

**THE EFFECTIVENESS OF CAPITAL CONTROLS IN PREVENTION OF  
FINANCIAL CRISIS: CASE STUDIES OF CHILE AND MEXICO**

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**MASTER OF PHILOSOPHY**

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## CERTIFICATE

This is to certify that the dissertation entitled "THE EFFECTIVENESS OF CAPITAL CONTROLS IN PREVENTION OF FINANCIAL CRISIS: CASE STUDIES OF CHILE AND MEXICO" submitted in partial fulfilment for the degree of MASTER OF PHILOSOPHY (M. PHIL.) of this university has not been previously submitted for any other degree of this or any other university. This is my original work.

**Santosh Kumar**

We recommend that the dissertation may be placed before the examiners for evaluation.

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(Chairperson)

**Prof. C. P. Chandrasekhar**  
(Supervisor)

*TO*  
*My Parents*

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# CHAPTER-1

## INTRODUCTION

After the Second World War, the Bretton Woods' accord was devised based on the thesis that free international mobility of capital is incompatible with the preservation of free trade and full employment. Accordingly, exchange rates were pegged and capital controls were considered necessary to combat currency speculation of a kind that was a threat to exchange rate stability. But in the 1970s the regime of pegged exchange rates was displaced by a regime of floating exchange rates, which was followed by a gradual dismantling of capital controls in a large number of developed and developing economies. In time, the floating of exchange rates and the lifting of capital controls were considered essential steps in the establishment of an efficient international financial system.

Internationally we have seen many developing countries adhering to such an orthodox position on capital mobility. But their policies towards the capital account have not been similar. Based on the definition of capital account liberalisation, put forward by the IMF, we can classify them broadly into three categories. The first category consists of those countries, which have liberalised their capital account fully. In this category we have most of the Latin American countries except Chile and Columbia, and most of the Southeast Asian countries though they went for capital account liberalisation in the mid 80s. Among the Southeast Asian countries Malaysia was the one that imposed capital controls in 1994 but withdrew it immediately

thereafter only to impose them again during the late-1990s crisis. That action was in fact praised by sections of the mainstream and other economic analysts. The second category includes those countries that have abolished exchange controls (where residents or non-residents can ask for any amount of foreign exchange at the market exchange rate) but maintained few restrictions meant to affect certain types of capital flow. This category includes Chile, Columbia, Taiwan, Malaysia and India (though India still has stricter restriction on the capital account). These two categories have gone in for current account liberalisation to the full extent. The third category includes those countries that have not adopted liberalisation of either the current or the capital account. These countries are still operating under the exchange control regime. In this category we can mention China, Vietnam, and Cuba.

Given such varying policies towards the capital account in these three categories of countries we clearly have three varying experiences. Countries in the first category, with full liberalisation of the capital and current account, have suffered recurrent of financial crises. The well-known Latin American debt crisis of 1982 was the result of domestic financial liberalisation as well as capital account convertibility. The fall of the Mexican peso in 1994 is still a matter of discussion among economists as one example of crises taking place globally as a result of adhering to orthodox positions on policies with regard to the capital account, the current account and the domestic financial system. Such policies were followed by Brazil, especially during the later half of the 1990s, leading to the currency turmoil in the later part of 1998. The spill over of the Mexican financial crisis of 1994 on the other neighbouring countries except Chile and Columbia was partly a result of similar policies followed

by them. The most adverse instance of the consequence of such policies was seen recently in the form of the Southeast Asian crisis, which affected around six countries. In all these cases, there was a complete collapse of the currency, the domestic financial system, and as a result of the real economy.

The experiences of countries in the second category show that while they have fully liberalised their exchange controls, they still maintain some restrictions on capital account transactions that discourage short-term capital inflows. Though these countries have been characterised by rising economic inequality and other sorts of economic problems, they have not experienced a sudden outflow of foreign capital that results in a sharp depreciation of exchange rate and a domestic financial collapse.

Countries in the third category have maintained on exchange as well as capital account transactions, in opposition to the policy framework implicit in the 'structural adjustment and macroeconomic stabilization package' recommended by the IMF and the WB. These countries have hardly suffered any debilitating financial crisis. More importantly, some like China have managed to attract large volumes of foreign capital, challenging the orthodoxy that advocates capital account liberalisation on the grounds that it induces the inflow of FDI. China is the country that has received a dominant share of total inflows of FDI into the developing countries with much of this investment being in the form of greenfield investments.

Now given the respective experiences of the countries in these three categories, the question arises as to whether it is the degree of control on capital movements that



determines the degree of vulnerability of the country's currency and the financial system. This theme has become a matter of debate among economists especially after the Chilean experience with capital controls in the last decade and the Malaysian experience with it in the wake of the Southeast Asian crisis. The popularity of capital controls could be understood from a survey conducted by Finance Asia (April 2000) on the imposition of capital controls in Malaysia, which found that 62 percent of analysts agreed that controls were a good idea. In fact, Chile's capital controls became the first real instance where some segments of the mainstream and some important figures from within the 'Washington consensus' have conceded that finance is one area where the normal market interaction of 'maximizing' economic agents may not lead to an 'equilibrium' - either global or local (Gabriel Palma, 2000).

The history of debate on capital controls goes back to the Keynesian era, when Keynes emphasised the role of capital controls from the point of view of providing governments with an area of flexibility within which they could pursue their own monetary and fiscal policies according to their internal needs. The work of Nurkse, a contemporary of Keynes, on capital controls is well known. More recently, the debate on capital controls was revived by the work of Tobin wherein he proposed a small tax on foreign exchange transactions (intended to slow down flows of 'hot money' without interfering significantly with currency transactions related to trade and productive investments). Some of the issues related to this so-called 'Tobin Tax' were later taken up by influential figures like Stiglitz and Krugman, which led to an intense discussion on the capital controls.

The combination of a vibrant debate on capital controls and varying experiences in the use of such controls provides the point of departure for this study. It considers the experience of two Latin American countries- Chile and Mexico – of which one implemented capital controls while adopting a ‘structural adjustment and macroeconomic stabilisation policy’ and the other did not impose any sort of capital account regulations. Chile has been able to successfully manage its financial sector that has been relatively stable while Mexico has succumbed to financial crises. Interestingly, both countries had emerged from a similar debt crisis in 1982. It is therefore of some interest as to whether it was the absence capital controls which drove the Mexican economy into the financial crisis of 1994, and whether it was the presence of capital controls which made the Chilean economy escape a financial crisis during the last one and half decades. The objective of this dissertation is to examine the experiences of these two countries with a view to assessing whether capital controls can play a role in the prevention of financial crises.

Chapter two deals with the issue of capital controls and its effectiveness in the prevention of financial crisis. It delineates what is meant by capital controls and discusses the objectives of such controls. It then this provides a brief account of the capital control measures that have been recently used in a few countries and tries to explain their theoretical rationale. Thereafter the chapter gives a brief account of the history of capital controls worldwide and reviews the literature on the experience with capital controls, with special reference to Chile. The second part of this chapter focuses on the discussion surrounding financial crises. Finally, the chapter seeks to

relate the debate on capital controls and to the discussion on the determinants of financial crises.

The third chapter is exclusively devoted to the Chilean experience with capital controls. It provides an overview of the Chilean economic reform especially on the financial front. It then discusses the evolution of capital controls measures and their structure in Chile and examines macroeconomic trends during the period these measures were being implemented. This provides the basis for an assessment of the effectiveness of capital controls in Chile.

The fourth chapter deals with developments in the Mexican economy during and before the financial crisis of 1994. It discusses the financial and real sector restructuring process under the program of structural adjustment, delineates the principal macroeconomic trends during the period 1988-95 and attempts to answer the counterfactual question as to how the presence of capital controls would have affected these variables and the overall performance of the Mexican economy.

The final chapter compares these two economies briefly regarding their experiences with important macroeconomic variables in the presence of two different regimes with respect to capital accounts and concludes that the capital controls in the presence of few domestic financial regulations could prevent the financial vulnerabilities.

## CHAPTER-2

### CAPITAL CONTROLS AS PREVENTIVES: REVIEW OF LITERATURE

In the last two decades we have seen major changes in economic structure in most of the developing countries adopting structural adjustment strategies under IMF and World Bank supervision. The liberalisation of the financial and real sectors has been the principal plank of the economic reform or 'the structural adjustment and macroeconomic stabilisation program'. Further, capital account convertibility has been an important end-goal of that programme.

However, the evidence suggests that most of the countries that have suffered a currency crisis have been through a process of liberalisation of their capital account. On the other hand, countries like Chile, Columbia, Malaysia and a few others have successfully implemented a form of capital account convertibility that includes a few measures of capital control, that are directed at certain types of capital inflows responsible for financial vulnerability. In the event, the use of such controls has become a matter for debate among economists and economic organisations, focused on the possibility of tackling currency turmoil by imposing few direct or indirect controls on capital movements. This chapter addresses the issue of capital controls and its effectiveness in the prevention of financial crisis. For that purpose I have divided the chapter into two parts. Part one deals with the nature of capital controls and other measures aimed at ensuring financial stability. And part two discusses the history of financial crises and the theories advanced to explain them.

## I

The IMF prescribes the implementation of capital account convertibility to smoothen capital mobility from capital surplus to capital scarce countries. Capital account convertibility refers, strictly speaking, to purchases of assets abroad by a country's residents, or sale of assets owned by non-residents and the subsequent repatriation of their capital.<sup>1</sup> However, Richard Cooper (1999) points out that despite the focus on foreign exchange transactions, which is an appropriate one for the IMF, the possibility of maintaining restrictions of various kinds on capital transactions other than restrictions on the purchase or sale of foreign exchange remains open. He says that capital account convertibility excludes exchange controls. But it does not exclude (although the IMF does disapprove of them) multiple exchange rates, resulting from policies that implicitly amount to charging different prices for foreign exchange. Nor does it exclude certain actions, in the form of 'capital restrictions, designed to influence the magnitude and nature of capital transactions that have been adopted by certain countries in recent years. Capital controls refer to the subclass of these actions that involve quantitative restrictions, which foreclose unlimited transactions, often achieved by imposing a price penalty as has been in the case of Chile and Columbia.

### **The Objectives of Capital Controls**

Many arguments have been advanced to justify capital controls. One argument says that capital controls improve economic welfare by compensating for

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1. For detail see Richard N. Cooper (1999); 'Should capital controls be banished', *Brookings Papers on Economic Activity*, 1.

financial market imperfections, including those resulting from informational asymmetries. Proposals to address these imperfections range from improved disclosure and stronger prudential standards to the imposition of controls on international capital flows (more about which later). Policy implementation arguments hold that capital controls may help reconcile conflicting policy objectives when the exchange rate is fixed or managed. These arguments variously emphasize their ability to preserve monetary policy autonomy, often necessary for directing monetary policy towards furthering domestic objectives and reducing pressures on the exchange rate. An additional, related motivation for capital controls has been the desire to ensure monetary and financial stability in the face of persistent capital flows. As we have seen from the recent experiences of financial crises in emerging economies, capital account liberalisation inevitably leads to financial vulnerability. Given this tendency, an objective of capital controls is to preserve balance of payments stability and enable the government to pursue its chosen developmental policies. In fact, the strongest defence for capital controls has been the need to preempt financial crises or currency crises.

### **Types of capital controls**

Controls on cross-border capital flows encompass a wide range of diversified, and often country-specific, measures. These restrictions on and impediments to capital movements have in general taken two broad forms: (1) “administrative” or direct controls and (b) “market based” or indirect controls. In many cases, capital controls to deal with episodes of heavy capital flows have been applied in tandem with other policy measures, rather than in isolation (IMF, 2000).

Administrative or direct controls usually involve either outright prohibitions on, or an approved procedure for, cross-border capital transactions. Market-based or indirect controls on the other hand, attempt to discourage particular capital movements by making them more costly. Such controls may take various forms, including explicit or implicit taxation of cross-border financial flows (e.g. the Tobin tax, unremunerated reserve requirements), dual or multiple exchange rate systems, and other predominantly price-based measures. Depending on their specific type, market-based controls may affect only the price or both the price and volume of a given transaction. Here we will deal with a few of the principal market-based measures and discuss their theoretical approach to the need for and manner of containing short-term inflows.

**(I) Tobin tax:** One of the most important price-based capital controls measures is the Tobin tax, which was proposed by renowned economist Tobin in 1974. We know that every nation levies taxes, usually at substantial rates. If the marginal tax rates were everywhere the same on capital, foreign or domestic, that would not compromise the desirability of capital liberalization on allocational grounds. But marginal tax rates on capital income are not everywhere the same, and capital income is defined differently for tax purposes in different countries. In fact, free capital mobility is most often an invitation to escape the jurisdiction of domestic tax authorities by lodging capital in countries where taxes are lower or effectively nonexistent, and where the tax authorities in any case are unlikely to report the income back to the owner's home tax authorities.<sup>2</sup> Cooper (1999) points out that

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2. *ibid.* pp.106.

since all rich countries allow significant freedom of capital movement, much of the tax evading exportation of capital takes place from the rich countries.

These sorts of capital flows seek to exploit lucrative, short-term investment opportunities and once they sense any danger they flow out to some other destination. In the recent period we have seen a substantial growth in such short-term flows. Given the experience, Eichengreen and Wyplosz (1996) and Frankel (1996) have pointed out that most foreign exchange transactions have little to do with economic fundamentals, and only destabilise the system and contribute to social harm. Given the nature of such capital flows and their harmful effects they also pledge support for the Tobin tax. There are mainly three rationales for such a tax:

- (a) This tax would be essentially a small transactions tax that would penalize short-term round-trip movements of speculative capital thus helping to “put grains of sand in the wheels of international finance”.<sup>3</sup> In this way the Tobin tax would reduce the profitability of short-term speculation and allow exchange rates to better reflect long term factors in the real economy, rather than short term speculative flows.
- (b) It will give greater autonomy to the government to pursue its own economic policies, by being shielded from financial market discipline on domestic fiscal and monetary policy.
- (c) It is a revenue-raising tool, which can be used for developmental purposes.

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3.Eichengreen and Wyplosz (1996)



What interests us principally is the first of these reasons. From the point of view of dampening the destabilizing effect of short-term flows, the mechanism through which the Tobin tax works is as follows.

Since the spot market price of any liquid asset in a well organised, orderly free market can change overtime, savers who are storing claims on resources must contemplate the possibility of an appreciation or depreciation in the asset's market price at any future date affecting the market value of their portfolios. This potential gain or loss is obtained by subtracting today's spot price  $p_t$  from that expected to prevail at a future date ( $p_{t+1}$ ). When  $(p_{t+1} - p_t) > 0$  a capital gain is expected from holding the assets till  $(t+1)$ , if  $(p_{t+1} - p_t) < 0$  a capital loss will be expected.

Let  $q$  and  $c$  be the future expected income to be received from holding a financial security and its carrying cost respectively. Then neglecting capital gains or loss the return on holding assets will be  $(q-c)$ . If we take transactions cost ( $T$ ) into account then the return will be  $(q-c)-T$ . If transaction costs are negligible, while the spot price is expected to change from moment to moment, then no rational person would worry about the long run earning  $(q-c)$  of any investment portfolio. Every expected small change in the next moment's spot market price will provide sufficient capital gains or losses to induce significant changes in one's portfolio holding. It therefore follows that given an unchanging expectation of the future earning stream and potential gains or losses, when the magnitude of transaction costs increase, then, the minimum time interval until one can expect a positive return from holding an asset increases. There is, however, always some possible larger absolute value of capital gain that permits the holders to sell the asset earlier than the minimum period and still obtain a positive return.

Eichengreen, Tobin, and Wyplosz (1995) advance the idea that the proposed small grains of sand result in larger negative rates the shorter the time interval of a speculative round trip, thereby increasing the disincentive the shorter the interval. For example they note that a 0.5 percent Tobin tax translates into an annual rate of 4 percent on a three months' round trip and even more for a shorter trip. By evoking such annual rates of return, the argument is built that a small Tobin tax will be large deterrent for daily or monthly speculative flows. But Paul Davidson (1997) points out that the Tobin tax need not be sufficient enough to stop speculation. He says that an expected increase in the spot exchange rate of anything in excess of 1.1 percent is sufficient to more than offset the deterrent effect of a negative 4 percent annual rate on a three months round trip imposed by a 0.5 percent Tobin tax. Davidson derives a formula to show the bullish or bearish nature of investors introducing a Tobin tax, which is as follows:<sup>4</sup>

$$[(q-c)+(p_{t+1}-p_t)-(x)(p_{t+1}-p_t)-T] >/<0$$

Here  $x$  is the Tobin tax and  $T$  is the transaction cost. If the LHS is greater than 0 then the person would be a bull and if it is less than 0 the person is a bear. Suppose  $(q-c)=T$ , then we have

$$P_{t+1}/p_t > \text{or} < [(1+x)/(1-x)]$$

If there is any expectation of a change in the exchange rate it would lead to speculation among investors. Therefore to prevent fund managers from selling their securities and leaving the country,  $x$  should be large enough. In fact, any Tobin tax significantly less than 100 percent on capital gain is unlikely to stop the sloshing

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4. For detail derivation of formula see Paul Davidson (1997) "Are grains of sand in the wheels of international finance sufficient to do the job when boulders are often required?" *The Economic Journal*, 107(May), pp.677.

around of hot money. He cites the case of Mexico where the peso fell by approximately 60% in the winter of 1994-95. There, in order to stop the speculative surge that led to the peso crisis, a Tobin tax of over 23% would have been required. Thus, while a small Tobin Tax might slow down the speculative fever when small exchange rate changes are expected, it cannot be helpful when there is a large fluctuation in the exchange rate.

To deal with speculative attacks he proposes an altogether different structure for the world economy. In his proposal a closed double-entry-book-keeping and clearing institution is required to keep the payments 'score' among the various trading regions, combined with some mutually agreed upon rules to create and reflect liquidity while maintaining the international purchasing power of the international currency.<sup>5</sup>

**(II) Unremunerated Reserve requirement (URR):** Indirect taxation of cross-border flows, in the form of non-interest-bearing compulsory reserve/deposit requirements (called unremunerated reserves requirement (URR)) has been one of the most frequently used market-based controls. Under such schemes, banks and non-banks dealing on their own account are required to deposit at zero interest with the central bank an amount of domestic or foreign currency equivalent to a proportion of the inflows or net positions in foreign currency. It can be used for affecting the inflow as well as the outflow of capital. URR may seek to limit capital outflows by making them more sensitive to the domestic rates. Because the stability of domestic interest rate is maintained by the imposition of the URR. And inflows could be affected by

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5. *ibid*.pp.681.

reducing their effective return. It encourages a particular type of capital inflows, which is in interest of the nation. The mechanism through which it works is as follows:

$$\text{URR} = [\tau / (1 - \tau)] (h/k) i^*$$

This is the simple equation that reflects the cost of the URR. Here  $\tau$  is the fraction of the capital inflow to be deposited with the central bank;  $h$  is the required holding period;  $k$  is the average maturity of the foreign investment for which the URR is calculated; and  $i^*$  is the equivalent foreign interest cost for the  $k$  months. This formula shows that as the  $k$  increases and other variables remain unchanged then the cost of the URR decreases reflecting the possibility of making long-term investments more attractive. Here  $h$  affects the profitability of funds by increasing or decreasing in value. In this equation  $\tau$  and  $h$  are controlled by the central bank.

This is the method that has been adopted in Chile and Columbia to limit short-term capital flows. But this type of capital control also suffers from some drawbacks. Since it is imposed on a certain type of capital, it encourages the investor to find other types of investments e.g. trade credits and secondary ADRs, which generally happen to be out of the coverage of the capital controls. In the case of Chile, however, even they were brought under the coverage of controls closing the loopholes. Many studies and the actual behaviour of the individual components of capital inflows in Chile suggest a pattern of migration between covered and uncovered inflows in response to various efforts at tightening the URR. Under-invoicing of imports and over-invoicing of exports are common ways to evade such capital account measures.

## **A brief history of capital controls**

The modern practice of capital controls dates back to the international financial crisis of 1931. Before that there have been incidents where few countries have imposed exchange controls after receiving shocks to their currencies. Among them is France, which imposed exchange controls to inhibit capital flight and made the ministry of finance's permission mandatory for any resident to export capital, whether securities or funds for the purchase of securities or foreign exchange. Germany also moved to a controlled economy after the outbreak of war. It was, however, the international financial crisis of 1931 that led to widespread capital restrictions in peacetime. Many countries, in both Europe and Latin America, adopted exchange controls in that year (League of Nations, 1944, pp.162).

The emergency capital controls of the 1930s acquired an enduring place in economic policy in many European countries for a half-century. Several eastern European countries (for example, Hungary, Poland, and Yugoslavia) continued to maintain them. In the period after restrictive economic policies were pursued, an emphasis on national economic planning whether of the Marxist or non-Marxist variety, became fashionable in many countries; and capital controls played an important although supplementary role to more general government involvement in steering national investment (Cooper, 1999).

Though there were a few countries like USA, Canada, and Switzerland that were exceptions to this experience with capital controls, it was the post-Bretton Woods period that was characterised by the gradual abolition of regulations on capital movement. The European Union is an example of this. Adopted to create a

single market by 1992, the union implied that capital could move freely within the Union. France and Italy were seen removing their residual capital controls by 1990.

