Understanding Financial Crises: A Nontechnical Approach

by

Jorge Gallardo-Zavala

Fellow

Weatherhead Center for International Affairs

Harvard University

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I. INTRODUCTION

Since the fall of the Berlin wall in 1989, the world has undergone a profound political transformation. The end of the Cold War has brought a new political reality to the world, and a uni-polar political scenario has emerged under the aegis of the United States, the hegemonic power. Furthermore, with the collapse of the Soviet Union, the countries that were part of it or were members of its common market, had to embark on implementing deep structural reforms to transform their centrally planned economies into free-market ones. These countries are still in transition, building the legal and institutional framework necessary to allow them to function as free market oriented economies. At the same time, at the end of the 1980s, countries in Latin America accelerated the process of institutional reforms, substituting their old inward-looking economic policies with export-led strategies. The South East Asian countries, Korea and China entered the 1990s with strong economic perspectives, implementing policies oriented toward more specialized trade integration to the rest of the world.

The immediate response of the world markets to these events was a rapid commercial and financial integration among countries and regions. Capital flows move around world financial markets with almost no restrictions, seeking new opportunities for investment and finance. Low economic growth in the developed world at the beginning of the 1990s, combined with low international interest rates , created opportunities for higher returns in emerging markets, especially those that were implementing market-oriented structural reforms, and that had sound macroeconomic programs in place.

Furthermore, in the 1990s, immense amounts of private-to-private capital flows (i.e., capital

from private creditors to private borrowers) were allocated from developed to emerging market countries, the main recipients of which were the South East Asian countries, China, Korea, and the Latin American countries. In 1990, emerging markets received a total of 30 billion dollars in net capital flows (i.e., net foreign direct investment plus net portfolio investment and bank finances); by 1996, however, that figure reached the astonishing amount of 240.8 billion dollars, an eight fold increase in six years. Moreover, the composition of total net capital inflows changed dramatically over the same period. Whereas in 1990, net external borrowing from official creditors represented 41.7 percent of total capital inflows, in 1996 that figure was negative; in other words, the total of net capital inflows in that year were all private-to-private. With the onset of the Asian crisis in 1997, however, net capital flows declined by 70 billion dollars, to a total of 173.7 billion dollars, a reversal that by any standard was a dramatic change.

The increase in net capital flows to emerging market countries recorded in greater part of the 1990s, and their reversal in 1997, had several connotations for the conduct of macroeconomic policy and for the health of domestic financial systems. The surge of capital flows evolved under the wave of financial liberalization and capital account liberalization implemented in most of the developing world. These events were new in many respects, not only because of the amount of resources that had been transfer, but to the extent that these capital flows were flowing from private creditors to private borrowers, to finance mainly productive as well as financial private investments. Another aspect that is important to mention, is the rapid development of information and communication technologies, which can redirect capital flows between markets with the click of the mouse. The impact that these events have in key macroeconomic variables, such as the real exchange rate and the current account, and on

financial institutions have been extensively researched over the past few years, so as to determine the causes behind this volatility of capital flows, as well as its economic and financial repercussions.

This paper deals with currency and banking crises, and the possible causes behind these events, in order to recommend a set of warning or leading indicators, policy actions, and structural reforms that are necessary to prevent or to alert policymakers of the eventuality of a crisis. In doing so, it first reviews the literature on currency crises, beginning with the so-called Afirst generation@ models of balance-of payments crises, whose pioneer wrote his influential paper few years before the debt crises erupted in the developing world (Krugman 1979). In the development of this model, academics found it necessary to postulate a few assumptions; namely, a small open economy with perfect capital mobility, and a fixed exchange rate system. The first generation models emphasize the crucial role that central bank financing of fiscal deficits plays in precipitating a speculative attack on a currency, thus provoking the depletion of the central bank=s reserves and, in the aftermath of the crisis, forcing a currency correction and/or change in the exchange rate system.

The Asecond generation@, or Aexpectation@ models, incorporate more of the issues that are relevant to the 1990s financial crises, and that are now at the center of the research being conducted by academics and international organizations. In this regard, it is evident that a financial turmoil in one country can spill over to other counties or regions, and that elements of contagion and herd behaviour are present in one way or another in the latest crisis, specially in the one that affected Argentina in 1995, as well in certain Asian countries in 1997. Financial liberalization, capital account liberalization, macroeconomic fundamentals, and microeconomic or structural aspects, have all been identified as

playing critical roles in a crisis of a twin sort; that is currency and banking crises. This paper, through the analysis of the theory and the empirical evidence, selects a group of important indicators that will in turn help to highlight the possibility of the gestation of a currency crisis, a banking crisis or both.

The new events that have rapidly unfolded since the political changes of 1989 can be regarded as a new phenomenon with multiple dimensions, two of its components being the economic and financial integration of the world economy. Accessing the wealth of information that the 1990s have recorded on the impact that financial globalization has had on specific countries and regions of the world, therefore, is not only imperative for academicians, international organizations, policy makers, but for professionals and institutions interested in international issues in general, so as to work on the identification of the possible causes behind the current currency and banking crises, to recommend policy actions based on early warning indicators, and to collaborate with the redesign of the international financial architecture, so that it can be adapted it to the new realities. The aim of this paper is to address these issues, to identify and select leading crisis indicators, and to recommend a set of policy actions to prevent the recurrence of this crisis which beyond its financial impact, have real implications, affecting the well being of vast sectors of the population.

The paper is organized as follows. Section I introduces and describes the paper=s scope. Section II reviews part of the literature written on currency crises, starting with Krugman=s (1979) seminal paper on a model of balance-of-payments crises. Section II is itself divided into four parts. The first part, analyses the first generation models of currency crises, which were developed (as stated earlier) assuming a small open economy, perfect capital mobility, and a fixed exchange rate system. Some

extensions to the basic model are also discussed to incorporate part of the research done on target or exchange rate bands, and crawling peg systems. The second part examine the second generation models or expectation models. These models have particular relevance for the events of the 1990s, incorporating the spill over effects that a financial crisis in one country or region can have in other countries or regions. Contagion and herd behaviour are important parts of the second generation models, which try to explain the causes of financial crises. The third part deals with the empirical testing of the models, in which special emphasis is placed on second generation models to identify the factors that are behind currency crises. The last part of Section II, summarizes the findings, and assemble a list of key indicators which best depicts currency crises, according to the empirical studies.

Section III begins with an analysis of the factors that are present in a banking crisis; in doing so, a group of empirical studies conducted by various academicians to pinpoint their main conclusions have been selected. Financial and capital account liberalization which have been identified as the Amodern@ causes of banking crises are analysed in detail. By the same token, capital flows, which are part of the financial openness strategy of the 1990s, are also examined. The twin currency and banking crises have had devastating effects on the economies in terms of resolution costs and the lost of output relative to trend; therefore, this section also introduces relevant data on selected cases in which currency and/or banking crises have happened to present the absolute costs related to the crisis resolution. As in Section II, this section concludes with the identification of a group of leading indicators that perform best in identifying currency and/or banking crises. These indicators have been organized into three groups. The first are essentially macroeconomic, the second group are indicators used to measure the effect of financial and capital account liberalization in the economy and the financial system, and the last group are

composed of indicators extracted from banks' balance sheets to assess the financial situation of the banking system.

The first part of Section IV concentrates on bank supervision and regulation. It covers topics that are part of the new wave of regulatory and supervisory efforts that have taken place all over the world, which were heralded and recommended for application by the Basle Committee on Banking Supervision. According to the Diamond and Dybig(1983) model, which regards banks' as maturity transformers, it is analysed the variety of risks that are inherent to banking activities; these facts have to be called to the attention of bank supervisors, so that both they and bankers will develop sufficient skills and know-how to control for these types of occurrences. This section closes with a discussion of three topics that are at the center of international debate: the disclosure and transparency of private and public financial and economic information, the cross border banking supervision, and the not uncontroversial topic on the strengthening of the international financial architecture.

Section V is a cross-country analysis of ten different developed and developing countries that have all experienced a currency crisis, a banking crisis, or both during the 1990s. These countries have been grouped into three categories for the purpose of the analyses. The first group is integrated by three Nordic countries: Finland, Norway and Sweden. Argentina, Mexico, Ecuador and Venezuela are part of the second group of countries. The third group of countries consists of three of the Asian economies that suffered a financial crises in 1997: Indonesia, Korea and Thailand. In the broad analysis, some of the indicators that have been selected previously to identify a currency and/or banking crisis will be used. At the end of each country analysis a summary with the relevant factors which were present in the financial crises is developed.

The paper closes with conclusions and policy recommendations that need to be implemented to strengthen the conduct of macroeconomic policies and the development of the legal and institutional framework necessary for financial markets to work in a globalized environment.

A final word is necessary regarding the intended audience of this paper. In this sense, we have to say, that this paper pretends to reach the general public, professionals with no financial background, policymakers, and especially politicians that have left out of their agendas issues of such importance for the well-being of the societies as to the prevention of financial crises, which can have devastating effects on the real or productive sector of the economy and therefore on the well being of societies. In many parts of the paper, a use of technical words is necessary, in order to accurately describe and explain the theoretical and empirical works developed by many academicians and international organizations. To facilitate the reader=s understanding of this vocabulary, a glossary can be found at the end of the paper.

II. Currency Crises

Introduction

Why have currencies and exchange rate systems attracted so much attention from the academic

community? How and why are currency crises are so disruptive to an economy? Why is the real exchange rate a key variable in open economies with high capital mobility?. The answers to these questions can be found in the economic definition of the real exchange rate.

In most of the theoretical work, the real exchange rate is defined as the relative domestic price of tradable to nontradable goods. The tradable goods sector is the export-producing sector and the import-competing industries. The nontradable sector, on the other hand, is comprised of the domestic-producing sector, represented by such activities as the utilities, services, real estate, construction etc. Therefore, the relative price between tradable and non tradable goods guide resource allocation across sectors in the economy.

For instance, let us suppose that the price of nontradable goods in a country increases relative to the price of tradable goods: the outcome is an appreciation of the real exchange rate, reflecting the fact that there has been an increase in the domestic cost of producing tradable goods. If there are no changes in relative prices in the rest of the world, this decline in the real exchange rate represents a deterioration of the country-s competitiveness, as the country now produces tradable goods in a relatively less efficient way than before(Edwards 1989). If inconsistent macroeconomic policies are followed, this real exchange rate overvaluation will become unsustainable, until a balance of payments crises results stemming from the fact that the trade balance deteriorates due to the decrease in exports and a corresponding increase in imports. At the same time, external indebtedness increases due to the appreciation of the exchange rate a situation which, at the time of a correction, might occasion a banking crises or debt crises.

With this definitional background, we can understand the importance that the real exchange rate in obtaining external and internal equilibrium. For this reason, currency crises have been the subject of an

extensive economic literature, both theoretical and empirical. The basic scenario used by economists is one of a small open economy subject to perfect capital mobility, with a fixed exchange rate system. This means that the economy is small enough that it cannot influence world prices, capital flows do not have any in-and-out restrictions, its capital flows depend of interest rates differentials, and the exchange rate system is supported by the monetary authorities through exchange rate market intervention.

2.1. First Generation Models

In his seminal paper, Krugman(1979) showed that under a fixed exchange- rate regime, domestic credit creation in excess of money demand growth leads to a gradual loss of reserves and, ultimately, to a speculative attack against the currency. In this model, with a fixed exchange rate, real and nominal money demand are fixed so that domestic credit expansion results in an exactly equal loss of international reserves. This canonical currency crises model, therefore, explains a balance-of-payments crisis as the result of an inconsistency between domestic policies and the attempt to maintain a fixed exchange rate (Agénor, Bhaudari and Flood,1992). The model=s basic assumption is that the fiscal deficit is financed by money creation increasing domestic credit, (one of the components of Abase@or Ahigh powered@ money), whereas its international reserves (the other component of base money) decline. The model also assumes that the central bank cannot increase its reserves by borrowing in the international or domestic capital markets; its reserves are therefore limited, and a speculative attack on the currency occurs at some point before the central bank runs through its reserves. Krugman=s argument is that under perfect foresight the exchange rate cannot jump at any time because if it did,

individuals would be able to reap unrestricted arbitrage profits. Thus, at the moment when the speculative attack against the domestic currency takes place, the exchange rate exhibits no nominal appreciation or depreciation. The latter means, that the market value of the exchange rate does not differ from the value at which the exchange rate is pegged.

As described by Calvo(1995), one of the most remarkable feature in the Krugman model is the sudden loss in reserves at a specific point in time, even though market participants have perfect foresight and, thus, nobody is taken by surprise. The central bank does not take any action to sterilize the capital outflows; therefore, facing the reduction of the monetary base and lacking the reserves to maintain the nominal value of the exchange rate, the, fixed exchange regime collapses and the central bank is obliged to float its currency.

In a 1996 paper Flood, Graber and Kramer, the authors contest the current literature on speculative attacks based on Krugman=s assumption that the monetary authority reacts passively to the monetary disruption caused by the attack. The authors contrast this theory with actual events that took place in the wake of the December 1994 Mexican crisis, when the central bank injected liquidity to the market, to prevent the monetary base from shrinking and a concurrent

rise in interest rates, while the country was losing its reserves due to a speculative attack against the peso. The central bank intervention to prevent the monetary base from shrinking is defined in the economic literature as Asterilization@. The authors therefore challenge tha applicability of the standard attack scenario, which requires that the supply of base money in the country being attacked plunges downward at the instant of the attack. In real world crisis such as in Mexico, reserve losses at the time of the attacks are usually sterilized. The authors therefore recommend that the model of speculative attacks be expanded to explicitly include bond markets that are affected by the sterilization policies followed by the monetary authorities during a period in which the domestic currency is under attack by

speculators.

AFollowing a policy of sterilization@ means that the central bank uses its discretionary power to issue money, expanding domestic credit by the same amount as the loss in reserves. This increase is accomplished by the monetary authority=s open market operations, such as buying government bonds held by the private sector; this type of operation therefore has consequences in other markets, such as the bond market. If the monetary authorities do not sterilize the currency attack, the monetary base will shrink and interest rates will rise.

Furthermore, if a sizable proportion of the money base is involved, the resulting interest rate increases may be so large that the exchange rate crisis precipitates a banking crises. And if the government has its domestic debt linked to short-term interest rates, the cost to service the debt increases, thus putting additional pressure on the fiscal finances. In this vicious circle, the central bank either has to resume sterilization, which further undermine its capacity to defend the currency, or let the currency to float.

Calvo(1987) raises the issue that the current literature has concentrated on the balance-of-payments, leaving aside equally important aspects such as the current account and the real exchange rate in line with the implementation of a stabilization program.

Connally and Taylor mention in their 1984 paper that a fixed exchange rate system is a specific case of an active crawling peg, in which the pre-announced rate of change in the exchange rate is zero. They concluded that in order to maintain a fixed exchange rate system or an active crawling peg regime, monetary discipline is a fundamental requisite, in the sense that monetary growth has to equal the growth

rate of the currency to which a country is pegged. In this analysis, monetary policy is therefore subject to an exchange-rate rule rather than a monetary- growth rule. Moreover, if the growth of domestic credit creation through money deficit finance exceeds the rate of exchange rate crawl, the situation will become unsustainable and an exchange rate collapse is brought about by investors who attack the domestic currency long before the central bank runs out of reserves. The main arguments are the same as used by Krugman in his model of balance-of-payments crises.

Continuing with the analysis of the currency crises literature and its extensions based on the Krugman canonical model on balance-of-payments crises, let us now turn our attention to the literature developed on the so-called target zone exchange rate regime. Krugman(1991) differentiates a target zone from a fixed rate regime, as the former allows a wide range of variation for the exchange rate around a reference rate, known as the Acentral rate@. In this type of system, the authorities establish both a ceiling and a base as limits imposed on the exchange rate flexibility: this could, for example, be 10% on either side of the central rate. In some cases the monetary authorities forecast the exchange rate movement due to macroeconomic fundamentals for a period of time (normally one year) and set a band-slope or a trend, which gives more flexibility to the conduct of exchange rate policy. A target zone may be credible if the central bank has sufficient reserves to move the exchange rate back to the center of the band when the exchange rate has touched either the band=s ceiling or floor. The other case is when the central bank does not have enough reserves committed to defend the band, in this case the lack of credibility can prompt a collapse in a speculative attack. Finally, due to exchange rate appreciation as part of a stabilization program, investors regard the currency as overvalued, despite the fact that the

country=s reserves are high enough to prevent a speculative attack. The country faces a gradual but consistent depletion of international reserves, provoking the government to abandon the band, forced by a deterioration of the fiscal accounts perceived by the investors as the cause that would trigger a exchange rate correction.

This latter scenario perfectly depicts the recent(1999) currency crisis in Brazil. In a work by Krugman and Rotemberg(1990), an exchange rate target zone system collapses exactly as the theoretical fixed rate regime collapses in a final speculative attack. Reserves are limited and exhaustible, but the central bank cannot maintain the exchange rate within the band through foreign exchange market intervention forever; therefore, the target zone may be unsustainable, due to domestic credit expansion. As in the earlier models, it is at a certain moment in time, before the central bank runs out of reserves which have dropped to a critical level, that a speculative attack takes place, forcing the monetary authorities to float the currency.

Implementing stabilization programs to bring down inflation, the authorities fix the exchange rate as a nominal anchor and at the same time apply a fiscal austerity program. If fiscal consolidation is not attained, the exchange rate system collapses, and a balance-of-payments crises develops. This is explained by Velasco(1994), who introduces to the model political distortions in the decision mechanism for allocating public spending, generating a bias toward excessive fiscal expending, thus leading to the collapse of the fixed exchange rate system.

All these first-generation models share the same insight: that crises arise as a result of an inconsistency between the exchange rate system and an excessive public sector deficit that becomes monetized (Esquivel and Larrain 1998). Krugman(1998), in defining the first-generation crisis models,

makes clear the incompatible actions between persistent money- financed budget deficits and the maintenance of a peg or fixed exchange rate system. Ultimately, a domestic credit expansion is unsustainable; and, due to the limited stock of international reserves to maintain the peg, investors anticipate a collapse and generate a speculative attack on the domestic currency when reserves fall to a critical level.

Despite the simplicity of the assumptions, the model conveys a powerful message in the sense that fiscal responsibility is the main effective anchor for exchange rate stability. Monetary discipline is, therefore, a requisite for obtaining that stability, and coordination of monetary and fiscal policy to attain exchange rate stability is an important policy recommendation. In the first- generation models, domestic credit expansion is dependent on direct money fiscal deficit finance. But instead of selling government bonds to the central bank to finance a fiscal deficit, governments can also draw down the deposits of the consolidated public sector to finance its deficit, generating an increase in net domestic credit. Through international borrowing, they can also increase the supply of base money through the monetization of the foreign proceeds, as was the case in the Latin American countries during the 1970s. Finally, if a country has a crawling-peg system or a trend-adjusted target zone, the central bank can anticipate government profits coming from the domestic revaluations of the net reserves, increasing domestic credit.

Whatever the source, the message is that money creation to finance the deficit causes instability in the exchange rate markets, regardless of whether the exchange rate system is fixed, targeted, or a crawling peg. In this scenario it is impossible to sustain the peg or the target, and the corollary to all these actions is a currency collapse and a balance-of-payments crisis.

The literature that has been reviewed thus far, suggests that leading indicators of currency crises have to take into consideration the following elements:

- **$** Fiscal Situation
- **$** Level of International Reserves
- **$** Current Account Sustainability
- **$** Real Exchange Rate

2.2. Second Generation Models

In a newer generation of currency crises models Obstfeld (1996) suggests that even sustainable currency pegs may be attacked and even broken. The argument goes as follows: the discomfort a government suffers from speculation against its currency determines the strategic incentives of speculators and the scope of multiple currency-market equilibria (the latter means that the economy may move from one equilibrium to another without a change in fundamentals, one of them being a currency devaluation). Rational expectations by investors may change and these arbitrary expectational shifts can turn a fairly credible exchange rate peg into a fragile one. Expectations of a collapse in turn lead to higher interest rates to defend the peg; but hte government finally abandons the parity out of concern for the increased cost of servicing the public debt and slow economic growth . The models developed in this particular paper raise the question as to whether the crisis it portraits results from economic fundamentals or from self-fulfilling expectations.

Obstfeld (1994) maintains that this dichotomy is a false one, and that speculative anticipations depend on conjectured government responses, which in turn depend on how price changes that are fuelled by expectations affect the government=s economic and political positions. This circular dynamic implies a potential crisis that need not have occurred, but which does occur because market participants expect it to: a self-fulfilling expectation. Here, the expectation of a collapse leads to higher wages and lower employment, which prompts the government to abandon the parity out of concern of output growth. In summary, Obstfeld shows that high nominal interest rates associated with devaluation expectations can force the government to devalue a currency whose peg would have been viable under another set of private expectations. This model is based on the effects of high interest rates on the governments fiscal position. Obstfeld shows how realignments may affect the authorities= desire to offset shocks to competitiveness and employment. This model, too, is subject to multiple equilibria. In it, arbitrary expectational shifts can turn a fairly credible exchange rate peg into a fragile one. Currency crises can therefore be produced by self-fulfilling expectations, fuelled by a change in investors and/or speculators sentiment.

In another paper, Cole and Kehoe(1996) describe the possibility of a speculative attack on a currency nurtured by the belief that, in spite of a strong fiscal position, government will not be able to roll over its short-term debt. This situation too could arise if debt crises are self-fulfilling.

Esquivel and Larrain(1998) mention that there are at least two types of analyzes along these lines: models of herd behavior, and models that stress the possibility of contagion effects. The latter possibility

has two variants, one that focuses on trade linkages and trade competition to third markets, and another which focuses on financial linkages. In both cases a devaluation means a loss of competitiveness to a third party and a capital loss, which in turn leaves the domestic currency that was not attacked more vulnerable to a speculative attack.

2.3. Contagion Effects

Eichengreen, Rose and Wyplosz(1996) are concerned with the fact that the incidence of speculative attacks tends to be temporally correlated; that is, currency crises appear to pass Acontagiously@ from one country to another. In their paper the authors intended to capture the extent to which contagion is transmitted through specific channels. Their first assumption is that the transmission mechanism operates through the competitiveness effects of crisis-induced exchange rate changes among countries that trade heavily with one another. The second channel of transmission for contagion effects on currency changes is the assumption that crises, and governments reactions to them, lead investors to revise their expectations of officials= resolve in similar ways with respect to countries in broadly similar macroeconomic positions. The authors conclude that the evidence shows that the effect of contagion operating through trade is stronger than that of contagion spreading as a result of macroeconomic similarities.

As in currency crises transmitted through trade linkages without due regard for

macroeconomic fundamentals, a 1998 World Bank publication defines contagion in financial markets as Aco-movement of markets not traceable to a common co-movement of fundamentals@. This indicates that stock markets are becoming much more closely integrated, and their movements are not related to equal movements in economic fundamentals. Tis World Bank publication also reproduced the following Table from Kaminsky and Schmukler (1998), which depicts the increased financial market integration.

Table 2.0 Financial Markets are Becoming more Integrated

Mean Correlations of Monthly Equity Market Returns, 1970s-1990s

	Among countries in the region			Among countries in other regions		
Region	1970s	1980s	1990s	1970s	1980s	1990s
Asia	0.11	0.11	0.41	0.08	0.25	0.41
Europe	0.14	0.33	0.38	0.07	0.24	0.37
G-7	0.15	0.3	0.29	0.11	0.17	0.22
Latin America	0.07	-0.01	0.26	-0.14	0.25	0.32

Source: Global Economic Prospects and the Developing Countries. World Bank 1998.

We can observe from the above Table that in the cases of Latin America and Asia, the mean correlation of monthly equity market returns have increased substantially since 1970, among countries both within and outside the region. In the 1980s Latin America had a correlation coefficient of -0.01 among countries in the region-- an inverse correlationB while in 1990 the coefficient was 0.26, an important increase. The same holds in the case of the correlation coefficient of Latin America countries with

countries out of the region, which increased from 0.25 in the 1980s to 0.32 in the 1990s. In the case of Asia, the correlation coefficient is very high with countries both within and outside the region. The capital markets integration reflected in these indicators-- even for the G-7 countries, out of their domain of influenceB indicates to a certain extent the contagion effects that financial crises can have across markets, due to shifts in expectations.

Gerlach and Smetz(1995) present a model that demonstrates how the forced depreciation of one currency affects the competitiveness of countries whose currencies are still pegged, as well as how this increases speculative pressure and speeds up the collapse. The model also shows that the contagion effects are stronger the lower the degree of real and nominal wage flexibility, the higher the degree of trade integration between the two countries, and the less integrated the two countries with the anchor country. It explains, therefore, why speculative pressure on a currency increases in countries that are closely integrated with a country whose exchange rate parity has been successfully attacked.

2.4. Herd Behavior

Krugman(1997) maintains that exchange rate markets are not efficient (a characteristic assumed by the first and second generation models) and that one of the manifestations of this is Aherding@. This means that a wave of selling a currency, can generate a stampede out of the currency due to sheer imitation, thus opening the road for a currency crises.

In an IMF(1998) publication referring to the movement of capital flows to emerging markets,

some observers argued that the inflow and outflow processes were accelerated by herding among institutional investors. While herding is usually regarded as irrational behavior, Davenow and Welch (1996) suggest that it can be explained if one or more of three effects are present: A(1) payoff externalities such that the payoff to an agent adopting an action is positively related to the number of other agents adopting the same action; (2) principal-agent considerations such that a manager, in order to maintain or gain reputation when markets are imperfectly informed, may prefer either to >hide in the herd= to avoid evaluation or to >ride the herd= in order to improve reputation; or (3) information cascades where later agents, inferring information from the actions of prior agents, optimally decide to ignore their own information@. This paper is part of the literature that regards herding as a rational behavior.

With the integration of the world financial markets, characterized by high capital mobility, speculative attacks on currencies tend to pass contagiously from one country to another. Foreign exchange markets can therefore generate a self-fulfilling expectation that a central bank would not be able to maintain the exchange rate peg in a presence of a successful speculative attack, leading to contagion and herd behavior.

Krugman (1997) argues that although the detailed workings of the so-called second generation currency crises models may be and indeed are different from the first-generation models, the message they convey is the same: a currency crises is essentially the result of policies inconsistent with the long-run maintenance of a fixed exchange rate. While this is a valid argument regarding currency crises when the economic fundamentals are not in place, other lines of reasoning stress the importance of rational

expectations in the creation of currency crises.

We have reviewed some of the extensive economic and financial literature on second generation models of currency crises. In doing so, we have come across some conditions that may prove useful as leading indicators of currency crises. As in the first generation models, fiscal discipline is at the center of the exchange rate stability; however, new elements have been incorporated through the design of models based on different assumptions. These new elements that the economic and financial literature suggest that should be taken into consideration are: the current account, nominal interest rates, trade linkages and trade competition to third markets, real and nominal wage flexibility, short-term debt, the level of employment, herd behavior, and contagion.

Second generation models used a variety of indicators to determine the causes that lead to a currency crises. These are:

- **$** Real Exchange Rate Appreciation
- **$** M2-to-Reserves Expansion
- **$** Terms of Trade Deterioration
- **$** Domestic Credit Expansion
- **$** Wage Flexibility
- **$** Output Growth
- **$** Contagion Effects
- **$** Herd Behaviour

In the next part of this section, we will review some of the empirical studies conducted by various authors to test the robustness of the indicators used in second generation models of currency crises to either warn, confirm, or anticipate a currency crisis.

2.5. Empirical Evidence

Obstfeld (1994) analyzes the case of Sweden in 1992, which had announced a unilateral peg to the European Currency Unit in May1991. By the summer of 1992, Sweden was in a recession: its unemployment rate had jumped sharply from 1982-91 average of 2.4 percent to 5.3 percent overall in the following year. In addition, the government=s budget deficit had surged from an average surplus of 2.5 percent of GDP over the period 1987-91 to a deficit of 7.1 percent of GDP in 1992. Further, not only was a troubled domestic banking system, unable to tolerate high interest rates, straining the public finances, but the Swedish currency had appreciated sharply in real terms since the end of 1990. Under these circumstances, Sweden=s maintenance of the krona=s ECU peg was possible only at the cost of considerable short-term pain. The culmination of the situation was that, after defending the peg from successive speculative attacks in August and September of that year, Sweden finally floated the currency in November 1992.

The findings in this paper are in line with second generation models, as indicators such as slow economic growth, unemployment, budget deficits, high interest rates and currency appreciation were

present in the collapse of the Swedish krona. Regarding the first-generation models, money finance was not present, because the government had other options, through capital markets for financing the deficit. However, when the Swedish government decided to float the krona, the central bank=s strategy was to respond with a sterilizing intervention to impede shrinkage of the money base and, therefore, the rise of interest rates. This is consistent with versions of the Krugman model of balance-of-payments crises analyzed in the first generation of currency crises models, such as the one developed by Flood, Graber and Kramer (1996).

Gerlach and Smets(1994) empirically tested the contagion effects in the 1992-1993 Nordic currency crises and in some other European currencies. This paper provides some empirical evidence of exchange-rate contagion using interest rate data to show that interest rate spreads, which capture expected exchange rate changes, increase when other fixed exchange rates collapse. This is consistent with the second-generation models of currency crises. The conclusion is that the interpretation of the empirical evidence reviewed suggests that successful speculative attacks lead to pressures on other currencies; in other words, that contagion is present. Moreover, this paper shows that contagion effects are stronger the lower the degree of real and nominal wages flexibility, the higher the degree of trade integration between the two countries, and the less integrated the two countries are with the anchor country. This was the case for the Nordic countries, the case for Spain when its devaluation affected Portugal competitiveness, as well as the impact in Ireland when England floated its currency. These findings have important policy implications, specially at the regional level, for impeding contagion effects through different countries when a currency is devalued.

