crisis: Origins, Implications, and Solutions. The Federal Reserve Bank of Chicago. IMF. 1999.

relationship lending practices, and inadequate financial supervision and regulation. These factors increased Asia's vulnerability to negative shocks, both internal and external. Upon the crisis, these aforementioned effects magnified the initial impact. These effects included collateralized lending, competitive devaluations, excessive leverage, and the exposure of unhedged foreign liabilities. In addition, the existence of a weak regulatory and supervisory system could be traced as the root of the crisis. This is not to say that there weren't other causes to the crisis. It still remains a matter of debate among scholars and economists as to whether the impact of the crisis would have been as cruel and with such a hard impact had the supervisory, regulatory, and prudential frameworks been adequate.

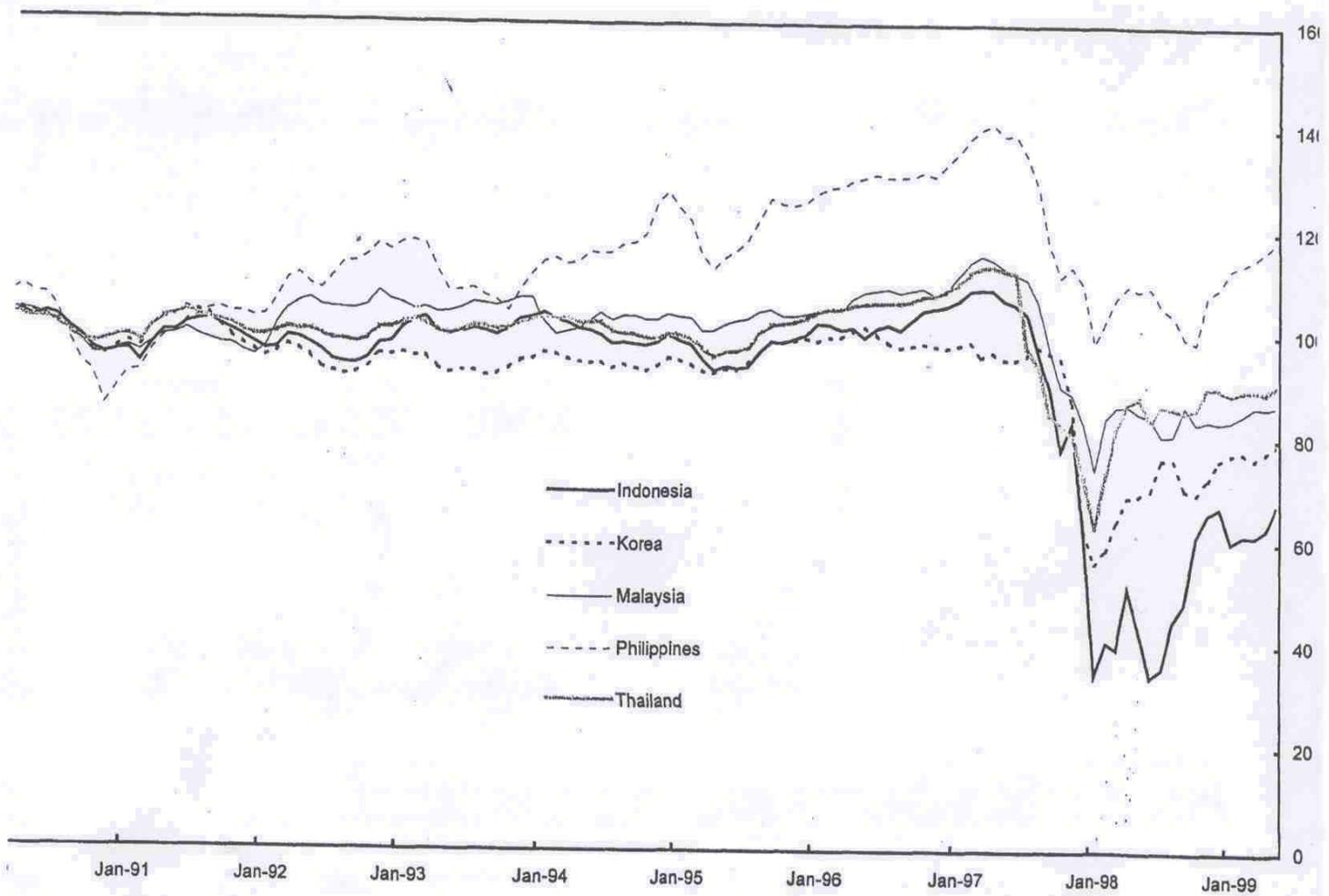
Table 14.