The history of developing countries, particularly Latin American, regarding capital controls has been that after emerging from the Second World War with relatively strong payments positions and relatively liberal policies toward capital movement they liberalised it further in the late 50s. But the oil shocks of the 1970s and debt crisis of the 1980s led to further tightening of controls on capital movements (Cooper, 1999). Mexico, Brazil, Argentina, and other Latin American countries relaxed these again in 1990s, as a part of the general tendency to rely on private markets in pursuit of economic development. Chile and Columbia were those who infact tightened the capital controls during 1990s. In the case of East Asia, they followed liberal policies toward foreign capital after the 1980s and this contributed to the grave financial crisis of 1997.

### **The existing literature on the effectiveness of capital controls**

The effectiveness of capital controls have been assessed on the basis of their impact on capital flows and policy objectives, such as the maintenance of exchange rate stability, provision of greater monetary policy autonomy, or preservation of domestic macroeconomic and financial stability. Econometric and statistical studies of these issues have several methodological shortcomings. In particular, no generally accepted and reliable measures of the intensity of capital controls are available, and many studies simply use dummy variables for their presence or absence.

A study by the IMF on the effectiveness of capital controls in the context of a group of five countries (Chile, Columbia, Malaysia, Thailand, and Brazil) points out

that capital controls were used to limit short-term inflows in response to concerns about the macroeconomic implications of the increasing size and volatility of capital inflows, within the broader context of abundant capital flows to emerging economies during 1990s.<sup>6</sup> In case of the Chilean economy the study points out that the main control measure, the URR, affected the short-term inflows of capital for a very short period. In the longer term it faded out in its effect. This result is disputed by the discrepancy between data available with Central Bank of Chile and other sources (World Bank/BIS). Because the latter suggest that the ratio of short-term debt to total debt in Chile rose sharply in the 1990s after the imposition of the URR. But on the basis of data available on the Chilean economy it appears that the imposition of capital controls has lengthened the maturity of foreign capital. The same result emerges from the experience of the Columbian economy as well. A recent paper by De. Gregorio, Edwards and Valdes (1999) addresses the impact of the URR by introducing a variable aimed at measuring the presence of loopholes due to the URR that gave the monetary authority additional room to manoeuvre and change the composition of inflows toward long term flows.

Laurens and Cardoso (1998) try to assess empirically the effectiveness of the URR on net capital inflows as well as their composition using an index that measures the restrictiveness of capital controls in Chile. The authors find that the introduction of the URR and the broadening of its base over time had a negative effect on the level of capital inflows. Gabriel Palma (2000) points out that the use of capital controls in Chile has affected the nature of capital inflows. It enhanced the share of the foreign

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6. IMF (2000), Occasional paper, 190. 'Capital controls: Country experiences with their use and liberalisation.' Washington DC

direct investment in the total capital inflows. Yoshitomi and Shirai (2000) conclude that capital controls affected the composition of inflows, since short-term capital inflows dropped immediately after the introduction of controls in the same year. And the decline of short-term capital inflows was fully compensated by an increase in longer-term capital inflows.

Much attention has been given in the literature to the differential between domestic and external interest rates, as capital controls tend to create a wedge between domestic and external financial markets. If the controls are effective, capital flows would become less sensitive to the domestic interest rate, which the authorities could then orient toward domestic economic objectives. The IMF (2000) study shows that the URR in Chile had enhanced the autonomy of monetary policy by helping to maintain a wedge between domestic and external monetary conditions. The study shows that the differential in the real interest rate over international rates rose from 3.1 percent in 1985-91 to 5.2 percent in 1992-97.<sup>7</sup> However, a few studies negate this fact and say that such effects were of a temporary nature. Le Fort and Budnevich (1996) argue that given the sound economic policies followed in Chile in the 1990s, the URR has kept the real interest rate differential in favour of Chile, as desired by the authorities. Herrera and Valdes-Prieto (1997) use monthly data from the January 1994 to August 1996 to estimate the maximum interest rate differential that the URR generated in Chile. The main result is that the URR generates an interest rate differential, which is significantly more modest than usually calculated under the myopic alternative. The myopic alternative here refers to the one where the duration of foreign capital in Chile is fixed *a priori*, and then the effect of the URR is

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7. *ibid.* pp.47.



measured on the Chilean interest rate. They find by way of comparison, that the maximum interest rate differential a 30 percent URR can generate, is 2.3 percent in three months and 1.25 percent on one year investments relative to 10.5 percent and 2.5 percent the under myopic alternative.

Le Fort and Budnevich (1996) and Le Fort and Sanhueza (1997) argue that the URR allowed Chile to keep the interest rate differential in favour of the domestic economy without generating an increase in the expectations of currency depreciation to fulfil the interest rate arbitrage condition. Soto (1997) studies the effect of the URR on the volatility of the real exchange rate using a bivariate VAR with the tax rate and an estimated measure of standard deviation of the real exchange rate. Although the URR does not seem to explain more than 6.5 percent of the variance in real exchange rate volatility, the impulse response function shows that a standard deviation shock in the tax contributes to the reduction of volatility of the real exchange rate after the second month by 10 percent, and that effect declines to 4 percent in the medium and long run. He finds out that a 30 percent tax can reduce the volatility of the real exchange rate by about 20 percent. Edwards (1998) finds that the effect of the URR on the behaviour of the real exchange rate has not been statistically significant.

Gollego, Hernandez and Schmidt-Hebbel (1999) reach the conclusion that the URR has worked as a complementary policy aimed at improving the trade-off between monetary and exchange rate policies. Though they say it cannot work in an imperfect market, since Chile had a robust well-capitalized and well-regulated financial market, the impact of the URR was positive. All these studies, based on the


some statistical measurement, have shown that capital controls have affected the important economic variables to some extent.

It is useful to also examine other measures, besides capital controls, available and suggested by various economists to tackle the financial crisis. In fact the thrust of this dissertation is to assess the capacity of capital controls to prevent financial crises. Hence, the literature surveyed revolves mainly around the theoretical as well as empirical analysis of capital controls. But the countries where capital controls have been successful generally speaking have also been characterised by the prudential regulation of the domestic financial sector. And some of these measures that have indeed helped these economies in preventing the spread of currency crisis to the real sector to some extent (the US package to Mexico) are to be considered as additional measures in the prevention of financial crisis. The important suggested measures and their ability to contain the financial vulnerabilities are discussed below briefly.

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**(a) Monetary policies and adequate foreign reserves**

These sorts of measures arise from within the stable of orthodox economics, which argues that taking three important variables, viz., the domestic interest rate, foreign interest rate, and the expected change in exchange rate, the domestic authority should maintain that level of the interest rate so that the foreign investor is indifferent between domestic and foreign countries. Therefore at the time of a currency crisis the central bank should raise the rate of interest in the affected economy. It has also been suggested that debtor countries should maintain adequate foreign exchange reserves to meet their short-term obligation in order to avoid currency volatility in the face of a massive withdrawal of foreign loans.

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But available experiences suggest that both of them have not been able to control the crises. Higher interest rates simply signal declining creditworthiness and rising default risk and the expected rate of return adjusted for risk tends to fall as interest rates are raised. Even a double digit interest rate may prove inadequate to persuade people to keep their capital in domestic assets when they believe that such rates are politically difficult to maintain, as was seen in some European countries during the EMS crisis (Akyüz and Cornford, 1999). On the other hand, maintenance of higher foreign exchange reserves requires the central bank to follow a sterilisation policy of issuing domestic public debt. More over the cost of borrowing falls entirely on the public sector whose losses will exceed the foreign exchange cost of carrying such reserves since the domestic interest rate on government debt exceeds the rates earned on reserves by a larger margin than borrowing rates in international financial markets. This gives rise to large deficits. (UNCTAD, 1999b, chap.4, sec.c.2)

#### **(b) Transparency, disclosure and early warning**

After the Mexican and Asian crises many observers are stressing on measures related to transparency in the functioning of the economy. The subjects to be covered are national accounts, conditions in the labour market, prices, the determinants and principal features of the government's fiscal balance and debt position, the accounts of the central bank and of the financial sectors, interest rates and stock prices, the BoP, international reserves, etc. Because these are the important factors determining the inflow of foreign capital. Mexico is the best example where the rating agencies and other international financial institutions showered high praise on the country as model performer though it came out weak in terms of real economic performance.

— — — Of course transparency is needed so that the capital market reflects real conditions. But emphasis on inadequate information as the major reason for failure to forecast crises appears exaggerated. As an UNCTAD report argues ~~the~~, data regarding key variables of the crisis-ridden economies were indeed available (in particular in the periodic reports of the Bank of International Settlement (BIS) concerning international bank lending).

### **(c) Domestic financial regulation and supervision**

These types of measures have been suggested by the people like Krugman, Mishkin, Radlet and Sachs, etc, who believe in third generation crisis models. They say that weak credit lending evaluation and speculative lending, as well as failure to control currency risk among banks and other financial institutions are often at the origin of financial crises, particularly in emerging markets. There is thus general agreement that regulatory reform is an essential part of the strengthening and restructuring of the financial sector and making it crises-resistant. The main vehicles for such measures have been the Basle Committee on Banking Supervision and other bodies with close links to the BIS as well as other groups concerned with regulatory and accounting standards mentioned above. And the emphasis has been put on such measures especially because of financial liberalisation, which has brought diversification of financial services and global financial integration.

Given the experiences of a few countries characterised by the capital controls, it could be argued that these measures have played a complementary role in containing those activities which contribute in making these economies prone to financial crisis. But they also have certain limits because of inevitable imperfections

in implementation of financial regulation especially in developing countries. And these measures cannot be the sole controllers of financial crisis.

**(d) Policy surveillance and international lender of last resort**

As integration of financial markets is growing; prevention of crises is not a concern only of the immediately affected but also of the other countries. Since macroeconomic and financial policies have a major role in the build up of financial fragility and emergence of financial crises, global surveillance of national policies is called for, with a view to ensuring greater stability and sustainability of the exchange rate and external payments positions. (Akyüz and Cornford, 1999, Edwards and Savastano, 1999). Some people perceive that the IMF could play this role. But, the persistent occurrence of crises caused by factors outside of the affected area shows the failure of IMF in this regard.

As we know from experience, currency crises in emerging markets develop as self-fulfilling debt runs, leading to overshooting of exchange rates and the translation of liquidity into insolvency crises (Akyüz and Cornford, 1999). Given the ineffectiveness of monetary policies in reversing the confidence of investors in financial markets, few people have suggested establishing an international lender-of-last-resort facility to provide international liquidity to countries facing financial panic in order to support their currencies. But the provision of liquidity to pre-empt large currency swings has not been the international policy response to currency crises in developing countries. Rather assistance coordinated by the IMF has usually come after the collapse of the currency in the form of bailout operations designed to meet the demands of creditors, to maintain capital account convertibility and to prevent default. Moreover, availability of such financing has been associated with

policy conditionality that went at times beyond macroeconomic adjustment. These are some of the issues we examine in the section that follows dealing with the nature of financial crises that are sought to be prevented with measures of the kind discussed above.

## II

### A Historical Introduction to Financial Crises

The history of the world economy shows that it has never had economic stability which has at once encompassed the whole world, though stability in certain regions has been achieved at the cost of others' economic stability.<sup>8</sup> This has been subject of much concern to those adopting a framework emphasising international inequality and the role of imperialism and the debate is still on. Here we are concerned with financial instability of a kind which causes substantial damage to economies, especially the emerging markets economies that have experienced financial crises over the last two decades.

We cannot study the perennial occurrence of economic crises (of which financial crises are a major part) globally overlooking the international financial structure. Therefore given the history of economic crises and the international financial structure we can divide the post-1880 period into four:

- a) Gold Standard era (1880-1913).
- b) Inter-War period (1914-1943).
- c) Bretton Woods Era (1944-1972).
- d) Post-Bretton Woods Era (1973 onwards).

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8. Continuous good performance of US economy during the decade of 80s and 90s where the high growth, low unemployment and moderate inflation can be seen is often exemplified as virtue under capitalism. But the period of 1990s has been characterised by unevenness of economic advance under capitalism. This unevenness is reflected in both the significant variations in economic performance between the advanced industrial economies, and in the widening of economic differentials between the advanced and underdeveloped regions of the world. (C.P.Chandrasekhar, 2000, " Uneven Development and Crisis under Contemporary Capitalism" The Marxist, XVI, 1)

The first era (1880 AD-1913AD) was characterised by a regime of flexible exchange rates. The global economy during this era was dominated by the UK. By some criteria, global financial integration has never been greater than in this era till now.<sup>9</sup> British capital exports averaged 5 percent of GDP during those years and reached nearly twice that level toward the end of the period. The capital exports of the others leading countries, France and Germany, were about half of the British level. By 1913 nearly one third of British-owned assets were overseas. Capital inflows financed fully a third of domestic investment in Canada and New Zealand and a quarter in Australia. (UNCTAD, Global Development Finance, 2000, ch.6)

The boom in capital flows to the industrialising economies began in the 1870s ended, not due to financial crisis or excessive debt, but rather in the collapse of the European political system with the onset of World War 1. This era saw a small number of exceptionally severe crises, but a large number of milder episodes. One recent study counts 22 crises between 1880 and 1913 in the emerging 15 markets.

The second era which spans from the First World War to the Second World War, ended with the establishment of the Bretton Woods system. This period also experienced several crises. The most severe was the great depression of 1929-33, which led to the recognition that capitalism is a demand-constrained system, as was epitomised in the work of J.M.Keynes. The depression that ended the lending boom affected more countries than any economic downturn before or since then. As output and prices spiralled downward, one country after another endured banking crises. And as production and trade imploded, one country after another was forced to

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9. Jayati Ghosh and C.P.Chandrasekhar, 2001, *Crisis and Conquest Learning From East Asia*, Chap.3<sup>rd</sup> pp-30.



suspend the convertibility of its domestic currency into gold and to allow the currency to depreciate. Bernank and James (1991) list three dozen banking crises between 1929 and 1936.

The third period is the Bretton woods era that started in 1944 and led to the emergence of international organisations like the IMF and the World Bank. A fixed exchange rate regime and strict capital regulation were main characteristics of this era. Therefore this period experienced very few crises. Although financial crises were rare during this period, Edwards and Santaella (1992) list 48 devaluation episodes in emerging markets (often accompanied by IMF intervention) from 1954 to 1971. The Bretton Woods era ended in March 1973 because the US was no longer prosperous enough to remain with its fixed exchange rate system based on a fixed relationship between gold and the dollar.

The fourth era is the post Bretton-Woods period which started with the break down of the fixed exchange rate regime. But inspite of the collapse of the Bretton Woods system, the IMF and World Bank remained key players in the determination of the international financial structure. In this era, crises returned with a vengeance in the 1980s following financial liberalisation and the resumption of international lending. The episodes of financial instability and crises in industrial countries include the banking and real estate crises in US, the major slumps in the global stock market in 1987 and 1989, several episodes of extreme instability in the currency markets of industrial countries of which an outstanding instance was the currency crisis of the European Monetary System (EMS) in 1992, and ongoing instability in Japanese financial markets that started with the bursting of bubble in the early 1990s. Those in developing countries include the 'Southern Cone' crisis of the late 1970s

and early 1980s, the Mexican crisis of 1994-95, the East Asian crisis beginning in 1997, the Brazilian crisis in the later part of 1998, the recent Turkish crisis and a number of other more limited currency and banking crises (UNCTAD, 1998a: part one; Annex to ch.3).

The above-mentioned episodes of crises prove the inherent instability in the functioning of the world economic system. The frequency and severity of crises of the 1990s has been one of the worrisome aspects. There have been several attempts made by economists of various streams to diagnose the crises. On that basis we have seen the emergence of various theories of financial crisis. But before going into detail of theories of financial crisis we must understand what a financial crisis consists of?

#### **What is a financial crisis?**

Experience suggests a financial crisis comprises broadly of a combination of a currency crisis and a banking crisis. A currency crisis may be said to occur when a speculative attack on the exchange value of a currency results in a devaluation (or sharp depreciation) of the currency or forces the authorities to defend the currency by expending large volumes of international reserves or by sharply raising interest rates (IMF, World Economic Outlook, Chap. IV, 1999). Therefore the conditions, which lead to such situations where investors start speculating on the depreciation of the exchange rate and the currency succumbs to the volatile psychology of speculation, need to be identified. Those conditions normally take the form of some common trends in certain macroeconomic variables within and outside of the economy. The most significant variables and trends in this context are enumerated below.

- (a) A large inflow of short-term capital (portfolio investment), which tends to be largely speculative in nature, involving bets on the future values of currencies or other financial instruments or derivatives.<sup>10</sup>
- (b) A significant appreciation of the exchange rate, which attracts foreign investors to invest in domestic currency denominated assets. Since, in the long run it is difficult to sustain this appreciation, expectations of a depreciation build up among portfolio investors leading to speculation.
- (c) Domestic as well as foreign interest rates, which play a vital role in the determination of the currency stability. A high differential in interest rates, with a higher domestic rate, attracts foreign investments. On the other hand, a narrowing of the differential, especially through a rise in the foreign interest rate, triggers an outflow of capital. Therefore a declining trend in the interest rate differential is a good indication of a possible speculative attack on the currency.
- (d) A large current account deficit, which is difficult to manage in the long run, especially for developing countries with limited foreign exchange reserves. Such deficits are often caused by a larger inflow of foreign capital. Jayati Ghosh and C. P. Chandrasekhar (2001) say “the large current account deficits in Thailand and elsewhere were therefore necessarily a by-product of the surge in capital inflow, and that was the basic macroeconomic problem. Any country which does not exercise some sort of control or moderation over private capital flows can be subject to very similar pressures.” They point out that these create the

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10. *ibid.* Chap. 4

conditions for the eventual reversal of foreign capital, when the current account deficits are suddenly perceived to be too large or unsustainable.

When movements of the kind discussed occur in the variables mentioned above, the likelihood of a currency crisis increases. Often these tendencies are associative of other indicative of a failure of the domestic financial system or of a banking crisis. A banking crisis refers to a situation in which actual or potential bank runs or failures induce banks to suspend the internal convertibility of their liabilities or which compels the government to prevent this by extending assistance on large scale.<sup>11</sup> A banking crisis may be so extensive as to assume the form of systemic financial crisis. Systemic financial crises are potentially severe disruptions of financial markets that by impairing the markets' ability to function effectively can have large adverse effects on the real economy. A systemic financial crisis may involve a currency crisis but a currency crisis does not necessarily involve serious disruption of the domestic payments system and thus may not amount to a systemic financial crisis (IMF, 1999).

In practice a range of conditions seem to precede the spate of banking crises witnessed in recent times. These include broadly the following:

- (a) A larger induction of private players into the domestic financial system through privatisation and liberalisation of the condition for entry by foreign participants.
- (b) A gradual shift of domestic credit from the hands of the public to the private sector, with the latter using such credit either for the

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11. For detail see Michael D. Bordo "Financial crisis, banking crisis, stock market crashes, and the money supply: some international evidence, 1870-1933" in Forrest Capie and Geoffrey Wood, eds. *Financial Crises and the World Banking System*. 1985.

purpose of consumption of foreign goods or for investment in the real estate and speculative assets. Most of the countries that have suffered a banking crises have been characterised by lending by banks for speculative investments in risky projects and assets, resulting in a boom in real estate prices and stock exchange indices.

- (c) A high differential between domestic and foreign interest rates is also a condition that increases the potentiality of banking crisis. The lower foreign interest rate encourages domestic bankers to borrow on a large scale and finance very risky business operations in the domestic market.

These characteristics of the environment surrounding a currency crisis and a banking crisis suggest that we cannot compartmentalise the two. Every characteristic, which causes a currency crisis, does adversely affect the banking sector as well. General experience has been that these trends precipitate a currency crisis before a banking crisis, making a currency crisis the precursor of a collapse in the domestic financial and real sectors.

In this context it must be mentioned that in comparing industrial and emerging markets countries, it appears that industrial countries had fewer currency and banking crises than emerging market countries during the Post-Bretton Woods era. The IMF (1999) estimates that the incidence of currency crises in emerging market countries was double that in industrial countries and the same was the case with banking crises too, though the latter have occurred more than twice in the industrial countries.

The difference in the proneness to crisis between developing and developed countries stems from a number of factors. To start with, the size of developing countries' financial markets is small, so that entry or exit of even medium-size investors from developed countries is capable of causing considerable price fluctuation, even though their exposure in these markets account for a small percentage of their total portfolios. Furthermore, differences in the size, maturity-period and currency denomination of external debt play a crucial role in generating crises in developing countries. The vulnerability of developing countries is greater because of their typically higher net external indebtedness, the shorter maturity of their debt and the higher share of such external debt denominated in foreign currencies. For example, Mexico's vulnerability increased when a large proportion of external borrowing took the form of TESOBONOS (dollar denominated security bills) as compared with foreign borrowing using CETES. Finally, the vulnerability of the domestic financial system is increased further when the private sector rather than the government owes much of the external debt. (Yilmaz Akyüz and Cornford, 1999).