In a 1995 paper, Dornbusch, Goldfajn, and Valdés review four currency collapses that share common features: Chile 1978-82, Mexico 1978-82, Finland 1988-92, and Mexico 1990-94. The following table illustrates some of the common elements.

Table 2.1 Common Factors of Currency Collapses

	Chile	Mexico	Mexico	Finland
Factor	1982	1982	1994	1992
Appreciation	yes	yes	yes	yes
Desinflation	yes	yes	yes	yes
External Deficit	yes	yes	yes	yes
Fiscal Expansion	no	yes	yes	no
High Real Interest Rates	yes	yes	yes	yes
Trade Liberalization	yes	yes	yes	yes
Financial Opening	yes	yes	yes	yes
Domestic Credit Creation	yes	yes	yes	yes
Opening to External Capital	yes	yes	yes	yes

Source: Dornbusch, Goldfajn, and Valdés,(1995).

The aim of the comparison is to draw out common factors that sustain a protracted overvaluation which ultimately lead to collapse. Exchange rate overvaluation had a direct impact on the external deficit and on high real interest rates due to deliberate actions taken by the central bank to defend the exchange rate

system. Only in both Mexican crises was fiscal expansion part of the explanatory variables, which contrasts with the first-generation models. In Chile, Finland and Mexico, protracted overvaluation coupled with high interest rates had a large impact on the banking system, occasioning a widespread banking crisis. Some of the other common factors that are present in this country analysis, such as financial and capital account liberalization, are part of the special features of banking crises which are going to be analyzed later in this paper.

This paper also analyses the 1992 European Monetary System experiences of Italy, Spain, and the UK. It found that all three countries had three features in common before the devaluations of their currencies: high real interest rates, real appreciation, and a slow-down in economic growth.

Finally, all the common factors listed as causes of the currency collapses in the four countries depicted in the above table, and in the cases of Italy, Spain and the UK, are all present in the literature on second-generation models of currency crises.

Using thirty years of panel data from twenty industrialized countries, Eichengreen, Rose, and Wyplasz(1996), found evidence of contagion. They also found that contagion spread more easily to countries that are closely tied by international trade linkages than to countries in similar macroeconomic circumstances. The suggestion, therefore, is that trade rather than revisions of expectations based on macroeconomic factors, had been the dominant channel of transmission for contagious currency crises for the bulk of the sample period.

Since the Mexican currency crisis of December 1994, the economic literature has been further enriched by empirical works that aim to identify the causes of the new financial crises that have been occurring in emerging economies over the last few years. Sachs, Tornell and Velasco (1995) explore the question of why, some emerging markets were hit by financial crises during 1995 while others were not. The authors also asked whether there is a set of fundamentals that can help explain the variation in financial crises across countries, or whether the variation reflects contagion. They then developed a model identifying three factors that determine whether a country is more vulnerable to a financial crisis: a high real exchange rate appreciation, a weak banking system, and low reserves. They found that differences in these fundamentals go far in explaining why, for a set of twenty emerging markets, some were hit by financial crises in 1995 while others not.

Finally, when fundamentals such as an exchange rate overvaluation and a weak banking system, together with low foreign exchange reserves, are present, markets become vulnerable to self-fulfilling speculative attacks. The exact timing of the attack is not predictable--only the vulnerability of the currency to an eventual attack due to poor fundamentals. To test the hypothesis, the authors constructed a crisis index, and they found that for their set of twenty emerging markets, a high ratio M2/Reserves, a high real exchange appreciation, and a high increase in lending by the banking system to the private sector as percentage of GDP, increases on average the crisis index.(The M2 is a broad liquidity measure that includes currency in circulation, demand, savings and term deposits both in domestic and in foreign currency, and the relation to international reserves, determine how much foreign currency is available to cover a run in deposits in the banking system or a shift in the domestic money demand).

The authors empirically tested the three fundamentals to determine the circumstances in which multiple equilibria and self-fulfilling currency attacks can occur, and they found that speculative attacks occurred only in countries with weak fundamentals and low foreign exchange reserves relative to broad money.

The main conclusion, therefore, is that poor fundamentals, coupled with low reserves relative to the central bank short-term commitments, rendered economies vulnerable to speculative attacks on its currencies. In the absence of these fundamental weaknesses, speculation and contagion were at worst short lived.

A similar study conducted by the IMF(1998), using a panel data set of fifty countries for the period 1975-97, found that some indicators correctly signaled crises a number of times and did not sound frequent false alarms. These variables were the real exchange rate, credit growth, and the M2-to-reserve ratio. These are basically the same variables used by Sachs et al, and the same set of conclusions. Moreover, the IMF found that overvaluation of the exchange rate was one of the earliest and more persistent signals of vulnerability. As we can see from the next table, currency appreciation signals a currency crisis thirteen months before the crisis erupted.

Table 2.2. Significance of Early Warning Indicators of Vulnerability to Currency Crises

Indicator	Country Group	13 Months	8 Months	3 Months
Real Exchange Rate Appreciation	Emerging Markets	x	x	x
Domestic Credit Expansion	Emerging Markets		x	x
M2-to-Reserves Expansion	Emerging Markets	x	x	x
Terms of Trade Deterioration	Emerging Markets		x	
World Real interest Rate increase	merging Markets			x

Source: IMF. World Economic Outlook, May 1998.

The other leading indicator that sent an early warning signal with thirteen months of anticipation was the broad money indicator (M2) to international reserves. The reason behind this is that countries implementing domestic policies that are inconsistence with the exchange rate system suffer from a gradual depletion of international reserves. Moreover, due to deliberate sterilization policies pursued by the central bank to prevent the shrinking of the money base, the indicator increases its value, which means that the level of international reserves are not enough to cover the liquidity of the economy in a case of a speculative attack, which increases the risk of a widespread crisis.

Kaminsky, Lizondo and Reinhart(1997) analyzed the economic and financial indicators used in twenty-five empirical studies on currency crises. They identified 103 indicators grouped into six broad categories: (1) the external sector; (2) the financial sector; (3) the real or productive sector; (4) the public finances; (5) institutional and structural variables; and (6) political variables.

The authors propose an early warning system composed by a set of indicators that can best alert policymakers of an eventual currency crisis. The system involves monitoring the evolution of several indicators that tend to exhibit unusual behavior in the periods preceding the crisis. An indicator exceeding a certain threshold value should be interpreted as a warning signal that a currency crisis may take place within the following twenty-four months. Taking this approach, the variables with the best track record include: exports, deviations of the real exchange rate from trends, the ratio of broad money to gross international reserves, output, equity prices. The evidence in the study, does not support some of the other indicators, including imports, bank deposits, the difference between foreign and domestic real deposit interest rates, and the ratio of lending to deposit interest rates. Having defined the signal horizon as twenty-four months, the authors defined a signal that is followed by a crisis within twenty-four months a Agood@ signal, whereas a signal not followed by a crisis within that period of time is defined as a Afalse@ signal or Anoise@.

The paper ranked the indicators depending on their ability to predict crises; however, these criteria do not say anything regarding the lead time of the signal. The latter are important to policymakers who want to implement pre-emptive measures in order to avoid a currency crisis. To examine this issue the authors considered the average number of months in advance of the crisis when the first signal occurred. The next table presents the results.

Table 2.4. Average Lead Time

Indicator	Number of months in Advance of the Crisis When First Signal Occurs
Real Exchange Rate	17
Real interest rate	17
Imports	16
M2 multiplier	16
Output	16
Bank deposits	15
AExcess@ M1 Balances	15
Exports	15
Terms of Trade	15
International reserves	15
Stock prices	14
Real interest differential	14
M2/international reserves	13
Lending rate/deposit rate	13
Domestic credit/GDP	12

Source: Kaminsky, G., Lizondo, S., Reinhart,C.(1997)

The authors conclude that, on average, all the indicators send the first signal anywhere between a year and year-and-a-half before the crisis erupts, with the real exchange rate, the top indicator used in this paper, offering the longest time. Therefore, all the indicators are leading indicators that can alert policymakers and the like that a currency crisis may happen within a short period of time, if fundamentals are not put in their place again.

In an empirical study, Esquivel and Larrain (1998) used a panel data set with annual information for thirty countries during the period 1975-1996, to explore the causes of currency crises. They found that high rates of seigniorage, current account deficits, real exchange rate misalignments, low foreign exchange reserves relative to a broad measure of money, negative terms of trade shocks, negative per capita income growth and contagion effect, all help to explain the presence of currency crises in their sample. The model presented by the authors was able to predict the majority of the currency crises analyzed, suggesting that it is possible to develop a warning system that can anticipate crises based on economic fundamentals.

In this section we have examined part of the literature on currency crises. We began by analyzing the so-called first-generation models, pioneered by Paul Krugman=s 1979 paper on balance-of-payments crises, inspired by previous work done by Salant and Henderson(1978) utilizing the same logic to describe speculative attacks on exhaustible resources utilized to stabilize its price. The message conveyed by the first-generation models is that fiscal discipline is a requisite for stable exchange rates. The printing of money by the central bank to finance fiscal deficits, with a fixed or targeted exchange rate system in place, results in the depletion of the central bank=s international reserves. Domestic credit growth in excess of money demand growth, occasions a gradual loss in reserves, which are attack by speculators just before they are exhausted. There is ample evidence from single country analyses support the main arguments of the first-generation models.

The second generation models tend to complement first-generation models, but they include i new

variables that can trigger a currency crises. Furthermore, these models are based on cross-country analyses, constructing an ample panel data set that includes developed and emerging countries from different regions, to test for expectations that ultimately lead to contagion and herd behavior.

These models add considerably to our understanding of currency crises. There may be instances when countries fall into factors associated to first-generation models, such as fiscal indiscipline, and others when the causes are determined by factors related to second-generation models such as expectations, self-fulfilling crises with multiple equilibria. In this, the self-fulfilling element has two components, one that is related to fundamentals and another that is related to trade and financial linkages. This means that while a country may have its fundamentals in place, it may still suffer a speculative attack, due to strong trade or financial linkages with the country whose currency has been under attack, or through macroeconomic similarities: here is where contagion and herd behavior are important components of second- generation models of currency crises.

Finally, due to globalization and the integration of the world markets through trade and finance, it is important to develop a sound international environment with stable currencies. The economic and financial literature will continue to elaborate on this important issue, while governments, international institutions, and regulators have the immense task of developing a financial architecture to ensure stability in the currency markets. We will now turn our attention to the topic of banking crises.

III. Banking Crises

Introduction

Why are banks so important for the efficient functioning of the economy? What tasks do banks perform that make them essential for financial intermediation? How do capital market imperfections affect banks' decision processes? These questions will be answered in the first part of this section, using for this purpose, financial definitions regarding bank operations, and theoretical constructions that are relevant for the elaboration of precise responses.

Banks as issuers of monetary liabilities and providers of clearing services for non-cash payments play a crucial role in the economy. The efficiency in banks operations are at the center of a well- structured payment mechanism. In a globalized economy in which important amount of resources are mobilized between countries, the payment mechanism plays a critical role.

As in Diamond and Dybig(1983) banks' economic role is to transform illiquid assets into liquid liabilities. In doing so, banks offer liabilities with a different pattern over time than illiquid assets. The authors stress the point that the illiquidity of assets provides the rational both for the existence of banks and their vulnerability to runs. Confidence in the operation of a particular bank in the banking system at large, is a crucial element for its functioning.

The banking system has an extremely important function in the economy because it enables the mobilization of funds from surplus-savings to deficit-saving economic units to finance productive investments. In doing so efficiently, banks contribute to economic growth. In performing the intermediation task, banks provide instruments that allow for diversification and hedging of various risks,

thereby permitting economic agents to concentrate on productive activities and the efficient utilization of financial resources.

The modern view of the financial theory emphasizes that capital markets are imperfect, due in particular to limited information and information asymmetries. Banks as providers of a variety of financial services generally develop a long-lasting relationship with their client base, accumulating a wealth of information, or information capital. This data however, is not available to the banks= supervisors and depositors, thus generating information asymmetries. Due to this peculiarity, banks have better knowledge about the situation of their loan portfolio than regulators and depositors. Banks are therefore, in the business of information management to reduce their overall risk exposure. This explains why, when deposit demand increases, or a banking system is exposed to capital inflows, the credit boom that generates these events leads to information problems and, ultimately to a banking crisis. Accordingly, asymmetric information leads to two basic problems in the banking system: adverse selection and moral hazard.

In a credit boom episode, banks allocate resources to sectors of the economy in which they do not have expertise; thus, no accurate information. This situation may lead banks to select clients that do not fit their risk profile, originating an adverse-selection problem. Moreover, due to the lack of information on a specific sector of the economy, banks are exposed to the hazard that the new clients will use their funds in morally questionable uses (from the view of the banker). For these reasons, an explosive credit growth, much greater than nominal production growth, more often than not, leads to a banking crisis.

Furthermore, external shocks, such as a dramatic deterioration in the terms of trade, or an

increase in interest rates, have important implications for the banking system, severely damaging the information capital that has been accumulated, and magnifying the adverse-selection problem as well as the moral-hazard incentives. These events could induce banks to stop lending, occasioning a credit crunch and thereby contributing to the deterioration of economic conditions. Therefore, information management, due to imperfections in capital markets, is crucial for the structure of the risk profile of the banking system and, ultimately for the health of the economy.

As mentioned earlier, a sound banking system is a requisite for the strength of an economy. An unsound banking system affects macroeconomic formulation across sectors. As the financial system is the primary conduit for the transmission of monetary-policy signals, disruption of the system will affect these relationships. The fiscal situation can also be affected in a crisis situation: tax revenues will be reduced; profit transfers from the central bank to the government are reduced due to the cost of sterilizing any central bank liquidity-support to the banking system; there are also the direct fiscal costs to bailing out the system. All these further erode the government=s fiscal position. In an open economy with high capital mobility, an unsound banking system has repercussions for the stability of the exchange rate and the balance-of-payments. Financial liberalization, which eliminates interest rate controls and government credit allocation, has implications on the value of banks= franchises due to the decline in financial margins, increasing the risks of adverse selection problems and moral hazard incentives, specially in fragile financial systems with weak supervisory and regulatory institutions. Capital account liberalization is another element that has introduced additional risks in the functioning of financial systems. Finally, private-to-private capital flows that are intermediated by fragile domestic financial systems have had strong incidence in recent bank failures.

Banking crises occur when a financial system becomes illiquid or insolvent. This type of crisis refers to bank runs, closures, mergers, takeovers, or large-scale assistant by the government to a group of banks or to the banking system, should the crisis turn out to be systemic. In Section II, our analysis centered on currency crises, its causes and consequences; in this Section we aim to determine the factors that provoke banking crises, and the Atwin crises@ of a currency and banking crisis. As in the previous section, we will identify indicators used in different analysis, and incorporate others which we deem necessary in order to develop a list of leading indicators that can be used to determine conditions that might be conducive to a crisis, so as to alert policymakers and allow them to implement policies that can prevent such a crisis from occurring in the first place.

Some of the elements that we will focus on are common to banking crises throughout history; these include illiquidity, insolvency, self-fulfilling expectations, contagion among institutions, and herd behavior in bank runs. Certain other factors are intrinsically related to the globalization and integration of financial markets, such as the new wave of private-to-private flows in the 1990s. Othar aspects relevant in the analysis of banking crises are part of an economic strategy being implemented around the world, by developed as well as developing countries, as part of market-oriented structural reforms, as is the case with financial and capital account liberalization.

The costs of resolving banking crises are also part of this section. It is important to lay out the enormous costs of systemic banking crises in terms of fiscal and quasi-fiscal costs, lost of output and time to recover from a crisis to normality.

We will close this section listing a group of leading indicators of banking crises as part of some further analysis that will be conducted in Section V among a group of 10 countries that, during the

1990s, have experienced a banking crises, a currency crises or both.

3.1. Factors that are part of a Banking Crisis

Some of the factors that have been identified as influencing bank unsoundness are the rate of change in prices after an inflationary period, the bursting of an asset-price bubble, currency depreciations, and capital outflows. Lindgen, Garcia, and Saal (1996) found that in weak banking systems, external shocks that affect terms of trade influence banks' viability. In this study, some of the indicators used by the authors to determine bank unsoundness and its implications are: the money multiplier, claims on the private sector to GDP, interest rates, impact on the real sector, fiscal implications, and exchange rate valuation.

In a study conducted by Goldstein and Turner (1996), the authors identify eight factors as main culprits of banking crises: (1) macroeconomic volatility; (2) lending booms, asset price collapses, and surges in capital inflows; (3) increasing book liabilities, and currency mismatches;
(4) inadequate preparation for financial liberalization; (5) heavy government involvement and loose control on connected lending; (6) weakness in the accounting disclosure and legal framework; (7) distorted incentives to risk taking; (8) exchange rate regimes. While some of these factors are macroeconomic, others are microeconomic and structural and fall under the domain of bank supervision and regulation.

Following the same line of research, Caprio and Klingebiel (1996) conducted an empirical study to identify common macro and microeconomic characteristics that are present before a banking crises unfolds, using a sample of sixty-nine countries. These common elements are: (1) terms of trade and

trade concentration; (2) exchange rate overvaluation; (3) financial liberalization; (4) poor and weak regulatory and supervisory framework; (5) boom-and-bust asset prices; (6) moral hazard incentives; (7) poor internal controls, low quality management, and accounting systems; (8) connected lending, fraud and the Aevergreening@ of bad loans (i.e., capitalization of interest arrears); (9) government interference. In this study, some new elements are incorporated in the analyses, terms of trade and trade concentration as factors that have incidence in banking crises.

Gavin and Hausmann (1996) found very strong empirical evidence between banking crises and credit or lending booms. Lending booms can be produced either by growth in bank deposits demand in the midst of a stabilization program, or by a sudden increase in capital inflows stimulated by liberalization of the capital account. In the 1990s, private-to private capital flows entered economies that had only recently liberalized their financial systems. As part of these liberalization policies, the deregulation of financial systems had freed interest rates, implemented the universal bank principle in substitution of the restricted banking concept, and lowered reserve requirements. This new environment had in turn provoked fierce competition among deregulated financial institutions, stimulated by the exploration of new activities from which they had been previously restricted, thus assuming new risks. Financial and capital account liberalization also gave banks an incentive to open offshore operation, in order to tap foreign exchange markets directly for in-lending. However, with weak bank supervision, banks often engaged in off-balance sheet operations, and more often than not, this ended up in fraud and connected lending. In this scenario, banks have difficulty in administering information; thus, credit booms and banking crises are interrelated. The authors used a set of indicators to identify macroeconomic shocks as causes of banking crises. Terms of trade, asset-price shocks, decline in national income, high interest

rates; shocks to bank funding(capital outflow), rate of growth of deposits versus nominal interest rates (bank transfers), and high domestic interest rates and low credit growth (real sector transfer) are among the indicators selected and used to explain the behavior of the banking system in the new unregulated environment.

For the conduct of monetary policy, the fragility of the banking system is a constraint for the efficient application of monetary policies. For example, when government has to implement an exchange rate system, it has to assess the sustainability of such a system when a banking system is fragile. When an economy has a weak banking system, even a small external shock to the economy may cause banks to fail. Let us suppose that a small open economy, with high capital mobility and a fixed exchange rate system that depends on a few primary products for exports, suffers a decline in international commodity and natural resource prices. This external shock affects that country=s terms of trade with countries that have a different export structure. The consequent decrease in foreign revenues will cause a deficit in the trade balance and, ultimately, in the current account. This lower level of international reserves shrinks the money base, pushing interest rates up. If the shock is aggravated by changing investor sentiments, capital starts flying out of the country, further aggravating the situation. The government has two options: either to induce a recession, bringing absorption down; or to let the exchange rate float. Theoretically these are the two options, but if the country has a weak banking system, the former option will induce a banking crisis; the other option**B**a currency float-will increase inflation, thus lowering the real value of the loan portfolio, giving relief to borrowers and lowering the real value of deposits, allowing the banks to adjust their balance sheets.

This scenario exemplifies why, when governments are faced with the dilemma of defending

either the exchange rate system or the banking system, they will always choose the latter option. This is not a new fact in monetary history; we can see cases of it even at the end of the last century, when the stringent rules of the gold standard formed part of the international monetary system. When a banking crises erupted, a country was confronted with the dilemma of to defend the gold standard or the banking system, and the latter alternative was always the choice (Eichengreen 1998).

The relationship between the banking system, the exchange rate regime, and monetary policy is analyzed in Chang, and Velasco (1998), who provide a detailed and formal account of possible interactions between bank fragility, the exchange rate regime (fixed, floating, or currency board), and central bank credit policy. The argument is that weak financial systems may need money-financed bailouts from the central bank; bank runs shift domestic money demand toward foreign assets, provoking continuous depletion of international reserves and the collapse of a fixed exchange rate system. There is, therefore, the possibility of a twin crises occurring, in which a currency and banking crises happen simultaneously, depending on the health of the banking system and the exchange rate arrangement.

Under the Krugman (1979) model of balance-of-payments crises, the money financing of a fiscal deficit that precipitates a currency crises can be aggravated if the central bank increases domestic credit to bail out the banking system, thus accelerating the rate of depletion of international reserves and provoking a speculative attack before reserves reach a critical level. This aspect, mentioned in Calvo (1995), is important to take into consideration, because denotes the interrelationship that exists in specific environments among banking crises, currency crises, and balance-of-payments crises.

Thus, the empirical studies conducted to determine the factors which have incidence on the development of a banking crisis, have incorporated a new element as a prerequisite for exchange rate stability beyond those mentioned in the currency crises researches: a strong banking system.

3.2. Financial Liberalization

Since the Latin American debt crises in the 1980s, and as a component of the structural reform programs supported by the IMF and the World Bank, financial liberalization was among the policy actions that had to be implemented as part of a comprehensive set of market-oriented reforms. With the exception of few countries, most of the developing countries implemented programs oriented toward the liberalization of their financial systems in the late 1980s and early 1990s. During the 1990s, some developed countries, and transition economies(i.e., former central-planned) have also liberalized their financial systems. Financial liberalization consists of lifting controls on interest rates and credit allocation, privatizing financial institutions, allowing entry and competition from new private institutions, lowering reserve requirements and relying on open-market operations for the conduct of monetary policy. It also means changing the scope of banking operations from a restricted banking concept and incorporating a wider universal concept for banking activities.

Demirguc-Kunt, and Detrogiache (1998) study the empirical relationship between banking crises and financial liberalization for the period 1980-95 using a panel of data for 53 countries. They found evidence that banking crises are more likely to occur in countries with a liberalized financial sector. One of the arguments is that financial liberalization may lead to a banking crisis because interest rate

competition and the reduction of entry barriers reduce bank franchise values, encouraging risk-taking behavior, which exacerbates adverse selection problems and moral hazard incentives. The data also support the conjecture that weak institutional environment makes liberalization more likely to lead to a banking crisis. As elements of a weak environment, the authors identify a weak rule of law, corruption, inefficient bureaucracy, and ineffective contract enforcement mechanisms.

In the same vein of analysis, a World Bank(1998/9) publication, mention several mechanisms that link financial liberalization to crises. One of them, which has been identified in other studies, is the increase competition among financial institutions that lower banks profitability and franchise values. Another aspect identified in the publication is that following liberalization, one can observed high real interest rates that reflect the higher risk of intermediation, attracting riskier investors(adverse selection) and increasing the overall portfolio risk of banks.

As we can see from the evidence, financial liberalization is a risky business, and if it is not supported by strong supervision and institutions, it can lead to a banking crisis. In this sense, it is agreed by international organizations and academica, that supervisory capacity has to be developed rapidly to cope with the new environment. Governments have to give priority to the necessary legal reforms to build new institutions and mechanisms to deal with a newly liberalized industry. In this sense, the strengthened of the institutional capacity to regulate and control the banking system, should precede financial liberalization.

In this direction Sundararayan, and Baliño (1991) mention that increased freedom through financial liberalization to entry to the banking system and bidding for funds can lead to excessive risk taking, if such freedom it is not moderated with adequate supervision and regulation. The authors

recommend that sound financial policies, vigilant supervision of banks, and well-designed prudential regulations are requisites to limiting financial crises and helping to reduce the vulnerability of financial system to the caprices of the macro environment.

3.3. Capital Account Liberalization and Capital Flows

Together with financial liberalization, capital account liberalization was part of the economic policies implemented by both developed and developing countries in the late 1980s and early 1990s.
In this new wave of capital flows their composition and their beneficiaries have changed specially with regard to the 1980s. Nowadays, capital flows are private-to-private, and the main beneficiary is the private sector of the recipient country; in former times, capital flows were either private-to-governments or official lending to finance public projects. The composition of the flows has also changed. In the 1980s, the norm was syndicated loans, or direct lending from banks to governments. During the 1990s the compositions of the flows were structured to finance Foreign Direct Investment(FDI), portfolio investment in bonds and stocks, and interbank lending and trade finance.

Net private capital flows to developing countries rose from $31.0 billion in 1990 to $240.8 billion in 1996. In 1990, net private capital flows represented 58.3 percent of total net flows, while official creditors represented the remaining 41.7 percent. By 1995 things had changed dramatically, and net private capital increases to 84.7 percent of the total. In the next year,1996, before the Asian crises unfolded, the percentage private participation in total flows was 100 percent. During the period of 1990-96, $1.04 trillion of international resources were allocated in emerging market countries. FDI had

a 42.6 percent participation, portfolio investment represented 36.5 percent, while 20.9 percent was in direct bank flows. FDI has been more stable and resilient to crises, due to its long term characteristic, but short-term capital flows, portfolio investment and direct bank lending have proved to be very volatile. Interbank lending, and direct international finance to domestic intermediaries other than banks, increased in 1995 relative to 1994 by $84.2 billion. In 1996 the increment was $76.2 billion relative to 1995, but due to the economic situation in Asia, a reversal in capital flows took hold, and capital outflows in 1997 in comparison with 1996 was on the order of $83.5 billion, an enormous reversal that exemplified the volatility of short-term capital flows. Portfolio investment reached its peak high in 1993 at the $103.5 billion figure; after the Mexican crises in 1994, that amount shrank to 23.5 billion, a capital outflow of $80 billion in one year.

Sachs, Tornell, and Velasco (1995) argue that it is the composition of capital inflows that matters. Portfolio investment in equities, short maturing bonds, and deposits in local banks can easily turn around, while longer term flows such as long maturity bonds and specially FDI, cannot. Moreover, the authors argue that FDI is beneficial to the recipient country because they increase the productive capacity of the country by means of productive investment. Short-term capital flows on the other hand, are in essence speculative, looking for financial investment opportunities in emerging economies.This type of capital has also been dubbed Acasino capital@, a gambling around the world for easy returns, which can be damaging to the health of many economies as it passes through as a hurricane. This is why-- even in the international organizations- that many regulators, academicians, policymakers and the like, are recommending some sort of capital control to halt the volatility and eliminate altogether Acasino

flows@.

Table 3.0 Private Capital Flows to Emerging Markets

(In billions of US dollars)

	1990	1991	1992	1993	1994	1995	1996	1997
Total Net Capital Inflows 1	31	126.9	120.9	164.7	160.5	192	240.8	173.7
Net FDI	17.6	31.3	37.2	60.6	84.3	96	114.9	138.2
Net portfolio Investment	17.1	37.3	59.9	103.5	87.8	23.5	49.7	42.9
Other2	-3.7	58.4	23.8	0.7	-11.7	72.5	76.2	-7.3

Source: IMF, International Capital Markets, September 1998.

1 Net foreign direct investment plus net portfolio investment plus net other investment

2 Interbank lending, trade finance, other to nonbank financial intermediaries.

From Table 3.0, we can see that FDI in 1997, in the midst of the Asian crisis, not only remained stable but increased; that portfolio investment suffered a little reduction, and that Aother@ was the item that registers the bulk of resources that Aflew to safety@. However, according to the IMF that=s not the entire picture, because it does not take into consideration the unrecorded capital out-flows. An analysis of the balance of payments of emerging economies has determined that, in 1997 alone, capital flight or unrecorded capital movements were on the order of $63.6 billion (see table below).

Table 3.1 Private capital flows and Capital flight from Emerging Markets

(in billions of US dollar)

	1990	1991	1992	1993	1994	1995	1996	1997
Total Net Private Capital inflows	31	126.9	120.9	164.7	160.5	192	240.8	173.7
Capital Flight1	3.9	-9.2	-7.9	-7.9	-14.9	-14.4	-31.9	-63.6

Source: IMF,International Capital Markets, September 1998.

1 Balance of Payment under the title of AErrors and Omissions@, encompass a variety of items, including over and under invoicing of trade flows, omissions of payments and receipts for services, and capital flows that go unreported.

Table 3.1 shows the consolidated figure for capital outflows during the period 1990-97. In the aftermath of the Mexican crisis in 1995, net private capital inflows to the emerging markets increased rather than decreased, while capital flight registered the figure of $14.4 billion. This can be explained in the sense that capital flows were redirected to other emerging market countries without disrupting the emerging economies across the globe after the Asian crises, however, in 1997, net private capital flows suffered a reversal of $67.1 billion(see table 3.0), and in that same year, capital flight reached $63.6 billion as can be obeserved from table 3.1.. Therefore in 1997 emerging markets capital outflows registered the staggering figure of $130.7 billion. In the Asian crises, capital flows flew to safety to secure havens such as the US dollar or the German mark abandoning the emerging markets altogether. Now we can understand why in most of the affected countries, the exchange rate systems collapsed, the real sector was disrupted, and the banking systems underwent a profound restructuring.