Asian Crisis Countries: Vulnerability Indicators

	Indonesia	Korea	Malaysia	Philippines	Thailand
<u>Overall</u>					
Domestic debt/GDP (average, 1992 to 1996)	50	59	82	31	87
Domestic credit growth (1992 to 1996)	12	15	38	138	37
Incremental capital-output ratio					
1987-92	4	4	4	6	3
1993-96	4	5	5	6	5
<u>External</u>					
Short-term debt/reserves	188.9	217.0	45.3	849.3	121.5
M2/Reserves	614.8	665.4	364.8	465.6	380.5
RER overvaluation as of late 1996/early 1997					
Chinn(1998) 1/	-5.5	-9.1	7.9	19.1	7.0
Goldstein(1998) 2/	4.2	-7.6	9.3	11.9	6.7
Tornell(1998) 3/	6.8	4.6	4.5	15.7	5.5
Berg and Pattillo (1998) 4/	9.6	11.5	9.0	19.2	9.4
Export growth (dollar value), 96:H2/95:H2	9.1	-2.8	0.9	15.9	-4.5
<u>Banking system</u>					
Non-performing loans					
Pre-crisis estimates					
Official estimate for 1996	8.8	0.8	3.9	na	7.7
Alternate estimate	12.9	8.4	9.9	14.0	13.3
Actual non-performing loans as share of total loans in 1998					
JP Morgan	11.0	17.5	7.5	5.5	17.5
Goldman Sachs	9.0	14.0	6.0	3.0	18.0
Peak non-performing loans as share of total loans, 1998/1999					
J.P. Morgan	30-35	25-30	15-25	8-10	25-30
S&P	40+	25-30	20.0	n.a.	35-40
Recapitalization costs (Percent of GDP)					
J.P. Morgan	19.0	30.0	20.0	0.0	30.0
S&P	20+	20+	18.0	n.a.	34.0
Fiscal costs of recapitalization					
Low scenario	5.9	7.2	10.6	0.9	8.0
Medium scenario	11.6	15.7	18.1	0.9	15.1
High scenario	16.8	31.7	31.4	2.8	30.0
Exposure to property loans 5/	25-30	15-25	30-40	15-20	30-40
<u>Corporate sector</u>					
Debt/equity ratios 6/					
1991	190	480	90	160	170
1996	200	640	200	170	340
Profitability (return on assets)					
1991	6.3	2.0	4.8	7.0	8.0
1996	4.7	0.4	6.0	4.7	1.0