Prabhat Patnaik (1991) cites different reasons for the occurrence of crises and the severity of their impact on the real sector. He says, "in the case of advance countries there are two important factors which help to stabilize exchange rate markets and keep price fluctuation within limits. The first is that there is so much holding of each others' currencies or currency denominated assets that there is an objective compulsion on all of them to act in concert to keep exchange rate fluctuations in check. Secondly, since they produce more or less similar commodities which compete in the world market where demand is likely to be sensitive to price

variation, the fear of loss of export markets gives each country an additional vested interest in preventing the currency of its rivals from depreciating too much. For both these reasons, a bullish surge in any one currency brings about before long a counteracting bearish action on the part of a host of powerful central banks. And the very expectation of such action keeps bullish surges in check.... In case of the underdeveloped countries however, these mitigating factors do not apply. Here the counteracting action against any bullish surges in the foreign exchange market can be undertaken only by selling its reserves. These reserves are usually not too large to start with and their depletion, which soon forces the country to scrounge around for international loans, only succeeds in further strengthening the bullish sentiment.”  
(P.Patnaik, EPW, 28 Sep.1991, page-2258)

### **Theories of financial crisis**

Despite the common determinants of financial crises identified above, it should be noted that the experiences with recent crises indicate that they have occurred under varying macro-economic conditions, although their origin can be traced to the emergence of a financial structure with a number of common features like the liberalisation of the economy and the notably financial sector. They have occurred when current account deficits were large and unsustainable (Mexico, Thailand), but also when such deficits were relatively small (Indonesia, and Russia). Although significant overvaluation has often been characteristic of countries experiencing currency turmoil (as was true in Mexico, Russia and Brazil, all of which used the exchange rate as a nominal anchor to bring down inflation), this has not always been the case: for instance, in most East Asian countries the appreciation of the currency was moderate or negligible. Similarly, while in some cases crises were associated with large budget deficits (Russia and Brazil), in others budgets

were balanced or in surplus (Mexico and East Asia). Finally, crises occurred when external debt was owed primarily by the public sector (Brazil and Russia) or primarily by the private sector (East Asia).

These varying macroeconomic conditions have caused the emergence of varying financial crises theories. I have grouped these theories into four categories based on their characteristics.

### **(I)The first-generation financial crisis theories**

The first type of financial crisis theories argue that it is the conflict between the monetary and fiscal policy stance, on the one hand, and the authorities' exchange rate commitment, on the other, that leads to a speculative attack. (Krugman 1979, Flood and Garber 1984) In the words of Krugman " in the canonical 'first generation' crisis models, a government with persistent money financed budget deficits was assumed to use a limited stock of reserves to peg its exchange rate; this policy would of course, ultimately be unsustainable and attempts of investors to anticipate the inevitable collapse would generate a speculative attack on the currency when reserves fell to some critical level." The argument goes as follows: an expansionary thrust leads to inflation that causes depreciation of the exchange rate and triggers speculation among investors who start fleeing the currency. To restrain the depreciation of the exchange rate the central bank releases international reserves and it continues to do so till its stock of international reserves is depleted fully. This occurs because first generation models assume that the capital market is not fully liberalised, limiting the ability of central banks and governments to borrow from the international market to defend the exchange rate. Though the period before liberalisation was characterised by the availability of aid from the international



financial institutions, such aid was limited and was available mostly for developmental purposes.

## **(II) The second-generation financial crisis theories**

The second-generation models deal with a speculative attack in a slightly different way. They say that central governments' and banks' main focus is to optimise social welfare by increasing output and employment and maintaining the stability of the banking sector. The second important commitment of these agents is to the exchange rate peg. In these models, central banks are free to borrow and the level of reserves no longer determines their capacity to defend the exchange rate. But there may be a conflict between the steps required to defend the currency and those that work to stabilize output, employment, and the banking system. A worsening domestic scenario in terms of low output and employment growth, and bankruptcy could provide the signal for opting for policies aimed at stabilizing output, employment, and the domestic financial sector, and induce the authorities to abandon the currency peg. As Krugman puts "in second generation models policy is less mechanical: a government chooses whether or not to defend a pegged exchanged rate by making a trade off between short run macroeconomic flexibility and longer term credibility. The logic of crisis then arises from the fact that defending a parity is more expensive (it requires a higher interest rate) if the market believes that the defence will ultimately fail, as a result, a speculative attack on a currency can develop either as a result of a fundamentals, or purely through self-fulfilling prophecy."

As example of second-generation models Barry Eichengreen and Olivier Jeanne (1998) cite the cases of the sterling crisis in 1993 and the currency crisis in

France in 1992-93. In both the cases attacks occurred in the absence of obvious evidence of monetary excesses, inflation, competitiveness problems, and current account deficits. They took place in the context of high unemployment, which rendered the government reluctant to raise the interest rate and restrict credit in order to defend the currency if doing so meant aggravating labour market conditions. Some countries have a weak banking system whose stability might have been at stake if policies restricting the availability of credit were adopted. Some countries' governments had issued large amounts of short-run public debt, making debt servicing costs highly sensitive to the level of the interest rate. These are the reasons why authorities have perceived a conflict between the measures needed to defend the currency and those appropriate for pursuing domestic economic objectives, and why deterioration in domestic conditions might precipitate an attack.

In case of the sterling crisis of the 1930s Eichengreen focuses on the period demarcated by Britain's return to the pre-war parity on 25 April 1925 and its departure from gold on 19 September 1931. The unemployment rate was a thorn in the lion's paw throughout the period. It was reported in the range of 9 to 12 percent before rising to levels in excess of 20 percent following the onset of the Great Depression. It was the government's exchange rate commitment, which had contributed to this joblessness. Starting in 1920 Britain underwent a five-year retrenchment programme in order to reverse the effects of its wartime inflation and to reduce prices to lower levels similar to those that prevailed in the US, thereby permitting the pre-war exchange rate against the dollar to be restored. This had very predictable effects in terms of unemployment. This unemployment then fed back to the foreign exchange market. Eichengreen takes the interest rate differential that was prevalent at that time as a crude measure of devaluation expectation along with a

more sophisticated measure (the realignment probability times the expected change in the exchange rate) constructed to take account of the possibility of a realignment, using Svensson's (1993) drift adjustment method.<sup>12</sup> These estimates calculated for the relevant period suggest that the realignment expectation rose from zero to about one percent at the beginning of the period. In August 1931, devaluation expectation shot upward, coincident with the German financial crisis. Unemployment rose steadily from the end of 1929, and devaluation expectation rose only modestly at best before shooting upward in the two months immediately prior to Britain's forced suspension of the sterling parity. That time Germany's financial crisis played a role in the determination of the exchange rate in Britain. Because Germany and Austria put some restriction on imports as well as the exchange market, the BoP of England deteriorated. Already prevalent high unemployment tipped the balance away from further austerity in the interest of currency stabilization. Therefore primary sources and secondary sources alike support the view that the exchange rate peg, maintained in the face of a massive external disturbance, aggravated unemployment, while the rise in unemployment limited the willingness of the authorities to defend that exchange rate when it came under attack (Eichengreen and Jeanne, 2000). Therefore we can say that domestic economic deterioration makes the government's effort at maintaining exchange rate peg more vulnerable and this kind of analysis can shed light on currency crises in a variety of times and places.

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12. The change in the exchange rate was regressed on a constant and on the current rate to obtain an estimate of expected movements within the band. The fitted values were then subtracted from interest rate, producing the estimates of the expected rate of devaluation.

In the tradition of second-generation models other economists have also made important contributions: Paul Krugman (1996), Obstfeld (1994), Drazen and Masson (1994), Masson (1995), Ozkan and Sutherland (1995) and Bensaïd and Jeanne (1997), to name a few.

The difference between first generation and second-generation models is that the former take inflation and excess money as triggers of a speculative attack while the latter see the recessionary trend in the economy as the trigger of a speculative attack.

### **(III) Third-generation financial crisis theories**

There is yet another strand of literature aiming to explain the frequent occurrence of financial crises, which is quite different from the first and second-generation crises theories. This group of theories have been termed the third generation crisis theories. These theories conclude that weak credit evaluation and speculative lending, as well as failure to control currency risk among banks and other financial firms, are at the origin of financial crises particularly in emerging markets.

It is Paul Krugman (1998) who says that the crises in south East Asia was caused by problems of moral hazard and excessive lending to finance speculative investment. He says, "of course Asian economies did experience the currency crisis and the usual channels of speculation were operative here as always. However, the currency crises were only part of broader financial crises which had very little to do with currency or even monetary issues per se. Nor did the crisis have much to do with traditional fiscal issues. Instead, to make sense of what went wrong we need to focus on two issues normally neglected in currency crisis analysis: the role of

financial intermediaries (and of the moral hazard associated with such intermediaries when they are poorly regulated), and the prices of real assets such as capital and land.”<sup>13</sup> According to him the problem in Asia began with financial intermediaries – institutions whose liabilities were perceived as having an implicit government guarantee, but were essentially unregulated and therefore subject to severe moral hazard problems. The excessively risky lending that was done by these institutions created inflation of asset prices. The overpricing was sustained in part by a circular process, in which the proliferation of risky lending drove up the prices of risky assets, making the financial condition of the intermediaries seem sounder than it was. And then the bubble reflected in such unsustainable asset prices burst.

The experience with financial crises shows that most financial intermediaries are given guarantees on their liabilities by the state. Therefore, given the choice between lower or higher (though more risky) returns, the owner of a guaranteed intermediary opts for that which could yield higher returns if he gets lucky, even if there is a strong possibility of heavy losses. Given the availability of funds at the lower international rate of interest, intermediaries lend to very highly leveraged firms engaged in risky investments. Financial intermediaries’ investment is completely based on Pangloss values: the value that the variable would take if it turns out that we live in what is the best of all possible worlds. In such a situation moral hazard-prone financial intermediaries will drive out equity investments and push the capital stock up to higher levels. Now suppose there is an asset with limited supply. Given the finance available from the international market at a lower rate of interest and

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13. For detail see Paul Krugman (1998) ‘What happened to Asia?’

favourable conditions in the economy, there will be excess demand for assets by financial intermediaries leading to very high asset prices. These two things take place given a certain regime of economy. But if there is speculation regarding a change in economic regime, especially an announcement that henceforth creditors of intermediaries are on their own, investors face two sources of uncertainty: they do not know whether the return on assets in the next period will be high or low, and they do not know whether the price of assets in the next period will reflect the expected value or Pangloss values. Now suppose that return on the asset is less than the Pangloss value in next period; it requires that creditors of intermediaries need to be bailed out in the next period and therefore in future, creditors can no longer have the same expectations. So the intermediaries collapse because accessibility of credit dries up. There will be a magnification effect on the losses of the intermediaries established in earlier period. This happens because in the past, given the higher expected return, the intermediaries had bought assets at higher price than actually required and now because of lower expected return their losses increase. This leads to the prospective end to intermediation, driven by the losses of the existing institutions, which reduces asset price and therefore magnifies those losses. This leads to a complete collapse of the financial sector.

Frederic S. Michikan (1997) also supports the third generation crises models. He perceives that the occurrence of currency crises is caused by moral hazard and adverse selection. As has been mentioned earlier; most of the crises have followed financial deregulation which limits the elbow space of the state in economic decision making, and weakens the supervisory mechanism which checks risky economic activities. Short-term global finance capital flows are very sensitive to the economic condition of a recipient country. Given the liberalisation of the financial sector, the

stock market emerges as a very lucrative venue not only for foreign capital but domestic capital as well. There is even some threat to the real sector as short term capital flows are driven by speculation regarding the likely depreciation of the exchange rate and the central bank tries to arrest such depreciation by using the limited foreign reserves available with it and by raising the rate of interest. The rise in the interest rate has a dual effect: banks have to pay a high return for the short term capital; and the rise in the interest rate leads to the adverse selection of loans and finally to moral hazard. Given the dual effect of the rise in interest rate, the balance sheets of banks deteriorate and problems of adverse selection and moral hazard arise that further aggravate the foreign exchange crises and this cycle continues until there is a full-blown financial crisis. In the case of developed countries, because of less dependency on foreign borrowing the problems of adverse selection and moral hazard is taken care of by the central bank's heavy lending to banking and financial institutions so that confidence in banks is maintained. Michikan traces the cause of currency crises to the micro level on the basis of moral hazard and adverse selection, but as preconditions for this he assumes withdrawal of state intervention in the economy and an excessive inflow of short-term foreign capital, which is highly sensitive to economic conditions. In support of his argument he cites the case of Mexico.

Guillermo A. Calvo (2000) draws attention to the fact that most models are concerned with predicting crises. In the process, the underplay crucial issues like the determinants of current account deficits do not capture the complicated interaction among the domestic financial and non-financial sectors, international investors and banks, and sovereign governments. To analyse the relationship between currency crisis and current account deficits, he starts with the current account deficit at zero

and introduces conventional money, government and people. With each of the latter having a utility function, he shows that whenever there is an increase in the nominal international interest rate then a balance of payments crisis is likely to occur because that will lead to a decrease in the demand for money, and decline in foreign reserves. Here the decline of foreign exchange reserves below certain critical level becomes main reason for the BOP crisis. Government's income from international bonds declines because it sells them to maintain foreign exchange reserves at certain level so that confidence of international investors is maintained. But given the limited volume of international bond's with the government as well as the decline in the income from international bonds because of decline in the holding of international bonds, the government would not be able to maintain the transfer to the public, and finally it lead to a crisis. While showing how this type of interaction between external and internal factors causes a crisis, he also refers to another factor that plays a vital role in precipitating a crisis, viz., the degree of manoeuvrability or sovereignty of government. In the words of Calvo (2000) "thus in more general terms our discussion so far can be summarised by saying that the large leeway enjoyed by sovereign government may induce strong and socially costly speculative waves."

Steven Radlet and Jeffrey Sachs (2000) in their detailed examination of the Asian crisis say that it resulted from the vulnerability to financial panic that arose from certain emerging weaknesses in these economies combined with a series of policy errors and accidents that triggered the panic. They emphasise the role of macroeconomic imbalances, weak financial institutions, widespread corruption, and inadequate legal foundations in each of the affected countries.



#### **(IV) Alternative explanation of financial crisis**

The alternative stream of analysis subscribes to quite a different view when compared with the mainstream on the matter of the functioning of the economy and the determinants of financial crises.

Quite apart from earlier theories that have been discussed, Patnaik (1995) provides an incisive analysis of the impact of capital account convertibility on a developing economy. Traditionally, models dealing with the external sector postulate that the capital account adjusts to the current account irrespective of the magnitude of the current account deficit or the identity of the country in question. This is clearly untenable because no creditors will be willing to accept unlimited claims upon some developing countries. The starting point of Patnaik (1995) is the postulation of a reverse process where it is the current account that adjusts to the capital account. Neglecting the change in reserves, the current account deficit has to equal the net capital inflow in any period. Now the volume of net capital inflow depends on the state of confidence of the international rentiers vis-à-vis the developing economy. The rate of capital inflow in each period is therefore independent of the domestic economy. In any meaningful steady state, the trajectory of domestic output adjusts to this rate through suitable changes in the exchange rate. This happens because the influx of foreign capital leads to an appreciation of the exchange rate, which causes imports to grow, and therefore through the multiplier effect total output declines. However, such a steady state need not be stable: suppose the economy is pushed above its steady state by some random shock; then output will be higher and the nominal exchange rate (defined in terms of number of dollars per unit of local currency) will fall. Even if exchange rate depreciation is small, expectations of future depreciation (in a world where there is no scope for rational expectations) will cause

net capital inflow to dry up or even worse to flow out. In the opposite scenario if the rate of growth of output falls below the steady state then for balance to be restored there will be an appreciation of the local currency, which will trigger a higher volume of net capital inflows, and this process will accelerate. As changes of reserves have been ruled out by assumption, the volume of net capital inflow must equal the current account deficit in each period. Since one of the determinants of the state of confidence of the rentiers is the ratio of the current account deficit to domestic output, as the economy breaches some predetermined critical level of the ratio, credit rating agencies will downgrade the creditworthiness of the country in question. This in turn will cause net capital inflow to dry up or become negative. Therefore even when a steady state exists in such an economy, it will be unstable.

It may seem that this result depends on government inaction. Let us see why the domestic government will be unable to prevent such an eventuality. To start with, expenditure and the government's budget deficit is determined by the diktats of the international financial institutions and any attempt to sidestep them will lead to a downgrading of creditworthiness with well-known consequences. In equilibrium, the rate of return that the rentiers earn in the domestic country (the domestic rate of interest plus expected change in the exchange rate) must equal the international rate of interest. If the government is interested in maintaining the steady state it will so fix the interest rate, and because the risk factors involved in investing in a Third World countries are high, the domestic interest rate should be high enough to compensate for this. This in turn depresses domestic private investment.

Moreover it can be assumed without much loss of generality that domestic production requires a certain irreducible minimum level of imported inputs. The

government cannot be indifferent to a fall in the exchange rate because by causing cost-push inflation it will depress real wages and since most governments are committed to maintaining some floor level of real wages the economy gets tossed from one disequilibrium to another. The many simplifying assumptions made in Patnaik (1995) are not crucial and relaxing them will not contravene this result. Specifically, even if the government has foreign exchange reserves, its ability to withstand speculative attacks depends on the volume of these reserves. Given that most developing countries do not have the wherewithal to combat such attacks, the trajectory of the economy will be similar to what has been discussed above. Therefore, opening up of the capital account is always detrimental to the economy especially because of the contemporary dominance of finance capital to which domestic economic activities have to be adjusted.

Amit Bhaduri (1998) says short-term capital flow is exogenous in nature and it may sustain artificially for some time an import surplus that has a contractionary impact on the size of the domestic market and activity. At the same time, sustaining an import surplus in this manner builds up external debt and makes the economy more vulnerable.<sup>14</sup>

David Felix (1998), in his explanation of the mechanism underlying the Asian crisis emphasises the basic thesis of the Bretton Woods accord that free international capital mobility is incompatible with the preservation of reasonably free

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14. Amit Bhaduri; 1998. "Implication of globalisation for macroeconomic theory and policy in developing countries" in Dean Baker, Epstein and Pollin, ed. *Globalisation and Progressive Economic Policy*.

trade and full employment. He says that lifting capital controls has greatly increased the frequency of currency crises. The general claim that freeing capital movement brings correct pricing of capital assets and credit allocation has been falsified.

Whether it is first, second or third generation or alternative explanations of financial crisis, an assumption made explicitly or implicitly is that a massive outflow of short-term capital occurs before a crisis, triggered by some small problem in the economy. Such capital outflow is seen to exert pressure on the exchange rate, leading finally to a crisis and a deterioration of the health of the real economy. Given this, capital controls that are meant to discourage short-term capital flows do have an obvious role in the prevention of financial crises.

## CHAPTER-3

### THE CHILEAN EXPERIENCE WITH CAPITAL CONTROLS

The creditable economic performance of Chile in the late 1980s and 1990s, when several other developing countries across the world were facing financial volatility resulting in the deterioration of other real economic variables, has often been attributed to the adoption of successful market oriented policies. Especially during the 1990s, Chile was able to break free from two of the most long-standing handicaps it had suffered from. One was a highly volatile pattern of economic growth and the other was a long history of inflation. It was in this decade that it recorded its highest average growth rate and combined with least volatility. Between 1990 and 1998, the real GDP of Chile grew at an average rate of 7.23 percent a year with minimum standard deviation. Inflation in Chile was brought down gradually from 20-30 percent in the early 1980s to less than 9 percent by the end of 1994. The task of fighting inflation got complicated later due to certain macroeconomic problems, but consumer price inflation declined to 6.6 percent at the end of 1996 and 5.1 percent at the end of 1998, which was in line with the authorities' targets. The unemployment rate remained below 6.5 percent throughout the 1990s. The exchange rate also remained manageable during the period taken up for this study.

This above-mentioned economic performance has been achieved under the supervision of international financial institutions whose policies are based on orthodox economic theory. Other emerging economies viz. the Southeast Asian and few Latin American countries (Mexico and Brazil) also have run their economies along the same neoclassical lines were faced with crises. However, it

should be clarified that the South East Asian economies were characterised by interventionist regimes for much of their post-War history. But after the mid-80s they moved in the direction of a market-oriented regime and opened the capital account fully in accordance with the IMF's prescriptions. This contrasting performance of Chile and the rest of the countries has been a subject of numerous studies (Bosworth, Dornbush, and Laban 1994, Gallego, Hernandez, and Hebbel 1999, Gabriel Palma 2000, Agosin, and Davis 2000), most of them trying to visualise the reasons for such performance of Chile even though it has been a champion of market oriented economic policies.

From the earlier chapter we know that in the case of Chile it is capital control which possibly accounts for its differential performance as compared with other countries. It is not the case that other economies viz. India, China, Columbia, etc did not have capital controls, but the case of Chile in the 1990s has turned out to be the most ideologically influential one within the mainstream. This is probably the result of the fact that Chile was the first country that implemented capital account regulations after having fully liberalised its economy i.e., with its neo-liberal commitment intact. In fact, in the case of Chile some segments of the mainstream, and some important figures within the Washington Consensus, have conceded that in at least one important sphere of LDCs' economic life the normal market interactions of intelligent, rational, self-interested, and maximizing economic agents may not lead to an equilibrium, neither global nor even local (Palma, 2000). Our focus in this chapter is to understand how these capital controls have evolved and played a vital role in preventing financial volatility in Chile.