Calvo, Leiderman, and Reinhart (1996) suggest that a surge in capital inflows is likely to be accompanied by a rise in consumption and investment (absorption), an increase in real money balances and foreign exchange reserves (fixed exchange rate), a real exchange rate appreciation and a widening in the [private] current account deficit. If the inflows are intermediated by a fragile and weakly regulated banking system, and credit is oriented to the nontradable sector setting off asset price inflation, there is a possibility of a banking crisis if a capital reversal takes place.

Making a comparative analysis between the Thailand (1997) and the Mexico crises (1994), the IMF (1997) concluded that the Thailand episode was a case of overinvestment, while Mexico was a case of overconsumption. Both have different economic and financial connotations and implication as we shall examine in the next paragraph.

The gap between private savings and investment led these two countries to depend on foreign savings to finance their current account deficits. While capital inflows financed investments (in most cases speculative) in Thailand, in Mexico private credit flows financed consumption. In both countries a credit boom was originated by the massive enter of foreign capital. It is interesting to observe that private domestic savings in Thailand remain constant during the capital inflow period, whereas in Mexico private domestic saving, which had been close to 20 percent of GDP in 1988, fell to 13 percent of GDP in 1990, and then continued to decline to about 11 percent of GDP in 1994. This led to an increase in the current account deficit from 1 percent of GDP to 7 percent in 1994--year of the crisis-- financed mostly by private capital inflows. We can draw some conclusions out of this comparative analyses, which will need further investigation in the future. Capital inflows oriented to finance consumption affect the level of savings, thus widening the current account deficit; while capital inflows that financed investment do not affect the level of private savings, but do have an important impact on the prices of financial assets and real estate, and on the current account.

Edwards (1998) analyses the capital inflows to Latin America and its economic effects, and arrives to the same conclusions already mentioned in previous works, the causes behind currency and banking crises are: exchange rate appreciation, high current account deficit, a major asset bubble, and saving either remains flat or decreases at levels unsustainable with rapid economic growth.

Chang, and Velasco (1998) place international illiquidity at the center of the latest financial crises. They argue that capital flows, stimulated by the opening of the capital account, can magnify the illiquidity problem when a capital-flow reversal is produced. In this situation, what would happen to the banking system if foreign creditors refuse to roll-over existing debt, and what will happen to the short-

term debt that the government has to honor. Without reasonable doubt these two factors affect financial fragility, and can provoke a twin crises: a currency and banking crises. One of the conclusions that the authors arrive at is that more than the absolute size it is the short maturity of capital inflows, as in the case of Asia, that can contribute to bank fragility. In a case of illiquidity, the central bank is faced with the dilemma as to whether to defend the currency peg or to bail out the banking system with insufficient reserves. As we mentioned earlier, the authorities will always decide for the latter alternative, but the capital reversal can be so enormous that a twin crises emerge.

In a newly liberalized environment, these immense financial resources have to be intermediated in by both banking systems and nonbank financial institutions. Domestic banks have access to international interbank lending for in-lending operations, and to eliminate the foreign exchange risk they lend to domestic borrowers in foreign currency. However, domestic firms lack the mechanisms to hedge against expected devaluation. Thus, banks transform a foreign exchange risk into a credit risk. When those funds are not naturally hedged, as is the case for exports, and are channelled to finance real estate and construction projects, a reversal in capital flows can have dramatic consequences for the banking and real sectors.

In an empirical study conducted by Kaminsky, and Reinhart (1996), the authors analyze the causes of banking and balance of payments problems, using a data set of 25 banking crises. They found that, in about half of the cases, banking crises preceded currency crises. The authors recognize that the issue of cause-effect remains obscure, but they contend that knowing a banking crisis would help to predict a currency crisis. For the currency and banking crises the authors analyzed separately nine macroeconomic and financial indicators for both types of crises. For the former the selected indicators

are, the real exchange rates, the values of exports and imports (in US dollars), the terms of trade (defined as the unit value of exports over the unit value of imports), an index of production, M1, foreign exchange reserves (in US dollars), the ratio of M2 (converted into dollars) to foreign exchange reserves, and domestic interest rate differentials. For the banking crises, the indicators selected are, terms of trade, an index of production, the real exchange rate, foreign exchange reserves of the central bank, stock price index, banking credit to the private sector, the money multiplier, M2 over the monetary base, real interest rates on deposits and deposits at the commercial banks. As we can observe, the macroeconomic indicators selected to analyze a currency or a banking crises are the same; the difference comes from the financial indicators.

One of the findings is in line with previous work done by other authors in the sense that banking crises were preceded by financial liberalization, which also plays a significant role in explaining the probability of a banking crises. In 18 of the 25 banking crises studied, the financial sector had been liberalized within the preceding five years. The authors suggests that the twin crises may have their common origins in the deregulation of the financial system that generates credit booms and asset bubbles. Furthermore, recessionary conditions characterize the periods preceding both banking an currency crises. As we have seen in previous studies, currency crises are preceded by a decline in international reserves, and if the central bank sterilize the decline in reserves, the domestic component of the monetary base increases as the deposits of the banking system are not backed by international reserves. In the case of banking crises, credit expansion, as in other empirical studies, predate many of the banking crises analyzed. Finally, external shocks such as terms of trade declines or interest rates increases have incidence in the gestation of both crises.

3.4. Costs of Twin Crises

In Section II we analyzed the literature and empirical evidence of the causes that determine currency crises. In this section, we are focusing on some of the domestic and international aspects that have incidence in generating a banking crisis. During the 1990s, in most cases these two types of crisis erupted at the same time. And the expectational factors that cause currency crises to spillover between countries and different regions are also present in banking crises. Contagion effects due to investors sentiment changes, and herd behavior have been observed in the latest crisis. Financial liberalization, and capital account liberalization have played an important role provoking both currency and banking crises. Moreover, capital flows within countries with fragile banking systems and weak supervisory and regulatory institutions cause serious distortions in relative prices, that in the moment of a reversal in the flows, can produce a severe disruption in the exchange rate system and in the payment=s mechanism. Financial crises can be and are very costly. The fiscal and quasi-fiscal costs to restructure a banking system can be substantial, and the loss of real output in comparison with a trend can also be high, and it takes many years after the crisis has erupted to recover and return to the growth path.

The next table depicts a number of crises in different countries, and the cost of restructuring their financial systems in terms of GDP.

Table 3.2. Selected Crises: Cost of Restructuring Financial Sectors

Country	years	Fiscal and Quasi-Fiscal Costs1
Argentina	1980-82	13-55
Brazil	1994-1996	36436
Chile	1981-85	19-41
Colombia	1982-87	36315
Finland	1991-1993	36440
Indonesia	1994	2
Japan	1990s	3
Malaysia	1985-88	5
Mexico	1994-1995	36508
Norway	1988-1992	4
Philippines	1981-1987	36252
Spain	1977-85	15-17
Sri Lanka	1989-93	35
Sweden	1991-93	36283

Thailand	1983-87	1
Turkey	1982-85	3
USA	1984-91	36345
Uruguay	1981-84	31
Venezuela	1994-1995	17

Source: IMF, World Economic Outlook, May 1998.

1 Where a range is shown, the lower estimate includes only costs of funds, credit, and bonds injected directly into the banking system, while the higher estimate include other fiscal costs, such as exchange rate subsidies.

From Table 3.2 we can observe that the fiscal costs (which means direct budgetary allocations to the banking system), can be as high as in 1981-1984 as was the case of Uruguay with 31 percent of GDP. In Argentina in 1980-82, the quasi-fiscal costs of the crisis (interest rates and exchange rate subsidies) reached the astonishing figure of 55 percent of GDP; in other words, it is like saying that the country had to allocate more than half of the revenues obtained in one particular production year in order to bail-out the banking system.

In addition to the fiscal and quasi-fiscal costs, currency and banking crises may also lead to loss in output. In a study conducted by the IMF (May 1998) for a group of more than 50 countries for the period 1975-97, GDP growth after the crisis was compared with trend GDP growth. The latter represents the potential GDP growth in absence of a crisis.

Table 3.3. Costs of Crises in Lost Output Relative to Trend. (1975-1997)

	Number of Crises	Average Recovery Time(in years)	Cumulative Loss of Output per Crisis2 (in percentage points)
Currency Crises	158	1.6	4.3
Industrial	42	1.9	3.1
Emerging Market	116	1.5	4.8
Banking Crises	54	3.1	11.6

Industrial	12	4.1	10.2
Emerging Market	42	2.8	12.1
Twin Crises	32	3.2	14.4
Industrial	6	5.8	17.6
Emerging Market	26	2.6	13.6

Source: IMF, World Economic Outlook, May 1998.

1 Average amount of time until GDP growth returned to trend

2 Calculated by summing the differences between trend growth and output growth after the crisis began until the time when annual output growth returned to its trend and by averaging over all crises that had output losses.

Not surprisingly, twin crises where more prolonged and more costly in terms of output loss and average recovery time. Emerging markets have registered more twin crises than the industrialized countries, and they are clustered around the 1980s debt crises and the financial and capital account liberalization that took place during the 1990s, at the same time, we can observe from
the same table, that for industrial countries that have experienced twin crises, the average recovery time was double that for the emerging markets, and the loss in output was almost 30 percent higher. These facts are probably related to financial deepening differences between developed and developing countries. Thus, a banking and currency crises can be more disruptive for the former countries.

This part of Section III has shown the immense costs that financial crises have in terms of out-of-pocket costs, subsidies, and output loss. This reality merits the effort to elaborate either econometric

models or early warning mechanisms as leading indicators, which can alert, if not predict, that either a currency or a banking crises is gestating.

3.5. Indicators of Banking Crises

It is important to mention that early warning indicators are unlikely to predict the exact timing of a crisis; this is a fact for both currency and banking crises. But we have to recognize from a practical point of view that well selected leading indicators, can provide timely and better information about impending problems so that policymakers can implement preventive actions.

In the case of banking crises, we can divide the indicators into three groups: the first group of indicators are essentially macroeconomics; the second group incorporates the reality of international financial integration; and the third group incorporates a set of indicators that are basically extracted from the financial and accounting information provided by banks.

3.5.1. Macroeconomic Indicators of Banking Crises

- **$** Real Exchange Appreciation
- **$** Current and Capital Account Deficit or Surplus

- $ Balance of Payments Errors and Omissions
- $ M2- to-International Reserves Ratio
- $ M2 multiplier
- $ Terms of Trade
- $ Credit Growth to the Private Sector
- $ Credit to the Private Sector to GDP
- $ Ratio in Loan Growth to Private Sector to Nominal GDP Growth

3.5.2. International Financial Integration

- $ M2-to-M1. Financial Liberalization
- $ Capital Account to GDP.
- $ Short-term Capital Inflows to GDP
- $ Contagion Effects
- $ Herd Behavior

3.4.3. Banking Sector Indicators

- $ Loans to Deposit Ratio

- $ Non-performing loans to Total Loans (Private Sector)
- $ Provisions to Non-performing loans
- $ Changes in the Ratio of Capital to Risk-weighted Assets
- $ Liquidity Index
- $ Foreign Currency Exposure
- $ Spreads between Deposit and Lending Rates
- $ Total Deposits to Total Liabilities
- $ Net Interest Margin
- $ Access to Interbank Loans

These three group of indicators, in conjunction with the indicators selected in Section II, are going to be used in Section V in a small data-set sample of 10 countries that have experienced during the 90s either a currency crises, banking crises or both.

IV Banking Supervision, Regulation, and the International Financial Architecture

Financial liberalization and capital account liberalization have brought to the attention of international organizations, policymakers and professionals on the necessity to strengthening the regulatory and supervisory systems worldwide. This tendency has become even stronger since the Mexican(1994) and Asian (1997) crisis. The Bank of International Settlement, which was founded in 1930 and is the oldest international financial institution, that is owned by central banks, provides a number of highly specialized services to the central banks and, through them, to the international financial system. In December 1974 it established The Basle Committee on Banking Supervision to improve collaboration between bank supervisors. The Committees=s work encompasses three main areas:

1. A forum for discussion on the handling of specific supervisory problems;
2. Coordination for the sharing of supervisory responsibilities among national authorities in respect of banks= activities worldwide;
3. Enhancement of standards of supervision, most notably in relation to solvency, so as to help strengthen the soundness and stability of international banking.

These areas of work require a great deal of technical capacity, financial knowledge, and command of international legal aspects related to the banking industry. As we can see in this section, a great deal has been accomplished through a constant coordination of activities between finance ministries, central banks, and supervisory authorities, so as to harmonize the regulatory and supervisory framework around the world.

4.1 Banking Supervision

The role of supervision is to ensure that banks operate in a safe and sound manner and that they hold capital and reserves sufficient to support the risks that arise in their business. Supervision complements the functioning of the markets. The latter contain disciplinary mechanisms that reinforce the efforts of supervisors, rewarding banks that manage risk effectively and penalizing those whose risk management is inept and imprudent. In this endeavor, supervision cannot and should not provide assurance that banks will not fail. In a market economy, failures are part of risk-taking.

The best known standard of supervision is the agreement reached in 1988 to achieve international convergence in the measurement of the adequacy of banks= capital and to establish minimum capital standards. Following the Mexican crisis in 1994, the Committee was urged to develop a set of principles for an effective banking supervision, the resulting Core Principles for Effective Banking Supervision, a comprehensive blueprint for an effective supervisory system, was isuued in 1997, and is backed up by a three-volume compendium of guidance documents.

To implement a highly professional and independent supervisory institution, the Committee recommends some fundamental precepts that have to be present in the institutional live of a supervisory body.

$ The key objective of supervision is to maintain stability and confidence in the banking system,

thereby reducing the risk of loss to depositors and other creditors;

- Supervisors should encourage and pursue market discipline by encouraging good corporate governance and enhancing market transparency and surveillance;

- In order to carry out its tasks effectively, a supervisor must have operational independence, the means and powers to gather information both on and off site, and the authority to enforce its decisions;

- Supervisors must understand the nature of the business undertaken by banks and ensure to the extent possible that the risks incurred by banks are being adequately managed;

- Effective banking supervision requires that the risk profile of individual banks be assessed and supervisory resources allocated accordingly;

- Supervisors must ensure that banks have resources to undertake risks, including adequate capital, sound management, and effective control systems and accounting records; and

- Close cooperation with other supervisors is essential, particularly where the operations of banking organizations cross national boundaries.

Strong supervision and regulation of the banking system is a requisite for financial stability. But supervision is only a part of wider arrangements that are needed to promote stability in financial markets. Sound and sustainable macroeconomic policies have been recognized as one of the pillars for stability,

as well as effective market discipline. A system of business laws-including corporate, bankruptcy, contract, consumer protection and private property laws- that is consistently enforced and provides a mechanism for fair resolution of disputes is also a necessary condition. Comprehensive and well-defined accounting systems that command wide international acceptance, and timely and transparent information systems that disseminate information to market participants and supervisors, are requisites for the effective functioning of markets. Finally, it is necessary to implement a mechanism for providing an appropriate level of systemic protection, or what is called a Apublic safety net,@ avoiding at the same time the moral hazard incentives that can arise from such schemes.

In sum, strong and effective banking supervision and regulation provide a public good that is necessary to foster banks= competition, complement market discipline, and to assure financial stability. Weak supervisory institutions allow the operation of fragile banks that can threaten stability in domestic financial systems, which can then spill over to other countries or regions as the instability virus spreads its contagion.

4.2 Core Principles for Effective Banking Supervision

The Basle Committee on Banking Supervision has formulated the Core Principles for Effective Banking Supervision document, which is comprised of twenty-five principles that need to be in place to develop a strong supervisory institution. The principles relate to:

- Preconditions for effective banking supervision (Principle 1)
- Licensing and structure (Principles 2-5)

- Prudential regulations and requirements (Principles 6-15)
- Methods of ongoing banking supervision (Principles 16-20)
- Information requirements (Principle 21)
- Formal powers of supervisors (Principle 22) and
- Cross-border banking (Principles 23-25)

In addition to the principles themselves, the document contains explanations of the various methods supervisors can use to implement them.

We will review here some of the issues that are relevant for the development of this paper and that are related to the risks in banking, capital adequacy, disclosure, and cross-border banking.

4.3 Banks= Risks

As maturity transformers, banks take a variety of risks that are inherent to their activities. Thus, supervisors have to develop the skills and knowledge to understand and control these risks.

4.3.1 Credit Risk

The extension of loans is the primary activity of most commercial banks, and this requires banks to make

judgements related to creditworthiness of borrowers. For reasons that are beyond the scope of this paper, loan quality can deteriorate over time; consequently, one of the major risks that a bank faces is the credit risk that a borrower cannot perform according to contractual arrangement. Large exposure to a single borrower (e.g., a corporation or a country) is also a common cause of banking problems, in that it represents a credit risk concentration; consequently the Basle Capital Accord puts limits on concentrated lending.

However, another of the issues that has been identified as causing bank failures is connected lending. With the implementation of the universal bank concept, banks can engage in different activities beyond straight lending which was the characteristic of the former concept which restricted banks' operations. For example, banks can acquire a major stake in non-bank corporations and participate in real estate developments. Most of the time, these types of lending activities have been connected to the bank owners, or to influential politicians who exert direct or indirect control, which can lead to significant problems because determinations regarding the creditworthiness of the borrower are not always made objectively. Connected parties include a bank's parent organization, major shareholders, subsidiaries, affiliated entities, directors, and executive officers. The connection can lead to preferential treatment and overexposure in lending and, thus, greater risk of loan losses.

4.3.2 Market and Liquidity Risks

Banks face a risk of losses in on-and off-balance sheet positions, arising from movements in market prices. The same holds for interest rate risks (i.e., movement in interest rates), which can impact both the

earnings of a bank and the economic value of its assets, liabilities, and off-balance sheet instruments. When a bank is not able to accommodate decreases in liabilities or fund increases in assets, it faces a liquidity problem, which, in extreme cases, can lead to insolvency.

4.3.3 Operational Risk

The most important type of operational risk involves breakdowns in internal controls and corporate governance. Such breakdowns can lead to financial losses through error, fraud, or unethical behavior by officers or other staff exceeding their authority in the conduct of their business. Other aspects of operational risk include a major information technology failure and inadequate systems of industrial management for preventing or controlling fires and other disasters.

4.4 Capital Adequacy

Is the setting of minimum capital adequacy requirements for all banks, an important part of the Core Principles for Effective Banking Supervision. This is also in line with the Basle Capital Accord. Equity capital serves several purposes: it provides a permanent source of revenue for shareholders and funding for the bank; it is available to bear risk and absorb loses; it provides a base for further growth; and it gives the shareholders assurance that the bank is being managed in a safe and sound manner. In 1988, the member countries of the Basle Committee on Banking Supervision agreed to a method of ensuring a bank‐s capital adequacy. The accord addresses two important elements of a bank‐s activities: the different levels of credit risk inherent in its balance sheet, and off-balance sheet activities, which can

represent a significant risk exposure. The accord stresses the need for adequate levels of Acore capital@ or ATier 1 capital@, consisting of permanent shareholders= equity, and disclosed reserves that are created or maintained by appropriations of retained earnings or other surpluses and legal reserves. The accord assigns risk- weights to on-and off-balance sheet exposures according to broad categories of relative riskiness. This framework uses five weights:0, 10, 20, 50 and 100 percent. The accord sets a minimum capital ratio requirements for internationally active banks of 4 percent Tier 1 capital and an 8 percent total of Tier 1 and Tier 2 capital(i.e., Tier 1 plus Subordinated debt) in relation to risk- weighted assets.

4.5 Disclosure and Transparency

In order for market forces to work effectively and thereby fostering a stable and more efficient financial system, market participants need access to correct and timely information. Disclosure, therefore, is a complement to supervision. For this reason, banks should be required to publicly disclose clear and comprehensive information regarding their activities and financial position. This information should be timely and sufficient for market participants to assess the risk inherent in any individual bank or organization. In this direction, international organizations and the G-7 group of leading developed nations are working towards the creation of a set of rules to promote transparency in the dissemination of key macroeconomic and financial information among countries. The Basle Committee on Banking Supervision defines transparency as

A public disclosure of reliable and timely information that enables users of that information to make

accurate assessment of a bank=s financial condition and performance, business activities, risk profile and risk management practices@. This definition recognizes that disclosure alone does not necessarily result in transparency.

In AEnhancing Bank Transparency@ (1998), The Basle Committee on Banking Supervision outlines some of the qualitative characteristics transparent information should have:

- Comprehensiveness: To enable market participants and other users of information to make meaningful evaluations of banks, information should be comprehensive. This often implies the aggregation, consolidation and assessment of information across a number of activities and legal entities;

- Relevance and timeliness: To be useful, information must be relevant to the decision-making needs of users. To be relevant, information also needs to be timely. Information should be provided with sufficient frequency and timeliness to give a meaningful picture of an institution, including its risk profile and risk management performance;

- Reliability: Reliable information. Completeness within the constraints of materiality and cost is of particular importance, since an omission can cause information to be false or misleading;

- Comparability: Supervisors, market participants and other users need information that can be compared across institutions and countries, and over time. This implies that a bank should present or disclose each material item separately. Information is material if its omission or

misstatement could change or influence the assessment or decision of a user relying on that information.

To summarize, disclosure and transparency enhance market discipline allowing market participants to have access to timely and reliable information. Improved public disclosure and transparency in turn strengthen the ability of market participants to encourage safe and sound banking practices. Working in this direction, the International Monetary Fund, has established the Special Data Dissemination Standards(SDDS) to guide its market-borrowing members on the provision of economic and financial data to the public. The IMF also maintains a dissemination standard bulletin board on the Internet, which posts information on the statistical practices of SDDS subscribers. In line with the release of economic information by member countries, the IMF has developed a Code of Good Practices on Fiscal Transparency to guide members in enhancing the accountability and credibility of fiscal policy. Financial and economic information is of a critical importance for market participants for constructing their expectations of specific countries and in making financial decisions based on sound information.

4.6 Cross Border Banking Supervision

Bank supervisors must practice global consolidation supervision over their internationally active banking

organizations, being one of the key components establishing contact and information exchange with the various other supervisors involved, primarily host-country supervisory authorities. The so-called Basle Concordat establishes understandings relating to contact and collaboration between home-and-host-country authorities in the supervision of banks= cross-border establishments. The most recent of these documents, AThe Supervision of Cross Border Banking@ was developed by the Basle Committee in collaboration with the Offshore Group of Banking Supervisors and was subsequently endorsed in June 1996 by 130 countries attending the International Conference of Banking Supervisors. This document contains twenty-nine recommendations for effective consolidated supervision. This is a very important document that addresses the operations of international banks and their consolidation of them with their domestic or headquarters operations. In this sense, adequate international surveillance is a necessary requisite for international financial stability.

Reviewing the concepts of the core principles for effective banking supervision, we can see that most of the documents produced to deal with international financial issues are relatively new, beginning with the core principles themselves. In light of the latest events in financial markets, more documents have emerged that recommend a set of policies or directions that governments, regulatory agencies, international institutions and banks will have to implement over the coming years to foster and guarantee a more stable international financial environment that is marked by high mobile private capital.

4.7 Strengthening the International Financial Architecture

When the Asian crisis erupted in mid-1997, the International Monetary Fund stepped in both to

negotiate an economic program and to put together a financial package to bail out the countries in trouble. As events were unfolding, the IMF came under fire for implementing fiscal measures that were too harsh and that aggravated the economic and social situations in those countries. The IMF has had to make abundant explanations on the scope of its intervention, and to recognize that, due to lack of transparency in the economic information provided by the economic authorities of the countries in crisis, the fiscal goals were in fact too tight. The situation was corrected after the accurate numbers were put together since then, the IMF has implemented a variety of initiatives to foster transparency and accountability in the conduct of economic policy. In response to these efforts, Finance Ministers and Central Bank Governors from 22 systematically significant economies met in Washington D.C., in April 1998, to examine issues related to strengthening the international financial architecture. Three key areas where action is most needed were identified: enhancing transparency and accountability, strengthening national financial systems, and managing international financial crises.

The first two areas are an important part of the core principles for effective banking supervision issued by the Basle Committee for Banking Supervision, and have been part of the analysis in this section. The area related to managing international financial crises is a new set of recommendations that it is a consequence of the latest events in emerging market countries. The working group in charge of developing recommendations in this area, made a set of proposals that, if implemented, will contribute to a more expedite workout mechanism for resolving financial crises.

Due to the new realities that have emerged and evolved during the 1990s, the working group

agreed that the role of the international community in resolving a financial crisis is crucial for the success of the crisis resolution. The crisis actors, comprised of governments, the private sector, international organizations, and the international financial system, need to act cooperatively to assure an orderly workout when a crisis arises. In this direction it has been recommended that governments that both need to restructure their debts as well as access to new resources, have to adopt and implement appropriate policy adjustments to resolve their balance of payments problems.

The private sector can contribute to the resolution of a financial crisis by providing new credits, extending loan maturities, granting grace periods or rolling over existing credits, and otherwise restructuring payments, and in extreme cases, debt reduction.

The extreme-case scenario was defined as an exceptional circumstance that arises despite all the efforts made by a government to implement adequate policies to deal with balance of payments disequilibrium, and yet still cannot meet their debt payments. When a government and a substantial part of the private sector, including banks, are unable to meet their contractual obligations in full and on time, then it is recommended that the initiation of an orderly, cooperative, and comprehensive workout could help to serve the collective interest of the debtor, its creditors, and the international community.

The qualitative difference of capital flows in the 1990s in which a great deal of sovereign and private domestic debt takes the form of securities, particularly bonds held by numerous creditors, rather than syndicated bank loans as was the case in the past, call for enhanced coordination among creditors. One of the legal mechanisms that has been suggested for addressing this issue is the introduction to new

bond issues a collective-action clause to discourage disruptive legal actions. In this direction Sachs(1997) recommends the establishment of the functional equivalent of the key bankruptcy code mechanisms: automatic standstills, private lending, and comprehensive reorganization plans by non-unanimity rules such as the collective clauses. To implement such recommendations, the author suggests that it is not necessary to create an international bankruptcy court, only that clear statements in the operating principles of the IMF be made regarding each of the workouts.

In comparison to when the official sector is left alone, the participation of the private sector in the resolution of financial crises reduces the moral hazard effects. It is perceived that sufficient official assistance without commensurate commitments from the private sector may encourage both debtors and creditors to assume excessive risks, because when a problem erupts both can Aride on the back@ of the official lenders. Thus, private sector participation is crucial to designing market-resolution mechanisms to crises.

In order to limit the impact of future temporary interruptions in debt payments that may occur, and so as to facilitate the rapid restoration of normal relations between debtors and creditors, the Working Group on International Financial Crises recommends the following guidelines:

$ A debtor unable to meet its obligations in full should immediately initiate a dialogue with the IMF and seek an orderly and cooperative solution to its payments difficulties with its creditors;

- A suspension of debt payments should not be undertaken as an alternative to policy reform and adjustment or until all reasonable alternatives have ben explored. It should thus be linked to an enhanced program of policy adjustments to encourage the prompt restoration of confidence;

- A temporary suspension should thus be linked to the onset of good faith negotiations with creditors to lengthen the maturity of existing debt and to provide time for a more comprehensive restructuring, if needed;

- The scope of any suspension of debt payments should be clearly defined, in terms of both types of obligations and maturities covered. Those categories of obligations that are creating acute pressure on the balance of payments and a deterioration in market confidence should be targeted;

- A temporary suspension and subsequent restructuring should treat all affected categories and classes of creditors, including foreign and domestic creditors, fairly;

- To the extent possible, secondary market trading should be freely permitted;

- Efforts should be made to encourage new lending by, where possible, granting the servicing of such new lending greater repayment certainty;

- The design of any restructured debt instruments should be determined in orderly and cooperative discussions between debtors, including the sovereign, and their creditors. The manner in which the restructured instruments is designed will have a significant impact on

confidence and subsequent restoration of market access.

After the release of the Working Group report, the G7 countries met in October 1998 on the occasion of the World Bank and IMF meetings, and called the attention of their ministers of finance and central bank governors to pursuing further proposals to strengthen the international financial system. Among them are the following:

- Examination of the implications of operations of highly leveraged (hedge funds) and off-shore institutions, including with a view to encouraging off-shore centres to comply with internationally agreed standards;

- Establishing a process for surveillance of the international financial system that draws upon national and international regulatory and supervisory experts and brings together the key institutions and authorities to improve cooperation;

- Maintaining sustainable exchange rate regimes in emerging markets countries backed by macroeconomic policies that promote stability;

- Promoting a greater role for the private sector in containing and resolving crises.

These recommendations are critically important, moreover, the international organizations need to give them their full attention, so that the uneven crisis resolution of the 1980s, in which all the financial and economic burdens were placed on the debtor countries, is not repeated. Fair, even, and transparent

workouts are a necessary precondition for the voluntary participation and negotiation of the affected parties in a financial crisis. Furthermore, as we observed in Section III, the most volatile capital flows are those that are short term, the ones that fly from market to market in the search for high returns. This type of highly speculative capital should not have an easy ride via a country=s international reserves or through the official assistance: it must be part of the resolution mechanism, and be ready to bear the losses if it that is the case.

4.8.1 International Lender of Last Resort

One of the issues in the international agenda that has provoked a heated and controversial discussion is the proposal for the creation of a lender of last resort institution. This institution would take care of liquidity problems in economies, when markets are not willing to funnel financial resources to the government or to the banking system. In some countries it is the central bank that performs that task, while in others it may be the Treasury or a specialized institution. The basic lender of last resort role is associated with the prevention and moderation of financial crises. When a crisis erupts in a country, central banks that are in charge to act as lender of last resort, print money to inject liquidity to the market through open market operations, or through the discount window to specific institutions, thereby expanding the rate of growth of domestic credit. However, when the latter is greater than the rate of growth of money demand, a country loses reserves gradually, originating a currency crisis. Domestic institutions cannot issue hard currency to replenish their countries= international reserves, therefore, an international lender of last resort acting as an international central bank, that could lend

reserves to countries that, in spite of having sound macroeconomic programs in place are victims of contagion effects from other crises countries.