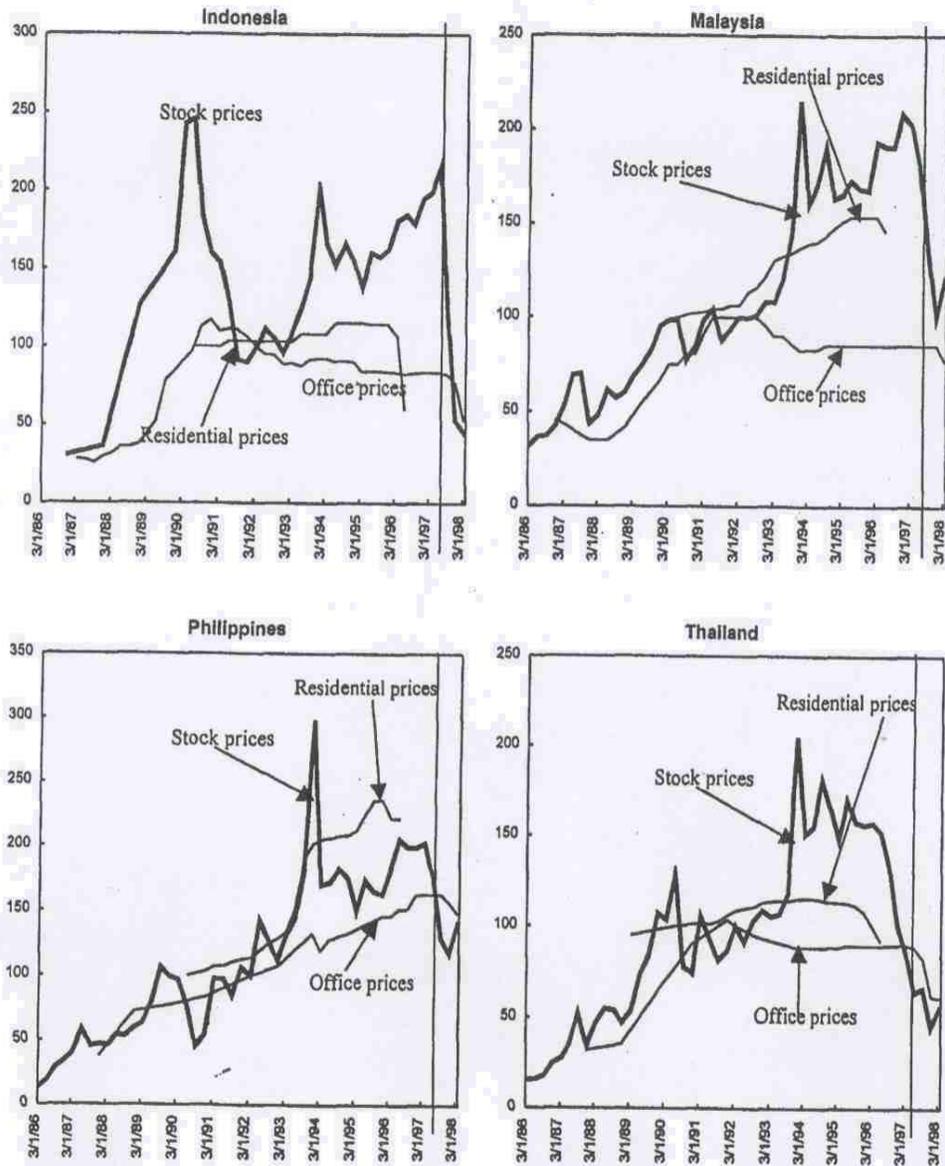
Sources: Domestic credit/GDP and Domestic credit growth are from Berg and Pattillo (1998), following Sachs, Tornell and Velasco (1996) definitions. Debt/equity ratios and corporate profitability from World Bank (1998); ICORs from Corsetti et. al (1998b); NPL pre-crisis estimates from BIS (1998) as reported in Goldstein (1998) and Corsetti et. al (1998b), who combine BIS, private sector and IMF information; Fiscal Costs of Recapitalization from World Bank (1998); Actual Non-Performing Loans in 1998 from Goldstein (1998); Peak non-performing loans and recapitalization costs from Adams et al. (1998); and exposure to property loans from Goldstein (1998), Berg Andrew

Figure-1 Asian Crisis Countries: Real Effective Exchange Rate
(1990 = 100)



Source: Berg, Andrew

Figure -2 Asian Crisis Countries: Real Estate and Stock Prices
 (Indices, March 1992 = 100) 1/



Sources: Adams et al. (1998), Berg Andrew

1/ Real estate and stock prices in local currencies, except for Indonesia, where prices are in US dollars. Vertical line at June 1997.

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