## **The crisis of 1982 and the evolution of the financial structure in Chile**

The period before 1973 was based on the inward-looking model implemented in those years in Chile and most Latin American countries, with an extremely regulated financial sector. This meant the prevalence of controlled interest rates, quantitative restrictions on credit, mandated allocation of credit to priority sectors, and large state ownership of banks and other financial institutions, the latter especially during the 1970-73 period. But there was a radical shift in the country's developmental model starting 1974 (after the violent army coup led by Augusto Pinochet against the socialist government of Salvador Allende), reflected in the removal of the most regulations affecting the banking sector. Consistent with the logic of market liberalisation, the determination of interest rates and domestic credit was left to the market forces. An important component of the financial liberalisation of the 1970s was the privatisation of state-owned banks. There were some other reforms that allowed the development of other capital markets such as insurance, bond, and stock markets. During this period the banking sector lacked a regulatory and supervisory system. Furthermore, two additional factors aggravated the lack of a proper regulatory system. First, there existed an implicit state guarantee on deposits. Second, the financing mechanism for the state-owned banks generated the existence of leveraged banks. The implicit government guarantees, the leveraged position of banks, the lack of appropriate banking regulation, and preferential tax treatment of debt obligations created moral hazard problems that worsened the banks' asset portfolio and prepare the ground for a banking crisis of 1982.

Some other developments were seen in the Chilean economy. The share of credit to the private sector rose from around 9 percent in 1975 to approximately 45 percent at the time of the debt-crisis of 1982. More importantly, the lending to private sector by banks was largely based on loans from abroad. Domestic real lending rates had declined to a great extent by 1981. The ratio of short-term debt to total debt had gone up from 14 percent to 19 percent. The ratio of foreign exchange reserves to money supply broadly defined as M2 increased from 26 percent in 1977 to around 44 percent at the time of the crisis. More importantly, the import of consumption goods increased enormously, at the average rate of 46 percent annually between the period of 1975 and 1981. Given the fixed exchange rate and the large inflow of capital, the peso was seriously overvalued. But the changing scenario of outside i.e., the appreciation of international interest rates and deterioration of the terms of trade between 1980 and 1982, led to a speculative attack on the Chilean peso. To stop it, the government was forced to increase the domestic interest rate, but that proved unsuccessful and led to widespread bankruptcies. Output growth fell sharply, unemployment rose to around 30 percent and the level of reserves fell. In the event, the fixed exchange rate was abandoned in 1982. During the three months that the peso was allowed to float, it depreciated by 43 percent.

Immediately after the crisis the government's goal was to restore the economy to normalcy and then take initiatives to put it on the path to sustainable economic prosperity. Export growth was promoted by the real depreciation that began in 1982. The debt burden was reduced by agreements struck on the postponement of payments and debt rescues. After 1985, the terms of trade



improved and the international interest rate dropped. More importantly, in December 1989, a new democratically elected government came into power after seventeen years of Pinochet's military rule. The government took several initiatives regarding the economy's financial structure that were based on past experiences with uncontrolled liberalisation of the economy. One of the major developments seen in post-crisis Chile was capital control.

After the favourable internal and external developments, the government introduced a comprehensive adjustment program in mid-1980s. The purpose of the program was to avoid a prolonged credit and consumption boom, to mitigate sharp appreciation and misalignment of exchange rates, to prevent excessive current account deficits, and to contain domestic and external debt. The policies adopted under this program specially vis-à-vis the financial sector were as follows.

- (a) The government undertook comprehensive banking sector reform. It introduced a banking regulatory and supervisory scheme through the enactment of a new banking law in 1986. Under the law, strict guidelines on banks' exposure and activities with on-site inspections were adopted. The new banking law was amended and in 1993 a securities law was introduced with the purpose of increasing transparency in capital markets and regulating conflicts of interest. In 1997, a new law was introduced to widen banks' activities and to set rules for the internationalisation of the banking system. These legal developments helped to foster sound development of the banking sector and to increase credit from the banking to the private sector. Perry and Leipziger (1999) point out that tight prudential supervision and regulation of financial institutions contributed

to the deepening of the capital market and enabled the country to borrow at rate closer to those of developed countries.

- (b) Starting in the mid-80s the central bank adopted an approach of targeting the real interest rate to contain inflation. The peso-denominated short-term interest rate was maintained above the international interest rate. In 1990, the government undertook the so-called 'over-adjustment' policy by raising the indexed interest rate from 8 to 16 percent (Yoshitomi and Shirai, 2000). Colvo and Mendoza (1998) find that in the mid-80s the central bank aimed at influencing the short-term interest rate so as to realise desired targets of monetary aggregates. However, Robert E. Lucas (1996) says " Central bankers and even some monetary economists talk knowledgably of using high interest rates to control inflation, but I know of no evidence from even one economy linking these variables in a useful way". Several studies on the Chilean economy have confirmed the lack of empirical grounds to back the existence of a systematic relationship between inflation and the interest rate. In the early 1990s, the central bank switched to a system of direct sales of 90-days bills that constituted liabilities of the central bank. In May of 1995 the central bank decided to change its monetary policy instrument, dropping the 90-days instrument rate in favour of a shorter-term rate (the inter-bank one-day rate). The goal was to give the market a more important role in determining medium- and long-term interest rates. Thus the central bank auctions out its 90-day instruments so that the market determines the interest rates thereof. In 1996, the central bank switched from an interest rate targeting approach to

an inflation targeting approach by influencing an overnight indexed inter-bank interest rate to conform to the preannounced annual inflation target.

- (c) A very important policy adopted by the central bank towards the financial sector was the introduction of a new crawling band exchange rate regime (maintaining the peso within a band) in 1985. The main purpose of the policy was to maintain the international competitiveness of the Chilean exports. Although the fluctuation of the exchange rate was within the band, that band was progressively widened and shifted if the central bank was convinced that the equilibrium exchange rate was outside the band. The band was initially set at  $\pm 2$  percent, shifting to  $\pm 3$  percent in 1988 and further to  $\pm 5$  percent in 1989. The use of the exchange rate as an anchor in an effort to bring down inflation was abandoned in 1996 because it was hampering the competitiveness of exports. After the Mexican crisis and the Asian crisis, the peso was allowed to fall with very limited intervention and monetary tightening. The change in the policy aimed at avoiding any implicit exchange rate insurance to dampen speculative pressures arising from interest rate differentials (Eyzaguirre and Lefort, 1999). Chile finally adopted a floating regime in 1999.

The emergence of the Chilean economy from the debt-crisis gave rise to confidence among foreign investors that the Chilean peso will appreciate. The measures specially taken to regulate the financial sector, the guarantee given by the government to the banks' borrowing and the conducive liberal environment provided to the key market players, reflected the favourable conditions for foreign investors. Chile faced massive capital inflows from the late 1980s, as did most of

the other Latin American countries. This gave rise to a classical monetary policy dilemma, with a smaller number of independent instruments than policy goals. The conflict resulted from assigning monetary policy a domestic inflation target while assigning exchange rate policy an external account target. When capital flows are largely deregulated, monetary and exchange rate policy cannot, of course, be set independently<sup>1</sup>.

The initial policy response was sterilized foreign exchange intervention and tightening of fiscal policy. While the sterilization of most of the intervention helped to prevent a monetary expansion, this policy imposed sizeable costs on the central bank, reflecting the differential between the interest cost of sterilization and the return on foreign assets. According to a study by the IMF (2000) it was roughly 1 percent of GDP annually during the 1990s. Finally the authorities favoured the introduction of controls on capital inflows to offset the appreciation of the currency while keeping the interest rate differential required for reducing the excess of desired expenditure over output. However, the controls on capital outflows were introduced later during the 90s. Thus, Chilean controls on the capital flows had the objectives of reducing the potential effects of such flows on macroeconomic stability, of increasing the effectiveness of monetary policy, and of imposing prudential regulations on institutional investors. As a result the rationale of imposition of capital controls is to be found in the following three reasons most often provided for imposing them:

- 1) In a world of fast market adjustment and high substitutability between domestic and foreign currency denominated assets (after the emergence of

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1. IMF, occasional paper on capital controls (2000), pp 46.

better communications networks) the efficacy of monetary policy is reduced to a great extent. Capital controls help to preserve and to an extent expand the autonomy of monetary policy.

- 2) Given the distortion to competitive equilibrium resulting from asymmetric information, implicit government guarantees of banks' external liabilities and distortions in the real sector, which were all factors underlying the 1982s crisis, capital flows can be harmful for the efficient functioning of the economy. Controlling them would increase the uninterrupted functioning of the economy.
- 3) Finally, given that a sequence of multiple equilibria are possible, capital controls could help in keeping the economy in a good one or in moving to a relatively better one.

In fact, in Chile, imposition of capital controls in the 1990s was unrelated to the central issue in the ongoing debate of whether capital controls would allow countries to forestall crisis. In early 1990s, the main concern of the policy makers was to (a) maintain monetary policy independence; (b) prevent excessive appreciation of the exchange rate; and (c) moderate the build up of speculative short-term liabilities. During this period monetary policy became the main tool for stabilization. Such controls on capital flows were needed to prevent interest arbitrage with capital mobility and limited exchange rate flexibility. The controls on short-term flows were expected to prevent potentially large adjustment costs to the real economy from real exchange rate volatility associated with sudden reversals of capital flows.

To achieve the above objectives, Chile used three main instruments to regulate the capital flows.

(1) *Unremunerated Reserve Requirement (URR)*---A mandatory, non-remunerated deposit of a specified proportion of any form of debt or speculative investment was to be made for a given period. This initiative was expected to

- Reduce the differential between external and domestic short-term rates, thereby diminishing arbitrage inflows and giving greater independency to monetary policy.
- impose a cost of entry and thus reduce short term speculative capital inflows. Those investors not depositing the URR had to pay an up-front fee calculated on the basis of the URR.

(2) *Minimum Term Before Repatriation*---To discourage the entry of speculative capital and restrict the liquidity of foreign institutional investors, foreign direct and portfolio investment - except primary and secondary ADRs - must be made for a minimum term of one year. For Foreign Capital Investment Funds (FCIFs), a five-year term is required because, though FCIF shares are financial investments, they are not subject to the URR. It is thus essential to prevent them from profiting from high short-term interest rates. Finally, bonds issued by local companies in international markets must have an average minimum maturity of four years to encourage long term financing.

(3) *Minimum Risk Classification*---This restriction set a minimum risk classification for companies that issue bonds and ADRs on the international market. To issue a bond or ADRs a Chilean company had to

have a risk classification of no lower than BBB (the investment grade rating) given by the national risk classification commission. This restriction was intended to reduce the risk that a Chilean company issuing bonds in the international market will fail to fulfil its commitments and will adversely affect the perceived creditworthiness of the country.

The specific form in which these initiatives, especially the URR, were implemented in practice changed over time. On June 15, 1991, a 20 percent URR was introduced for new foreign borrowings and this was applied to banks and nonbanks except direct trade credit, with the restriction that shipment must occur within 6 months. Later, on June 27, 1991, the rule that the URR can be substituted with an upfront fee, equal to the financial cost of the URR (using LIBOR for the calculation), was introduced. The URR was extended to all credits whose disbursement occurred abroad, those that would be used abroad and those credits that were linked to FDI projects. This was an attempt to close loopholes. In May 1992, the URR was increased to 30 percent, except for direct borrowing by firms, which remained at 20 percent. And the holding period of the URR was set at one year for all flows. This led to a proportionately higher cost for banks than for non-bank borrowers. In August 1992, the URR was set uniformly at 30 percent. The upfront fee was also increased to LIBOR+4%. In 1994, payment of the upfront fee in dollars was made mandatory. In 1995, secondary ADRs and other inward financial- non-FDI and non-primary ADRs became subject to the URR<sup>2</sup>. In 1996, the government introduced the rule that foreign credits could not be rolled over more than once within a year. But after 1997, the central bank started exempting

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2. Since primary ADRs were considered capital additions, they were never subject to the URR.

funds from the URR and in June 1998 URR was reduced to 10 percent, except for credit lines and foreign currency denominated deposits. More importantly in September 1998 the URR was reduced to 0 percent.

Besides restrictions on capital inflows, there were restrictions imposed on capital outflows as well. The restrictions on capital outflows were gradually reduced over the 1990s. Outward foreign direct investment (FDI) was liberalised at an early stage in 1991-92, which was accompanied by a gradual liberalisation of bank lending abroad. In 1991 banks were allowed to invest up to 40 percent of the funds denominated in foreign exchange collected as term deposits. By 1995 export receipts exempted from surrender requirements were increased from 50 percent to 100 percent. Finally, the minimum holding period of capital was reduced from three to one year in 1995, which in 1999 was the main remaining control on capital outflows. But still the maintenance of minimum holding requirements and some limits on banks' and institutional investors' ability to invest in foreign securities was justified for prudential reasons.

### **The Effectiveness of Capital Controls**

The effectiveness of the capital control measures discussed above, especially their role in ensuring financial stability in Chile, has been a matter of debate among economists. However, few have altogether rejected their role in promoting stability and preventing a currency crisis. As we have seen earlier, the principal macroeconomic indicators of financial stability are the exchange rate, the interest rate, the volume of capital (especially short-term capital) flows, the amount of external debt, and the distribution of domestic credit. In the case of Chile,



movements in these variables need to be considered in the context of last decade or the period since capital controls were introduced, to understand their effectiveness in containing financial fragility at a time when all over the world many countries suffered from this problem.<sup>3</sup>

### **1. The effect of capital controls on the composition of net capital inflows**

Since the most important aspect of currency crisis has been the amount and composition of capital inflows, it is necessary to see whether capital controls have brought about favourable changes in the structure of capital inflows. Le Fort and Sanhueza (1997) argue that the URR has been effective in the sense that at least for some time after the change in the regulation was introduced, total capital inflows fell and there was no clear upward trend in it during the sample period 1990-96. They accept that the change in the composition of capital inflows in favour of relatively more FDI and more medium and long-term debts was one of the outcomes of the URR.

Eyazaguirre and Schmidt, Hebbel (1997) estimate the ratio of short term to medium and long term stock of liabilities as a function of the domestic real interest rate and the tax. They undertake an econometric exercise and conclude that the URR was effective in influencing the composition of capital inflows in Chile, but only in short run.

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3. Following the financial crisis of 1982-83, the Chilean authorities embarked on an ambitious programme to upgrade framework for the financial system. In 1986, the General Banking Law and the organic law of superintendency of banks and financial institutions were revised to strengthen prudential regulations, minimise the need for state intervention in the financial system (Bernard Laurence, 2000).

Valdes Prieto and Soto (1997) take quarterly data for the period 1987/IV to 1996/IV to estimate the effect of some measures (implicit tax, domestic real interest rate, expected real exchange rate devaluation) on the ratio of total short term foreign credit to the private sector plus errors and omissions on the balance of payments to GDP, the ratio of exports to GDP and the net foreign exchange purchases of the central bank. They find that the URR was initially ineffective in altering the composition of capital inflows. However, when they extend the sample to 1996/IV and thereby include the near-doubling of the tax rate implicit in the URR in early 1995, the coefficient of the higher tax rate is significantly different from zero and negative as expected. The authors conclude that although the much higher tax rate implicit in the URR in 1995 seemed to affect the composition of the short term flows they measured, it remains unclear what the long-term effect of the URR on the composition of capital inflows was.

Masaru Yoshitomi and Sayuri Shirai (2000) conclude that despite the problems that remain with respect to measurement of capital inflows, the weakness in econometric tools, and a range of misspecification problems, it is fair to say that Chilean capital controls did not alter the total capital inflow but helped to alter its composition. However they accept that these effects were temporary and thus the controls should not be regarded as long-term policy instruments. Capital controls can only provide the breathing space needed to mitigate double mismatches arising from excessive dependence on short term borrowing until prudential supervision and regulations are adequately implemented as well as the risk management capacities of banks are sufficiently strengthened.<sup>4</sup> Eichengreen (1999a) also shares

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4. For more detail about double mismatch see Yoshitomi and Shirai (2000), pp. 35.

this view. Crown and D Gregario (1998) constructed a subjective index of the effectiveness of capital controls and proved that capital controls did indeed discourage short-term capital inflows.

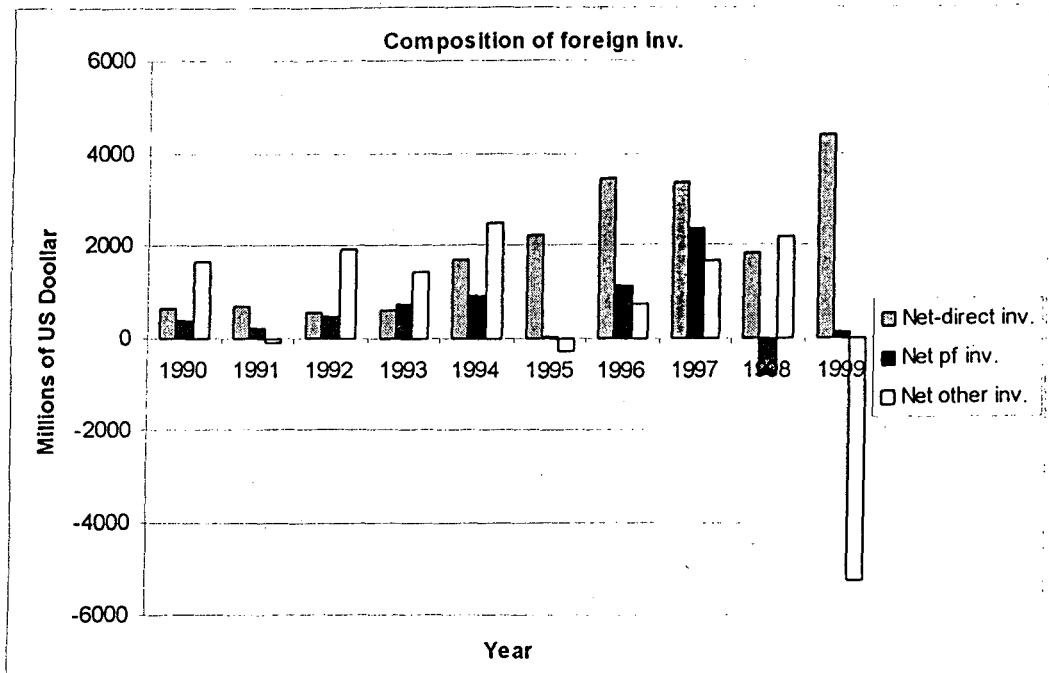
Given these mixed findings regarding the effectiveness of capital controls on capital inflows, it is difficult to arrive at any strong conclusions on the issue. Yet, based on data available for the last decade (from 1990-99) we can provide some justification for such controls. Table 1 below, on net capital inflows, shows that even though there has been substantial growth in the volume of international short-term finance, the ratio of portfolio investments in total net capital inflows has been insignificant in Chile.

**Table No. 3.1**  
**Composition of net capital inflows (Millions of US \$)**

Year	Net FDI	Net portfolio Inv.	Net Other Inv.
1990	654	361	1642
1991	696	189	-129
1992	537	458	1934
1993	600	730	1407
1994	1672	908	2481
1995	2205	34	-281
1996	3446	1100	722
1997	3354	2365	1636
1998	1840	-829	2170
1999	4365.8	130.3	-5259.6

Source: International financial statistics(IFS)

Figure No. 3.1



However, Figure no. 3.1 shows that such short term flows have been quite unstable. The share of such flows in total net capital inflows was reported to be 17.94 percent in 1994. But after the peso crisis in Mexico in December that share fell drastically to 1.7 percent. It then surged to 32 percent of total net capital inflows, but in 1998 the share turned negative due to the impact of the Southeast Asian currency crisis. Thus, both in absolute terms as well as relative to total net capital inflows portfolio investments in Chile have been quite unstable. The most important fact to be noted that it has never dominated net FDI flows unlike in the case of Mexico, which we discuss later. Manual R. Agosin and Ricardo Ffrench – Davis(2000) note that during 1998-99, the contagion effect of the Asian currency crisis converted the larger inflows of finance capital that had taken place in 1996-97 into outflows. One fact to be noted in this regard is that portfolio investments had taken two forms: first, investment through mutual funds set up in the major international markets; and second, the issuance of American Depository receipts

(ADRs) by a handful of large Chilean corporations<sup>5</sup>. There are two types of ADRs- primary and secondary. The original or primary issue of ADRs, which reflects the use of the opportunity for expanding the capital of firms at relatively low costs in the international markets, tends to be lower in Chile. The secondary issue of ADRs reflects the purchase by foreigners of existing stock in Chilean firms, which underlie the ADRs (Agosin, et.al.2000). This operation does not constitute an expansion of the capital of the issuing company but only a change in ownership from nationals to foreigners. While there is nothing intrinsically negative about these operations at a time when foreign exchange is overabundant and there is significant tendency towards exchange rate appreciation, it may be necessary to discourage them. Because such shifts in ownership expose the economy to an additional degree of uncertainty and volatility, since any change in the mood of foreign investors can result in a reverse operation, where ADRs are converted into the underlying stock in national firms for sale on the domestic stock market and subsequent repatriation of the capital. It was this consideration which led the Chilean decision to introduce the URR for secondary ADRs in July 1995. But this measure does not seem to have either reduced short-term inflows or reduced the volatility of such flows. Finally, the regulation by which secondary ADRs were subject to the URR was terminated, though the URR remained in place for other short-term inflows.