Accordingly, for the stability of international financial markets, the international system needs a sort of arrangement that can act as lender of last resort channeling hard currency to countries on the verge of a financial crises due to contagion. Since the debt crises in the1980s, and with great emphasis since the Mexican crisis in 1994, the IMF has increasingly been taking on the role of international lender of last resort. At the end of 1997, the IMF introduced the Supplemental Reserve Facility(SRF), which can make short-term loans in large amounts at penalty rates to countries in crisis. SRF loans have been made to Korea, Russia, and Brazil, subject to policy conditionality. With the increment of the member countries: quotas in effect since January 1999, the IMF is considering the possibility, as was suggested by President Clinton, of introducing a contingent or precautionary facility to supplement the reserves of countries threatened by a crisis but not yet in one.

The IMF is not a central bank, but is the only international financial institution with the resources and technical capacity to act efficiently and on time, lending in hard currency to countries that are experiencing speculative attacks on their currencies due to contagion effects. An institution acting as an international lender of last resort would introduce a degree of confidence in the functioning of the markets, promoting international financial stability. This function has to be performed in countries with sound economic programs, in order to minimize moral hazard incentives.

V. CROSS COUNTRY ANALYSIS

The aim of this section is to analyze the performance of ten countries that suffered either a currency crises, a banking crises or both during the 1990s. These countries have been classified into three groups. The first group is formed by three Nordic countries that experienced financial crises in the early 1990s. The second group is comprised of four Latin American countries: Venezuela which endured a currency and banking crises in the mid 1990s; Mexico and Argentina, both of which experienced a financial crises in the mid 1990s; and Ecuador, a country in which, at the moment this paper is being written, a

profound currency and banking crises is developing. The final group is comprised of the three Asian countries that have been hit hardest by the 1997 financial crises: Indonesia, Korea, and Thailand. Throughout the analysis, indicators that were selected from different theoretical and empirical studies, conducted in turn by various authors and international organizations, are used to assess the behavior of the countries within each group. These works have ben reviewed elsewhere in this paper and serve as the basis for the organization of this Section. We have also incorporated analyses of the financial statements of the banking systems and have aggregated additional indicators to measure the banking performance for each country during the crisis period.

Table 5.0 Selected Indicators of Currency Crises

Indicators	First Generation	Second Generation
Real Effective Exchange Rate	X	X
Fiscal Deficit	X	
Level of Reserves	X	
Current Account Deficit	X	X
Terms of Trade Deterioration		X

M2 to Reserve Expansion		X
Domestic Credit Expansion		X
Wage Flexibility		X
Contagion Effects		X
Herd Behavior		X

Table 5.0 organizes the indicators according to the their use in first-and/or second-generation models of currency crises. We have selected ten indicators of which four belong to first- generation models and six to second generation models. Two of the indicators were used in both models.

Table 5.1 Selected Banking Crisis Indicators

Indicator	**Macroeconomic**	**Financial Liberalization**	**Banking Sector**
Real Effective Exchange Rate*	**X**		
Current Account Deficit*	**X**		
Errrors&Omissions	**X**		
M2 to Reserve*	**X**		
M2 multiplier			

	X		
Terms of Trade*	**X**		
Credit to private sector/GDP	**X**		
Ratio to Loan growth to Nominal GDP growth	**X**		
M2 to M1		**X**	
Financial Account/GDP		**X**	
Short-term capital inflow/GDP		**X**	
Net foreign Liabilities/Domestic Assets		**X**	
Contagion Effects*		**X**	
Herd Behavior*		**X**	
Loan to Deposit Ratio			**X**
Provision %Gross Income			**X**
Deposit/Liablities			**X**
Net Interest Margin% of Gross Income			**X**
Loan to the private sector growth			**X**

The banking crisis indicators have been divided into three sub-groups, according to their characteristics. The first group of indices are macroeconomic and are related to the real and financial sectors. The second group are indicators that purport to measure the financial liberalization implemented by different governments, while the third group are related to the banking sector. Those indicators marked with an asterisk, which are mainly macroeconomic, are used to analyze a currency or a banking crises.

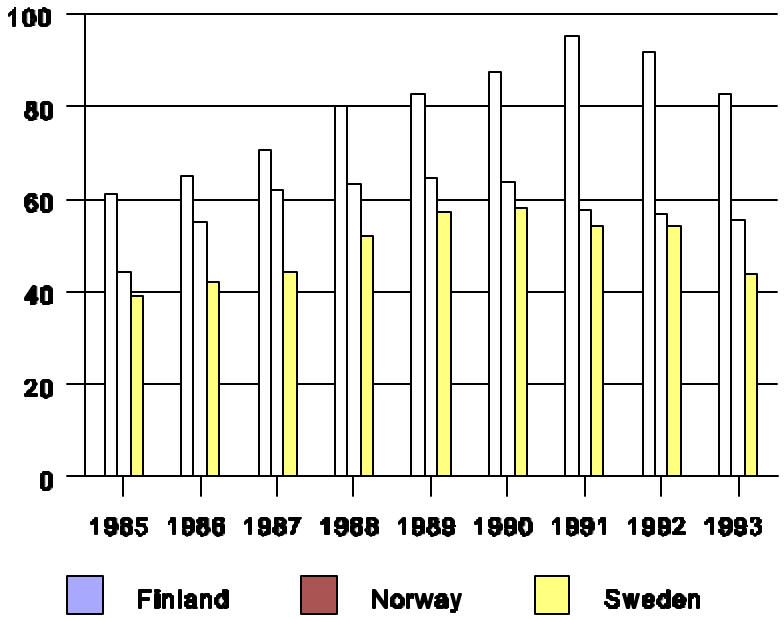
5.1. The Financial Crises in the Nordic Countries

During most of the 1980s and early 1990s, the banking systems of the Nordic countries were extremely regulated. Interest rates were controlled and were tied to rates that were only infrequently changed. The monetary authorities imposed quantitative restrictions on credit operations through direct credit ceilings and redirection of the allocation of credit, forcing the banking system to maintain liquidity ratios in the form of mandatory investments in bonds issued by the government to finance housing projects. The liquidity operations of the central bank were performed through a system of quotas, and reserve requirements were the only monetary tool used to conduct monetary policy. Capital flows were controlled, and foreign banks were not allowed to establish subsidiaries. The supervisory and regulatory institutions lacked the legal and technical capacity to enforce prudential behavior on banking system operations. No strict enforcement of capital-adequacy requirements were in place, and no regulations existed on cross- ownership between financial and nonfinancial institutions.
This began to change in the 1980s. Finland authorized foreign banks to start operations in 1982; Norway in 1986, consented to foreign banks open subsidiaries, and Sweden allowed foreign banks to operate through branch offices in 1990.

Norway removed its foreign exchange controls in 1989-91, and Sweden began its deregulation in 1986-88. In the case of Finland, however, which commenced its financial liberalization efforts in 1984, it was not until 1991 when all cross-border short-term capital movements were liberalized.

In Sweden, interest rates ceilings were removed in 1985, and Finland allowed all interest rates to float in 1988. Norway removed interest rate declarations with the central bank in 1985, but an interest rate monitoring system was introduced. In all three countries reserve requirements were eased and supplementary reserves were eliminated in the mid-1980s. Through the liberalization of the financial systems, the monetary authorities started to relying on open market operations for the conduct of monetary policy. The Nordic countries therefore began their financial liberalization from a state of financial repression and due to the credit rationing schemes that were in place prior to liberalization, banks went to a frenzy borrowing activity, leading to a loss of efficiency in the allocation of capital. In 1986-87, Norwegian finance companies were the first to show the effects of the emerging crisis. Further problems emerged in the banking system in 1988-89, and in 1991 Norway fell into a profound crisis, mainly attributable to credit expansion. In the same year, 1991, Finland had to rescue one of its major banks, while Sweden had to bail out its third largest bank. Accordingly, the banking crises of the Nordic countries unfolded at the end of the 1980s and the beginning of the 1990s.

Chart 5.0 Nominal Loan to the Private Sector-to-Nominal GDP



As we can observe from Chart 5.0 the expansion of the loan portfolios to the private sector were explosive. In the case of Finland, the ratio, which in 1985 was 61.3 percent of GDP, had increased to 95.3 percent of GDP by 1991. Norway started with a ratio of 44.3 percent of GDP in 1985, which reached its peak with a 64.6 percent participation in 1989. Sweden began the period with a ratio of 39.3 percent of GDP; by 1990 the ratio represented 58.2 percent of GDP. Another indicator extracted from the banks: balance sheets to measure the rapid increase in their loan portfolios is the loans to deposit ratio shown in the next table.

Table 5.2 Loans-to-Deposit Ratio

	Finland	Norway	Sweden
1985	99.27	100.43	99.91
1986	104.38	130.66	101.88
1987	105.06	129.8	115.85
1988	111.88	131.07	138.39
1989	128.18	129.77	155.49
1990	127.53	128.01	153.5
1991	125.71	120.63	124.14
1992	117.93	114.38	125.04
1993	107.42	114.78	96.25

Source: Bank Profitability. Financial Statements of Banks. OECD

A ratio above 100.0 means that the banking system as a whole is using other sources than deposits to fund its loan portfolio. This can lead to operations in the interbank market to obtain short-term funds (in some cases overnight funds) to fund working capital loans, normally 90 days, or to fund medium-term loans, thereby increasing the maturity mismatch and hence the liquidity risk.

Another option, is to fund domestic loans with foreign credit lines in which the banking system assumes the foreign exchange risk, and ultimately, the credit risk. In all three countries the ratio in most of the period was well above one hundred percent. In the case of Sweden the ratio exceeded the upper limit of the index by more than fifty percent in the years preceding the crisis. In Norway and Finland the ratios reached their highest values two years prior to the crisis. The rapid increase in lending brought about information problems to the banking system, and, in accordance with the theory, problems of adverse selection and moral hazard incentives were present during the boom period.

The financial deepening experienced by the Nordic countries did not translate into an increase in savings; to the contrary, savings plummeted during the crisis period, with the exception of Norway, as can be seen in the next table.

Table 5.3 Gross Savings-to- nominal GDP

	1985	1986	1987	1988	1989	1990	1991	1992	1993
Fin	23.15	22.75	22.65	24.76	26.51	25.25	18.42	16.62	18.24
Nor	32.1	26.62	26.81	26.15	27.16	26.84	26.18	25.34	25.78
Swed	18.68	19.55	19.47	19.58	19.72	18.07	15.75	14.67	13.7

Source: International Financial Statistics. International Monetary Fund.

In Finland, savings declined from a peak of 26.5 percent of GDP in 1989 to 16.6 percent the year of the crisis. In Sweden the same behavior can be observed: savings declined from 19.7 percent of GDP in 1989, to 14.7 percent in 1992, the year of the crisis. Norway, which is endowed with vast oil reserves, managed its economy to maintain stable level of gross savings during the period 1986-1993.

Net household savings as percentage of net disposable income declined in Finland from 5.7 percent to -1.6 percent between 1980-1988. In Norway the ratio declined from 5 percent in 1984 to -2.5 percent in 1985; in Sweden the ratio declined from about 6.5 percent, the ratio declined to -3.9 percent between 1980-1987.

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According to banking statistics, most of the household borrowing was channeled into purchases of consumer durables and real estate. In Finland, the ratio of household indebtedness to net disposable income increased to about 90 percent in 1990 from 45 percent in 1980; and in Norway, to 175 percent in 1989 from about 90 percent in 1980.

The three Nordic economies are very open, as we can see in the next table, and are therefore very sensitive to movements in the real exchange rate and the terms of trade.

TABLE 5.4 Indicators of Trade Openness

	Export/Gross Domestic Product	Import/Gross Domestic Product
Finland:1985-1993	26.29	25.47
Norway: 1985-1993	37.79	34.1
Sweden:1985-1993	31.37	29.69

Source: International Financial Statistics. IMF.

The three countries have a ratio of exports to GDP greater than 26 percent, Norway being the country with the highest ratio, which averaged 37.8 percent in the period 1985-1993. By the same token, the ratio of imports to GDP during the period 1985-1993 is very high, averaging more than 25 percent in Finland, 34.1 percent in Norway, and 29.7 percent in Sweden.

Prior to the currency and banking crises, the three countries= exchange rates were experiencing a

real-overvaluation, as can be observed in the next table. In the case of Norway the terms of trade deteriorated markedly at the beginning of the period due to the fall in oil prices in the second half of the 1980s. This situation prompted the Norwegian authorities to devalue the kroner by 10.7 percent in 1986. The other two countries, Finland and Sweden, did not experience dramatic changes in their terms of trade during this period.

TABLE 5.5 Terms of Trade

	1985	1986	1987	1988	1989	1990	1991	1992
Finland	83.96	92.6	96.77	98.95	104.04	100	98.04	93.81
Norway	84.61	70.61	78.06	84.95	102.86	100	104	108.66
Sweden	85.42	96.51	97.73	98.9	100	100	100	98.99

Source: International Financial Statistics. IMF.

TABLE 5.6 Real Effective Exchange Rate [1]

	1985	1986	1987	1988	1989	1990	1991	1992
Finland	97.2	93.9	92.8	95.3	98.7	100	91.6	75.1
Norway	98.3	95.5	99.3	101.3	100.6	100	99.3	99.1
Sweden	88.9	90	89.8	93	100.1	100	99.5	99.8

[1]A real effective exchange rate index is defined as a nominal effective exchange rate index adjusted for relative movements in national price or cost indicators of the home country and selected countries. An increase in the index reflects an appreciation.

Source: International Financial Statistics. IMF

The capital account liberalization that took place in the Nordic countries provoked important capital inflows to the three countries, enough to finance the current account deficit generated by the demand expansion, and to accumulate reserves.

TABLE 5.7 Financial Account to GDP

Year	Finland	Norway	Sweden
1985	2.68	2.3	-2.87
1986	-2.97	3.92	0.19
1987	8.11	5.78	0.48
1988	2.02	4.99	1.59
1989	3.06	2.08	5.15
1990	9.2	-0.66	8.39
1991	3.46	-6.44	-0.56
1992	2.89	-1.33	4.13
1993	0.4	5.66	6.2

Source: International Financial Statistics. IMF

As we can observe from the above table, the capital inflows to Finland sharply increased in 1987 and in 1990, reflecting the financial and capital account liberalization measures adopted by the government. In 1987, several domestic regulations were lifted to let the market operate more freely, and restrictions on long-term foreign borrowing by corporations were removed. In 1990 all remaining regulations on foreign currency loans were abolished, increasing the external funds channeled by the banking system. In

the case of Norway, foreign borrowing by banks was liberalized in the early 1980s; as a consequence, capital inflows during the 1980s were positive. Sweden, a late reformer, removed the remaining foreign exchange controls in 1988, and in 1990 foreign banks were authorized to operate through branch offices. In those two years, capital inflows through the banking system increased substantially. These periods of capital inflows are related to the dramatic increase of loans to the private sector, and the overexpansion of the loan portfolios related to the non-bank deposits in the banking system. The next three tables illustrate the net foreign assets of the banking system for the three countries divided into monetary authorities(central bank) and deposit money banks position.

TABLE 5.8 Finland: Net Foreign Assets of the Banking System (share of GDP)

	1989	1990	1991	1992
Foreign assets of the Banking system (net)	-12.12	-16.08	-13.55	-14.76
Monetary Authorities (net)	4.83	7.12	6.94	5.78
Deposit Money Banks (net)	-16.95	-23.2	-20.49	-20.54
Foreign Assets	18.54	19.04	20.44	23.65
Foreign Liabilities	35.49	42.24	40.93	44.19

Source: International Financial Statistics. IMF. Author-s elaboration

TABLE 5.9 Norway: Net Foreign Assets of the Banking System (share of GDP)

	1989	1990	1991	1992
Foreign assets of the Banking System (net)	-0.26	0.81	4.47	10.23
Monetary Authorities (net)	13.4	12.54	10.28	9.92
Deposit Money Banks (net)	-13.66	-11.73	-5.81	0.31
Foreign Assets	6.23	6.39	7.01	10.06
Foreign Liabilities	19.89	18.12	12.82	9.75

Source: International Financial Statistics. IMF. Author=s elaboration

TABLE 5.10 Sweden: Net Foreign Assets of the Banking System(share of GDP)

	1989	1990	1991	1992
Foreign Assets of the Banking System (net)	-14.05	-19.86	-16.82	-4.57
Monetary Authorities (net)	4.91	7.63	6.9	10.46
Deposit Money Banks (net)	-18.96	-27.49	-23.72	-15.03
Foreign Assets	15.15	17.85	18.83	22.82

Foreign Liabilities	34.11	45.34	42.55	37.85

Source: International Financial Statistics. IMF. Authors elaboration

As can be observed from the above three tables, the deposit-money banks had open foreign exchange positions in which foreign liabilities exceeded foreign assets. Due to the currency mismatches, Sweden and Finland were the countries most exposed to currency fluctuations, and the countries that thus bore the highest banking resolution costs after the depreciation of their currencies. The gap in net foreign assets is filled with loans to the private sector denominated in foreign currency, thus transferring the exchange rate risk to the borrowers. However, when things turn around, the exchange rate risk is transformed into a credit risk, and the lenders are the ones that suffer the losses(see Section III).

Capital inflows were sufficient to finance the current account deficit and to accumulate reserves. In the case of Norway, due to the decrease in capital inflows since 1989 the authorities were forced to adjust the economy to generate current account surpluses to compensate for capital outflows.

TABLE 5.11 Current Account Deficit (-) or Surplus (share of GDP)

year	Finland	Norway	Sweden
1985	-1.51	4.79	-1
1986	-1	-6.02	0.02
1987	-1.97	-4.53	-0.01
1988	-2.6	-3.97	-0.29
1989	-5.11	0.21	-1.62
1990	-5.16	3.46	-2.76
1991	-5.52	4.27	-1.94
1992	-4.65	3.54	-3.57

1993	-1.33	3.03	-2.24

Source: International Financial Statistics. IMF

The above table registers the deficit in the current account in relation to GDP. We can see that capital inflows occasioned an overexpansion of the economy that was immediately reflected in the current account deficit. Faced with that situation, it is important for policymakers to implement adequate economic measures to control for the expansion of the credit to correct the current account deficit, and to eliminate the boom and bust cycles that are very common with the actions taken by the economic authorities toward financial and capital account liberalization. The prices of the industrial shares in Finland, Norway, and Sweden increased very rapidly in line with the capital inflow episodes, and the decline coincided with the capital outflows. This means that part of the foreign capital that was intermediated by the financial system was invested in assets provoking a boom cycle; on the other hand, when foreign capital reversed its tendency and capital flew out of the countries, a bust cycle developed that had adverse consequences on the banking system. As we can see in the next table, industrial share prices in the three countries boomed in the years of heavy capital inflows. This indicates that part of the inflows were directed toward financial speculation, not to mention what happened in markets such as real estate, which are prone to price inflation in the wake of capital inflows.

TABLE 5.13 Industrial Shares Price Percentages Growth

	1986	1987	1988	1989	1990	1991	1992
Finland	52.45	58.31	32.87	6.77	-24.53	-26.9	-5.75

Norway	4.44	23.4	-13.79	62	23.46	-7	-6.54
Sweden	63.89	18.64	11.43	38.46	-7.41	-6	-14.89

Source: International Financial Statistics. IMF. Author=s elaboration

In the period 1985-1990, the fiscal deficit was under control in the three Nordic countries with the exception of Sweden in 1985 and 1986. But in most of the years the governments= finances registered a surplus.

TABLE 5.14 Budget Deficit (-) or Surplus (share of GDP)

year	Finland	Norway	Sweden
1985	-0.81	3.35	-7.1
1986	0.11	3.11	-6.04
1987	-1.73	-0.06	-0.38
1988	0.4	-0.16	0.52
1989	1.81	-0.75	1.83
1990	0.18	0.53	1
1991	-6.9	-2.9	-1.52
1992	-14.75	-6.61	-4.12
1993	-13.38	-5.53	-14.88

Source: International Financial Statistics. IMF

In the period 1991-1993, the government accounts of the three countries deteriorated markedly, due to

both the negative growth in output, and the resources that the governments had to allocate to bail out the banking system. According to the economic information, domestic credit expansion was not the alternative chosen by the economic authorities to finance the deficit, as can be seen from the next table.

TABLE 5.15 Domestic Credit Expansion

	Finland	Norway	Sweden
1991	6.83	-2.81	-1.66
1992	-5.23	5.37	-1.42
1993	0	-12.84	2.9

Source: International Financial Statistics. IMF

The option followed by the governments to finance their budget deficits was to place sovereign debt in the domestic and international markets. As we can see in the next table, the alternative to access to foreign finance was the preferred alternative pursued by Finland and Sweden, while Norway divided the financing almost evenly between domestic and foreign markets.

TABLE 5.16 Budget Financing Percentage of Total Debt Allocations

	Finland	Norway	Sweden
Foreign Debt:			
1991	66.86	43.57	94.77
1992	72.35	45.92	40.06
1993	76.1	44.71	76.7

Domestic Debt:			
1991	33.14	56.43	5.23
1992	27.65	54.08	59.94
1993	23.9	55.29	23.3

Source: International Financial Statistics. IMF

During 1992, the Swedish economic authorities participated very actively in the forward foreign exchange markets, reducing the net supply of domestic-currency bonds in private hands while increasing that of foreign-currency bonds. This operation has no incidence in the monetary base, and is equivalent to a sterilized spot-sale of foreign reserves. Therefore, forward operations, and participation in the foreign exchange markets, rather than central bank financing was the option for financing the deficit and defending the exchange rate system.

The Dynamics of the Crises

Sweden was entering a recession in 1991, and in May of that year, immediately after its application for admission in the European Community, the monetary authorities decided to peg the krona to the European Currency Unit. In 1992, the Swedish economic situation deteriorated; its negative real economic growth and increase in unemployment called for a expansionary policy to reactivate the economy. Germany was running a fiscal deficit at that time, due to the reunification efforts, and in order to control inflation the Bundesbank had raised interest rates. This action was incompatible with the Swedish economic situation, which needed lower interest rates to fuel economic growth.

This situation was perceived by the currency dealers who in August-September 1992,

initiated an attack against the krona, which prompted the intervention of the central bank in the foreign markets, raising interest rates to unprecedented levels. During this period, Sweden raised its marginal overnight rate to 500 percent, level it maintained for four days. The increase in interest rates put additional pressure on the real economy, the financial system, and the government budget. Despite the fact that the Swedes were able to successfully weather the first attack in August-September at enormous pain, in November 1992 the krona succumbed to a new attack: the peg system was abandon altogether and the currency was allowed to float. The same thing happened in Finland in September 1992 and in Norway in December 1992: both countries had to abandon the ECU peg and let their currencies float.

During this period, the situation of the banking systems was also deteriorating, as the provisions for bad debts increased to levels that in the case of Norway in 1991, represented 94.9 percent of gross financial income. In Sweden, the scheme implemented by the government to bail out the banking system resulted in a substantial reversal of provisions in 1991 that amounted to 122.1 percent of gross financial income.

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Together with the 1992 currency crises, the banking crises that erupted in 1991 were generalized in the three countries. Thus, in the case of the Nordic countries the banking crises preceded the currency crises; the latter were not engendered by domestic credit expansion, as we have seen in other cases. Therefore, first generation models of currency crises do not fare well in explaining the Nordic countries currency crises. However, the refined versions of first generation models, which take into account the real exchange rate and the current account deficit as part of the explanation of speculative attack on the domestic currency, are consistent with the facts. Furthermore, the second generation or expectational

models explain, through contagion effects, the coordinated speculative attacks against the three Nordic currencies in 1992, which were perceived as having the same economic problems that were unsustainable with an exchange rate peg to the ECU. Contagion due to similarities in economic fundamentals and trade linkages to third countries were both present in the Nordic crises.

In the case of the banking crises, financial liberalization and capital account liberalization together with weak supervisory and regulatory institutions were at the center of explaining the crisis. The decision to liberalize the banking system was taken before the strengthening of the supervisory and regulatory institutions. Those institutions, which were accustomed to controlling financial institutions in an overly repressed financial market, were incapable of controlling a banking system in an open and free-market environment. Financial and capital account liberalization induced an explosive credit growth to the private sector, generating problems of adverse selection and moral hazard incentives.

The exchange rate system and the level of international interest rates induced domestic borrowers to prefer loans denominated in foreign currencies assuming that the government was committed to maintaining the peg; therefore, the banks intermediated the capital inflows. The outcomes, as usual, proved the assumption false and the economies were sacked by a twin crisis.

In summary, the factors that led the Nordic countries to experience a financial crisis, were:

$ Large, private current-account deficits built up overheating pressures in the economy and the financial system, which were reflected in property prices and in stock market value;

- Exchange rate overvaluation and incompatibility between the ECU peg and domestic policies put pressure on the conduct of monetary policy. The commitment of the governments to maintaining the new peg to the ECU provoked a massive interbank borrowing of foreign exchange by the banking system which on-lent those funds to corporations and households, both of which were stimulated further by a new market environment that was prompted by the implementation of financial liberalization actions and capital account openness;

- Net foreign assets of deposit money banks were extremely negative in the three countries, revealing wide-open position in foreign currency, making the Nordic economies vulnerable to domestic and external shocks. Capital inflows and the strong pre-crisis economic performance of the three countries led to a credit boom, which was reflected in the high ratios of loans to deposit in the banking system, aggravating the vulnerability of the economy;

- Financial liberalization, and capital account openness were implemented within a weak regulatory and supervisory framework. Lack of enforcement of prudential rules, capital requirements and cross-ownership between financial and non-financial institutions, led to connected-lending practices. Coming from an extremely controlled and repressed financial market, financial institutions lacked the expertise in implementing and managing sound credit-risk systems;

- With the exception of Sweden, the ratio of broad money to international reserves experienced an important increase during the crises, making international reserves vulnerable to a run on banking system deposits;

- The banking crises experienced by the three Nordic countries preceded the currency crises.

5.2 The Cases of Venezuela, Mexico, Argentina and Ecuador

In this part of the paper we are concerned with the financial crises in four Latin American countries, that took place in different years during the 1990s. Venezuela in 1993-1994, was the first country to have a currency and banking crises. At the end of 1994, Mexico experienced a twin crisis, and during the three first months of 1995 Argentina had a short-lived banking crisis. Ecuador, at the moment of writing this paper, is experiencing a profound currency and banking crisis, which erupted in the second part of 1998. Events are continuing to unfold very rapidly; therefore, special analysis of the Ecuadorian crisis will be made.

5.2 The Venezuelan Crisis, 1993-1994

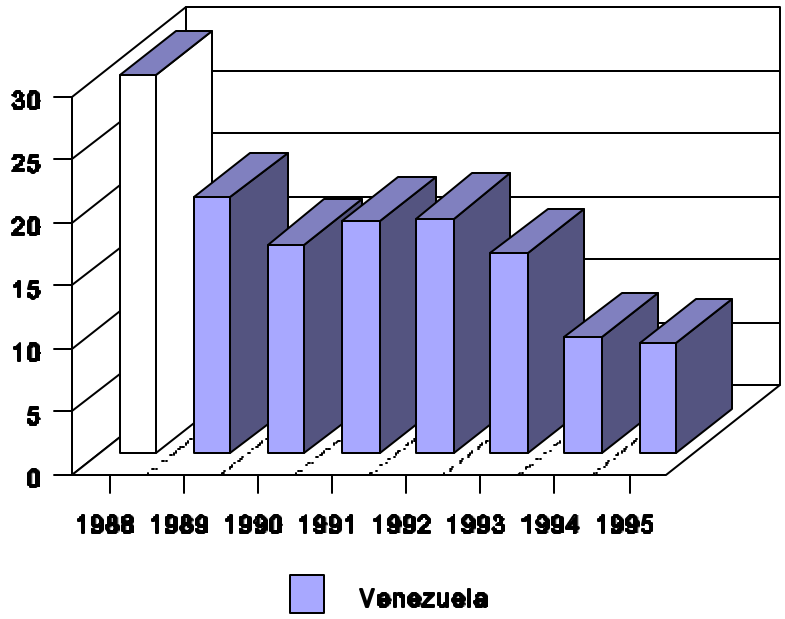
Venezuela is a very oil rich country, Taking advantage of that situation, governments during the 1970s and a great part of the 1980s implemented populist macroeconomic policies, which included widespread government intervention in the economy supported by high public spending. Exchange rate

overvaluation and price subsidies on gasolines and public services were widespread, to anchor domestic inflation. It was not until 1988, when a former president, with renewed market-oriented proposals won the elections, that Venezuela intended to change its economic model. Right after the inauguration, the new government applied a neo-liberal program that introduced deep reforms; among them, an exchange rate correction and the elimination of price subsidies, which occasioned a wave of riots around the country. Part of the program was the elimination of the multiple exchange rates fixed by the government. In March 1989 the bolivar, the national currency, was allowed to float, leading to a 154 percent depreciation against the official rate. Actually, this brought the new official rate into line with the black market rate.

The financial sector reforms were an important component of the structural reforms that the government was considering to implementing. In this direction the government presented to Congress a project to change Venezuela=s obsolete banking law, which had been untouched for many years. However, Congress did not deliver on government expectations, and the new law was not approved until the end of 1993. Therefore, financial liberalization and capital account liberalization were implemented within the old framework. As can be seen later in this section, the Central Bank of Venezuela recognized as one of the causes that determined that country=s banking crisis in 1993-1994 was the lack of an adequate supervisory and regulatory framework to control financial operations in a more open and competitive environment.

Normally, financial liberalization and capital account liberalization lead to a credit boom to the private sector; however, this was not the case in Venezuela, as can be seen in the next chart.

CHART 5.1 nominal Loans to the Private Sector(share of GDP)



The year that financial liberalization was implemented, the ratio of loans to the private sector to GDP decreased from 29.92 to 20.25 percent; thereafter, the ratio stabilized at around 18 percent, and began to plummet in 1993 when the banking crisis unfolded. In 1993 banks increased their liquid reserves and started to invest their funds in central bank and government securities. That same year, reserves and government securities accounted for 27.94 percent of total assets; in 1994 that figure reached 51.3

percent of total assets.

The same behavior can be observed in the next table in the ratios of loans to the private sector granted by deposit money banks to the non-bank public deposits.

TABLE 5.17 Loans to Deposit Ratios in Deposit Money Banks

1988	1989	1990	1991	1992	1993	1994	1995
102.4	82.33	61.55	61.13	72.27	64.44	36.3	39.73

Source; International Financial Statistics. IMF. Author=s elaboration

Except for 1988, when the ratio was above the one hundred mark, loans were lower than deposits; in 1993-1994 the years of the crisis, loans represented near 3/8 of the deposit base. Therefore, we can conclude that the Venezuelan banking crisis was not a case of credit expansion to the private sector, other factors accounted for the crisis which are analyzed in this paper. However, in spite of a lack of financial deepening, the savings rate remained above the 20 percent level to GDP, in line with the performance of the export sector.

TABLE 5.18 Gross Savings (share of GDP)

1988	1989	1990	1991	1992	1993	1994	1995
20.99	20.29	26.52	21.92	18.17	15.55	19.03	20.17

Source: International Financial Statistics. IMF. Author-s elaboration

TABLE 5.19 Indicators of Trade Openness (share of GDP)

	1989	1990	1991	1992	1993	1994	1995
Exports of Goods and Services/GDP	33.86	39.45	31.35	26.35	26.96	30.86	26.78
Imports of Goods and Services/GDP	22.28	20.19	26.23	28.91	27.18	22.3	21.31

Source: International Financial Statistics. IMF. Author-s elaboration

As we can observe from the above table Venezuela by Latin American standards is a very open economy but from the export side it relies heavily in oil exports; thus, it is exposed to external shocks in the terms of trade, which started to deteriorate in 1991, reaching its lower level in 1993-1994, as we can see in the next table. Oil exports in Venezuela account for 55.1 percent of total exports; yet, taking into consideration other minerals such as aluminum, lead and steel, state-owned enterprise exports represent 85.2 percent of total exports.

TABLE 5.20 Terms of Trade

1988	1989	1990	1991	1992	1993	1994	1995

72.2	91	100	82.6	79.4	74	74.8	77.6

Source: Inter-American Development Bank.

In spite the decision to float the bolivar in 1989, the real exchange rate did experience an appreciation during the period of 1991-1995.

TABLE 5.21 Real Effective Exchange Rate[2]

1988	1989	1990	1991	1992	1993	1994	1995
75.6	88.8	100	93	89.6	85.5	89.5	71.6

Source: Inter-American Development Bank

The net financial account did not register important capital inflows to the country; the highest inflow was registered in 1992 when capital inflows represented 5.3 percent of GDP, as can be seen in the next table. From the other side, the net foreign asset position of the deposit money banks was positive in the period 1991-1995, meaning that foreign assets exceeded foreign liabilities even though it was by a narrow margin. In the aggregate, for the banking system as a whole, the net foreign asset position was solid, thanks to the net foreign assets of the monetary authorities, as can be observed in Table 5.23. Again, the figures demonstrate that in the case of Venezuela, crises can be put at bay, relying on the country=s natural resource endowment.

[2]In this case, the real effective exchange rate index is defined as a nominal effective exchange rate index adjusted for relative movements in foreign prices of selected countries and national price or cost indicators of the home currency. A decrease in the index reflects an appreciation. This index is used in the cases of Argentina, Mexico, and Ecuador.

TABLE 5.22 Financial Account(share of GDP)

1988	1989	1990	1991	1992	1993	1994	1995
-1.95	-6.27	-4.45	4.7	5.3	3.98	-5.83	-4.44

Source: International Financial Statistics. IMF. Author-s elaboration

TABLE 5.23 Net Foreign Assets of the Banking System (share of GDP)

	1991	1992	1993	1994	1995
Foreign Assets of the Banking System (net)	22.84	19.95	18.52	16.3	14.33
Monetary Authorities (net)	20.78	17.74	16.21	14.21	13.08
Deposit Money Banks (net)	2.06	2.21	2.31	2.09	1.25
Foreign Assets	2.8	2.74	2.9	2.22	1.37
Foreign Liabilities	0.74	0.53	0.59	0.13	0.12

Source: International Financial Statistics. IMF. Author-s elaboration

The current account was always in surplus, except for the 1992-1993 period, due to a deterioration of the trade and services balance and the fiscal deficit. Therefore, the economic expansion was not the result of capital inflows that generated a credit boom and a subsequent consumption or investment overexpansion.

TABLE 5.24 Current Account Deficit(-) or Surplus (share of GDP)

1988	1989	1990	1991	1992	1993	1994	1995
-9.62	5.05	17.04	3.36	-6.2	-3.32	4.35	2.61

Source: International Financial Statistics. IMF. Author-s Elaboration

During the period 1989-1991, which coincides with the implementation of market-oriented policies, the budget was under control; in 1991 a surplus of 1.99 of GDP was recorded. Beginning in 1992, when political problems started unfolding, Venezuela registered a fiscal deficit of -3.10 percent of GDP. In the two successive years, when the banking crisis erupted, the deficit was

-2.29 in 1993 and -5.60 in 1994. In the latter two years, the government decided to finance the deficit and bail out of the banking system through domestic credit creation, as we can see in the next table. According to central bank estimates, in 1994, base money increases represented 9.4 percent of GDP, a situation that forced Venezuela into a currency crisis.

TABLE 5.25 Monetary Authorities: Claims on the Central Government and Nonbank Public Financial Institutions (share of GDP)

	1991	1992	1993	1994	1995
Claims on Central Government	8.08	6.69	6.58	7.29	7.6
Claims on Nonbank Public Financial Institutions	0.5	0.37	0.28	9.37	9.92

Source: International Financial Statistics. IMF. Authors Elaboration

The Dynamics of the Crisis

During 1994-1995, central bank credit to the nonbank public financial institutions increased dramatically, because the government decided to fund the operations of the deposit insurance corporation (FOGADE) to bail out the banks. In October 1993 runs on the country-s second largest bank led the authorities to close it in January 1994. Due to the injection of extra liquidity to the economy, inflation in 1994 increased to 60.8 percent in relation to 1993, while in 1996 inflation it neared to the 100 percent mark. The exchange rate depreciated rapidly: 60.9 percent in 1994, 70.6 percent in 1995 and 64.3 percent in 1996, causing a profound deterioration in economic growth. The government imposed exchange rate controls in July 1994 to stem capital flights. Real GDP growth was 0.3 in 1993 after growing a healthy 6.1 percent in 1992; in 1994 economic growth was negative 2.3, pushing Venezuela to the worst of scenarios, high inflation coupled with an economic recession.

The political situation deteriorated during 1992, and in 1993, Congress decided to depose the president of Venezuela on corruption charges. The financial crisis erupted at the end of 1993, during the interim period before a new president was elected. The new president, started his five- year term in February 1994, inherited a profound financial crisis that according to estimates, taking into consideration direct fiscal costs and indirect or quasifiscal costs, had a resolution cost of 17 percent of gross domestic product (see Section III).

In spite of domestic credit expansion international reserves were not affected because the government had a floating exchange rate system in place, which reflected in its nominal level the conditions of the economy. So the domestic credit expansion did not lead to a depletion of international reserves which

remained at healthy levels, covered by large imports of goods and services as can be seen in the next table. Short-term debt to total debt represented only 12.5 percent in 1993 and 10.1 percent in 1994. This meant that short-term debt related to international liquid reserves represented 50.8 percent and 46.3 percent in 1993 and 1994, respectively. Then, foreign short-term debt was not a constraint for the Venezuelan economy.

TABLE 5. 26 International Reserves to Imports of Goods and Services (expressed in months)

1988	1989	1990	1991	1992	1993	1994	1995
6.1	5.16	10.18	9.45	6.57	6.78	7.43	4.58

Source: International Financial Statistics. IMF. Author=s Elaboration

The financial crisis in Venezuela can be regarded as a crisis of bad banking practices due to a weak supervisory and regulatory framework, exacerbated by poorly implemented macroeconomic policies and adverse political events. In the aftermath of the banking crisis, the government discovered fraudulent practices by bankers in a very complicated web of connected businesses in and out of the country. Moreover, there were cases in which, the liquidity injected into the banks by the credit protection agency, which was substantial, was diverted by the bank=s administrators to the exchange market, to channel foreign currency abroad for their own benefit. The government has judiciary demands against the bankers for fraud, money laundering, and peculation in both Venezuela and the United

States.

In its 1994 economic report the central bank of Venezuela, lists some of the possible causes that generated the 1993-1994 banking crisis.

- A weak supervisory and regulatory framework reinforced by obsolete banking laws. The new law that was approved by Congress in 1993 began its implementation in January 1994, just when the crisis unfolded;

- Deterioration of the macroeconomic and political environment;

- Excessive credit-risk behavior by bankers in the absence of an adequate control and regulatory framework;

- Lack of transparency and disclosure of information on the part of the banking system;

- Fraudulent banking practices, as the one implemented in the Amesas de dinero@ which attracted deposits of Venezuelan residents denominated in foreign currency, channelling them to off-shore related institutions to finance businesses connected to the banks= administrators and owners.

The deterioration of the macroeconomic and political environment, and the increase in interest rates in the U.S. beginning in 1994, led the sound banks to change their portfolio composition to control for adverse selection problems and moral hazard incentives. Credit to the private sector as percentage of total banks= assets plummeted from a level of 61.7 percent in 1992, prior to the crisis, to 34.2 percent in

1994, the year of the crisis, aggravating the economic situation in Venezuela. The economy that grew 6.1 percent in 1992, declined sharply to a negative 2.3 percent in 1994. Banks allocated their funds in government paper issued either by the central government or by the central bank. In 1992, investments in public-sector papers represented 4.5 percent of total assets, whereas in 1994, the participation increased to 34.1 percent of total assets, a significant reversal on investment decisions. The banking crisis in Venezuela, like those in the Nordic countries, preceded the currency crisis.

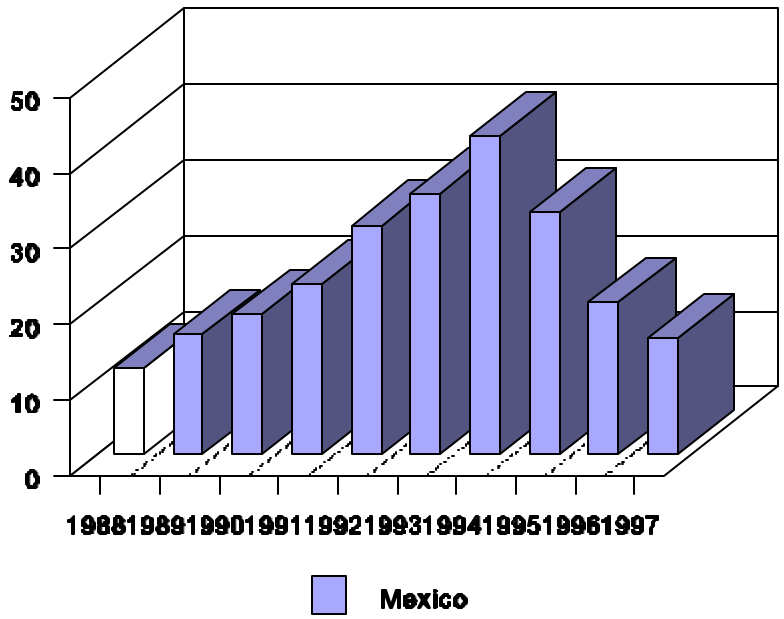
5.3 Mexico, 1994-1995

In September 1982 Mexico sounded an unexpected alarm to the international financial community, announcing that the country was not able to meet its next debt payments. An international financial rescue package was subsequently put together under the direction of the U.S. Treasury and the International Monetary Fund. Beginning 1983, in the midst of the debt crisis, Mexico implemented a comprehensive reform program directed toward economic liberalization. The crisis was so profound that Mexico had to nationalize the banking system to avoid the collapse of its financial system. After years of high inflation, Mexico pegged its peso to the dollar in December 1987, using the exchange rate as a nominal anchor to lower inflation. The latter decision, was part of the Solidarity Pact that froze prices, wages and the exchange rate through an agreement among government, business and labor unions. Starting in 1989, Mexico=s fixed rate against the dollar became a pre-announced crawling peg that allowed for some depreciation each year. At the end of 1991, the government introduced a band for the exchange rate, the upper edge of which was to rise slowly over time, potentially allowing slow depreciation, while the lower band remained constant. The latter system remained in place until 1994, when the peso collapsed in the foreign exchange markets.

After a decade of state ownership of the banking system, Mexico began banks privatizing in 1992. At

the same time, financial and capital account liberalization also took place, though this happened under a weak supervisory and regulatory framework as the post-collapse evidence shows. As can be observed from the next chart, credit to the private sector from the banking system grew from 11.3 percent of GDP in 1988 to 41.9 percent of GDP in 1994.

CHART 5.2 Nominal Loans to the Private Sector (share of GDP)



After reaching its peak in 1994, loans to the private sector plummeted in the aftermath of the crisis, contributing to the deterioration of the banking system=s balance sheets. According to the IMF international financial statistics, loans to the private sector, which had in 1993 a participation over deposit money banks total assets of 93 percent, declined in 1995- the year of the crisis- to 68.4 percent. In the following two years, loans to the private sector declined further to 47.6 percent and 42.8 percent in 1996 and 1997, respectively. To control for adverse selection problems and moral hazard incentives, banks decided to stop lending to the private sector, changing their portfolio composition. Liquid reserves and credit to the nonbank financial institutions increased their participation over total assets from 1.66 percent in 1994 to 25 percent in 1995. In the following two years the participation increased to 48.8 percent and 49.2 percent of total assets, further contributing to the deterioration of economic conditions in Mexico. Gross domestic product had a negative growth of 6.17 percent in 1995; the next year, national production recovered somewhat to positive 5.18 percent, but the increment did not compensate for the real production decline in the year when the crisis erupted.

The loan to deposit ratio, was under the 100 percent benchmark, except in 1995, when the index was 102 indicating a period of money market short-term funding of part of the loan portfolio.

TABLE 5.27 Loans-to-Deposit Ratio

1991	1992	1993	1994	1995	1996
0.7	0.84	0.83	0.93	1.02	0.88

Source: Bank Profitability, OECD

The credit expansion was directed to finance private consumption which, from an average of 68.6 percent of GDP in the period 1988-1990, advanced to 71.5 percent in the years from 1991 to 1994. This situation had an impact on gross domestic savings, as can be observed in the next table.

TABLE 5.28 Gross Domestic Savings-to- Nominal GDP

1991	1992	1993	1994	1995	1996
17.72	15.64	14.22	13.88	17.87	21.31

Source: International Financial Statistics. IMF. Author=s elaboration.

It is interesting to notice that when a credit expansion takes place to finance investments, gross domestic savings do not suffer a slow down, as was the case in the Asian countries that were affected by the financial crisis in 1997. However, when the credit expansion finances private consumption, gross domestic savings decline, as was the case of the Nordic countries. In 1994, the year of the crisis, gross domestic savings in Mexico reached their lowest level, to recuperate in the following years as part of the economic program introduced by Mexico to cope with the financial crisis.

Traditionally, Mexico has been regarded as an open economy, especially due to its close economic relations to the United States. However, in spite of the NAFTA agreement in the early 1990s, Mexico=s total exports did not have an important increase until the government decided to float the peso when the crisis erupted, eliminating a protracted overvaluation. In the next table we can observe such evolution.

TABLE 5.29 Indicators of Trade Openness (share of GDP)

	1992	1993	1994	1995	1996	1997
Exports of Good and Services/ GDP	15.42	15.25	16.83	30.42	32.46	30.22
Imports of Good and Services/ GDP	20.27	19.17	21.65	27.75	30.33	30.25

Source: International Financial Statistics. IMF. Author=s Elaboration

Mexico=s export performance after the crisis was impressive, increasing more than 80 percent relative to GDP in 1995, just one year after the crisis was revealed in December 1994. As we can see in the next table, the peso was overvalued in the years before the crisis impeding the expansion of the economy=s export sector.

TABLE 5.30 Real Effective Exchange Rate (Index 1990=100)

1990	1991	1992	1993	1994	1995	1996	1997
100.0	90.9	85.6	80.5	85.7	115.0	105.8	91.2

Source: Inter-American Development Bank. Author=s Elaboration.

In December 1994 the government devalued the peso by 15 percent. The market considered the correction insufficient, and speculative attack against the peso took place immediately after the devaluation was announced. This led the government to float the peso in the foreign exchange market, in which it went into a free fall, causing an exchange rate overshooting, and therefore an over-devaluation of the peso, as can be viewed in the table above.

As was the case in the other financial crises, the case of Mexico cannot be viewed as the deterioration of its terms of trade, to the contrary Mexico=s terms of trade were above the 100 index during the 1990s, as can be seen in the next table.

TABLE 5.31 Terms of Trade (Index 1990=100)

1990	1991	1992	1993	1994	1995	1996	1997
100.0	100.5	105.6	105.7	105.7	105.7	105.7	104.0

Source: Inter-American Development Bank. Author=s Elaboration.

After many years of economic reforms, Mexico began to register positive capital inflows in 1989, but in only modest amounts relative to GDP. It was not until 1990, that Mexico started receiving important amounts of capital from abroad, as we can see in the next table.

TABLE 5.32 Financial Account (share of GDP)

1990	1991	1992	1993	1994	1995	1996	1997
3.21	8.05	7.44	8.37	3.74	-3.66	1.86	4.69

Source: International Financial Statistics. IMF. Author=s Elaboration.

Capital inflows to Mexico began deteriorating in 1994 when, from a peak of 8.4 percent of GDP in 1993, it fell to 3.7 percent of GDP next year, in part due to the higher interest rates in the United States in 1994. In 1995, the crisis year, capital inflows turned negative, recuperating somewhat over the next two years. In the next table one can observe the behavior of bond issues, as well as loan commitments from foreign banks, prior, during and after the crisis.

TABLE 5.33 Mexico: Bond Issues and Loan Commitments (Billions of U.S. dollars)

1994	First Half 1995	2-half 1995	1995	1996
13.3	3.1	12.0	15.1	28.6

Source: Global Development Finance, 1998, World Bank, Washington, D.C.

The decline in private funds experienced by Mexico in the first semester of 1995 is impressive, but the recuperation during the second half of 1995 and beyond is also remarkable. The policy response, and the international financial package to back it, were sufficient conditions to restore confidence in the international markets.

The next table shows the net foreign assets position of the banking system from 1991 to 1996. The behavior of the net foreign assets follow a same path as the financial account, in the sense that after the crisis the net foreign position of the banking system start deteriorating.

TABLE 5.34 Net Foreign Assets of the Banking system (share of GDP)

	1991	1992	1993	1994	1995	1996
Foreign Assets of the Banking System(net)	3.94	3.82	5.19	0.89	0.18	1.40
Monetary Authorities (net)	3.64	3.66	5.06	0.84	-0.08	1.31
Deposit Money Banks(net)	0.29	0.16	0.13	0.05	0.26	0.09
Foreign Asset	0.40	0.23	0.19	0.16	0.40	0.26
Foreign Liabilities	0.11	0.07	0.06	0.11	0.14	0.17

Source: International Financial Statistics. IMF. Authors Elaboration.

Due to the expansion of consumption supported by the capital inflows, the current account was in

deficit during the years preceding the crisis. The amount of the deficit was financed by the financial account, and the monetary authorities had resources left to accumulate international reserves. But the situation began to reverse itself in 1994, the year the crisis erupted.

TABLE 5.35 Current Account (Share of GDP)

1991	1992	1993	1994	1995	1996	1997
-4.73	-6.72	-5.80	-7.03	-0.55	-0.71	-1.85

Source: International financial Statistics. IMF. Author=s Elaboration.

The level of the current account deficit was unsustainable in the medium term. The market perceived this when the government start changing its CETES (bonds denominatd in pesos) for Tesobonos (short-term financial papers indexed to the U.S. dollar), altering the short-term profile and currency composition of Mexico=s external debt. More about this situation will be incorporated later in the analysis.

The fiscal deficit was under control; consequently the explanation ofor the current account deficit comes from private sector over-consumption and deterioration of the gross national savings.
Therefore, the problem in Mexico was a private current account deficit, which was financed by private capital inflows.

TABLE 5.36 Budget Deficit (-) or Surplus (share of GDP)

1991	1992	1993	1994	1995	1996	1997
-0.21	1.42	0.33	-0.70	-0.80	-0.46	-1.35

Source: International Financial Statistics. IMF. Author=s Elaboration.

The over-expansion of credit to the private sector created a price bubble in the financial assets markets, which registered increases higher than the consumer price index, as we can observe from the next table.

TABLE 5.37 Shares Prices and Consumer Price Growth

	1991	1992	1993	1994	1995	1996	1997
Share Prices	90.1	53.2	11.8	35.8	-11.9	42.5	40.4
Consumer Prices	22.7	15.5	9.7	6.9	35.0	34.4	20.6

Source: International Financial Statistics. IMF. Author=s Elaboration.

During the capital inflows period, financial-asset prices grew much faster than the consumer price index; and as in the other cases the bubble burst in the year of the crisis. But what was remarkable about the Mexican case was its rapid recuperation from the crisis, as is evident from the market financial indicators.

The Dynamics of the Crisis

The financial situation of the country deteriorated markedly during 1994. The central bank had to inject

liquidity into the financial system as economic conditions deteriorated. Confidence further eroded due to the political assassination of a presidential candidate from the official political party and a high-ranked public official. A conflict also erupted in Chiapas, threatening the political stability of the country. The attorney general resigned, and a prominent banker was kidnaped. All these events precipitated a confidence crisis on the political and economic stability of the country. As we can observe from the next table, during 1994-1995, central bank assistance to the financial system was substantial.

TABLE 5.38 Monetary Authorities: Claims on Deposit Money Banks and Nonbank Financial Institutions (share of GDP)

	1992	1993	1994	1995
Claims on Deposit Money Banks	0	0.06	6.88	2.35
Claims on Nonbank Financial Institutions	1.30	1.69	2.68	4.25

Source: International Financial Statistics. IMF. Author=s Elaboration.

Central bank liquidity assistance to the financial sector in 1994 represented 9.6 percent of GDP in gross terms, and 6.9 percent of GDP in 1995. Through open market operations, the central bank had to accommodate for the decline in international reserves, increasing domestic credit very rapidly. Before the currency crisis erupted in December 1994, the banking sector was assisted by the central bank with liquidity operations. In the next table, one can observe that the financial situation of the banking system started deteriorating in 1992, when the provisions against gross income began to increase.

TABLE 5.39 Provisions of Deposit Money Banks (share of Gross Income)

1991	1992	1993	1994	1995	1996
5.95	11.49	17.66	24.01	39.99	46.78

Source: Bank Profitability. OECD

The situation for the banking system reached a dramatic situation when provisions accounted for almost twenty five percent of the gross income in 1994, necessitating a huge bail out from the monetary authorities at an immense financial cost (see Section III). In December 1994, 9 percent of bank loans were nonperforming, and by September 1995 this share had risen to 17 percent, forcing the banking system to increase their provisions against bad loans. These provisions affected the capital position of the money deposit banks, as we can see in the next table.

TABLE 5.40 Deposit Money Banks Capital-to- Total Assets (percentage)

1992	1993	1994	1995	1996	1997
5.20	5.73	5.55	1.39	1.03	-2.51

Source: International Financial Statistics. IMF. Author=s Elaboration.

The banking system in Mexico was undercapitalized before the crisis. In 1994, capital accounts over total assets of deposit money banks were 5.55 percent, in 1995 year of the crisis, due to the deterioration of the loan portfolio, led the banking system to increase provisions affecting severely the capital accounts which declined to 1.39 percent of total assets. The situation, was even worse in 1997 when banks= capital became negative. This situation also contributed to the explanation of why the banks stopped lending to the private sector.

The Achilles heel of the Mexican economy was its external position, and slow economic growth. The next table portrays the relation between Mexico=s short-term to long-term external debt. As we mentioned before in 1993, the Mexican government began changing the currency denomination of its bonds as part of a strategy to maintain the peso peg against the dollar, thereby increasing its exposure in foreign currency.

TABLE 5.41 Short-Term External Debt to Total External Debt (in percentages)

1991	1992	1993	1994	1995	1996
19.16	21.85	27.56	28.09	22.46	19.14

Source: Global Development Finance, 1998, World Bank, Washington D.C.

The above table shows the relation of Mexico=s total short-term debt, public and private, in relation to total debt. The index increased from 19.2 percent in 1991 to 28.1 percent in 1994, the year the crisis took place.

According to the Bank of International Settlement, interbank lending to Mexico was growing during 1994, and more than 50 percent of it was short-term, as we can see in the next table.

TABLE 5.42 Mexico: Consolidated Cross-Border Claims in All Currencies and Local Claims in Non-Local Currencies

Mexico	Billions of U.S. dollars	Short-term Debt (percentage of interbank loans)
mid-1994	60.7	46.8

end-1994	64.6	51.3
mid-1995	59.2	49.4
end-1995	57.3	45.4

Source: BIS-Consolidated Banking Statistics. Author=s Elaboration.

Mexico=s short-term debt exceeded its international liquid reserves, forcing Mexico to access the international markets to fund the debt payments that were coming due. That was the function of the tesobonos, which were issued in very short maturities, in the absence of economic measures designed to halt the deterioration of the external sector.

TABLE 5.43 Short-Term External Debt to International Reserves (times)

1991	1992	1993	1994	1995	1996
1.21	1.28	1.43	6.10	2.19	1.54

Source: Global Development Finance, 1998, World Bank, Washington D.C.

As we can observe in the above table, short-term external debt exceeded Mexico=s international liquid reserves. In 1994 (the year the crisis began), the ratio jumped to 6.10 times due to the immense reserve losses experienced by Mexico. The international reserves of Mexico during the period 1991-1993 covered more than three months of imports, but in 1994 (the year the situation start turning sour), international reserves covered less than one month of imports, a very low level of international liquidity

to cope with domestic shocks. This situation was greatly exacerbated by the very short maturity of the Tesobonos, of which more than U.S.$10 billion matured in the first three months of 1995.

TABLE 5.44 International Reserves to Imports of Goods and Services (expressed in months)

1991	1992	1993	1994	1995	1996
3.4	3.0	3.9	0.80	2.3	2.2

Source: Global Development Finance, 1998, World Bank, Washington D.C.

On the other hand, Mexico experienced modest economic growth, with GDP growing an average of 2.9 percent in 1990-94. Consequently, capital inflows financed mainly private consumption to the detriment of productive investments, affecting medium-term economic growth.

We can now review the case of Mexico and extract a series of events that provoked the financial crisis during the period 1994-1995.

The first-generation models of currency crises fail to explain Mexico=s financial crisis. The government finances were under control, and no domestic credit expansion was used to finance a nonexisting budget deficit. However, domestic credit to sterilize the international reserves losses was used by the central bank through its open market operations. Credit to the financial system increased, leading to an excessive domestic credit growth over money-demand growth, affecting the level of international reserves. Therefore, the argument used by the first-generation models to explain a currency crisis can be used to explain the depletion of Mexico=s international reserves and the collapsed of the fixed

exchange rate system due to central bank intervention to sterilize the international reserves losses injecting liquidity to the banking system. However, expectations played an important role in the behavior of economic agents to explain what happened in Mexico. Therefore, the central argument used by first generation models of currency crises have to be complemented with by the second generation models. The events that continued to unfolde during 1994 also contributed to precipitate Mexico=s financial crisis. Real exchange rate appreciation, an unsustainable current account deficit, banking sector weaknesses, weak supervision, excessive short-term debt, political crisis and social unrest, are all elements that help to explain Mexico=s financial crisis.

It can also be said that the Mexican crisis was a confidence crisis in the ability of the government to cope-in an election year- with economic imbalances and adverse political events. This crisis was uncovered when the new government decided in December 1994 to devalue the peso, widening the exchange band to15 percent, an action that was deemed insufficient by the market=s participants which initiated a speculative attack against the Mexican currency and forcing the government to let the peso float after losing U.S. $5.0 billion in international reserves in two days.

After the devaluation of the Mexican peso, a weak financial system was faced with the deterioration of its loan portfolio due to the increase in the domestic-currency value of the foreign currency loans made to households and corporations. The foreign exchange risk that borrowers faced in the eventuality of a devaluation was converted into a credit risk for lenders, forcing the banking system to increase their provisions and to reduce their capital base. The currency crisis contributed to uncover the problems that the financial sector had in their portfolios. Moreover to defend the peg, the monetary authorities

refrained from devaluing the peso, and from increasing interest rates because of the fragile situation of the financial system. Therefore, the government chose the option of participating in the foreign exchange markets, with the consequences which have already been described. Under orthodox macroeconomic management, this situation would have called for the implementation of a defensive macroeconomic stance, resulting in higher interest rates and, under flexible exchange rate regimes, in a weakening of the domestic currency. Yet the banking system acted as an impediment to such policy.