Another perspective on the impact of capital controls on the flow of short-term funds can be obtained from an analysis of the timing of measures that

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5. The ADRs is a mechanism by which foreign corporations can issue new shares on the US stock market.

strengthened of capital controls and the subsequent short- and medium-term trend in net portfolio investments. When the 20 percent URR was introduced for new foreign borrowings in June 1991, only \$189 million was received in the form of net portfolio investments, which was less than the amount for previous year. But later on such investments rose to \$908 million by 1994. In 1995, the Chilean authorities tried to strengthen the URR and that year too portfolio investments were reported to be only \$34 million. But this figure rose sharply in the subsequent period till the outbreak of the Southeast Asian and Brazilian crises. This indicates that if capital controls in Chile have had any effect, it was only in the very short run. Gabriel Palma (2000) points out that the effort at strengthening capital controls only lasted one year. In his words: “of course, we will never know what levels these inflows would have reached had it not been for these controls, but the evidence seems to indicate that private inflows did bounce back after having been affected briefly by the imposition of controls. So, in terms of volume, then, these controls seem to have had the effect of ‘speed bumps’ rather than speed restrictions”.

Table no. 3.1 indicates that the share of net “other investments” has been quite substantial in total net capital inflows, though that share has been quite volatile in nature. Starting from 61.79 percent of total net foreign capital inflows, the share of net “other investments” turned negative in 1991, surged to 49 per cent in 1994, and turned negative again in 1995. This trend in net other investments suggests that the introduction and periodic strengthening of the URR did discourage certain inflows even if for short periods.

The most important and positive impact of capital controls is reflected in the increasing trend of FDI throughout the 90s. As Le Fort and Sanhueza (1997) and Gabriel Palma (2000) have pointed out, capital controls have changed the composition of capital inflows in favour of FDI – a fact reflected by movements in the composition of capital inflows and the consistent surge in FDI in absolute terms throughout the 1990s, excepting for 1992 and 1998.

## 2. The effect of capital controls on external debt

Table no. 3.2 examines the possible impact of capital controls in Chile on the composition of external debt.

Table No. 3.2  
Composition of total external debt (millions of \$)

Year	Long term debt	Short term debt	Use of IMF credit
1990	14688.8 (76.39)	3382 (17.59)	1156.6(6.01)
1991	14790.4 (82.41)	2199(12.25)	957.5 (5.34)
1992	15180.8 (79.34)	3231 (16.88)	721.9(3.77)
1993	16030.9 (77.68)	4130 (20.01)	475.9(2.31)
1994	17999.2 (72.78)	6438 (26.03)	291.2(1.18)
1995	18607.2(72.79)	6955 (27.21)	NA
1996	20414.4 (74.49)	6989.5 (25.51)	NA
1997	21522.1 (68.44)	9921 (31.55)	NA
1998	28546.5 (78.64)	7755.8 (21.37)	NA

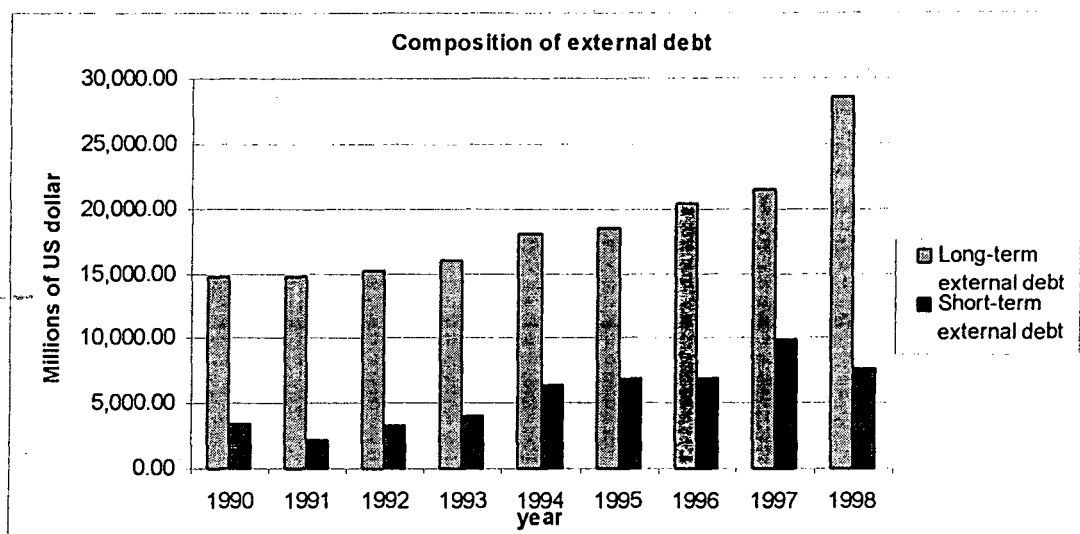
Source: IMF

\* The figures in brackets are in percentage of total external debt

The share of long-term external debt to total external debt has registered a slow and consistent decline since 1991, excepting for 1996 and 1998. It fell from 82.41 per cent in 1991 to 68.44 percent in 1997, and then increased to 78.64 percent. The share of short-term debt, therefore, consistently increased from 12.25

percent in 1991 to 31.55 percent in 1997. Despite this trend decline, the absolute levels suggest that short-term flows had not come to dominate the debt profile of the Chilean economy.

Figure No. 3.2



Note: this Figure does not include IMF credit

As Palma (2000) points out, the share of short term loans in Chile had increased, but not as much as in Brazil and Thailand, which suffered from a crisis in the late 1990s. This could be result of the regulation of the capital account.

However, the most important feature of the last decade in Chile is the enormous increase in the share of private sector debt in total long-term external debt from 29.01 percent in 1990 to 82.53 percent in 1998 (Table no. 3.3). This could have been caused by the introduction of market-oriented policies by Chilean government. Given the increasing share of the private sector in foreign debt, implying a withdrawal of the state from economic activities, the fact that long-term debt remained dominant in total external debt is noteworthy. This could possibly have been the result of the regulation of the capital account.



Table No. 3.3

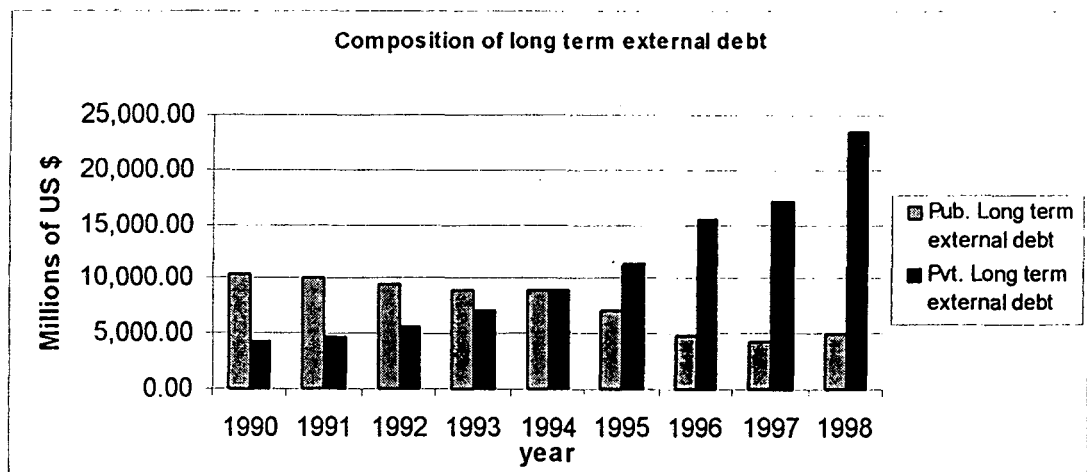
The share of public and private sectors in long-term debt

Year	Public sector	Private sector
1990	10426.2 (70.98)	4262.6 (29.02)
1991	10070.5 (68.09)	4719.9 (31.91)
1992	9577.5 (63.09)	5603.3 (36.91)
1993	8867.3 (55.31)	7163.6 (44.68)
1994	8995 (49.98)	9004.3 (50.03)
1995	7178.3 (38.58)	11425.9 (61.41)
1996	4883.3 (23.92)	15531.2 (76.08)
1997	4367.3 (20.29)	17154.8 (79.71)
1998	4963.3 (17.47)	23560.3 (82.53)

Source: IMF

\*Figures in brackets are in percentage form.

Figure No. 3.3



Bernard Laurens (2000) suggests that the costs imposed by the URR could have been an underlying reason for the maintenance of the dominance of long term

external debt. He calculates the unremunerated reserve requirement tax rate as a percent of loanable funds on the basis of the following formula:

$$t = [r(i^* + s) T / (1-r)] / D$$

where t represents the implied tax rate; r, the URR rate; i\*, the nominal international rate for the currency in which the URR is constituted; s, the premium applied to the investor when borrowing funds to cover the URR (i.e. country risk premium plus specific credit risks for the investor); T, the duration of the URR; and D, the duration of the foreign investment.

Table No.3.4

Year	Real interest rate differential	Cost of URR (in percent per year)			Nominal cost of borrowing <sup>1</sup>
		3 months borrowing	6 months borrowing	1 year borrowing	
1990	3.5	1.5	1.5	1.5	6.0
1991	6.6	1.1	1.1	1.1	4.5
1992	6.6	7.7	3.9	1.9	4.5
1993	6.4	6.9	3.4	1.7	4.0
1994	4.1	9.4	4.7	2.4	5.5
1995	4.4	10.3	5.1	2.6	6.0
1996	5.2	9.4	4.7	2.4	5.5
1997	4.0	9.4	4.7	2.4	5.5

1. The nominal cost of borrowing does not include country risk premium.

Source: Bernard Laurens (2000)

The resulting cost of the URR in different years is provided in Table no. 3.4. This calculation has been done on the basis of a given premium (s). The

figures indicate that that short term borrowing costs were much higher than those for long-term borrowing, rendering the URR a plausible explanation for the dominance of long-term debt in total external debt.

### **3.The effect of capital controls on interest rate**

Short term foreign capital flows depend upon the domestic as well as foreign rate of interest. In an inegalitarian world where assets of different countries are imperfect substitutes for each other, there would be some difference in the domestic and foreign interest rates, which would affect capital flows. We should not forget that the Mexican crisis of 1994 was triggered by developments both outside and inside the country. One such development was the rise in the interest rate in the US during 1994, which caused finance capital to flow out.

Experience suggests that it is the central bank which determines the domestic rate of interest. Therefore, the effectiveness of capital controls could also be judged by the manoeuvrability they afford the central bank to pursue an autonomous monetary policy and realise an “appropriate” interest rate. Given this, our study must also examine the behaviour of the interest rate in the Chilean economy after the introduction of capital controls.

To attract foreign capital into developing countries the domestic interest rate should be adequate enough to compensate for risk (through a premium) and the expected depreciation of domestic currency. This could be expressed as follows:

$$R \geq R^* + (E^e - E)/E + \sigma$$

Where R= domestic rate of interest rate

R\*= foreign rate of interest rate

$(E^e - E)/E$ = expected rate of depreciation of exchange rate

$\sigma$  = risk premium

The available literature on the effect of capital controls on the rate of interest offers a range of similar findings. Yoshitomi and Shirai (2000) found that the controls affected the domestic interest rate but the magnitude of the effect was small. Based on the inflation-indexed interest rate (as most financial transaction used these rates in Chile), Soto (1997) and Edwards (1999a) found that capital controls had a positive but small short-term effect on the indexed interest rate. Eyzaguirre and Hebbel (1997), Valdes-Prieto and Soto (1998), and Laurens and Cardoso (1998) demonstrated that Chilean controls were successful in increasing the domestic interest rate, but that the impact was very small. Edwards (1999) too concluded that capital controls had a very small effect on the long-term interest rate differentials between peso and dollar denominated interest rate. Edwards compared the impulse response function of the interest rate differential corrected by expected the devaluation over 1981-91 and 1991-96. The result showed that the deviation of the domestic interest rate from the foreign interest rate adjusted for expected devaluation disappeared quickly in both sample periods, suggesting that capital controls were ineffective. However the speed of disappearance was faster in 1981-91 than that in 1991-96, indicating the existence of some effect.

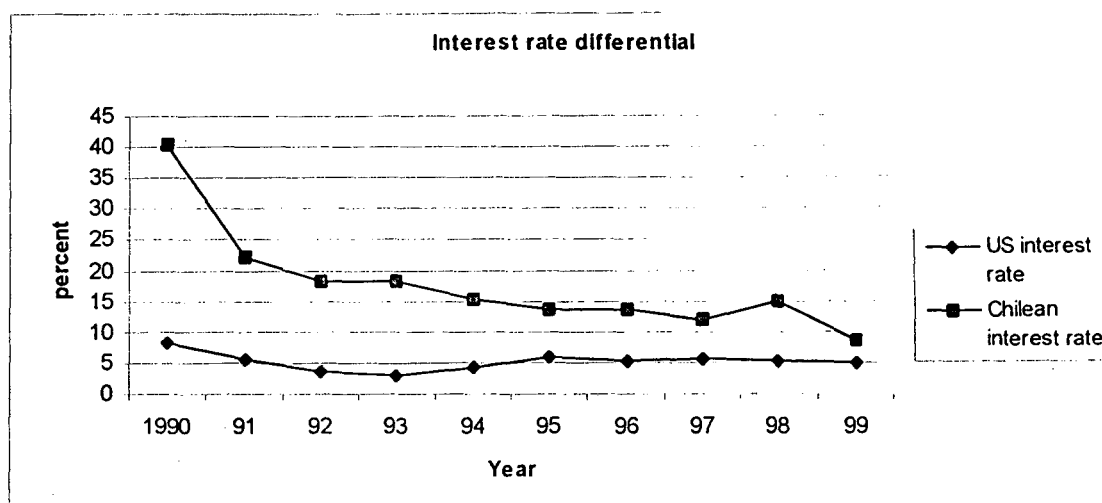
Table no. 3.5 provides data on the Chilean domestic interest rate and the US interest rate (short-term), which show that before and at the time of imposition of capital controls, the domestic interest rate was significantly higher than that of US. This was because of the high risk premium that had to be reflected in the domestic rate, as the Chilean economy had just come out of a financial crisis and various financial fundamentals were weak.

Table No. 3.5

Year	US interest rate (% per annum)	Chilean interest rate
1990	8.16	40.27
1991	5.7	22.32
1992	3.52	18.26
1993	3.02	18.24
1994	4.20	15.08
1995	5.84	13.73
1996	5.30	13.46
1997	5.46	12.02
1998	5.35	14.91
1999	4.97	8.55

Source:IMF

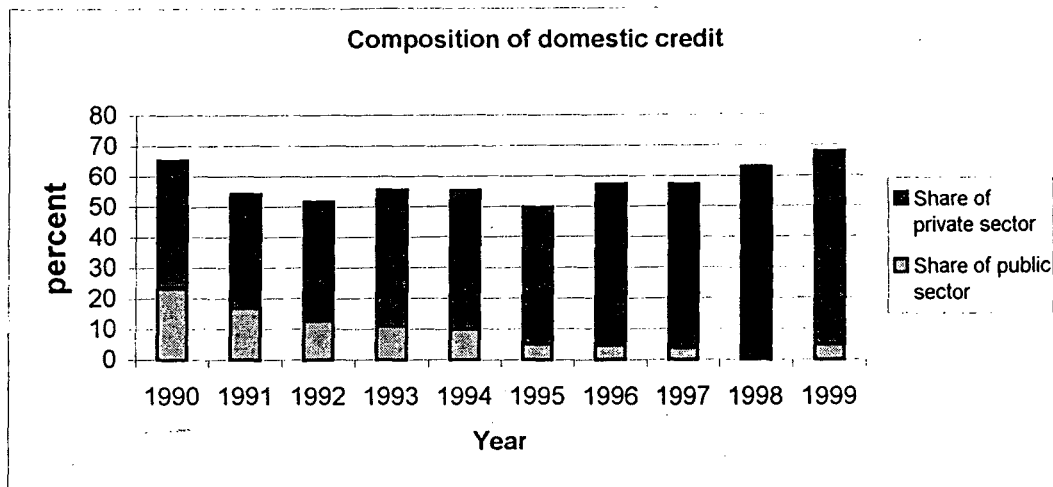
Figure No. 3.4



Starting from there the interest rate gradually went down from 40.27 percent per annum in 1990 to 8.55 percent per annum in 1999. This could have happened because of improved financial supervision and regulation in the financial sector, which discouraged speculative lending and thereby made the financial sector stronger and improved the confidence of foreign investors. Capital controls may have played a complementary role here, by giving the monetary authority the space to exercise its policy options independently, keeping the national interest in mind.

If we take account of the argument of Paul Krugman and Maurice Obstfeld (1994) that the risk premium tends to be positively correlated to the stock of domestic government debt less the domestic assets of the central bank, then the decline in the domestic interest rate in Chile cannot be the result of a decline in domestic government debt, because the decline in interest rate is substantial when compared with the decline in domestic government debt. This is clear from the figure no 3.5.

Figure No. 3.5



During early 1990s there were other factors that gave the central bank some manoeuvrability to regulate the economy, independently. These were expectations regarding appreciation of the real exchange rate, improvement in the terms of trade and Chile's relatively developed domestic stock market (Agosin, et. al. 2000). These macroeconomic features could have also complemented the role of capital controls in ensuring stability and providing the central bank the sovereign space to set the rate of interest rate. Gabriel Palma (2000) argues: " of course, from 1991 onwards there were more things happening in the Chilean economy than capital controls, not least the return to democracy, the change in economic team (away from the 'Chicago boys'), tighter and more effective regulation and supervision of the domestic financial system, and the large post-Pinochet degree of consensus behind the economic model... But the weight of the evidence seems to support the hypothesis that capital account regulation can rightfully claim to have played at least a part in the more macro-stable post-1991 story".

#### **4. The effect of capital controls on the exchange rate**

Given the vital role played by the exchange rate in the determination of financial stability it is mandatory to analyse the behaviour of exchange rate to check whether capital controls played an effective role or not. The available literature does not yield a clear result in this regard. Dooley (1996) and Quirk and Evans (1995) note that in general studies on the effectiveness of controls have suffered from the lack of a widely accepted definition of effectiveness. Yet a number of studies seem to conclude that capital controls have been limited in their effectiveness in terms of influencing the real exchange rate. Soto (1997) in his study estimates that the URR does not seem to explain more than 6.5 percent of the variance in the real exchange rate. He finds that a 30 percent tax can reduce the volatility of the real exchange rate by about 20 percent. Valdes and Soto (1996) say that capital controls do not have a significant effect on real exchange rate appreciation and there is no positive long run impact.

The exchange rate policies pursued by government, described earlier in this chapter, were influenced by the prevailing macroeconomic conditions in the economy. Though it tried to manage capital inflows using capital controls it could not ensure the expected result. The immediate reasons motivating the Chilean central bank to impose capital controls in 1991 in the first place were the continuous pressure on the peso to revalue beyond the permitted 'band', and the ever-growing level of reserves (see the figure no.3.6 and 3.7). The following table no. 3.6 providing information about exchange rate and foreign exchange reserve data shows that the real effective exchange rate declined from 100 in 1990 to 73 in 1997, with some increase in the last two periods, possibly caused by the outbreak



of the Southeast Asian crisis. It was only during 1998-99 that the stock of foreign exchange reserves also showed a declining trend.

The initial trend in the exchange rate could have been caused by the overwhelming expectation of currency appreciation, after the Tequila shock appeared to have been left behind. Further, the interest rate differential between peso and dollar denominated assets was such that it gave foreign portfolio and other short term investors a very profitable one way bet, in spite of the toll they had to pay in the form of the reserve requirements for entering the domestic market. But Agosin, et al. (2000) and Edwards (1998) accept that the intensification of the price restriction on inflows could have softened the trend towards exchange rate appreciation.

Table No. 3.6

Year	Real effective exchange rate*	Peso/\$	Foreign exchange reserves (millions of \$)
1990	100	336.9	6067.5
1991	97.2	374.9	7040.5
1992	92	382.3	9167
1993	90.3	431	9637
1994	88.5	404.1	13086.9
1995	83.7	407.1	14136.7
1996	80.8	425	14780.9
1997	73.9	439.8	16991.4
1998	75.1	473.8	15049.4
1999	76.2	530.1	13977.5

Index 1990=100

Source: IMF, IFS

\* Real effective exchange rate: IDB estimates based on the IMF, IFS.