In summary, the factors that had incidence in the Mexican crisis, were:

- **$** Large private sector current account deficits, contributed to a build up of overheating pressures in the economy which were reflected in inflated property prices and stock market values;

- **$** Exchange Rate appreciation, which was seen as an implicit guarantee of exchange rate market value, provoked a massive borrowing of foreign exchange by the banking system that was lent to corporations and households;

- **$** Foreign private interbank lending, motivated by interest rates differentials and implicit exchange rate guarantees, led to a credit boom and to an open foreign position by the banking system. Government short-term Tesobonos issued as part of the strategy to maintain the peg, made Mexico vulnerable to domestic and external shocks;

- Financial liberalization and capital account openness were implemented within a weak supervisory and regulatory framework. After several years of government ownership in the banking system, institutions were privatized and due to the lack of expertise in managing banks in a more competitive environment, bankers were unable to implement risk systems to control for the different risks banks are exposed to;

- The ratio of broad money to international reserves experienced an important increase during the crisis, making the international reserves vulnerable to a run on the deposits of the banking system;

- The banking crisis preceded the currency crisis;

- Poor accounting practices, and a lack of timely financial data on the part of the banking system hindered market participants in evaluating the financial situation of the banking system;

- Political uncertainties worsened the crisis of confidence, exerting pressure on the exchange rate and international reserves.

Mexico=s financial system crisis preceded its currency crisis; however, the crisis in the financial sector was hidden by the government and regulators, who were afraid of disclosing it because of the risk of a run against the banks and the political consequences in an election year. This behavior is very common

in countries with weak and politicized supervisory and regulatory banking institutions, in which political interference leads to regulation forbearance. The same is true for the influence that political cycles have on the conduct of economy policy.

5.4 Argentina,1995

For decades, Argentina has been internationally recognized for its populist economic policies, which have led the country to many periods of hyperinflation and stagnation. In 1989 inflation in Argentina reached 3080 percent, and the government implemented successive stabilization programs aimed at reducing it. However, these programs were very short lived, and it was not until April 1991, when the government implemented its convertibility plan, that inflation was finally brought down. The convertibility plan had as its main components, not just the fixing of the exchange rate, but also the creation of a currency board. Under the latter arrangement, the central bank could only issue high powered money if the domestic currency is backed by international reserves. The reverse is also true, in the sense that losses in international reserves cause the shrinkage of the money base.

With a currency board in place, it is implicit that a central bank cannot finance a budget deficit, or intervene in the market through open market operations to influence the monetary aggregates. Moreover, in the case of a liquidity problem in the banking system, the central bank cannot use the discount window or act as a lender of last resort. Therefore, through the adoption of the new currency system, Argentina eliminated the discretionary utilization of monetary policy tools. This explanation is

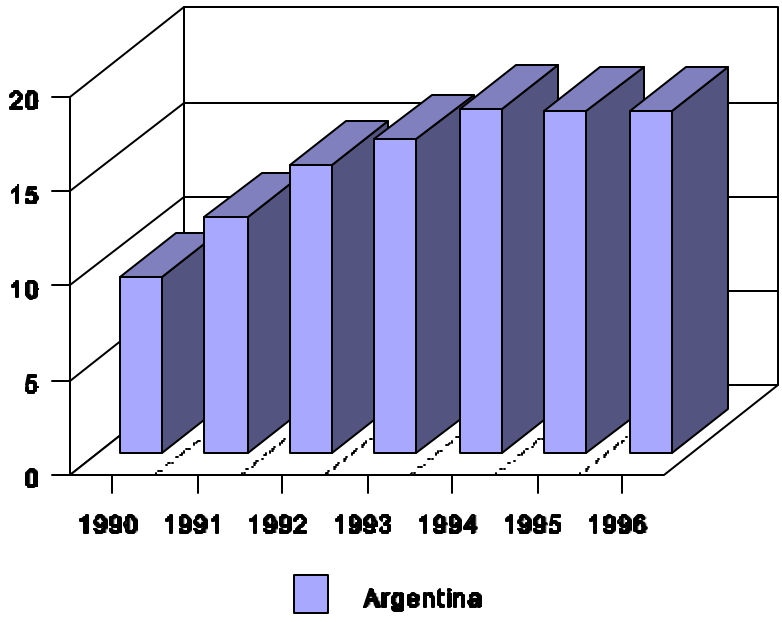
necessary to understand why, after the Mexican crisis erupted, Argentina was contaminated by the spillover effects of the crisis, since investors perceived the potential weaknesses of the central bank in coping with a full-fledged financial crisis. The markets wanted to test the firm commitment of the government to abide by the currency board rules now established in the Argentine Constitution.

The case of the Argentine crisis is a typical one of contagion, when changes in market sentiments provoke a speculative attack against a currency under the assumption that the government cannot maintain its fixed exchange-rate system. Argentina and Mexico did not have strong trade relations, nor did they compete for the same third markets, and they did not have significant financial linkages. The question is, therefore: Why speculators attacked the Argentine peso in the aftermath of the Mexican crisis? Some responses will be delineated in the following paragraphs. First, let us start with an analysis of the Argentine economic and financial situation before the contagion hit.

As part of its convertibility plan, Argentina eliminated all restrictions to capital flows and liberalized its financial system. As a consequence of these actions, loans by the deposit money banks to the private sector grew rapidly, as we can observe in the following chart.

CHART 5.3 Nominal loans to the Private Sector-to- Nominal GDP

Credit to the private sector grew very fast. Within four years of the implementation of the convertibility plan, the index of credit in relation to GDP grew 95.5 percent.



The loan to deposit ratio at the beginning of the new economic program was well above the 100 percent bench mark, but as the program was taking hold in the economy, the ratio began

to go down and then to stabilize, as we can see in the next table.

TABLE 5.45 Loans-to-Deposit Ratio

1991	1992	1993	1994	1995	1996
160.0	150.0	120.0	120.0	120.0	110.0

Source: International Financial Statistics. IMF. Author=s Elaboration.

As part of the capital adequacy rules, the Basle Committee on Banking Supervision establish, an 8 percent capital requirement on risk-weighted assets(see Section IV). In the case of Argentina, capital requirements are set at 16 percent of risk-weighted assets, giving the banking system a wider scope of maneuver ability to absorb shocks on asset quality. The funds to finance the excess of loans to deposit were mainly financed by the capital base of the banking system. The deposit money banks in Argentina were well capitalized, as can be seen in the next table.

TABLE 5.46 Capital of Deposit Money Banks-to-Total Assets

1991	1992	1993	1994	1995	1996
24.71	20.53	18.83	18.37	18.24	17.73

Source: international Financial Statistics. IMF. Author=s Elaboration.

The Argentine banks were confronted with a run on deposits that caused 7 percent of deposits to be withdrawn between mid-December and the end of February, along with an additional 8 percent in March. Due to the reduction in deposits and the concomitant reduction in international reserves, which in March reached its peak at U.S. $5 billion, the monetary base shrank, leading to a period of high

interest rates during the first quarter of 1995. The resilience of the banking system to the financial shock has three explanations. The first, the high level of capital to total assets, which acted as a cushion to support the immense deposit withdrawals. Second, in the absence of the possibility of the central bank acting as a lender of last resort, monetary authorities imposed high levels of reserve requirements against deposits; therefore, at the moment of the crisis, the central bank reduced reserve requirements to inject liquidity into the system. Finally, banks in Argentina are required to invest an important share of their deposits in liquid assets, a large proportion of which must be international reserves. These points explain how the Argentine government prevented a full-fledged banking crisis.

As was the case in the other crisis episodes, the Argentine banking system did not dramatically reduce credit to the private sector during and after the crisis. During that period, the loan portfolio remained at levels of more than 60 percent of total assets. In 1994, loans to the private sector reached its peak at 69.6 percent of total deposit money banks assets; in 1995, the year of the crisis, the percentage was reduced somewhat to 67.0 percent. Nevertheless, some small banks had to close their operations, and the government seized the opportunity to begin the privatization of state banks, and to strengthen regulations.

A crisis was on the currency front avoided because of the firm commitment of the government to maintaining the exchange rate system at any cost. This gave market participants confidence, and the speculative attack against the peso faded away. The International Monetary Fund, the World Bank, and the Inter-American Development Bank put together a financial package to

guarantee the foreign currency needed by Argentina as a second line of defense against speculative attacks to the peso. The economy fell into a recession in 1995, increasing unemployment in the Grand Buenos Aires to levels of 18 percent of the economic active population. This was the very high price that Argentina had to pay to defend its convertibility economic plan.

The eventuality of a financial crisis signaled a red flag to the Argentine government, in the sense that exchange rate overvaluation and current account deficits were unsustainable in the medium term. As we can observe in the next table, at the moment of the attack, the Argentine currency was overvalued by more than 42 percent.

TABLE 5.47 Real Effective Exchange Rate

1990	1991	1992	1993	1994	1995
100.0	73.4	64.6	59.0	58.1	57.7

Source: Inter-American Development Bank

Such an appreciation of the Argentine peso had only a marginal influence on its economy, since Argentina is a very closed economy, as we can see in the next table, and its exports are almost 30 percent directed to Brazil, supported by trade agreements under the MERCOSUR framework. Likewise, terms of trade had only a small impact on the health of the banking system, due again to the lack of trade openness in the Argentine economy. Nevertheless, the influence that the convertibility plan is having on the modest behavior of the export sector in relation to GDP, and the current account deficit is open to question.

TABLE 5.48 Indicators of Trade Openness

	1991	1992	1993	1994	1995	1996
Exports/ GDP	7.76	6.67	6.21	6.72	8.67	9.25
Imports/ GDP	6.12	8.29	8.21	9.26	8.64	9.50

Source: International Financial Statistics. IMF. Author=s Elaboration.

The current account deficit in Argentina is chronic due to the low level of domestic savings, which is an inheritance from the past, and the modest performance of the tradable sector. The next table illustrates the current account deficit and the level of gross domestic savings in the Argentine economy.

TABLE 5.49 Current Account and Gross Domestic Savings (share of GDP)

	1991	1992	1993	1994	1995	1996
Current Account/ GDP	-0.34	-2.39	-2.98	-3.59	-0.99	-1.27
Gross Domestic Savings/ GDP	15.01	14.16	15.34	16.30	17.06	16.19

Source: International Financial Statistics. IMF. Author=s Elaboration.

After the crisis, the government implemented an economic program to reduce its imbalances, which were reflected in the reduction of the current account deficit, and in the negative economic growth. Nevertheless, due to an insufficient level of savings to finance a sustained high economic growth, the current account deficit peaked again in 1997.

At the onset of the implementation of the convertibility plan in 1991, capital began to enter the country. The capital inflows experienced by Argentina during the program were sufficient to finance the current account deficit, and to accumulate international reserves, as we can observe from the next table.

TABLE 5.50 Financial Account (share of GDP)

1991	1992	1993	1994	1995	1996
5.1	6.0	7.2	6.0	6.2	6.5

Source: International Financial Statistics. IMF. Authors Elaboration.

In the next table we can observe the behavior of the bond issues and the loan commitments by international banks, prior, during, and after the crisis.

TABLE 5.51 Argentina: Bond Issues and Loan Commitments. (Billions of U.S. dollars)

1994	Firs Half 1995	2-Half 1995	1995	1996
8.2	3.7	6.1	9.8	24.0

Source: Global Development Finance, 1998, World Bank, Washington D.C.

The recovery of the capital inflows to Argentina were more remarkable than in the case of Mexico, because by the end of 1995 Argentina registered net positive capital inflows, and in 1996, capital inflows increased more than twofolds.

Another factor that helped Argentina to weather the crisis with success, was its external debt structure, as we can see in the next table.

TABLE 5.52 Short-Term Debt-to-Total Debt

1991	1992	1993	1994	1995	1996
20.71	23.67	12.26	9.26	12.17	13.01

Source: Global Development Finance, 1998, World Bank, Washington D.C.

In 1991-1992 short-term debt was around 22 percent of total debt. In 1993 the external-debt profile changed due to the Brady negotiations, and short-term debt represented 9.26 of total debt, just the year before the crisis. Therefore, Argentina did not have the liquidity pressure, as was the case in Mexico, to either pay or roll over its external debt. During the first months of the contagion effects, the banking system lost US $ 8.0 billion dollars in deposits; however, international banks kept their lines of credits open to the Argentine banks, as we can see in the next table.

TABLE 5.53 Argentina: Consolidated Cross-Border Claims in all Currencies and Local Claims in nonlocal Currencies

Argentina	Billions of U.S. dollars	Short-term interbank lending to total lending(percent)
mid-1994	31.9	55.0
end 1994	35.6	53.4
mid-1995	37.6	57.2
end 1995	39.2	57.2

Source: BIS, Consolidated Banking Statistics. Author=s Elaboration.

As a conclusion to this quasi-crisis episode, it could be said, that Argentina was a typical case of contagion, for no other reason than the sheer betting by investors, who regarded the Argentina=s

external imbalances, such as the overvaluation of its domestic currency, the current account deficit and the inflexible rules behind the currency board, as ripe for a round of speculation against the peso.

On the other hand, the government, as was mentioned earlier, was committed to defending its exchange rate arrangement; at the same time, the international organizations such as the IMF, World Bank and IDB, decided to back up its efforts. In the aftermath of the crisis, the Argentine government negotiated lines of credit with international banks and international financial organizations to build a permanent second line of liquidity-defense in case of a new speculative attack. So far, so good. Argentina was untouched by the 1997-1998 Asian, and Russian crises. But with a lot of pain, it is passing the Brazilian test of early 1999, when Brazil decided to float its currency, the real, which was under attack by foreign investors.

In Argentina=s case, a currency crisis was avoided, and a focalized banking crisis was stopped long before becoming a full-fledged banking crisis. Argentina weathered a crisis that was the result of a spillover effect from the Mexican crisis. Opportune regulations on capital requirements, liquidity positions, reserve requirements and, last but not the least, the firm stance by the government to defend its exchange rate system contributed to the Argentine success story.

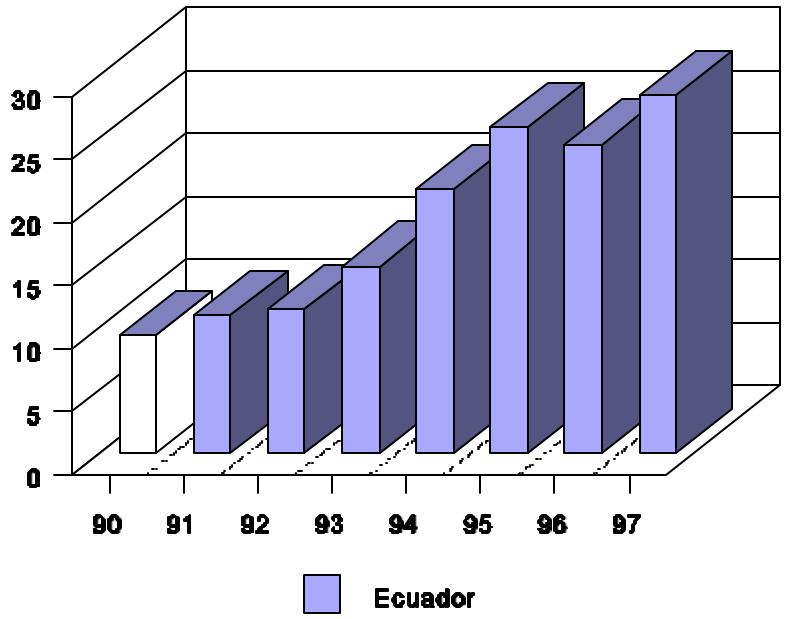
The second generation models of currency crisis explain the reasons behind the speculative attacks well, and in the case of the banking crisis, the elements of information asymmetries on the part of the depositors were present in the initial banking runs. Real exchange appreciation, and the current account

deficit, under a fixed and rigid exchange rate system, contributed to the development of negative expectations toward the sustainability of the exchange rate regime.

5.5 Ecuador 1995- Beginning of 1999

While writing this paper, a twin crisis of serious proportions erupted in the last quarter of 1998 in Ecuador. The Ecuadorian crisis has its genesis in 1993, when the government decided to liberalize the financial system, and to eliminate the capital restrictions that were in place. The actions taken by the government, were supported by new legislation and new institutions. In particular, two new laws were approved by Congress: The Financial Institutions law and the Central Bank law. The former introduced the universal banking concept, whose operations and implications for banking management and supervision have been discussed elsewhere in this paper. Immediately after liberalization was implemented, capital began flowing into the country. This situation provoked a rapid credit expansion, without adequate institutional supervision and regulation. In the next chart we can observe the evolution of loans to the private sector by deposit money banks.

CHART 5.4 Nominal Loans to the Private Sector (share of GDP)



The credit expansion suddenly came to a stop, when in January 1995, Ecuador was involved in a focalized war conflict with Peru, which occasioned massive capital outflows. In 1995, the unrecorded capital outflows, or capital flights, were on the order of 7.4 percent of GDP.

The relation of total loans to the private sector to total deposits increased rapidly, and the ratio exceeded in some years the 100 percent bench mark, as we can see in the next table, forcing the banking system to finance the gap through short-term money market operations.

TABLE 5.54 Loans to the Private Sector-to-Deposit

1992	1993	1994	1995	1996	1997
72.5	86.4	100.0	108.7	93.7	103.9

Source: Banco Central del Ecuador. Author=s Elaboration.

The capital inflows had an impact on private consumption, affecting the rate of savings in the economy, as we can observe from the next table. Another aspect that is interesting to observe is the behavior of the gross saving rate the year before the crisis, and the year the crisis erupted. In these two years, savings reached its lowest level during the period; behavior that is similar with that observed in Mexico. Therefore, the argument which states that capital inflows that finance mainly private consumption affect the savings rate of a country, holds in the case of Ecuador.

TABLE 5.55 Gross National Savings (share of GDP)

1992	1993	1994	1995	1996	1997
20.23	17.71	14.30	12.71	17.51	13.99

Source: International Financial Statistics. IMF. Author=s Elaboration.

The recovery of gross national savings in 1996 is atypical, in the sense that, in that year, terms of trade were highly positive for Ecuador; therefore, the current account registered a surplus.

In terms of Latin American standards, Ecuador is a very open economy, consequently, it is exposed to external shocks that affect terms of trade. In the next two tables, we can observe the indicators of trade openness and the behavior of the terms of trade during the period of analysis.

TABLE 5.56 Indicators of Trade Openness

	1993	1994	1995	1996	1997
Exports of Goods / GDP	21.1	22.8	24.5	25.6	26.6
Imports of Goods/ GDP	15.9	19.4	22.5	19.2	23.6

Source: Banco Central del Ecuador. Author-s Elaboration.

TABLE 5.57 Terms of Trade Index1990=100

1992	1993	1994	1995	1996	1997
89.5	77.9	81.2	79.7	86.9	91.4

Source: Inter-American Development Bank. Author-s elaboration.

Terms of trade began to improve in 1996, reaching their peak level in 1997 when Ecuador registered a huge surplus in its trade balance with the rest of the world. However, in 1998, things deteriorated rapidly, as we will see further in the analysis.

The real effective exchange rate is a key variable for maintaining the external sector equilibrium in an open economy such as Ecuador-s. However, since 1993 the government decided to use the exchange rate as a nominal anchor to control inflation, which caused an exchange rate appreciation, as we can see in the next table.

TABLE 5.58 Real Effective Exchange Rate. Index 1990=100

1992	1993	1994	1995	1996	1997
94.0	80.6	75.9	77.3	77.7	72.4

Source: Inter-American Development Bank. Author=s Elaboration.

The capital inflows to Ecuador were sufficient to finance the current account deficit and the capital flights that occurred in 1995 and the following years. The latter, as mentioned earlier, represented 7.4 percent of GDP in 1995, and in 1996 and 1997 capital flight recorded an index of 6.9 and 2.7 percent of GDP, respectively.

The decline in the rate of savings in the country, due to the demand push provoked by the credit expansion, affected the level of the current account, which registered high deficits during the boom years, as we can see in the next table.

TABLE 5.59 Current Account (Share of GDP)

1992	1993	1994	1995	1996	1997
-1.0	-4.74	-4.10	-4.10	0.58	-3.77

Source: International Financial Statistics. IMF. Author=s Elaboration.

The government=s finance registered low deficits during the first three years of the 1990s. It was not until the 1995 crisis that the fiscal budget began to register important deficits, further deteriorating the savings rate and the current account, as can be seen in the next table.

TABLE 5.60 Budget Deficit(-) or Surplus(+) (share of GDP)

1992	1993	1994	1995	1996	1997
-1.15	-0.01	0.6	-1.13	-2.96	-2.55

Source: Banco Central del Ecuador. Author=s Elaboration.

To finance the deficit, the government increased its internal debt, placing bonds denominated in foreign currency in the local market. In 1995, domestic credit expanded, due to the central bank credit to the banking system to control for capital outflows, and to the decrease in government deposits. Therefore, the central bank intervened forcefully in the market to sterilize the large amounts of capital outflows generated due to the uncertainty created by the war.

The unexpected sudden stop in capital flows, put pressure on the quality of the banking system=s loan portfolio. The loans that were overdue and the provisions made to back the deterioration of the quality of the loan portfolio, exerted an additional burden on the liquidity and solvency of the banking system. In the next two tables we can observe the evolution of the indicators that show the deterioration of loan quality.

TABLE 5.61 Nonperforming Loans (share of total loans)

1992	1993	1994	1995	1996	1997
5.1	3.9	3.6	5.0	9.0	7.0

Source: Banco Central del Ecuador. Author=s Elaboration.

TABLE 5.62 Provisions (share of nonperforming loans)

1992	1993	1994	1995	1996	1997
50.7	84.2	96.6	76.9	71.6	87.4

Source: Banco Central del Ecuador. Author=s elaboration.

To correctly interpret the above two tables, and to realize the magnitude of the amounts of nonperforming loans and provisions made by the banking system, it is important to connect them with Chart 5.4, which shows the relation of loans to the private sector to GDP. In 1992 loans to the private sector to GDP accounted for 11.3 percent of GDP, while the amount of nonpeforming loans were 5.1 percent of total loans. In 1997 on the other hand, the former indicator was 28.3 percent of GDP, while the latter was 87.4 percent of total loans. This is an immense difference in absolute terms an immense difference, as well as in relative terms.

Apparently, the capital account of the banking system were at levels considered more than sufficient. In 1997, the ratio of capital account to assets was 23.9 percent, and it was 20.4 percent in 1998. Nevertheless, Ecuador has an poorly-designed monetary correction accounting system, in which the inflationary adjustments are reflected in the capital accounts, but they do not affect the profit and loss statements. This situation conducts an overvaluation of the capital account of the banking system; accordingly, the capital base of the banks in Ecuador was much less than the figures showed.

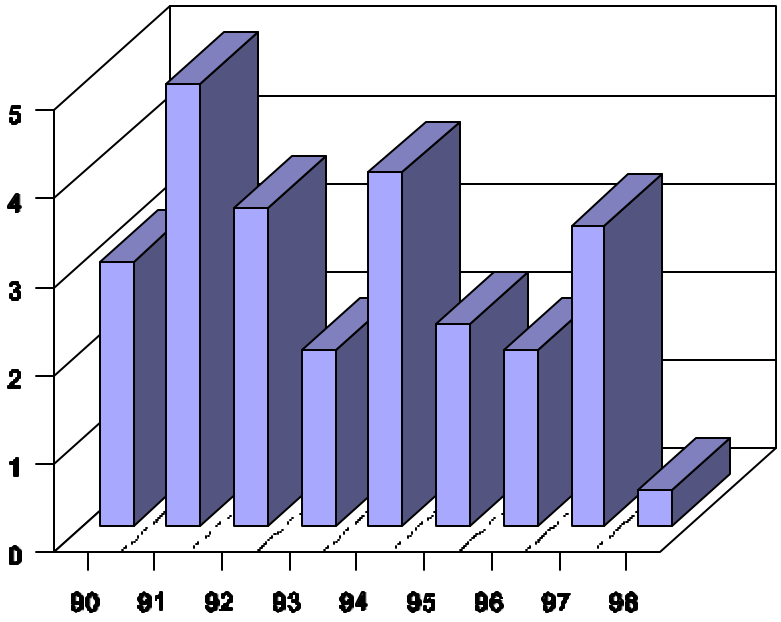
During 1995, several small financial institutions and some highly leveraged stockbrokers went bankrupt. At the beginning of 1996, the number five bank in the country, Banco Continental, also went bankrupt, prompting the central bank to intervene to avoid a much wider financial crisis. These events were early signals that something was going wrong in the banking system.

At the end of 1997 Ecuador was ripe for experiencing a twin crisis. The elements that inexorably conducted Ecuador into its worst crisis of the twentieth century included the Asian crisis, which affected the commodity and natural resource prices in the international markets; the El Niño current, which devastated the crops and the infrastructure of the Ecuadorian coast; and the political events that took place during 1997-1998. In the following paragraphs, the financial and economic events in Ecuador during 1998 are analyzed, and a comparison of the theory and the empirical evidence is carried out to close this subsection, which analyzes the most relevant financial crises that took place in Latin America during the 1990s.

5.5.1 Ecuador=s Twin Crises: 1998-1999

During the 1990s Ecuador experienced very low economic growth. The average annual GDP for the period 1990-1998 was 3.0 percent, and GDP per capita in real terms grew only a modest 7.8 percent in the same period. Among all the Latin American countries, Ecuador is the only one to lose two decades of economic growth in a row. The next chart depicts the growth of its GDP during the 1990s

CHART 5.5
Ecuador: Real Gross Domestic Product Annual Growth



In 1998, due to the impact of El Niño on the economy, GDP grew at a modest 0.4 percent, which meant a negative per capita growth. Exports as part of the GDP, which in 1997 were 26.6 percent, plummeted to 21.3 percent of GDP in 1998. Imports on the other hand, grew due to the necessity of importing capital goods to restore the infrastructures that El Niño destroyed, and to the real exchange rate overvaluation. Since September 1998, when the authorities of the newly independent central bank took office, decided to widen the exchange rate band to cope with the overvaluation of the sucre, and the real exchange rate improved as we can observe in the next table.

TABLE 5.63 Real Effective Exchange Rate. July 1998- January 1999.

July	August	September	October	November	December	January
81.3	82.2	86.3	93.1	87.7	90.4	94.7

Source: Banco Central del Ecuador. Author-s Elaboration.

The current account deficit widened in 1998 to reflect both the impact of the El Niño and the decrease in commodity prices in the international markets. The terms of trade deteriorated dramatically during 1998, decreasing 45 percent in December 1998, relative to November 1997. Thus, the current account experienced a 10.75 percent deficit.

On the fiscal front, things could not be wors: the deficit skyrocketed to 5.73 percent of GDP after the government introduced a fiscal package to lower it, otherwise the deficit could have been more than 7 percent of GDP. The government attempted to finance the deficit by soliciting a credit to the central

bank, but this publicly was turned down by the president of the newly independent institution; therefore, the government did not have other option in the absence of financial resources of rolling the deficit over into the next year. As this paper is being written, Congress still analyzing the economic measures necessary to reduce the deficit; however, the fiscal gap will be not be closed, and the deficit is expected to reach 3.5 percent of GDP for 1999.

The monetary authorities, under the pressure of losing reserves, finally allowed the sucre to float in late February. The exchange rate experienced an overshooting, and the depreciation of the domestic currency in the first week against the U.S. dollar was more than 100 percent, stabilizing afterward at 25 percent over its initial value.

At the same time, the banking system balance sheets were feeling the pressure of the unraveling economic situation. The loan to deposit ratio increased further in 1998, from an index of 103.9 percent at the end of 1997, to an index of 114.4 percent in August 1998, and to 110.0 percent in January 1999. The banking system was funding its loan portfolio with money market operations, increasing liquidity risk. If they were deducted from the index reserve requirements, the deposits available to fund the loan portfolio were even less. Since September 1998 the banking system had problems complying with the weekly reserves required by the central bank, and from a deficit of 6.8 percent of total deposits at the end of January 1999, the deficit skyrocketed to 39.8 percent of total deposits, a dramatic liquidity crunch. The central bank came in to inject liquidity directly to the banking system through the discount window, and from a negative position of -1.4 percent of GDP in July 1998,

domestic credit to the banking system turned positive in January 1999, when it represented 4.5 percent of GDP. The growth in domestic credit was immediately reflected in the level of international reserves which from July 1998 to March 1999 had declined by U.S $780 million dollars, as depicted in the next chart.

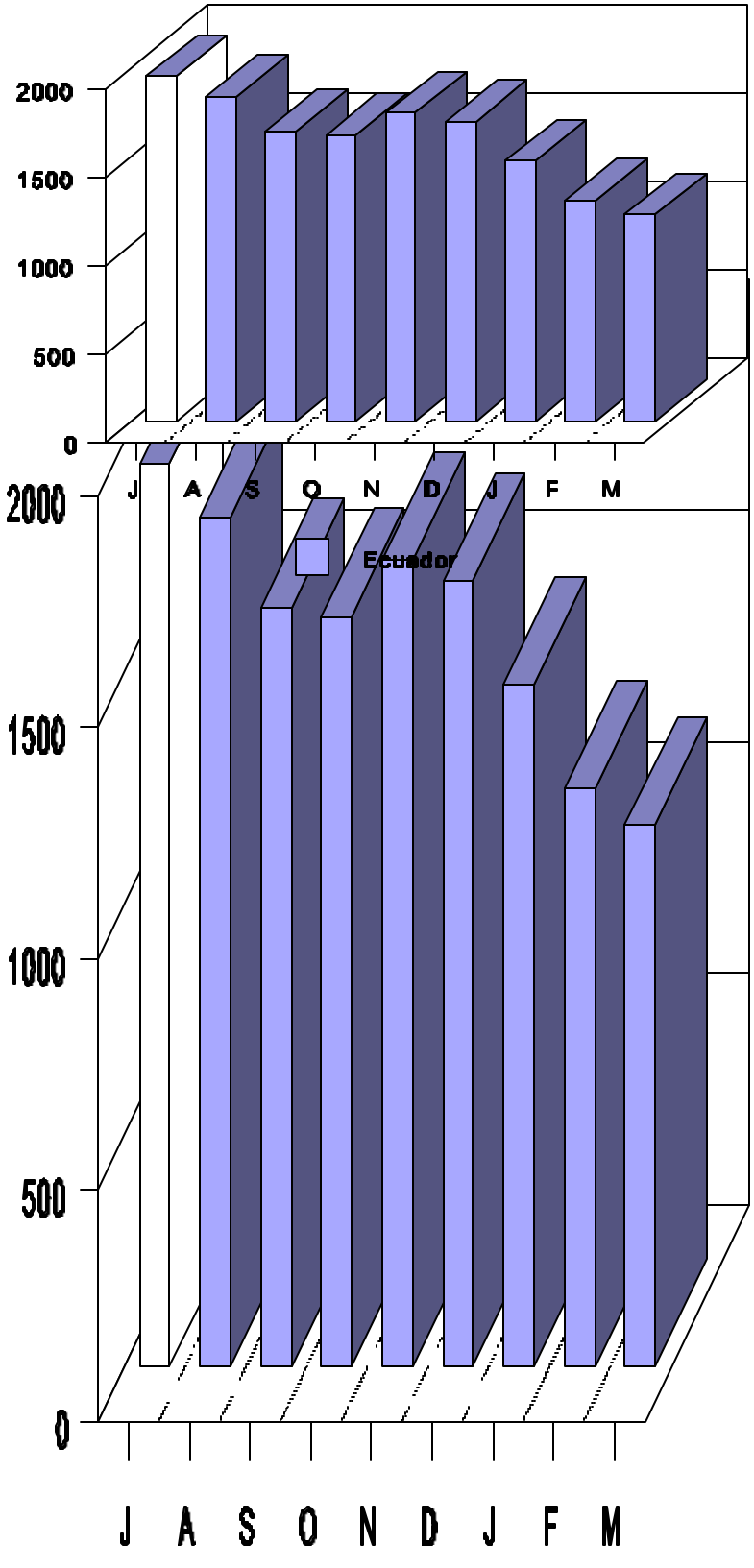


CHART 5.6
Ecuador: Net International Reserves (U.S. dollars). July-December 1998. January-March 1999.

The loan portfolio deteriorated further during 1998. At the end of the year, nonperforming loans represented 9.04 percent of total loans, and the provisions made against that portfolio accounted for 91.6 percent. The balance sheets of the banking system were therefore reflecting the liquidity crunch and the reduction of overall solvency, due to the impact that provisioning has on the capital accounts.

In September 1998, one of the ten major banks of Ecuador went bankrupt, and the government had to hurry to send to Congress a project creating an agency to guarantee depositors and creditors. After the approval of the new institution, eight banks went under the umbrella of the agency, putting additional strain on the central bank monetary policy, and the government budget. Among the new agency=s guests was the number-one bank according to the volume of its assets value. The crisis so far, has had a direct cost to the government of near 10 percent of GDP, and the crisis is far from over. In the third week of March the government decreed a bank holiday for five days, and froze the demand, savings and time deposits for a period of one year, putting a cap on the maximum amounts that depositors can withdraw from their accounts

The Ecuadorian twin crises fits both the currency and banking crisis theories well. In the case of first generation models, domestic credit grew in Ecuador, because the government was drawing down its deposits in the central bank to finance its deficit and due to the domestic credit expansion by the central bank to bail out the banking system. As first generation models explain, if domestic credit growth is greater than money demand growth, the central bank begins to lose international reserves, which is exactly what happened in Ecuador, as we have seen through the analysis. The central bank had to sterilize the capital which was going out of the country. Unrecorded capital, or capital flight reached the amount of 2.14 percent of GDP in 1998, and the government and the private sector had to finance the current account deficit through more external debt, in the amount of 6.5 percent of GDP. The current account deficit and the real exchange appreciation made investors concerned about the country=s capacity to weather the crisis, and they, therefore, pulled their resources out of the country. In the case of foreign banks, they decided to freeze the lines of credit that were available to the banking system to finance trade and loans in the last quarter of 1998. According to the Bank of International Settlements, the consolidated international claims of BIS reporting banks to Ecuador, as of the end of June 1998, were US $3.8 billion, of which 55.7 percent or the equivalent of 11.1 percent of GDP, was due in less than one year. Therefore, investors negative expectations of Ecuador, even though they came late, as was the case in Asia, finally arrived, and with vigor.

The credit boom experienced in Ecuador since 1993 led the banking system to face adverse selection problems and moral hazard incentives. The latter were exacerbated by the liberalization of the financial system and the openness of the capital account. Deliberate actions taken by the bankers to cope with

narrow interest margins, and asymmetric information therefore led the banking administrators to assume disproportionate credit risks. The banking authorities responded to the crisis by creating a new institution to insure creditors against bank runs, and by stopping deposit convertibility, an old practice to stem a banking systems melt down.

However, additional elements have to be considered to explain the Ecuadorian crisis. These include: terms of trade deterioration, exchange rate appreciation, and the effects of the El Niño current, all of which affected the quality of the banking system=s loan portfolio.

In summary, the factors which precipitated the financial crisis in Ecuador, were:

- Large current account deficits (with the exception of 1997) that contributed to the build up of overheating pressures in the economy, especially in the real estate market;

- Exchange rate appreciation, and the strong belief that the government would firmly defend the exchange rate system and the banking system, led to aggressive foreign exchange borrowing by the banking system, which on-lent those funds to the corporations and households, further stimulated by financial liberalization;

- Short-term interbank lending, motivated by interest rate differentials and implicit government guarantees, led to a credit boom in which lenders and borrowers were exposed to currency

fluctuations, due to the unhedged nature of the operations, making Ecuador vulnerable to domestic and external shocks;

- Terms of Trade deterioration due to the fall in commodity and natural resource prices in international markets, and the devastating effects that the El Niño current had on Ecuador=s productive capacity, took their toll on the economy and the banking system;

- Financial liberalization and capital account openness were implemented within a weak supervisory and regulatory framework. Lack of enforcement of prudential rules, cross-ownership between corporations and wealthy individuals, led to connected lending practices and fraud. Regulation forbearance, further contributed to the deterioration of the banks= loan portfolio;

- The ratio of broad money to international reserves experienced an important increase during the crisis, making the international reserves vulnerable to a run on the deposits of the banking system;

- The banking crisis preceded the currency crisis;

- Limited availability of accurate data, and lack of transparency in the accounting procedures, hindered market participants in obtaining timely and accurate data for evaluating the financial

condition of the banking system;

- Recurrence of political crises during 1995-1997 contributed to the erosion of investors confidence in the Ecuadorian economy.

5.6 Indonesia, Korea and Thailand 1997

The so called AAsian Tigers@, the miraculous economies of the 1980s and 1990s, fell into a deep financial crisis during the second half of 1997. The crises in Indonesia, Korea, and Thailand were so profound that they precipitated a serious recession, resulting in a sharp drop in living standards, together with rising unemployment and social dislocation. The Asian crisis threatened the world by spreading to other countries and regions. Some countries suffered from contagion, unleashing the forces for an economic crisis, especially in countries that did not have their economic fundamentals in place, as was the case in Russia and Brazil.

The Asian 3- Indonesia, Korea and Thailand- experienced strong economic growth before the crisis erupted in mid-1997, and inflation was low by international standards, as the next table shows.

TABLE 5.64 Economic Growth (EG) and Consumer Price Index (CPI) (end of the year)

	1993	1994	1995	1996	1997
INDONESIA					
Ec. Growth	6.5	7.5	8.2	8.0	4.6
CPI	9.6	8.5	9.4	8.0	6.7
KOREA					
Ec. Growth	5.7	8.6	8.9	7.1	5.5
CPI	4.8	6.2	4.5	5.0	4.4
THAILAND					
Ec. Growth	8.7	8.9	8.7	6.4	-1.3
CPI	3.4	5.1	5.8	5.8	5.6

Source: International Financial statistics. IMF. Author=s Elaboration.

Indonesia was an early reformer, deciding to liberalize its financial system in 1988, allowing capital and dividend repatriation for foreign capital. In the late 1980s and early 1990s, the Thai government reduced reserve requirements, eased the rules governing nonbank financial institutions, and expanded the scope of permissible capital market activities. In 1991, Thailand liberalized capital outflows, allowing residents to export capital for investment purposes, and to keep foreign currency accounts with commercial banks. Deregulation of the Korean financial sector, introduced in 1993, eliminated many interest-rate controls, removed restrictions on corporate debt financing and cross-border flows, and allowed competition in financial services.

The policies implemented by these three countries generated massive capital inflows. Furthermore, the flows were also attracted, because of the Asian 3's long track record of strong economic growth. In the next table, we can observe the amount of net private capital inflows to these three countries in the

period 1994-1996.

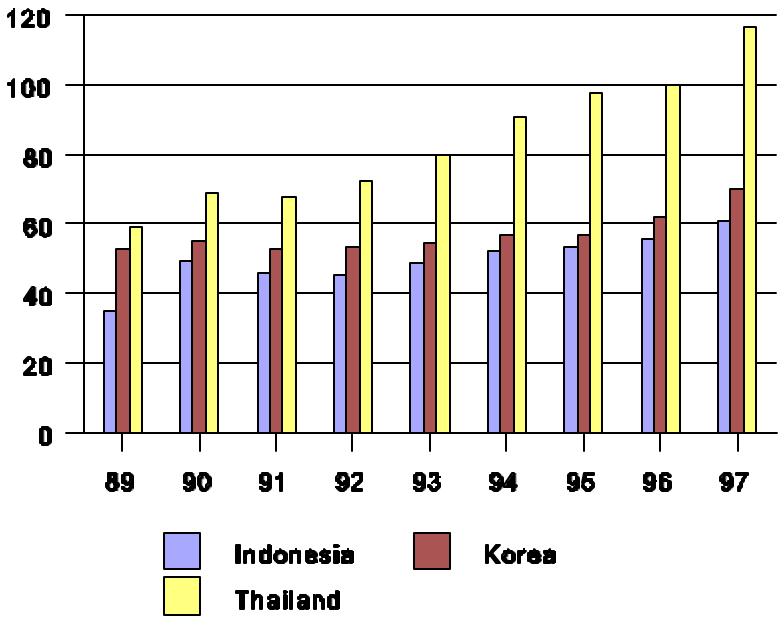
TABLE 5.65 Net Private Capital Flows 1994-1996 (share of GDP)

	1994	1995	1996
Indonesia	0.3	3.5	6.1
Korea	1.2	2.0	4.9
Thailand	14.3	17.3	14.5

Source: Global Development Finance, 1998, World Bank, Washington D.C.

Thailand was the country with the highest net private capital flows relative to GDP; the figures for the period 1994-1996 are extraordinary by any standard. In Indonesia and Korea, capital inflows increased substantially in 1996, the year before the crisis erupted in both countries. Increased access to offshore funding made it easier for banks to take on excessive foreign exchange risk. The liberalization of financial markets at a time of easy global monetary conditions encouraged a surge in borrowing, and domestic credit skyrocketed, as we can observe in the next chart.

CHART 5.7 Nominal Loans to the Private Sector (share of GDP)



Indonesian credit to the private sector grew from 34.9 percent of GDP in 1989, to 61.0 percent in 1997. In Korea the same pattern can be observed: credit to the private sector grew from 52.5 percent of GDP in 1989, to 69.8 of GDP in 1997. In the case of Thailand, the credit boom was explosive due to the immense capital inflows, and loans to the private sector grew from 58.8 percent of GDP in 1989 to 116.3 percent in 1997. The behavior of the credit expansion is related to the intensity of the capital inflows that each country received. In the case of Korea and Thailand, credit inflows were intermediated by the domestic financial system for on-lending purposes. In Korea, the merchant banks, where the Chaebol, or big Korean conglomerates, had important ownership participation, were in exclusive charge of financing these corporations. In Thailand, short-term borrowing was encouraged by the government through the creation of the Bangkok International Bank Facility, a tax-exempt entity

specializing in short-term borrowing from abroad and on-lending in the domestic market. In Indonesia, corporations had direct access to foreign currency loans. In short, the three countries were involved in borrowing short-term through interbank lending, either to on-lend these funds for investment purposes or to finance working capital, increasing the financial systems liquidity and credit risk, and exposing borrowers to exchange rate risk due to the prevalence of unhedged foreign currency borrowing.

The loans to deposit ratios, were above the 100 percent mark in the three countries; therefore, the banking systems were actively participating in the money market (and even in the overnight market) to fund their loan portfolios, increasing the liquidity risk. The next table presents the indexes for the Asian 3 countries.

TABLE 5.66 Loans-to-Deposit Ratio

Countries	1993	1994	1995	1996	1997
Indonesia	125.5	129.6	123.1	115.8	119.5
Korea	144.1	144.6	144.7	147.8	156.4
Thailand	110.6	128.1	135.6	137.5	140.5

Source: International Financial Statistics. IMF. Author=s Elaboration.

The loans to deposit ratios in Korea and Thailand were extremely high; then, the maturity mismatch between assets and liabilities in the banking system should have been very high. In the case of Indonesia, the ratio is lower than in the other two countries, but it is still high, meaning that the gap between assets and liabilities maturities imposed a liquidity risk on the banking system.

Short-term interbank lending increased rapidly in the three countries, as the statistics of the Bank of

International Settlements(BIS) shows.

TABLE 5.67 BIS: Consolidated cross-border claims in all currencies and local claims in non local currencies. Billions of U.S., and short term debt as percentage of total loans.

	Indonesia	Korea	Thailand
mid-1996	US$49.3/ 60.0%	US$88.0/ 70.8%	US$69.4/ 68.9
end-1996	US$55.5/ 61.7%	US$100.0/ 67.5%	US$70.1/ 65.2%
mid-1997	US$58.7/ 59.0%	US$104.2/ 68.0%	US$69.4/ 65.7%
end-1997	US$58.2/ 60.6%	US$93.4/ 62.8%	US$58.5/ 65.8%

Source: BIS, Consolidated Banking Statistics. Author=s Elaboration.

Six months prior to the crises, the short-term interbank lending of these countries were more than 60 percent of total loans. The difficulties that these countries had to renegotiate with international banks, were therefore abated, due to the intervention of the international organizations and government guarantees given to foreign private creditors. Otherwise, the Asian 3 would have defaulted on their external debt.

The Asian crisis differs from other developing-countries crises, because private decisions were the main source of difficulties, while public borrowing played a limited role, and inflation was low. Capital inflows were used to finance the gap between private investment and private savings. As we can see in the next table, the cases of Indonesia, Korea, and Thailand were cases of private overinvestment, which differ from the Mexican case, which was one of overconsumption.

TABLE 5.68 Gross Investment and Gross Saving (share of GDP)

	1993	1994	1995	1996	1997
INDONESIA					
Gross Investment/ GDP	29.5	31.1	31.9	30.7	31.3
Gross Savings/GDP	21.3	23.3	21.6	22.0	22.0
KOREA					
Gross Investment/ GDP	35.1	36.0	37.0	38.4	35.0
Gross Savings/GDP	34.8	35.0	35.9	34.6	34.0
THAILAND					
Gross Investment/ GDP	39.9	40.4	42.3	41.0	35.0
Gross Savings/GDP	33.6	34.0	34.6	33.8	31.8

Source: International Financial Statistics. Author=s Elaboration.

As we can see from the above table, savings remained stable during the credit boom, which was not the case in the Nordic countries, Mexico, or Ecuador. The difference between the Asian 3 and the other countries could be attributed to credit allocation; in the former, credit financed investments, some of them though, of doubtful quality; and in the latter case, credit was mainly oriented to finance private consumption. Again, Thailand outperformed the other two countries in the ratio of investments to GDP, evidencing the highest capital inflows related to GDP received in relation to Indonesia and Korea.

The economies of the three countries are regarded as very open, and are therefore exposed to terms of trade fluctuations and exchange rate misalignments. The next table shows the indicators of exports and imports to GDP for the three countries.

TABLE 5.69 Indicators of Trade Openness: Exports of Goods and Services (XGS) and Imports of Good and Services (MGS) (share of GDP)

	1993	1994	1995	1996	1997
INDONESIA					
XGS/GDP	26.75	26.51	26.31	25.82	27.96
MGS/GDP	23.77	25.37	27.65	26.44	28.23
KOREA					
XGS/GDP	29.26	30.11	33.06	32.38	38.12
MGS/GDP	28.81	30.84	34.12	36.34	38.84
THAILAND					
XGS/GDP	37.71	38.75	41.7	38.57	47.03
MGS/GDP	41.39	43.05	47.87	44.27	46.35

Source: International Financial Statistics. IMF. Author=s elaboration.

We can observe that in all three countries, exports to GDP declined from trend in the year before the crisis, while imports increased more rapidly than exports, originating trade deficits especially in the case of Thailand.

Terms of trade declined in the case of Korea and Thailand. In the case of Korea, a weaker market for computer chips in 1996 hurts its economy, but there was no evidence of a real exchange appreciation

despite a 27 percent drop in terms of trade in the three years prior to September 1997. Thailand, which had a fixed exchange system that pegged the domestic currency to the U.S. dollar, suffered from the appreciation of the dollar in relation to the yen in 1995, which affected its competitiveness. Indonesia was also experiencing real exchange appreciation, as we can see in the next table.

TABLE 5.70 Real Effective Exchange Rate Indexes, December 1996-December 1997
(1988-92 average=100)

	December 1996	June 1997	December 1997
INDONESIA	104	105	59
KOREA	89	87	59
THAILAND	108	109	74

Source: Global Development Finance, 1998, World Bank, Washington D.C.

The financial account during 1993-96 registered important capital inflows in the three countries, in line with the behavior of net private capital inflows. Those capital transfers were sufficient to finance the current account deficit and to accumulate international reserves, as we can see in the next table.

TABLE 5.71 Financial Account (FA) and Current Account (CA) (share of GDP)

	1993	1994	1995	1996	1997
INDONESIA					
FA/GDP	3.56	2.17	5.08	4.77	-0.28
CA/GDP	-1.33	-1.58	-3.18	-3.37	-2.27
KOREA					
FA/GDP	0.97	2.82	3.78	4.94	-2.08
CA/GDP	0.30	-1.02	-1.86	-4.75	-1.85
THAILAND					
FA/GDP	8.36	8.42	13.01	10.53	-10.27
CA/GDP	-5.07	-5.59	-8.05	-7.94	-1.96

Source: International Financial Statistics. IMF. Author=s elaboration.

The current account deficit in Thailand was extremely high in 1995, reaching its peak in 1995 and 1996 when it accounted for 8.0 percent of GDP. Korea, had a modest current account deficit in 1995, that reached dangerous levels in 1996, when it registered almost 5 percent of GDP. More will be said about sustainable current account deficits in the next section of conclusions and recommendations.

In the next tables, the net foreign position of the banking system, which includes the monetary authorities and the deposit money banks, is shown for the three countries.

TABLE 5.72 Indonesia: Net Foreign Assets (NFA) of the Banking System (share of GDP)

	1993	1994	1995	1996	1997
NFA of the Banking System	6.24	4.0	4.03	7.88	4.06
Monetary Authorities	11.4	9.52	8.83	11.23	12.56
Deposit Money Banks	-5.18	-5.52	-4.8	-3.35	-8.50

Source: International Financial Statistics. IMF. Author=s Elaboration.

TABLE 5.73 Korea: Net Foreign Assets (NFA) of the Banking System (share of GDP)

	1993	1994	1995	1996	1997
NFA of the Banking System	6.64	6.73	6.37	5.17	5.41
Monetary Authorities	6.21	6.79	7.18	7.17	3.49
Deposit Money Banks	0.43	-0.06	-0.81	-2.00	1.92

Source: International financial Statistics. IMF. Author=s Elaboration.

TABLE 5.74 Thailand: Net Foreign Assets (NFA) of the Banking System (share of GDP)

	1993	1994	1995	1996	1997
NFA of the Banking System	14.32	4.08	0.03	-1.75	-10.36
Monetary Authorities	20.47	20.90	22.19	21.50	19.31
Deposit Money Banks	-6.15	-16.82	-22.16	-23.25	-29.70

Source: International Financial Statistics. IMF. Author=s Elaboration.

As we can see in the above tables, Thailand and Indonesia had ample open foreign exchange positions, in which foreign liabilities exceeded foreign assets. In the specific case of Thailand, the figures are

impressive, as the net foreign exchange position of the deposit money banks was more than 20 percent negative in relation to GDP in 1995-96; in 1997 that percentage increased to almost 30 percent, making the banking system extremely vulnerable to exchange rate fluctuations. Korea, on the other hand, maintained a modest net foreign asset position in the deposit money banks; however, that does not mean that the banking system in Korea was less vulnerable to external shocks than the other two countries, because all depends on the credit allocation, maturity, and sectors of the economy.

In Indonesia, a run on the deposits of the Lippo Bank in November 1995 and the support given by Bank Negara Indonesia to two ailing banks in 1996 brought attention to the fragile state of the banking sector, which had expanded at an extraordinary pace in the wake of banking liberalization. In Korea, several of the largest chaebol posted loses in 1996, and six of the top 30 went bankrupt in 1997 before the crisis erupted. In Thailand, Thai-owned commercial banks reported a significant increase in nonperforming loans in late 1996, and there was a run on deposits of the Bangkok Bank of Commerce in May 1997. As was the case in the other crises that we have analyzed, the banking crises in the Asian 3 countries preceded the currency crises and, ultimately, the economic and social crises that these countries are still enduring.

As mentioned early public borrowing only played a limited role in the Asian 3 countries, as we can see from the next table.

TABLE 5.75 Fiscal Balances, 1993-95, and 1996 (share of GDP)

	1993-95 Average	1996
Indonesia	1.2	0.9
Korea	0.4	0.3
Thailand	2.3	2.3

Source: International Financial Statistics. IMF. Author=s Elaboration.

The above figures reaffirm the case that the Asian crisis was due to private sector decisions; the government kept the fiscal accounts under control, and Thailand the country with a higher fiscal surplus in connection with GDP.

The Dynamic of the Crisis

The current account deficits of the Asian 3 reveal an acceleration of domestic spending, fueled by the immense capital inflows received by these countries. The buildup of short-term unhedged debt left the Asian 3 vulnerable to a sudden collapse of confidence. The concentration of loans in the highly cyclical property market led to asset price bubbles and made the banking system vulnerable to a down-turn in domestic demand. According to some sources, nonperforming loans reached 19 percent of total loans in Indonesia, and at the end of 1997 the equivalent of 6.5 percent of GDP was required to restore the capital adequacy of Korea=s merchant, commercial and other financial institutions. Financial supervision in the Asian 3 was weak, and regulations were relatively lax. The three countries lacked the institutional capacity to cope with rapid credit expansion of domestic credit during the capital inflows period. Rapid liberalization of the financial markets and current account openness, coupled with weak supervision, connected lending practices, and government-led lending, precipitated a financial crisis in the Asian 3.

The crisis began in mid-1997 with intense pressures on the Thai baht. This event should not have been surprising, if careful analysis on the Thailand=s economic and financial figures had been done. After spending US$8.7 billion in reserves to defend the currency, and undertaking US$23 billion short-term in forward contracts, on July 2 1997 Thailand=s central bank let the exchange rate float. By the end of the year the baht had depreciated 93 percent and the stock market had fallen 34 percent in dollars term relative to June 1997. The actions taken by Thailand=s monetary authorities, triggered a collapse of market confidence in other countries. In Korea the stock market was down 51 percent in dollars terms between July and December, the won depreciated 80 percent in the same period, and international reserves dropped below U.S.$10 billion.

Because of the weakness of the banking system and unviability of the corporations, the severity of the crisis, encouraged a self-fulfilling loss of confidence. Once the crisis unfolded, the dynamic took the following path. The large volume of short-term debt falling due in Indonesia, Korea, and Thailand increased pressures on their currencies, as the turmoil in the financial markets made creditors reluctant to roll over credit lines. The resulting currency depreciation increased the local currency value of the uncovered dollar liabilities held by banks, finance companies and corporations, thus impairing balance sheets, lowering stock prices, and increasing demand for foreign exchange to cover open positions. Increased demand for foreign exchange led in turn to further currency depreciation, and so on. The increases in interest rates made to defend the currency and the rapid fall in the equity of highly leveraged financial institutions, led to a credit contraction that impaired the position of otherwise healthy firms and

increased the reluctance of foreign lenders to roll over short-term debt. This latter event conforms with the theory of information asymmetries, which leads to adverse selection problems and moral hazard incentives, forcing bank administrators to stop lending. At the same time, information asymmetries on the part of investors and foreign banks concerning the economy and the financial system, induced a change in market perceptions when the crisis began, further exacerbating the decline in asset prices.

The Asian 3 crisis can be regarded as a financial crisis, initiated by an ill-conceived financial liberalization strategy, and weak supervisory and regulatory institutions. Foreign currency lending with open positions converted a currency risk to a credit risk operation. Both market participant and credit rating agencies failed to anticipate the crisis. One explanation for this is the strong evidence that a self-fulfilling loss of confidence played an important role in the crisis. The other explanation is the lack of proper analysis conducted by foreign institutions, which failed to determine the underlying weaknesses of the Asian 3 economies.

The first-generation models of currency crises fail to explain the Asian 3 crisis, because no fiscal deficits were present; therefore, no domestic credit expansion was implemented. Sterilization practices through open market operations were present in Thailand to accommodate for its international reserves losses, but this was not the cause of the currency crisis. Second generation, or expectation models explain what happened in the Asian 3 countries well, because of the self-fulfilling loss of confidence on the ability of Thailand to weather the speculative attack against the baht. Once the government gave up on defending the peg, the crisis suddenly spread to other countries in and out of the region. Both contagion and herd

behavior were present in the Asian 3 crisis; however, it was the liquidity exposure of the three countries to short-term liabilities that mainly triggered the confidence crisis. In the case of Mexico, it was the lose of investor confidence in the ability of the government to pay its external debt or to roll it over; in the case of the Asian 3, it was foreign banks= lack of confidence in the private sector=s ability to pay on time an immense amount of short-term debt coming due.

Another factor that undermined investors= confidence was political uncertainty in the Asian 3 countries. Elections in Korea and Thailand were underway in the midst of the financial crises. In Indonesia rumors regarding the health of the head of the state, and changes in government leadership, contributing to the jitteryness of investors and foreign banks.

In summary, the factors that led to the Asian 3 crises, and contributed to the deterioration of market sentiment toward these countries, were:

- Large private sector current account deficits, especially in Thailand, contributed to build up of overheating pressures on the economy that were reflected in inflated property and stock market values;

- Exchange rate overvaluation, especially in Thailand, which was seen as an implicit guarantee of exchange rate value, provoked massive borrowing of foreign exchange by the banking system, financial companies, and corporations, in light of financial liberalization and capital account

openness;

- Short-term lending motivated by interest rate differentials, and implicit exchange rate guarantees, led to a credit boom exposing the Asian 3 countries to domestic and external shocks;

- Financial liberalization and capital account openness were implemented within a weak supervisory and regulatory framework. Lack of enforcement of prudential rules, coupled with government-directed lending and non-bank institutions ownership of financial institutions, led to connected lending practices that were conducive to a sharp deterioration in the quality of banks' loan portfolios;

- The ratio of broad money to international reserves experienced an important increase during the crisis, making international reserves vulnerable to a run on the deposits of the banking system;

- Both limited availability of accurate data on the part of the Asian 3 governments, and lack of transparency in the banking system, hindered market participants from obtaining timely and accurate data to evaluate the financial and economic fundamentals of these countries;

- Political uncertainties, worsened the crisis of confidence, further precipitated the reluctance of foreign banks to roll over short-term debt, provoking the collapse of the banking system and

the economy;

- The banking crises in the three countries preceded the currency crises.

With the analysis of the Asian 3 countries, this section of the paper has assessed 10 countries from three different continents, which experienced a currency crises, a banking crisis, both or a short-lived crisis (as was the case of Argentina) during the 1990s. Throughout the data analysis, we have found some common indicators that can be used by policymakers to pre-empt a financial crisis from happen, or to ameliorate its effects. Political incentives aside, it is important to learn from the lessons of the past, and to realize that financial crises are very expensive, in terms of economic and direct costs, but the most important thing for people who have the power to make critical decisions should bear in mind, is that the social costs of a financial crisis are immense: all the gains accumulated by decades of effort and perseverance can be wiped out in just few months. In the next section, some useful indexes to evaluate the variables that are critical to assess economic stability, and financial sector soundness are presented.

VI Conclusions and Recommendations

6.1 Conclusions

In the last section, the analysis performed on ten different countries helped us to identify a set of common characteristics that were present in the various financial crises. Through the analysis fif-teen indicators and events were selected as the ones which have the greatest weight in explaining a crisis. Some of the events are discretionary and depend on governmental decisions, such as financial and capital account liberalization, exchange rate systems, supervisory and regulatory institutions, accounting practices, and information transparency. Other indicators are related to monetary variables, debt structure, and banking system operations. The final group of indicators are essentially macroeconomic.