Figure No. 3.6

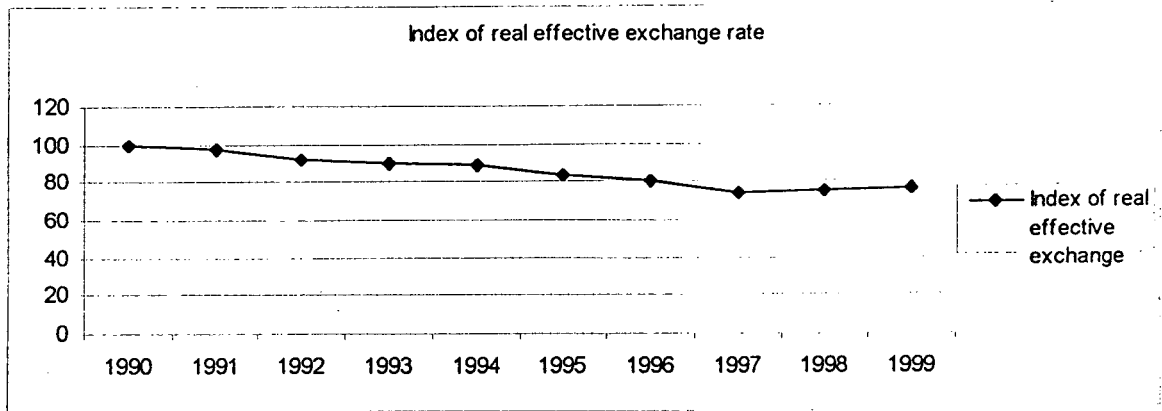
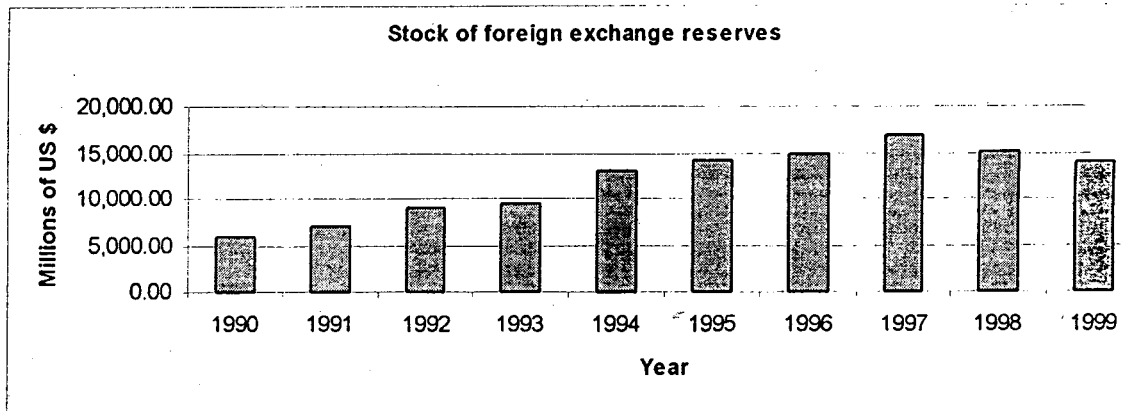


Figure No. 3.7

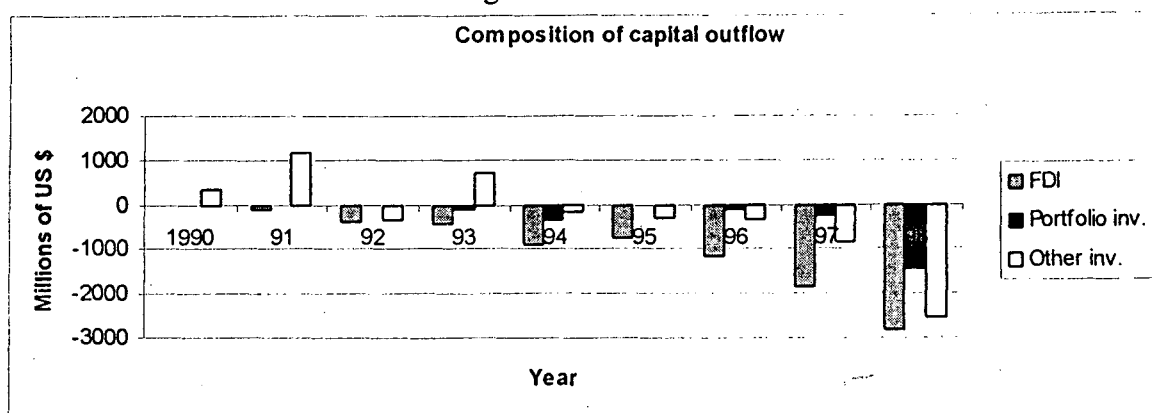


## 5. The effect of capital controls on some other important economic variables

The effect of capital controls on capital outflows also needs to be analysed to assess its role in ensuring the stability of the Chilean economy. Given the gradual deregulation of restrictions on capital outflows, their volumes increased, especially in the form of FDI (Table no. 3.8). Capital outflow in the form of “other investments” and portfolio investment has never been significant except for 1997 and 1998. In those years, the outflow of such short-term capital could have been caused by the contagion effect of the Southeast Asian and Brazilian crises. This shows that capital controls have not played any significant role directly in the determination of capital outflow, rather it is a group of other macroeconomic

variables like the exchange rate, interest rate, and economic environment outside and inside the country, which must have influenced the behaviour of capital outflows.

Figure No. 3.



Capital controls impacted on the stock and real estate markets as well. Chile was experiencing an asset bubble in its stock market in early 1991. In the four quarters preceding the first imposition of controls the quarterly stock market index had jumped by as much as 3.3 times; seven quarters after the introduction of these controls, the index was still stuck at the same level. Then again the increase in the level of net private inflows during 1994 caused this index to jump, this time by 2.3 times (following 8 quarters). The strengthening of controls in 1995 had an impact on this new bubble, bringing the index down considerably; and when it started surging up once again in 1997, with new inflows, the 1997 Southeast Asian crisis put a stop to that (Gabriel 2000). This shows that capital account regulation affected the real estate index also. When they were put to work in 1991, they pre-empted an immediate appreciation of the index and the subsequent strengthening of capital controls in 1995 led to remarkable decline in the real estate index.

## **Problems with measuring the effectiveness of capital controls**

Few people have raised some problems associated with the effectiveness of capital controls. Some of these are delineated below.

- a) One problem was the coverage of capital controls based on the URR. The coverage of the URR was partial, which may have undermined its effectiveness by allowing substitution possibilities with uncovered flows. Among uncovered flows were trade credits and other non-debt creating capital flows. Partial coverage was partly due to the difficulty of directly controlling informal flows as only formal market transactions are notified to the monetary authorities. Nadal-De Simon and Pritta Sorsa (1999) argue that the tightening of capital controls could in fact have reduced their effectiveness. In support of their argument they provide data from the central bank, which show that initially (in 1992) the URR covered about half of total gross capital inflows, but in subsequent year its coverage declined to 24 percent. This suggests that while the URR may initially have been effective in reducing capital inflows, participants may have found ways to circumvent the restrictions overtime. Laban- Larraine (1998) mention over-invoicing of exports and under-invoicing of imports as possible forms of avoidance of URR.
- b) Some researchers have expressed scepticism about the data on net and short term capital inflows into Chile, given the large discrepancy between statistics published by the Chilean authorities and the Bank of International Settlement (BIS). This casts additional doubt on the robustness of the

conclusions regarding the effectiveness of the URR in lengthening the maturity of Chile's external debt.

These problems are in part a reflection of inadequate supervision in the Chilean financial market. Chile is still in the process of developing a sound financial system. However, given the experiences of other developing countries with capital account liberalisation, it does appear that capital controls in Chile, along with the implementation of prudential measures in the financial system, did play some role in reducing the vulnerability of the economic system.

## CHAPTER -4

### THE FALL OF MEXICAN PESO: A RESULT OF CAPITAL ACCOUNT LIBERALISATION

During the month of December 1994, the financial situation in Mexico unfolded rapidly. As a result of financial pressures in the first two weeks of December 1994, the peso was devalued on December 20<sup>th</sup> by 15 percent. Facing continuous pressure during the next two days and a steep decline in reserves, the peso was allowed to float on December 22. Thereafter, the Mexican financial market experienced heavy selling pressure. By the time of the close of the foreign exchange market on December 22, the peso had declined an additional 20 percent to Mex N \$ 4.80 to the dollar. Following the floating of the peso, after the Christmas weekend, the peso declined to a low of Mex N \$ 5.7 per dollar on December 27.<sup>1</sup> Given these trends in the currency market, the month of December witnessed a large outflow of foreign capital (foreign equity investment). As a result Mexico's foreign exchange reserves, which was reported to be 29.3 billion by the end of February 1994, declined up to 6.10 billion by the end of December 1994. The month of December recorded decline of foreign exchange reserves of around 6.8 billions.

Given the severity of the currency crisis, which was triggered largely by just a 15 percent devaluation of the peso (though foreign capital outflow had started before the devaluation), a range of arguments has been advanced discussing the origin of the crisis. In this growing literature on the Mexican peso crisis, a consensus has emerged around a variety of determining factors. These include: (a)

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1. IMF, World Economic Outlook, 1995, pp.57, chap. II

the large current account deficit, which had reached almost 8 percent of GDP in 1993 and 1994, as well as the fact that a significant part of this deficit was funded by relatively short term inflows; (b) the Mexican authorities' commitment to a relatively fixed exchange rate and the fact that a somewhat overvalued exchange rate was welcomed by a government strongly committed to reducing the inflation very rapidly; (c) the facts that a high proportion of government debt paper was of very short term nature, that a high proportion of it was in the hands of non-residents and that during 1994 the government had allowed the transformation of a large part of its own debt into dollar denominated paper; (d) the rather lax supervision and regulation of the financial sector and (e) most importantly, as stressed particularly by Mexican economists, the 'mishandling' of the devaluation, the so called "errors of December".<sup>2</sup> Some people also emphasise the role of some political incidents viz. the Chiapas rebellion and the assassination of presidential candidate Luis Donaldo Colosio that took place before the crisis, which could have helped 'trigger' the crisis.

Of course, all these are factors that broadly played a role in aggravating the financial crisis. But it is important to look at the period before the crisis, when the financial as well as real sectors were undergoing massive restructuring, which led to the above-mentioned conditions and finally culminated in the peso crisis of 1994. This would help us understand how the presence of capital controls would have served as handy instruments to prevent the currency turmoil (tequila effect)

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2. Stephany Griffith-jones, 1996, 'The Mexican peso Crisis', CEPAL Review 60.

## Pre-crisis restructuring of the financial sector

After the 1982-debt crisis, which resulted in the massive outflow of capital and the inability of the government to prevent it, Lopez Portillo (1976-82) nationalized the banks by executive decree on 1<sup>st</sup> September 1982. But given the task of servicing a huge mountain of external debt, with limited access to the international capital market, and with domestic capital having resorted to capital flight, state manoeuvrability was substantially curtailed. Besides, the state's own economic policy was constrained by the loan agreement which was entered into with the IMF. As a result, a process of rapprochement with financial capital was begun in the remaining tenure of the Lopez Portillo government itself.<sup>3</sup>

Immediately after the liberalisation, in the early legislative acts, de la Madrid modified the existing laws and renamed the banks as *Sociedades Nacionales Credito* (National credit societies or SNCs). The new legislation divided the SNCs' shares into two categories unlike the earlier condition where state owned the total share of the banks. Series A shares were to be held by the state and would account for 66 percent of the total. The remaining 34 percent constituted series B shares, which were put up for public subscription. The ownership of these shares also allowed for some consultative role in the decision making process of the SNCs (White, 1995).

But the reluctance of ex-bankers to buy back these shares (because they felt that it would weaken their negotiating position vis-à-vis the state in re-

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3. Mritunjay Mohanty, 1996, 'the restructuring of Mexican economy after debt crisis 1982' Ph.D. Thesis.



establishing control over the non-bank financial companies) made the government accept their demand for returning the non-bank financial companies to their hands. The reason given by the government for the sale of the non-bank financial companies was the stimulation of long-term capital markets. It was argued that retail banking would be controlled by the state, whereas the private sector would develop the long run capital market. Legislation sent to the Congress in December 1984 codified the separation of the retail banking and capital market segments of the financial market as between state-owned and privately-owned parts of the financial system.

For banks, mandatory reserve requirements were lowered from 50 percent to 10 percent and a legal ceiling was put on the nominal borrowing by the government from the central bank. Under the new regime, budget deficits were to be financed by issuing government debt in the money market, while during the period before the new regime the budget deficits were financed by the central bank. Since the Mexican economy was experiencing an inflationary trend, the rationale given for such a step was that borrowing from the open market was a non-inflationary way of funding the deficit. The government's preferred vehicle for raising money was the sale of short-term (28-day) bills called *Certificados de Tesorería* (treasury certificates or CETES).

The change in the mode of financing of the government's rising budget deficits amounted to a deliberate policy of creating a differential in return between bank deposits and CETES, in favour of the latter (SIPA, 1989). In 1985, CETES yielded a real return of 10 percent as against 5.9 percent on bank savings deposits (Mohanty, 1996). With inflationary pressure continuing unabated in the economy,

the government was forced to keep increasing the real rate of return offered on CETES so as to be able to market them. The policy of maintaining a differential return on CETES vis-à-vis bank deposits continued right up to the early 1990s. More importantly foreign residents were freely allowed to buy the CETES and it became more popular among non-residents due to the differential between the foreign and Mexican interest rates.

As would be expected, this policy led to sustained disintermediation in the financial sector. There was a sharp decline in the share of bank deposits in total financial assets, from more than 70 percent of the total in 1984 to a little over 20 percent in 1988 (Mohanty, 1996). The nature of restructuring of the financial sector and the monetary policy of the government resulted in a contraction of the banking sector. The flip side of this was, of course, the phenomenal growth in the non-bank financial sector. The impressive annual growth rate of this sector over the period of 1982-88 was 32.9 percent (Webb, 1989).

Faced with this possibility, the banking sector was left with little private sector business and a complete loss of monetary control. Further, in an attempt to counter the growing clout of the private circuit, the government, in October 1988, moved to deregulate the banking sector. This was the period Mexico embarked on an ambitious market-oriented reform programme. Banks were allowed to issue banker acceptances, which they previously could issue only through subsidiaries, at whatever rate the market would bear. The mandatory reserve requirement was abolished, as it was required for holding treasury bills. This was replaced by a 30 percent liquidity requirement and banks could determine the combination of

government debt that they could hold to fulfil it. Soon after, in April 1989, interest rate regulation on both sides of the balance sheet was removed, i.e. banks were now allowed to set both deposit and lending rates. The liquidity requirement too was lowered. Besides, banks were given much greater operational autonomy, including the ability to decide on issues of location and relocation of banks' branches as well as their closure (Banco de Mexico, 1990).

The process of deregulation reached its culmination with the re-privatisation of the banking sector, announced in May 1990, as a part of Salinas' accelerated privatisation programme. The privatisation of the banks was perhaps among the more successful attempts by the Mexican government, fetching prices way above what had been anticipated. Mohanty (1996) says, "The explicitly stated goals of the privatisation were modernisation, internationalisation (as in, establishing and strengthening links with international capital markets) and globalisation (as in, advantages of offering integrated banking services and reaping economies of scale) of the financial sector. The government's withdrawal from the financial market and reduced regulation led to massive growth of the NBFCs and other financial institutions, such as credits unions, thrifts, and leasing companies".

The process of rapid liberalisation of the financial sector was not accompanied by sufficient efforts at improved bank supervision and regulation. Rojas-Suarez and Weisbrod (1995) argue that in general effective supervision of banks is a better instrument for restraining banks' credit expansion than reserve requirements, as it can more effectively restrict expansion of credit in risky segments of the banking system. However, this requires pretty sophisticated

supervisory skills, which take fairly long time to develop. Thus, in Mexico, in a context of relatively weak bank supervision and regulation, rapid reduction of reserve requirements and privatisation, the stage was set for a large expansion of credit, including a big increase in consumer credit. And when consumer credit grew, no measures were taken to constrain such growth, largely because this was seen as inconsistent with a more liberal stance in managing monetary and credit policy.<sup>4</sup>

### The Capital Account Reform

Many other developments were occurring in the Mexican economy along with domestic financial restructuring. The capital account was being liberalised at a faster pace. During the period of 1990-93 there was a surge of foreign capital due to the internationalisation of the Mexican capital market, especially in respect of equities and bonds. Until the late 1980s, foreign equity participation in Mexican companies was restricted, and at the end of 1989 non-residents accounted for only 6 percent of Mexico's equity market capitalisation. Foreign participation rose rapidly in the wake of the Stock Market Law of December 1989, which liberalised access for foreign investors.

As we have seen, one important reason for the crisis was the high proportion of short-term loans in the hands of non-residents. In fact, during the 1980s, peso-denominated government securities were sold only to Mexican residents. In 1990, however, government allowed direct sales to foreign residents (foreign residents had already been able to make some purchases previously,

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4. Stephany Griffith-jones, *i.bid*, pp.157.

through secondary purchases from Mexican banks). Griffith-Jones (1992) mentions that there were some regulatory changes in United States and elsewhere which facilitated the sales of the Mexican shares in international markets. It is important to note that foreign investors held a larger proportion of short-term maturity bills and a smaller proportion of longer-maturity bills. This was of course facilitated by the Mexican government's decision to liberalise its restrictions on the inflow of all kinds of foreign capital (short term or long term). The government also allowed the private sector to regain its access to international bank financing. Later on, immediately before the crisis occurred, to maintain confidence, government launched the TESOBONOS bills, which were dollar-indexed bills.

#### A broad stabilisation program

Besides the above process of opening of the economy and the comprehensive process of privatisation and deregulation, there was another very important aspect to pre-crisis policies. This was the effort to create a broad social and economic agreement between the government, the private sector, and the labour unions-known as the "Pacto", which was aimed at guiding price, exchange rate, and wage increases over loosely specified horizons. In late 1987 the rate of inflation had reached a historical high of 140 percent per annum. At that point, the Mexican authorities designed an ambitious stabilisation program to confront the inflation problem, which centred on a temporary freeze of wages and administered prices agreed in the context of Pacto.

A few weeks after the launch of the program, in late February 1988, the nominal exchange rate was fixed and became the main anchor of the anti-

inflationary effort (Edwards and Savastano, 2000). Between 1988 and 1994 the authorities made several modifications to the exchange rate system. From February 1988 to December 1988 the exchange rate was maintained fixed. From January 1989 to March 1990 the exchange rate against the dollar was allowed to crawl at one peso a day (equivalent to an annual rate of depreciation of 16 percent). The regime of a pre-announced rate of devaluation was framed in such a way that the rate of devaluation was always below the (actual or expected) rate of inflation. But later the exchange rate band was narrowed. In the latter part of 1990 the crawling peg was set at 80 centavos a day that was further reduced to 40 centavos and 20 centavos a day in 1991 and 1992, respectively. Again the crawling band was increased to 40 centavos a day in 1993, which remained almost the same till the 15 percent devaluation, that triggered the crisis, occurred.

Of course, this effort made by the Mexican government, led to a sharp decline in inflation, but what happened to the wages of workers is worth considering in this context. During the period of December 1987 to February 1988 the minimum wage was increased by 35 percent and again in April-May 1988 there was an increase of 3 percent in the minimum wage. But after that there was no increase in the minimum wage till March 1990. During the period 1990-1993, government followed an adjustment policy with respect to the wage rate, which maintained purchasing power parity. During 1994, minimum wages were adjusted in keeping with the target inflation rate plus the average increase in labour productivity.

There were some other policies that affected the rate of inflation in the economy. In this context, it is worth mentioning that there was a reduction in import tariffs from 40 percent to 20 percent in early 1988 and import permits were eliminated. Prices of and tariffs on public sector goods were maintained constant almost throughout the period except for adjustments made in 1992-93. In 1988 there was agreement between government and businessmen to lower prices by 3 percent. Government's commitment to speed up the deregulation of economic activities continued throughout the period. There was a substantial reduction of income tax for the higher income groups. There was reduction of value added tax too, from 15 percent to 10 percent.

What happened to the important macroeconomic variables during the period 1988 –1994?

Given the broad framework of macroeconomic policy adopted by the Mexican government it is necessary to see that what exactly happened to the important macroeconomic variables that play a vital role in the determination of financial stability.

### **1. The composition of net capital inflows**

Since we are focusing on the role of capital controls in the prevention of currency crisis, it is necessary to examine the composition of net capital inflows that occurred in the absence of capital controls in Mexico, which finally contributed to the currency crisis in 1994. The following table no. 4.1 shows the composition of net capital inflows.

The table no. 4.1 and figure no.4.1 indicate that net inflow of FDI has been quite meagre before 1990. It is in 1991 that FDI inflow almost doubled when

compared with the previous year. The stabilisation program that the government implemented intensively could have caused this, since it gave more space to foreign capital by providing several favourable incentives. The net inflow of FDI decreased a little in the following years. But there was again a doubling of its value in 1994, which was the year of crisis (though the crisis took place in the last month). In fact, the crisis of 1994 adversely affected the amount of net FDI inflow, which declined by one billion in year following the crisis. Overall, the data show that the net inflow of FDI was to some extent stable, but that its share was small relative to the total net capital inflow.