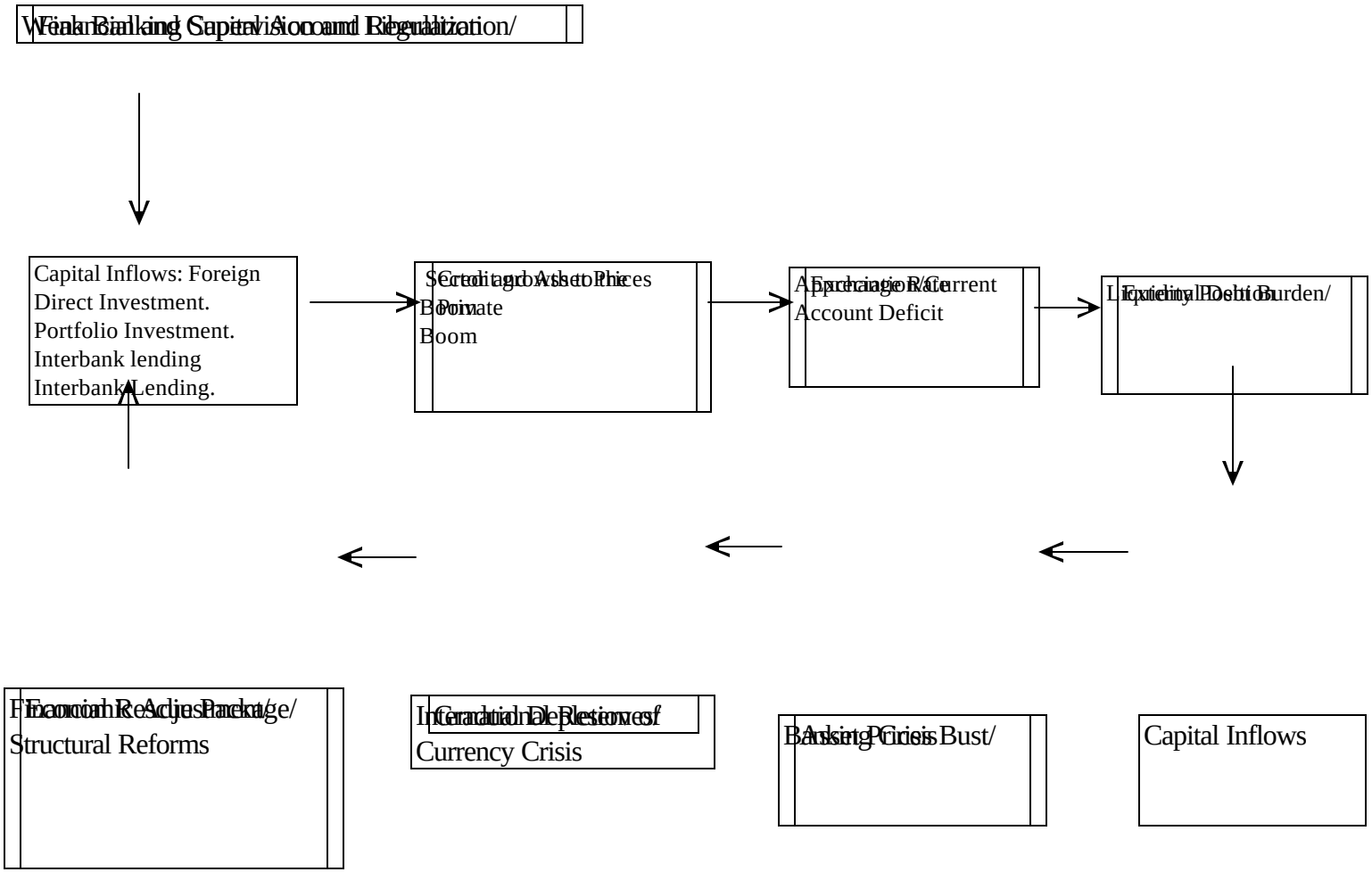
In the next table can be seen the list of indicators, their grouping, and the countries in which they performed well.

TABLE 6.0 Common Indicators and Events of Currency and Banking Crises

Exchange Rate Appreciation	All ten countries
Fixed Exchange Rate, Target Zone, or Crawling Peg	All ten countries
Current Account Deficit	All except Venezuela
Financial Liberalization	All ten countries
Capital Account Liberalization	All ten countries
Capital Inflows	All ten countries
Credit Boom to the Private Sector	All except Venezuela
Loan-to-Deposit Ratio over 100 percent	All except Venezuela, and Mexico
Asset Price Inflation	All except Argentina, and Venezuela
Weak Regulations and Banking Supervision	All except Argentina
Lack of Transparency and Poor Accounting Systems	All except Argentina
Broad Money to International Reserves Increase	All ten countries
International Reserves to Imports Decrease	All ten countries
Central Bank Budget Financing	Not in the ten countries
Central Bank Financial Sector Financing, Sterilization Operations, or Forward Exchange Rate Operations	All except Argentina

With the support of the indicators which signal the events that conducted the countries to experience a financial crisis, a Acrisis cycle@ can be constructed to explain appropriately the dynamics of the crises. On the other hand, the empirical studies conducted by academics and international organizations on financial crises, which were mentioned in this paper, are used to sustain the evidence. The next chart illustrates the crisis cycle.

Chart 6.0 The Financial Crises Cycle




Central Bank Intervention

The elements that are part of the crisis cycle are intertwined in a sequence of events that begin with the governmental decision to liberalize its financial system and the capital account, and end with the implementation of a structural adjustment economic program. The latter program, which is supported by the IMF, focuses on correcting the macroeconomic and financial imbalances and the institutional environment. After the successful implementation of the economic program and the structural reforms the dynamic of the cycle ceases to operate, and the country emerges from the financial crisis. A brief summary of the components of the crisis cycle, and the empirical evidence which support each element follows next.

The dynamic of the Acrisis cycle@ begins developing in countries with fixed or quasi-fixed exchange rate systems that are exposed to high international capital mobility.

Financial, and Capital Account Liberalization. In a well documented presentation, the World Bank (1998/9) writes that financial liberalization without adequate support from strong banking supervision and financial institutions can lead a country to a banking crisis. By the same token Demirguc-Hunt et.al. (1998), analyze the empirical relationship between banking crises and financial liberalization in fifty three countries for the period 1980-1995. Their results show that banking crises are more likely to occur in liberalized financial systems, especially those with weak institutional environments. Sundararayan and Baliño (1991) argue that increased freedom through financial liberalization to entry to the banking system and to bid for funds could lead to excessive risk taking, if such freedom is not moderated with

adequate prudential supervision and regulation. The different studies agree that the strengthening of the regulatory and supervisory institutions, and their legal framework, must precede financial liberalization. The same holds for capital account liberalization, which fosters capital inflows. In the cross-country analysis, here, all ten countries decided to liberalize their financial systems and their capital accounts.

Capital Inflows. Financial, and capital account liberalization expose countries to high capital mobility, which is a fact in financial markets in a globalized economy. Sachs, Tornell and Velasco (1995) argue that it is the composition of capital inflows is what matters, emphasizing that short-term capital is extremely volatile, especially interbank lending. Calvo et al (1996) suggest that a surge in capital inflows is likely to be accompanied by a rise in absorption, increases in real money balances and foreign exchange reserves, real exchange rate appreciation, and a widening of the current account deficit. Edwards (1998), analyzing the impact of capital inflows to Latin America, arrives at the same set of conclusions: exchange rate appreciation, high current account deficit, a major asset price bubble, and savings either remain flat or decrease at levels unsustainable with rapid economic growth. In different intensities and compositions, the ten countries analyzed in this paper received substantial amounts of capital from abroad.

Credit Expansion and Asset Price Bubble. Haussman and Gavin (1995) relate capital inflows with a rapid credit expansion to the private sector, which ultimately results in a banking crisis. Edwards (1998) and Krugman (1998), analyzing capital inflows to Latin America and to Asia, conclude that capital inflows cause a major asset price bubble, especially in real estate and financial assets. In the case of

Asia, capital inflows did not affect the consumer price level, asset prices, especially in the real estate and financial sectors. The latter event is known as a boom cycle. In the majority of countries analyzed in this paper (with the exception of Venezuela), a credit expansion occurred while the countries were experiencing capital inflows that influenced asset prices, and ultimately the banking system.

Real Exchange Rate Appreciation, and Current Account Deficit. The studies mentioned above corroborate that capital inflows produce real exchange appreciation, a rise in absorption, and a current account deficit. If capital inflows stimulate consumption rather than investment, a severe decline in domestic savings occurs. The ten countries analyzed experienced real exchange appreciation and current account deficits. Those that experienced a consumption boom were confronted with a dramatic decline in domestic savings.

External Debt Sustainability, and External Liquidity. It is important to determine the composition of the external debt of a country and its short term obligations. Chang and Velasco (1998) place international liquidity at the center of the Mexican and Asian crises. One conclusion is that short maturity of capital inflows, more than their absolute size can contribute to bank fragility, and to a financial crisis. In the cross-country analysis carried out in this paper, the government short-term debt in the case of Mexico, and the short-term debt of the banking system and the private sector in the case of the Asian 3, had a crucial influence on the outcome of the crises.

Capital Outflows. With a weak external debt structure in which short-term debt has an important

influence, capital outflows threaten the stability of the domestic financial system and the economy. In the case of a crisis, the central bank is face with the dilemma of defending the exchange rate system, or bailing out the banking system. More often than not, the central bank takes the latter option, sterilizing the capital outflows and injecting liquidity to the banking system, either through open market operations or the discount window.

Banking Crisis and Asset Price Burst. With massive capital outflows, the credit portfolio of the banking system begins to deteriorate, especially when its net foreign asset position is open. Credit to the private sector suddenly stops, and asset prices fall, decreasing the value of the loan guarantees and thus deteriorating the asset value of the financial institutions. A bust cycle emerges with devastating consequences to the financial system, occasioning a banking crisis. Kaminsky and Reinhart (1996) analyzed the causes of banking and balance-of-payments problems out of a data set of twenty-five banking crises. They found that in about half of the cases, banking crises preceded currency crises. However, the authors recognize that the issue of cause-effect remains obscure, but knowing a banking crisis would help to predict a currency crisis.

In our study, in all the countries, with the exception of Argentina, banking crises preceded the currency crises.

Currency Crises. The Krugman (1979) model of balance-of-payments crises applies well to those crises in which the central bank has to bail out the banking system. The real world difference with Krugman=s argument is that the central bank does not finance a budget deficit, but rather a liquidity

problem in the banking system originated by massive capital outflows. The consequences on the level of international reserves and on the exchange rate system are the same, because domestic credit is increasing faster than the growth in money demand, provoking the gradual depletion of a country=s international reserves. Therefore, as the argument goes, the central bank facing the exhaustion of its international reserves has to let the currency float. In our analysis, this was the case of the Latin American countries (with the exception of Argentina), and the Asian3 countries.

Adjustment Program. Once the crisis unfolds, the IMF, subject to the implementation of a severe economic program, organizes a financial package to support the distressed economy. The likelihood of the developing of a new crisis depends on the performance of the structural reforms and the application of preventive measures to pre-empt a crisis from happening again.

6.2 Recommendations

Two set of recommendations emerge from the conclusions. The first is related to the necessity of developing a methodology to analyze and measure the financial soundness of a country, in order to turn on a caution light both to policymakers and investors regarding the financial situation of a country. The second set of recommendations has to deal with banking supervision, regulation, and the international financial architecture.

6.2.1 Measuring the External Financial Soundness of a Country

In order to assess the external financial situation of a country, two types of analysis are recommended. The first is related with the level and structure of a country=s external debt, and the second is associated with the sustainability of the current account deficit. To measure the former, it is necessary to determine the external debt burden, and the liquidity position of a country. To determine the country=s level of external indebtedness and its ability to honor its external debts payments, a group of indicators are used that are compared with empirically calculated threshold values. The current account analysis is determined by comparing the home country liabilities that foreign investors are willing to hold in their portfolios, with the rate of growth of the economy and the current account deficit.

6.2.1.1 Indicators of External Debt Burden

As a corollary of the 1980s debt crisis, the World Bank (1989) developed a set of indicators, and established threshold values for each of them, in order to classify a country as severely or moderately indebted. The following criteria is used by the World Bank. A country is defined as severely indebted if three of four key indicators of debt and debt servicing have values greater than empirically observed critical values. The four indicators are: 1) the ratio of debt to GNP; 2) the ratio of debt to exports; 3) the ratio of debt service (accrued) to exports; and 4) the ratio of interest (accrued) to exports. The critical values were determined by the World Bank as the unweighted 1988 means of each indicator for a group of countries that had recently had debt servicing difficulties. These are: a debt to GNP ratio of 50 percent; a debt to export ratio of 275 percent; a ratio of scheduled debt service to exports of 30 percent; and a ratio of scheduled interest payments to exports of 20 percent. If three of four indicators

are greater than 60 percent of the threshold values, the country is classified as moderately indebted.

The indicators the year before the crises erupted in Mexico, Argentina, Thailand, and Indonesia are presented in the next table.

TABLE 6.1 Indicators of External Debt Burden

	EDT/GNP(%)[3]	EDT/XGS(%)	TDS/XGS(%)	INT/XGS(%)
Mexico 1994	34.3	179.4	28.1	11.8
Argentina 1994	27.8	357.6	30.9	19.0
Thailand 1996	50.3	120.5	11.5	5.8
Indonesia 1996	59.7	221.4	36.8	11.4

Source: Global Development Finance, 1998, World Bank, Author=s Elaboration

None of the four countries met the severely indebted criteria established by the World Bank. However, Argentina, because of the lack of openness of its economy, was about to meet the criteria when indicators using exports as a base are above or almost at the level of the critical values. According to the criteria, Mexico and Indonesia, are considered moderately indebted. Thailand is either non a severely nor a moderately indebted country. Accordingly, it is very difficult to assess the financial soundness of a country using the above indicators in isolation. They, therefore, need to be complemented with the analysis of the liquidity position of the country.

[3]EDT: External Debt Total; GNP: Gross National Product; XGS: Exports of Goods and Services; TDS: Total Debt Service; INT: Interest Payments

6.2.1.2 Liquidity Position

To measure the liquidity position of a country, four indicators are used: 1) short-term debt to external debt total; 2) short-term debt to international reserves; 3) international reserves to imports of goods and services in months; 4) broad money to short term debt. The critical values are determined by analyzing the financial situation of the ten countries that had a crisis during the 1990s.

In the next table the indicators corresponding to Mexico, Argentina, Thailand, and Indonesia are presented.

TABLE 6.2 Liquidity Position

	STD/EDT(%)[4]	STD/IR(%)	IR/MGS(%)	M2/STD
Mexico 1993	27.6	143.5	3.3	3.06
Argentina 1993	12.3	56.0	7.2	5.92
Thailand 1995	49.4	111.3	5.0	3.31
Indonesia 1995	20.9	173.9	3.0	4.08

Source: Global Development Finance, World Bank and IMF, Author=s Elaboration

The critical values established to assess the liquidity position of the countries were: STD/EDT of 15

[4]IR: international reserves; MGS: imports of goods and services; M2: broad money

percent; STD/IR of 50 percent; and IR/MGS of 6 months. In the case of the ratio of broad money to short-term debt, the higher the ratio, the safer a country in experiencing a credit crunch. The last ratio is derived from the ratios of broad money to international reserves and international reserves to short-term debt.

Only in the case of Argentina were these indicators below the critical values, with the exception of the ratio of short-term debt to international reserves, while the ratio of broad money to short- term debt was the highest among the four countries. Thailand and Mexico were the countries with the highest ratio of short-term debt to external debt total. In the cases of Indonesia, Mexico and Thailand, their ratio of short-term debt to international reserves was above 100 percent, and their ratio of international reserves to imports of good and services was less than six months, Indonesia and Mexico being the lowest with three months of coverage.

The above indicators clearly show that the debt structure of the countries that experienced a twin crisis was extremely fragile. These countries were therefore exposed to changes in market sentiments which then actually took place. Change in market sentiment can be spurred because investors perceive that a current account deficit is not sustainable, and the government, as was the case in Mexico, or the private sector, as was the case in the Asian3 countries, are not going to be able to meet their external debt obligations.

6.2 Current Account Sustainability

A current account deficit is sustainable in the long run, if a country is capable of financing it. By definition, the current account deficit in an open economy is the difference between national savings and investments. Thus, a country that needs foreign capital to finance its current account deficit is actually financing a savings gap. The current account definition latter is a very important economic concept, because it transcends the simple accounting procedures used for balance-of-payments presentations.

In previous sections, it has been shown that capital inflows that are intermediated by the banking system generate a credit boom which affects the level of absorption in the economy causing a current account deficit. Likewise, capital inflows in a fixed exchange rate system cause an exchange rate appreciation contributing to the deterioration of the current account deficit. By the same token, in a not so well diversified export sector (which is the case of developing economies), external shocks such as a decline in the terms of trade broaden the current account deficit, leading a country to a financial crisis. Therefore, it is crucial for the health of the economy to maintain a level of current account deficit that can be sustain in the long run. In other words, a current account deficit that can be sustain even in the most adverse economic conditions.

In a simple model presented by Edwards (1995), international investors willingness to hold acountry-s liabilities in their portfolios is defined as a ratio (k*) of liabilities (L) to GDP (y)

(6-1) $k^*=L/y$

Equation (6-1) implies that the net accumulation of this country=s liabilities (^L) will be in equilibrium if it is equal to the long-run rate of growth (g) of real GDP times the new liabilities (L)

(6-2) $\hat{L}=gL$

Netting out reserve accumulations, the author presents an equation which equals the current account (C) deficit related to GDP that can be sustained in the long run with the desired liabilities to GDP ratio (k*) times the long-run(g) rate of real GDP growth.

(6-3) $C/y= gk^*$

Based on equation (6-3) Edwards constructs a table which relates hypothetical values for the ratio of liabilities to GDP, with the long-run rate of real GDP growth to determine the sustainable level of current account deficit that a country could hold.

TABLE 6.3 Sustainability of Current Account Deficits: Hypothetical Values of the Equilibrium Current Account Ratio under Alternative Assumptions for the Ratio of a Country=s Liabilities to GDP and GDP

Growth.

L/y	2(g)	4(g)	5(g)	6(g)	7(g)
0.25	0.005	0.010	0.0125	0.015	0.0175
0.40	0.008	0.016	0.020	0.024	0.028
0.50	0.010	0.020	0.025	0.030	0.035
0.75	0.015	0.030	0.0375	0.045	0.0525
1.00	0.020	0.040	0.050	0.060	0.070

Source: Edwards,S., ACrisis and Reform in Latin America, From Despair to Hope,@ 1995 World Bank, Washington, D.C.

Using the basic equations, the next table shows the current account deficit, GDP growth, and the relation of external debt total to GDP as a proxy of the maximum external indebtedness for Mexico and Thailand, in the two-year and then one-year period before their crises.

Table 6.4 Indicators of Current Account Sustainibility for Mexico and Thailand

	GDP growth	C/ GDP	EDT/GDP
Mexico 1993	0.7	-5.8	33.6
Mexico 1994	4.5	-7.0	34.3
Thailand 1995	8.7	-8.1	50.4
Thailand 1996	6.4	-7.9	50.3

Source: International Financial Statistics, IMF, and Global Development Finance, World Bank 1998.

In the cases of Mexico and Thailand, the levels of current account deficits deteriorated in the two years leading up to the eruption of the crises. Moreover, taking into account the external debt restriction, it

was clear that in both countries the current account deficits, was unsustainable in the long-run.

Mexico would have needed a current account deficit of 3 percent of GDP with a real GDP growth of 8.8 percent to being compatible with a external debt ratio to GDP of 34.0 percent which is approximately what Mexico had in those years. In the case of Thailand, a current account deficit of 4 percent was sustainable with a real GDP growth of 8 percent, and with a total debt to GDP of 50 percent. Looking at the numbers, both countries exhibited an unsustainable current account deficit two years and one year before their crises began.

In summary, the recommendation is that international organizations, policymakers, financial and economic analysts should pay more attention to the three main components of the analysis presented in this paper to determine the financial soundness of a country. These are: (1) the debt burden; (2) the liquidity position; and (3) current account sustainability.

The other set of indicators that have been used throughout the cross-country analysis, are those related to the banking system. These indicators complement the three-steps macro-financial analysis presented in this section well. They are: (1) capital adequacy ratio, based on the Basle Capital Accord; (2) liquidity ratio, which relates short-term assets and liabilities; (3) net foreign asset position of the banking system; (4) non-performing loans to total loans; (5) provisions to gross financial income; (6) loans to deposit ratio; and (7) credit to the private sector to GDP, the problem with these indicators are that they rely on the accounting information released by the banking system, which itself depends on the

country accounting system and banking regulations in that particular country. The establishment of accounting rules that would be uniformly implemented across all countries is crucial for the accuracy of the indicators and the transparency of the data that is disseminated by the financial system.

6.3 Supervision and Regulations

It has to be recognized by governments and the private sector that the role of supervision is to ensure that banks operate in a safe and sound manner and that they hold capital and reserves sufficient to support the risks that arise in their business. The regulations contain disciplinary mechanisms that reinforce the efforts of supervisors, rewarding banks that manage risk effectively and penalizing those whose risk management is inept and imprudent. In this endeavor, supervision cannot and should not provide assurance that banks will not fail. In a market economy, failure is part of risk taking.

Banking-supervisory institutions worldwide should implement world wide the ACore Principles for Effective Banking Supervision@, a comprehensive blueprint for an effective supervisory system, developed by the Basle Committee on Banking Supervision.

It is important that, under the coordination of the IMF, the OECD, and the BIS, the international regulatory institutions-such as the Basle Committee on Banking Supervision, the International Association of Insurance Supervisors, the International Organization of Securities Commissions, the International Accounting Standards Committee, and the International Federation of Accountants-develop a set of international accounting, and auditing procedures. At the same time, the international

community should agree on the terms of a code of good practices on transparency in monetary and financial policies, complementing those in the code on fiscal transparency.

6.4 Reforming the International Financial Architecture

Since the Mexican crisis, the international financial community has been involved in a series of debates concerned to reforming the international financial architecture. The IMF has made available through the internet a series of documents containing the issues that are being discussed in different international forums. Substantial progress has been accomplished in the last couple of years in relation of the substantive issues that are part of the agenda to successfully reform the international financial system. In this endeavor, the agenda incorporates topics related to data dissemination and transparency, internationally accepted standards, surveillance for assessing capital flows, improved financial market supervision, orderly integration of international financial systems, and involving the private sector in the prevention and resolution of financial crises.

It is important to involve the private sector in crisis prevention and crisis resolution, in order to limit moral hazard, strengthen market discipline, and help bring about orderly adjustment processes when crises do occur, while still maintaining international financial flows. In this direction, the covenants on international sovereign bonds should be altered to make it easier for emerging-market governments to reschedule their debts in tandem with similar moves on their official obligations. The introduction of collective clauses in the new bonds is necessary for an orderly negotiation process. The proposal is that

private sector holders of international bonds should be Abail-in@ into general debt restructuring in line with official obligations. The principle behind the latter proposal is to eliminate in international markets the most favorable creditor status that private investors hold.

The proposal regarding the necessity to creating a lender of last resort institution is not a practical one, due to the moral hazard incentives. Instead, reinforcing IMF operations and establishing new financial mechanisms to prevent financial crises are actions in the right direction. In this sense, the IMF approved in April 1999 a precautionary credit line facility to protect countries with sound economic policies from the shocks of financial crises elsewhere. This scheme which is sort of an anti-contagion credit line, will operate alongside the IMF=s Supplemental Reserve Facility, launched in 1997 to provide large loans quickly to countries facing a loss of market confidence.

Glossary

Arbitrage: is the process that ensures that a law of one price actually holds. That is, that any

commodity in a unified market has a single price.

Balance of Payments: registers the trade and financial flows of the residents of a country with the rest of the world. The transactions are divided between current flows(i.e. exports, imports, interest receipts, etc) and capital flows (i.e. changes in ownership of financial assets).

Broad Money: also referred as M2, comprise narrow money components together with time, savings, and foreign currency deposits of residents sectors other than the central government. The latter definition, it is also known as quasi-money.

Capital Adequacy Ratio: whereby a bank is required to set aside funds from its capital base, to protect depositors and creditors. Is calculated as a percentage of risk-weighted assets as it is recommended by the Basle Capital Accord.

Capital Flight: is an unrecorded capital outflow from a country.(See Net Errors and Omissions)

Capital mobility: are financial resources that freely move without restrictions from one market to another worldwide.

Central Bank: is the only institution authorized to issue money, and to conduct monetary policy with the principal objective to reach price stabilization in the economy.

Convertibility: the ability of a currency to be freely converted into foreign exchange.

Crawling peg: is a system of frequent, preannounced small devaluations. One rule that has been used in this system, devalues the nominal exchange rate at a rate that is equal to the difference between the target rate of domestic inflation and the anticipated rate of international inflation.

Currency Board: are institutions that replace central banks, ensure full convertibility of the domestic currency at a fixed price, thus imposing a fixed exchange rate system of international transactions. The currency board is restricted to issue high-powered money if it is backed by liquid foreign assets, therefore, the currency board arraignment surrenders to the use of an activist monetary policy.

Current Account: is a flow variable measuring the rate at which the residents of a country are lending or borrowing from the rest of the world. The current account position is identically equal to the private sector savings over investment plus the budget surplus or deficit. In the latter perspective, a deficit on current account implies insufficient private savings relative to investment and/or government spending more than it collects in taxes.

Discount Window: are central bank liquidity operations whereby the central bank makes loans to private financial institutions.

Domestic Credit: is the credit allocated by the banking system(central bank, public financial institutions, and private financial institutions) to government and to the private sector.

ECU: the former European currency unit, a composite of European currencies. It serves as the accounting unit of the European Monetary System(EMS). Since January 1, 1999, the ECU was replaced by the Euro, within the framework of the European Monetary Union(EMU) accord.

Exchange Rate: is the price of foreign exchange, measured as the number of units of domestic currency per unit of foreign currency.

Exchange Rate Misalignment: when the real exchange rate is out of its long term equilibrium value.

Financial Account: registers the net sum of the balance of direct investment, portfolio investment, and other investment transactions.

Floating Exchange Rate: an exchange rate that is allowed to vary in price. A Aclean float@ accurs in the absence of government intervention; under a Adirty float@ the authorities intervene to limit currency fluctuations.

Foreign Direct Investment(FDI): registers, equity capital, reinvested earnings, and other capital associated with various intercompany transactions between affiliated enterprises.

Forward Foreign Exchange: it is a market in which corporations or individuals can by a contract to cover against foreign exchange rate risk. Also is used by central banks to increase their liquid reserves.

Gross Domestic Product(GDP): is an identity which states that income is equal to aggregate spending by domestic residents plus the net exports which is the difference between exports and imports. It is the most important measure of production in the economy, that aims to measure the total value of goods and services produced in the geographic boundaries of an economy within a given period of time.

Gross National Product(GNP): is equal to Gross Domestic Product plus net factor payments from abroad. The latter corresponds primarily to income from capital(i.e. interest and dividens) and to labor income accruing to domestic residents from abroad. The difference between GNP and GDP, is that the former registers the income received for productive activity by domestic residents, and the latter registers the valued of output domestically produced.

Hedge Funds: are private investment pools, often domiciled off-shore to capitalize on tax and regulatory advantages. Are higly leveraged instituions which take large directional(unhedge) positions in national markets, or make bets onthe relative prices of closely related securities.

International Reserves: it is equal to foreign assets minus foreign liabilities held by the central bank. Liquid reserves are equal to international reserves minus glod held in the central bank volts, or at the Bank of International Settlement.

Liquidity Ratio: is a percentage fixed by banks= regulators which relates short-term assets with short-term liabilities.

Monetary Base: or base money, or Ahigh-powered@ money, is defined as currency in circulation together with cash reserves that banks keep at the central bank, is a key monetary variable that can be directly controlled by the central bank.

Multiple Equilibria: is defined as the movement of the economy or variable to different equilibrium positions, being one of them a bad equilibrium as is the case of a bank run against their deposits in some models of banking behavior.

Narrow Money: also referred as M1, equals the sum of currency in circulation, and demand deposits other than those of the central government.

Net Errors and Omissions: is a residual category needed to ensure that all debit and credit entries in the balance of payments statement sum to zero and reflects statistical inconsistencies in the recording of the credit and debit entries. This indicator is used as a proxy to measure unrecorded capital flows, or capital flights.

Non-performing Loans: are loans overdue for more than 90 days according to international accounting rules.

Open Market Operations: are actions taken by the central bank to change the amount of Ahigh-powered@ money in the economy to influence the level of interest rates, the price level, or to stabilize the value of the domestic currency in the foreign exchange market. The term open-market is used to signify that the central bank purchase takes place in the market, rather than in a private trade.

Open Net Foreign Assets in the Banking System: is the difference between foreign assets held by the domestic banking system, and net foreign liabilities owed by the domestic banking system to the rest of the world.

Other Investment: includes transactions in currency and deposits, loans, trade credits.

Portfolio Investment: includes transactions with nonresidents in financial securities of any maturity other than those included in FDI.

Private Capital Flows: See financial Account definition.

Real Exchange Rate: measures a country=s overall competitiveness in international makets, is the price of a country=s goods and services relative to the price of goods and services of the competitor country. The ratio generally applied is e=EP*/P, where E is the price of foreign exchange measured as a number of units of domestic currency per unit of foreign currency; P* is equal to the foreign price level, and P is

the domestic price level. When e falls, a real exchange rate appreciation takes place.

Reserve Requirement: banks must maintain in the central bank a predetermined percentage of their deposit base, which is fixed by central bank regulations as part of the conduct of monetary policy.

Shocks: are economic fluctuations which are central to the study of macroeconomic theory, recognizing that every economy is subject to fluctuations in employment, production and GDP. When fluctuations come from external events(i.e. supply side shock: increase in the oil prices) it is say that the economy was exposed to an exogenous shock.

Sterilization Operation: is the use of an open market operation conducted by the central bank to offset the monetary effects of other policies.

Target Zone: is an exchange rate arraignment in which the domestic price of a foreign currency moves within a band, and around a central determined parity or value.

Terms of Trade: measures the price of a country-s exports relative to the price of its imports. When the index is above the unit, the terms of trade for that country is positive relative to the rest of the world.
Transition Economies: Central European economies which are in the process of changing from a central-planned to a free-market economy.

Unhedged Foreign Exchange: when the foreign exchange risk it is not covered by a forward contract, or other mechanism. (See Forward Foreign Exchange definition)

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