**Table No.4.1**  
**The composition of net capital inflows (millions of \$)**

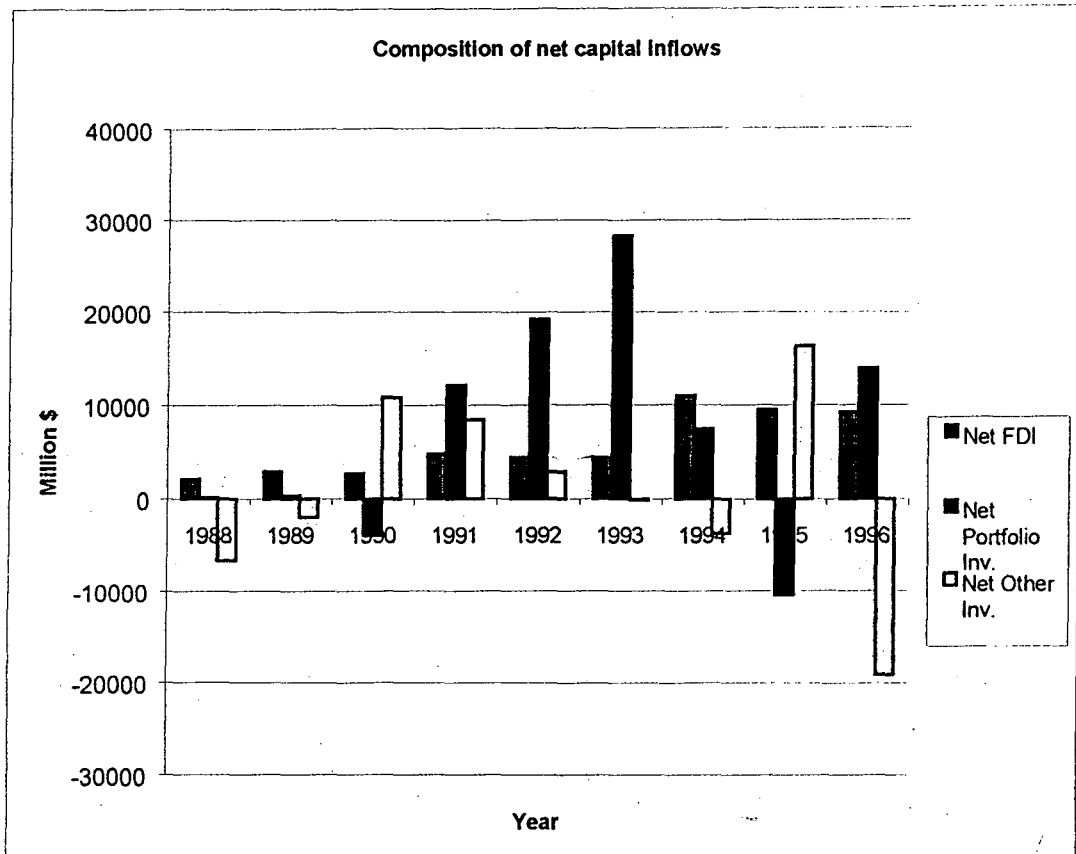
Year	Net FDI	Net portfolio Inv.	Net Others Inv.
1988	2111	120	-6627
1989	2885	297	-1973
1990	2634	-3985	10835
1991	4762	12138	8420
1992	4393	19206	2868
1993	4389	28355	-159
1994	10972	7419	-3800
1995	9526	-10377	16323
1996	9186	13961	-19071

Source: IMF



The most important form of capital inflow was portfolio investment, which because of its volatile nature would have undoubtedly contributed to the crisis. This consequence of portfolio investment is most relevant in the case of Mexico. The data shows that before the crisis, during the period 1991-1993, the share of portfolio investments had been more than half of the total net capital inflows. In the period 1991-93, Mexico received around \$84 billion as net capital inflows, out of which portfolio investments constituted approximately \$60 billion! It shows the extent to which the Mexican economy was relying on volatile inflows. In fact, during the year immediately preceding the crisis, portfolio investments touched \$28.35 billion dollar, when total net capital inflows were estimated at \$32.58 billion. This happened because Mexico returned to the international bond market in 1990, and placements rose over the following three years, totalling 24 billion dollar during 1990-93. Initially, Mexico's access to these markets depended on the provision of enhancements or high spreads. However, as Mexico's credit ratings improved, the need for enhancements and wide spreads diminished (S. Griffith-jones, 1996). By this time, Mexico was regarded as "a bench mark bond issuer". Indeed, Mexico was one of the few former highly indebted countries to receive 'just below investment grade' ratings from major US credit rating agencies. Interestingly, Mexico's rating was not downgraded during 1994 (when the situation deteriorated), but only after the devaluation and crisis. One important point to be noted is that the creation of NAFTA also resulted in peak levels of foreign investment in late 1993.

Figure No.4.1



The figure no. 4.1 shows the volatile nature of the portfolio investments. We should recall that this was not the case in Chile. The share of short-term flows was always smaller than that of FDI. Another form of short-term capital - other investments - also shows a volatile pattern of inflow, though it has never constituted major part of the total capital inflows, except for the years 1990, 1991, and 1995. But in 1996 there was a large outflow of such capital. The available data (not provided here) show that Mexico has recorded a similar composition of inflows, biased in favour of flows of a volatile nature, years after the crisis. Now given the experiences of capital controls in Chile we can understand its effectiveness in discouraging the short-term capital inflows.

## **2. The composition of external debt**

The post-reform bias towards short-term capital movements is visible in the composition of external debt as well. Evidence on the composition of external debt provided in the following table no. 4.2, shows that the share of short-term debt increased continuously till the outbreak of the currency crisis-1994. That share stood at 14.82 percent of the total external debt during 1988, and rose to 28.04 percent in 1994. In fact, this increase occurred especially after 1990, when there was a sudden jump in the figure from 15.4 percent of total external debt in 1990 to 19.16 percent in 1991. In 1995, of course, the figure of total debt includes the IMF loan resorted to because of the crisis, in a desperate effort to salvage the Mexican economy. If we calculate the ratio of total external debt as a percentage of GDP then we find that it has continuously increased from 39.25 percent to 46 percent and has gone further upto 58 percent in 1995. The growing amount of debt as a percentage of GDP has been a typical characteristic of countries that have faced a crisis viz. Brazil, and the South East Asian countries. Chile also had recorded an increasing trend in the ratio of debt to GDP, but its use of capital controls could have reduced its financial vulnerability.

In this context it is notable that share of short-term debt in Mexico has increased from 6 percent of GDP in 1990 to 13 percent of GDP in 1994. This shift of external debt from long term to short term could have been caused by the preference given to short-term debt by the government, in its effort to tackle its financial problems, given the easy accessibility of short-term debt in the international capital market.

**Table No.4.2****The composition of external debt (Millions of \$)**

Year	Long-term debt	Short-term loan	Use of IMF credit
1988	75409(81.35)	13732(14.82)	3546.2(3.83)
1989	81947.4(80.75)	15270(15.04)	4253.5(4.19)
1990	81797.4(78.32)	16082(15.40)	6551.3(6.27)
1991	85436.4(74.90)	21857(19.16)	6765.8(5.93)
1992	81824.5(72.85)	24535(21.85)	5949.6(5.29)
1993	90689.1(68.84)	36257.4(27.52)	4787.2(3.63)
1994	97019.3(69.21)	39322.6(28.04)	3860.1(2.75)
1995	113754.7(68.17)	37300.4(22.35)	15828.2(9.48)
1996	114408.6(72.52)	30068.0(19.06)	13278.8(8.48)

Source: World Bank, World Debt Tables.(IDB)

Note: Figures in bracket are percentages

Just before the crisis, there was a big shift in the pattern of government external debt as a result of the pressure built up by the net outflow of capital following the assassination of presidential candidate Colosio in March 1994. The Mexican government altered its financing strategy and shifted from standard, peso denominated debt (principally CETES) to debt indexed to the peso-dollar exchange rate. It began to rely more heavily on TESOBONOS, which are short-term debt securities paid in pesos but indexed to the US dollar. The stock of TESOBONOS rose from US dollar 3.1 billion in March 1994 to US dollar 12.6 billion in June 1994, rising still further to US \$ 19.2 billion in September and US \$ 29 billion in

December 1994. As a result, the composition of government debt held by foreigners was dramatically modified: in December 1993, 70 percent was in CETES and 6 percent in TESOBONOS, but by December 1994, only 10 percent was in CETES while 87 percent was in TESOBONOS (Lustig, N.1995).

Figure No. 4.2

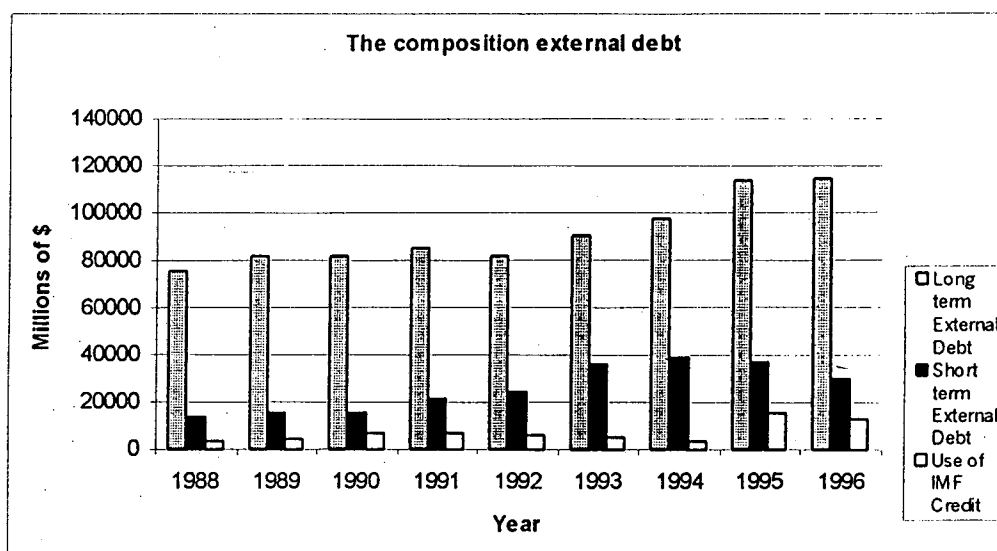


Table No. 4.3

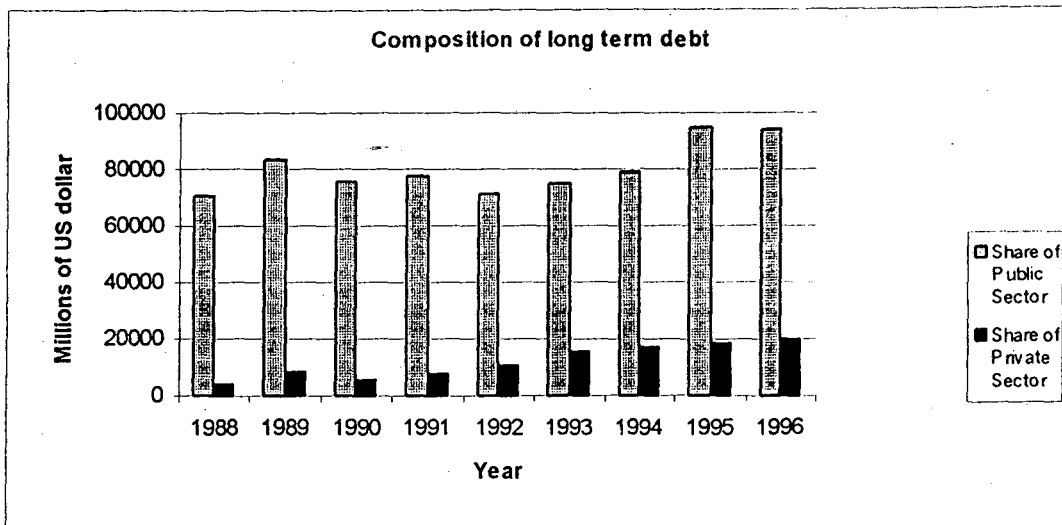
The share of public and private sector in total external debt (Millions of \$)

Year	Public sector	Private sector
1988	70974(94.81)	4435(5.88)
1989	83505(90.81)	8442(9.18)
1990	75962.4(92.86)	5835(7.18)
1991	77816.4(91.08)	7620(8.92)
1992	71149.5(86.95)	10675(13.05)
1993	75150.5(82.87)	15538.5(17.13)
1994	79530.6(81.97)	17488.7(18.03)
1995	95167.3(83.66)	18587.4(16.34)
1996	94068.6(82.22)	20340(17.78)

Source: World Bank, World debt table, (IDB)

Note: Figures in brackets are in percentages form

Figure No. 4.3



During the years before the crisis took place, a change occurred in the source-structure of external debt as well. When we examine the share of the private sector in long-term external debt according to table no. 4.3, we find that it increased from the 5.88 percent in 1988 to 18.03 percent in 1994. Here also we find that the share jumped from 8.92 percent in 1990 to 13.05 percent in 1992 and increased sharply thereafter. The similar pattern was observed in Chile as well. We have discussed in chapter two that increase in share of private sector in Mexico led to speculative lending which caused the moral hazards problems and there by the occurrence of currency crisis of 1994. With the same notion we can say that Chile also should have faced the same problems. But the opposite pattern of speculative lending in Chile shows the importance of regulation and supervision of domestic financial system, which would have played important role in prevention of financial crisis. More importantly the share of the private sector in total external debt was quite high in Chile when compared with Mexico. This indicates how important capital account and prudential regulation of the domestic financial system is.

As Gabriel Palma (2000) points out that in Mexico, real estate price indices increased sharply from 100 to 1521 in the period between the beginning of financial liberalisation and the financial crisis. This shows how a lax regulatory system could cause an asset bubble which finally bursts as happened in the Southeast Asian economies. Given the rise in the debt-GDP ratio, debt service commitments also rose from 23 percent in 1990 to 39 percent in 1993. Along with that there was a sharp rise in the current account deficit, which increased the vulnerability of the Mexican economy.

### **3. The behaviour of domestic credit**

What were the changes, if any, in the size and composition of domestic credit in the Mexican economy? The following table no. 4.4 shows that total domestic credit rose from 18.59 percent of GDP in 1988 to around 32 percent in the year of crisis. This points to a rapid pace of credit expansion in the economy. That increase was accompanied by a rise in the share of the private sector in domestic credit, as the table below shows. Private domestic credit rose from 7.14 percent of GDP in 1988 to 31.1 percent in 1994. Meanwhile, the share of public domestic credit went down to 0.8 percent in 1994 and turned negative in 1996.

**Table No. 4.4**

**The composition of domestic credit (% of GDP)**

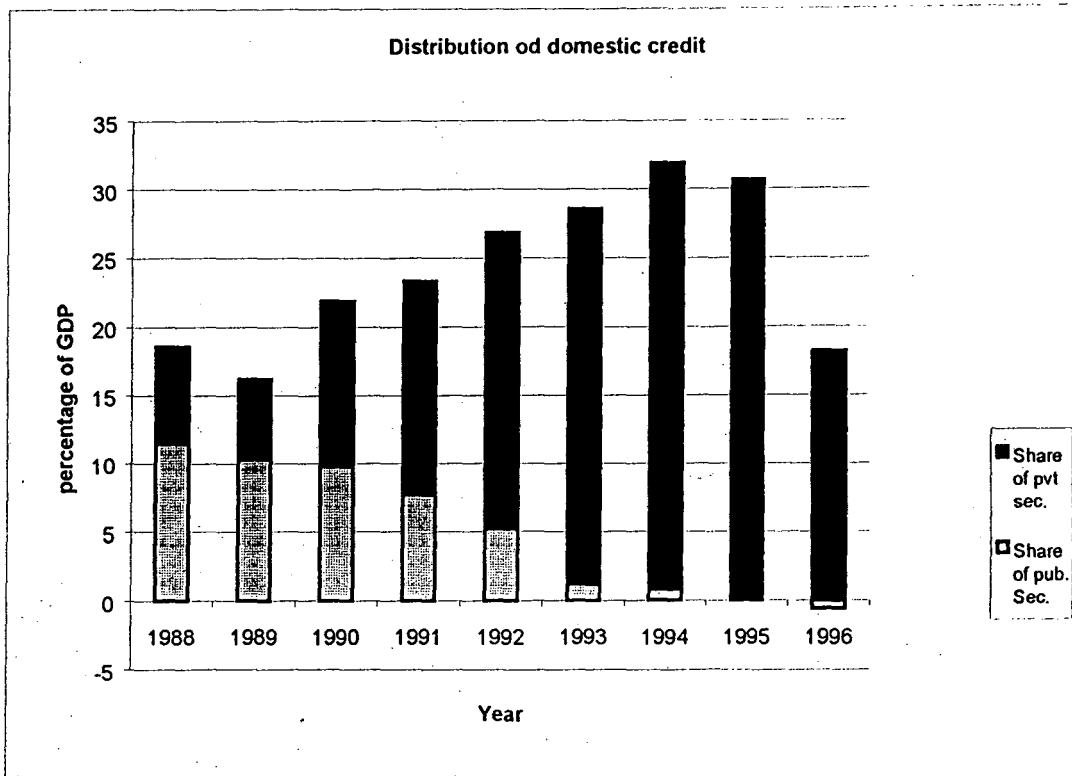
<b>Year</b>	<b>Total domestic credit</b>	<b>Share of public sector</b>	<b>Share of private sector</b>
1988	18.59	11.45	7.14
1989	16.24	10.34	5.90
1990	21.9	9.8	12.1
1991	23.3	7.7	15.6
1992	26.9	5.2	21.7
1993	28.6	1.2	27.4
1994	31.9	0.8	31.1
1995	30.7	0.3	30.4
1996	17.6	-0.6	18.2

Source: IMF

Many economists (Kindleberger (1978), Mishikan (1999)) consider that the crisis took place because of the massive credit expansion in an economy that was still recuperating from the debt crisis of 1982. Kindleberger has developed an approach which considers financial crises as a response to previous excesses linked to 'euphoria'. In the case of Mexico, the euphoria was linked to the country's image as a model performer, as well as its access to NAFTA. He proves in his model that monetary and credit policy in Mexico played a role in exacerbating the boom, which finally led to the crisis.



Figure No. 4.4



#### 4. The behaviour of the interest rate

The interest rate plays a very vital role in the determination of the stability of any economy. It is useful therefore to examine the behaviour of the interest rate in Mexico. The following table no. 4.5 and figure no. 4.5 show that at the time liberalisation gathered speed, the domestic rate of interest ruled very high, which would have attracted foreign capital inflows into the country. As is clear from the figure, there was a substantial differential between interest rates in the US and in Mexico. The higher rate in Mexico was the result of stabilisation policies that were mainly aimed at dampening the skyrocketing rate of inflation. Once the inflation was brought down from 160 percent in 1987 to 22.7 percent in 1991 and subsequently to 9.7 percent in 1993 the monetary authority loosened controls over interest rate. And that is clear from the table and figure.

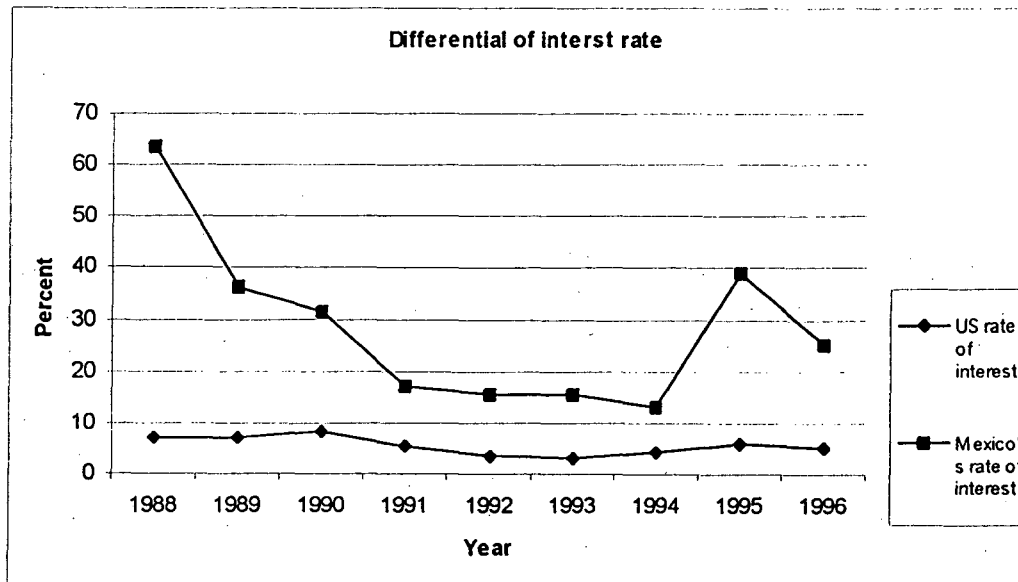
Table No. 4.5

The rate of interest in Mexico and US

Year	US interest rate	Mexico's interest rate
1988	7.12	63.65
1989	7.23	36.29
1990	8.16	31.24
1991	5.7	17.1
1992	3.52	15.68
1993	3.02	15.46
1994	4.20	13.26
1995	5.84	39.12
1996	5.30	25.12

Source: IMF

Figure No. 4.5



Gabriel Palma (2000) says “ the key issue.... is that in a financially liberalised economy, the government constantly has to face ‘damned-if-you-do,

damned-if-you-don't' types of choices in relation to interest rates." Once they raise the interest rate then they face massive inflow of foreign capital, which leads to an appreciation of the exchange rate and causes several others macroeconomic problems as happened in Mexico during the early 1990s. But when they lower the interest rate, credit expansion on a large scale takes place, which creates asset bubbles in the economy and triggers a speculative run on the currency, as also happened in the Mexican economy after 1990.

The fall in the rate of interest after 1990 resulted in an increase in the share of the private sector in domestic credit, as note above. A similar trend was observed in Chile as well before the 1982 debt crisis. The availability of cheap credit, which was accompanied by substantial trade liberalisation, led to a massive expansion in the demand for consumer goods. According to one estimate, the imports of consumption goods rose at the rate of 54 percent per annum during the period between the beginning of financial liberalisation and financial crisis. A similar trend in the import of consumption goods has been observed in Chile and the Southeast Asian economies before 1982 and 1997 respectively. As I have already mentioned, Mexico recorded a steep rise in real estate prices before the crisis. This phenomenon too was caused by the availability of cheap credit. The stock market indices also recorded a boom during the period of liberalisation. Annual stock market indices increased from 100 in the base year-1986 to around 1500 in 1993.<sup>5</sup>

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5. Gabriel Palma, 2000, 'The magical realism of Brazilian economy: how to create a financial crisis by trying to avoid one' miemo, pp.38

## 5. The behaviour of the exchange rate

Another variable which reflects and influences the financial stability of a nation is the exchange rate. Some economists have argued that, in Mexico, it was the movement of the exchange rate which finally led to the crisis. Beginning in 1988, the exchange rate was used as the main nominal anchor, with income policies playing an important supporting role. The following table no. 4.6 and Figure no. 4.6 on real exchange rate movements show that the exchange rate declined continuously from the start of liberalisation till the crisis in 1994, in the wake of the devaluation of the Mexican peso by 15 percent. The data show that the real exchange rate appreciated by around 20 percent. Even though the exchange rate regime underwent several changes, shifting from a fixed to a crawling peg and then to an adjustable band (which widening boundaries), the appreciation continued. The real exchange rate appreciation was exacerbated by the large inflow of capital during the early 1990s. There are two important aspects to this inflow of capital. First, the volumes involved were large, both in absolute terms and as a proportion of GDP (French-Davis and Griffith-Jones, 1995). Secondly, an extremely high proportion of the capital flowing into Mexico came as portfolio investment as we have seen in the analysis above.

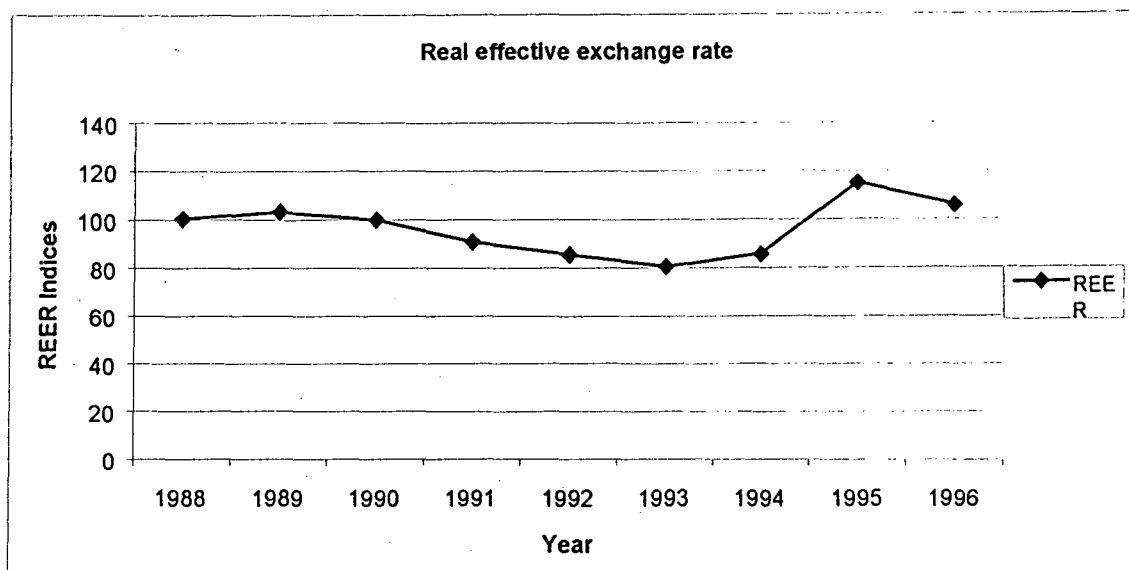
Table No. 4.6

### The real effective exchange rate

Year	1988	1989	1990	1991	1992	1993	1994	1995	1996
REER	100.3	103.2	100	90.9	85.6	80.5	85.7	115.0	105.8
Nuevos peso/\$	2.28	2.64	2.9	3.1	3.1	3.1	5.3	7.6	7.9

Source: IMF, IFS.

Figure 4.6



Many economists recognised the appreciation of the exchange rate as a major problem facing the economy. In 1992 Dornbush claimed that “ the current problem of the Mexican economy is the overvalued exchange rate”, and in November of that year he argued that the daily rate of devaluation of the peso had to be tripled in 1993 to 120 centavos a day.<sup>6</sup> Also the World Bank, in its 1993 **Trends in Developing Economies** analysis, noted that in Mexico growth recovery was modest because of slow productivity growth, a weak US economy, a tight monetary and fiscal policy, and more importantly, the appreciation of the real exchange rate. The Mexican authorities responded to these apprehensions with a rehashed version of the “Lawson doctrine” and argued that since the capital inflows were largely private and the fiscal accounts were in surplus, there was nothing to be concerned about. The authorities substantiated their view by arguing that rapid increases in productivity that would lead to a strong export expansion, and thus to a narrowing of the current account, were about to take place and

6. Sebastin Edwards and Migual A. Savastano, 2000; ‘The Mexican Peso in the aftermath of the currency crisis’ in “Currency Crisis”, Ed. By Paul Krugman.

stressing that the exchange rate bands and the freely determined interest rates gave enough flexibility to their monetary policy to deal with eventual disruptions in the flow of capital.<sup>7</sup> Obtaining approval for NAFTA in late 1993 and the promised entry into the OECD (scheduled for 1994) were seen as tributes to the sound fundamentals of the Mexican economy. Driven by that confidence, the authorities announced an economic program for 1994, a year of presidential election, that envisaged single digit inflation, a pick-up in output growth, and no fundamental change in the core macroeconomic policies.

Having this perception about the functioning of the macroeconomy, they forgot that the act of maintaining an appreciated exchange rate in an economy that was witnessing a cut in the fiscal deficit, would only squeeze the real demand for domestic goods and services and curtail labour demand. More importantly in a situation where the rate of capital flow was 7 percent of GDP per annum during 1992-94 (which was clearly not sustainable in the long run), making optimistic projections of trends in the real economic variables was really quite off the mark. The government failed to take account of the fact that very high current account deficits become unmanageable once there is a sudden outflow of capital. Since it was inevitable that capital inflow at the rate of 7 percent of GDP per annum had to slow down at some point, a depreciation of the exchange rate and a net outflow of capital were also inevitable. And that is what happened in Mexico before the crisis. The data provided below on current account, capital account, and foreign exchange reserve movements show that the appreciation in the exchange rate was really unsustainable, especially when a major part of capital inflows consisted of the most

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7. For detail see the Bank of Mexico, 1993.

volatile forms of capital flow. In the end, merely a year after the peso band was abandoned, the currency lost almost one-half of its value. This clearly points to the importance of capital controls, which could have lowered the share of short-term inflows as they did in the Chilean economy.

## 6. The position of capital and current A/C and foreign exchange reserves

The message emerging from the evidence on trends in the above-analysed macroeconomic variables, is that such a denouement was almost natural. If the Marshal-Lerner conditions are met, an appreciation in the exchange rate will necessarily lead to higher imports when compared with the increase in exports, resulting in a widening of the trade and current account deficits. More importantly, if this is accompanied by a liberalisation of the capital account, this deficit would be financed by a massive inflow of short-term capital, given the differential interest rates. The availability of such capital, in turn, catalyses the import expansion. Not surprisingly, the volume index of imports of goods into Mexico more than doubled during the liberalisation years relative to the period 1985-89. This makes the Mexican economy quite different from other Latin American countries. As Rudiger Dornbush and Alejandro Werner (1994) point out, it was the real appreciation of the exchange rate which was responsible for the trade deterioration.<sup>8</sup>

Table No. 4.7

(Millions of US \$)

Year	1988	1989	1990	1991	1992	1993	1994	1995
Current A/C	-2374	-5825	-7451	-14888	-24442	-23400	-29418	-654
Capital A/C	-4495	1110	8441	25135	27039	33760	15787	-11781
Foreign exchange reserves	4885	5946	9446	17140	18394	24886	6101	15250

Source: IMF

8. Dornbush and Werner. 1994. "Mexico: Stabilization, Reform, and No Growth." *Brooking Papers on Economic Activity*, 1

Figure No. 4.7

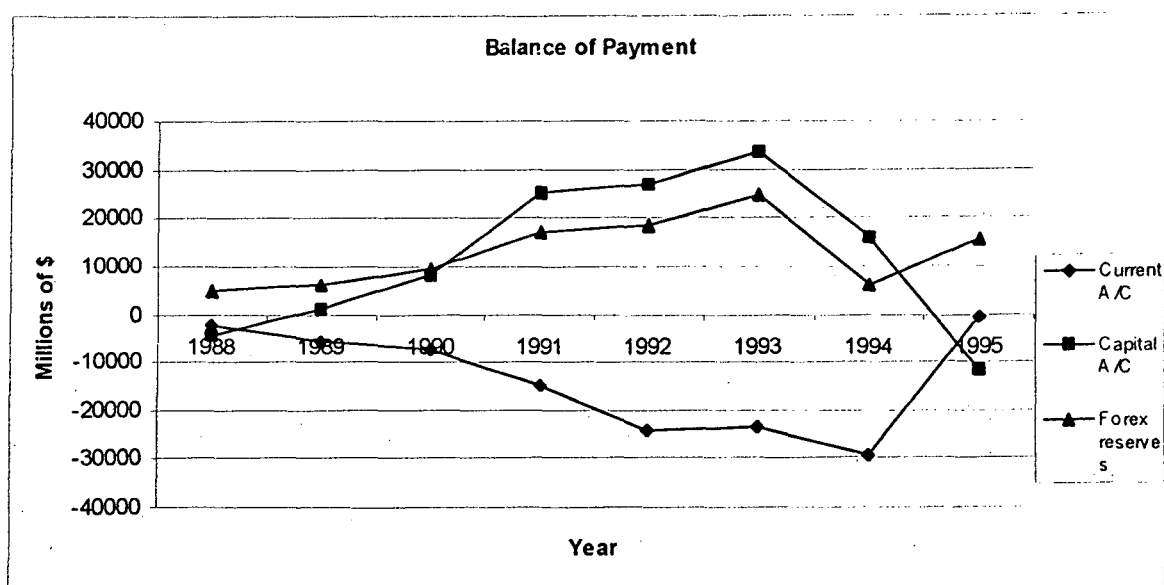


Table No 4.8

Index of volume of imports of goods, FOB  
(Base period 1978-80=100)

Country	1978-1981	1982-1984	1985-1989	1990-1994
Argentina	104	67	59	127
Brazil	97	68	75	115
Chile	109	75	96	170
Colombia	104	122	110	181
Mexico	117	91	132	279
Peru	112	123	106	128
Uruguay	101	61	76	132
Venezuela	99	79	80	132
Costa Rica	93	66	103	176

Source: Graciela Moguillansky, "The macroeconomic context and investment: Latin America since 1980", April 1996, CEPAL Review.

The evidence on surpluses in the capital account and movements in the stock of foreign exchange reserves also points to the vulnerability of the economy.



Once the capital outflow starts, it proves very difficult to prevent the slide in the exchange rate through the sale of foreign currency in the open market, until and unless there is a bailout by the international financial institutions. And that is what happened when there was an outbreak of crisis in Mexico.

From the above account of the behaviour of macro economic variables, it is clear that the Mexican economy was rendered vulnerable by the process of liberalisation. The resulting appreciation of the exchange rate, widening of the current account deficit, rise in the share of short term flow in the total net capital inflow, rise in real estate prices, rise in the ratio of overdue to total loans (from 4 percent in 1991 to 8 percent in late 1994), when combined with political turbulence in 1994, virtually ensure the currency collapse. The question that arises is whether this could have been stopped? To answer that question we must see examine the experiences of the Chilean and Colombian economies in the context of their implementation of a structural adjustment and macroeconomic stabilisation program. As we have seen in the chapter on the Chilean experience with capital controls, though it did receive a large amount of capital inflow, experienced an appreciation of the exchange rate, recorded a shift of in the flow of foreign as well as domestic credit from the public to the private sector, and experienced external shocks similar to Mexico, it was not the victim of a virulent currency crisis. The explanation for this difference in experience lies in the regulation of the capital account and the domestic financial system that Chile followed before going in for liberalisation. French-Davis, Agoshin and Uthoff (1995) make this point by posing the question as to “why compensatory measures such as reserve

requirements like in Chile were not adopted to curb excessive capital inflows, or greater efforts to improve bank supervision and regulation were not made?"

The stability that Chile experienced after the imposition of capital controls led to a higher share of capital inflows in the form of FDI and long-term capital. And that is what Mexico lacked. Chile, it appears, was concerned with long term economic improvement with proper and well-thought measures. Mexico, seems to have ignored the requirements for such a process of development. Had there been proper regulation of the domestic financial sector and more importantly of the capital account, it is most likely that Mexico would not have met the fate it did at the time of the 1994-currency-crisis.

## CHAPTER - 5

### CONCLUSION

This study has tried to explore the effectiveness of capital controls in the prevention of financial crisis. It has been argued that capital controls are thus identified based on the IMF's definition of capital account convertibility. Various economists have advocated the case for or against market-based as well as administrative measures to discourage short-term capital flows. The debate around the former has been especially intense since it indirectly works to discourage short-term flows, and is therefore incompatible with the concept of liberalisation. The case for discouraging short-term capital flows in particular has many advocates, since it is such flows that create balance of payments difficulties, weaken currencies and render economies vulnerable. This is especially true in the case of developing countries because of their weak domestic financial structure, limited foreign exchange reserves, and negligible hold on IMF decision making.

The case for capital controls has been justified by citing evidence of the recurrence of financial crises world wide in past history. The period before the Bretton Woods Era has witnessed around 60 financial crises, excluding several milder episodes of devaluation. In addition, the period since the Bretton Woods conference has been characterised by several systemic financial crises, often of extreme severity. Developing countries have in particular repeatedly been victims of the inequity inherent in the prevalent international financial structure. And such inequity has been institutionalised through the functioning of the IMF and the World, backed by the imperialist powers.

The economic difficulties confronting developing countries opting for varying degrees of openness of their current and capital accounts, and their subsequent subordination to IMF and World Bank policies indicate that the resort to current and/or capital account convertibility only serves the agenda of international finance capital. It is for this reason that capital controls can be seen as decisive tools for maintaining economic stability, especially for those who have been caught in the cobweb of the IMF's and the World Bank's orthodox economics.

Most of the financial crisis theories point out that it is the dependence on short-term capital that renders the economy vulnerable on the financial as well as real sector fronts. First-generation financial crisis theories argue that in a liberalised economic regime and in the presence of short-term capital flows, inflationary trends in the economy lead to a speculative attack on the domestic currency. Second-generation financial crisis theories hold that within an open economic regime and in the presence of short-term capital flows, the fear of a speculative attack on the currency of a country limits the ability of the authorities to bring the economy out of a recession. But the recessionary trend in itself soon triggers a speculative attack by foreign investors on the currency. Here also, short-term capital flows are considered the main culprit, and the agency for any such sudden attack on the domestic currency as well as the financial system. The third-generation crisis theories assume that short-term capital is the principal instrumentality for speculative lending and perpetuation of the moral hazard problem. Other theories, like that of Patnaik, hold that the whole process of liberalisation of the current account and capital account is detrimental to the health

of developing economies. He argues that the current account adjusts to the capital account rather than the other way around. In this context the role of short term capital becomes crucial because it is driven by short term opportunities. Any economy characterised by a large capital account surplus soon experiences a rise in the current account deficit on the balance of payments. However, when that deficit rises to levels considered unsustainable, a “collapse of confidence” triggers an outflow of foreign capital that leaves the economy in grave financial distress. These theories and the history of financial crises point to the need for capital controls to contain the flow of short-term finance and reduce the degree of financial vulnerability.

This study examines the outcome of these arguments based on the contrasting experiences of Chile and Mexico. Chile, on the one hand, has attracted a higher proportion of FDI as compared with short-term investments in its total net capital inflow; Mexico, on the other hand, has attracted a low proportion of FDI as compared with short-term capital in total net capital inflow. The share of portfolio capital, in the case of the latter, had reached almost 67 percent of the total inflow during the period of 1990-93. These differences in the composition of foreign capital inflow in the two countries have had important implications for their relative financial stability. Chile remained stable on the financial front, whereas Mexico turned out to be victim of financial crisis. This was not the result of historical accident, but the consequence of differences in the economic regime prevailing in these two countries. The imposition of the capital controls in Chile played an important role in the maintenance of financial stability in its economy. It put in place the URR scheme, which was a form of capital control that discouraged

short-term inflows of foreign capital by making it more costly as compared with long-term capital. And the absence of the same or similar policies in the case of Mexico rendered short term capital flows more lucrative and resulted in speculative pressure of a high degree.

The behaviour of the interest rates in both countries has been to some extent similar. As we know, the interest rate differential, as compared with the international interest rate, plays an important role in the determination of foreign capital inflow. Once the US interest rate rose, given other macroeconomic problems, there was a tendency for capital to flow out of developing countries. The degree to which and the pace at which this occurred did depend on the share of short-term capital invested in a country. That share we have argued depended on the extent of capital controls in place. In Mexico where the share of short-term capital was larger than in Chile, outflows tended to be larger reflecting the degree of sensitivity of such capital toward the interest rate. On the other hand, the presence of capital controls discouraged such inflows in Chile. Gregario et. al. (2000) say that these controls in fact did allow the Chilean monetary authority to target the interest rate without generating a vicious circle of higher rates, increased inflows, sterilisation, even higher rates and even larger inflows.

As far as the exchange rate is concerned, the Chilean authority had more manoeuvrability in preventing the exchange rate appreciation. Gregario et. al. (2000) find that in the early 1990s real exchange rate appreciation was substantial and the authorities attempted to prevent it through the imposition of the URR. A 30 percent URR resulted in a depreciation of the real exchange rate of approximately

2.5 percent. But the Mexican economy experienced substantial appreciation during the period between the start of liberalisation and the financial crisis of 1994. These differing experiences point to the effectiveness of capital controls in preventing short-term capital inflow, which is sensitive to exchange rate appreciation along with other variables, by ensuring a depreciation of the exchange rate.

The Chilean current account deficit was also more manageable because of the lower capital account surplus resulting from a lower amount of foreign capital inflows as compared with what it would have been in the absence of capital controls. On the contrary Mexico's current account deficit had reached the unsustainable level of around 7 percent of GDP by the time of the financial crisis. This was the result of massive inflows of foreign capital. As mentioned earlier, some analysts argue that it is not the capital account that adjusts to the current account as general belief prevails, but it is the current account that adjusts to the capital account. Going by that assessment, the importance of capital controls is obvious, since they effectively discourage inflows of speculative foreign capital.

However, when assessing the effectiveness of capital controls we must take into account of the extent of supervision and regulation of the domestic financial system. After the debt crisis of 1982 Chile became conscious of the need for and effectively implemented a strict system of supervision and regulation of the domestic financial system. The objective of the system was to foreclose speculative lending and reduce moral hazard in order to render the financial system sound. Combined with capital controls such supervision and regulation discouraged borrowing for speculative purposes from international markets. The regulatory mechanism appears to one factor that helped dampen the skyrocketing

prices of real estate as well as the excessive rise stock exchange indices in Chile. Mexico experience was just the opposite. It witnessed substantial increases in real estate prices and stock exchange indices before the crisis. This can be attributed to the absence of an appropriate combination of capital controls and a proper financial regulatory mechanism.

Apart from above mentioned measures there are few other measures which could be considered to make the integrated world economic system more viable and vibrant. These include:

- (I) A provision to provide contingency financing to countries experiencing payments difficulties linked to the capital account, which should be in addition to the traditional current account financing provided by the IMF. The provision should be available to countries once there is some apprehension of any kind of financial vulnerability so as to prevent speculation surround the exchange rate.
- (II) IMF surveillance over the policies of creditors as well debtors in the interest of debtor countries, given the global ramification of major financial crises. The IMF should also pay greater attention to monitoring unsustainable exchange rate and payments developments.
- (III) A unilateral debt stand still accompanied by foreign exchange restrictions, as per the prescription of the UNCTAD, and initiation of negotiations for an orderly debt work out. For this there should be a panel to take up such cases and take action in this regard.



Of course, while these are measures that could be helpful in this financially globalised world, their implementation requires a thorough upheaval of the IMF's functioning. And given the history of world economy and the functioning style of the international financial institutions the only options remaining in the hands of the developing countries are to first protect themselves from the free flow of speculative funds and to regulate their economy strictly to tackle the problems of speculative lending and moral hazard. In this context the use of capital controls, as done by Chile, seems imperative. In fact, to make the economy more viable we need to have more than just Chilean-type capital controls.

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