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AMERICA: A STOP-GO STORY?

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### **ABSTRACT**

This paper deals with Latin America's experience with capital flows during the last decade and a half. It concentrates on a number of issues of increasing interest among academics and international observers, including the effect of capital inflows on domestic savings, the way in which capital mobility affects the ability to engage in independent monetary policy, and the effectiveness of capital controls. It also addresses a number of policy dilemmas that have become topical in light of the recent East Asian currency crises, including questions related to capital account sustainability, the role of domestic banks in the intermediation of capital inflows, and the feasibility of fixed nominal exchange rates in a world of capital mobility. Latin America's experience with capital mobility should provide insights to scholars interested in other regions of the world. Indeed, during the last few years the Latin American countries have been a laboratory of sorts, where almost every possible approach towards capital mobility has been tried.

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## I. Introduction

During the late 1980s and early 1990s the vast majority of the Latin American countries embarked on ambitious reforms aimed at modernizing their economies. Country after country turned away from decades of protectionism and government controls, and began to experiment with market-oriented policies. Colombia provides a vivid illustration of this regional trend. During the early months of 1990 candidate César Gaviria promised that, if elected president, he would launch a major transformation of Colombia's economic system. In every speech he argued that the development path followed by Colombia since the 1940s had become obsolete and that, in order to achieve rapid growth and improve social conditions for the majority of the population, significant reforms had to be undertaken; he called for a major *shake-up* of the Colombian economy. On August 7th, 1990 César Gaviria was inaugurated as Colombia's constitutional president. During the next four years a set of policies aimed at drastically changing the nature of Colombia's economic structure were put into effect: exchange controls were abolished; imports were liberalized; labor legislation was reformed; controls over direct foreign investment were relaxed; the financial sector was deregulated; legislation governing ports operations was modified; the insurance industry was liberalized; and the tax system was modernized. This phenomenon was not unique to Colombia, however. Close to Colombia, the administrations of presidents Fujimori in Peru, Perez in Venezuela, and Sanchez de Losada in Bolivia also embarked in major reform efforts. In other countries a similar trend was followed: Presidents Menem in Argentina, Cardoso in Brazil, and Arzu in Guatemala, among others, also launched important modernization programs during the 1990s. It is not an exaggeration to say that during the first half of this decade most countries in Latin America followed the steps of the

two early reformers: Chile and Mexico.<sup>1</sup>

And when the world was about to believe that Latin America had finally changed, the Mexican currency crisis erupted in December 1994. This turn of events generated considerable anxiety among policy analysts, financial operators and international civil servants. Some asked whether Latin America was indeed ready to adopt market-oriented policies, while others questioned the appropriateness of specific policies, including the use of a rigid nominal exchange rate as a way to reduce inflation. The role played by large capital inflows – which at their peak surpassed 9 % of Mexico's GDP – has been at the center of almost every post-mortem of the Mexican crisis. Some analysts have argued that these massive flows allowed Mexico to increase consumption in spite of weak fundamentals. According to others, the predominantly “speculative” nature of these flows signaled, from early on, that the Mexican experience was bound to run into a serious external crisis. Yet others argued that Mexico's mistake was to have lifted capital controls too early, allowing these “speculative” flows to disturb the country's macroeconomics foundations. According to these analysts a more appropriate policy stance in Mexico would have been to maintain some form of capital controls, as a number of emerging economies – including Chile, Colombia and Israel among others – have done for some time. The proponents of this view argue that capital controls will isolate these young economies from volatile short run capital flows, helping them reduce their overall degree of vulnerability to external shocks, including speculative attacks.<sup>2</sup>

In the early 1990s it became fashionable to compare Latin America's somewhat traumatic experience with capital inflows with East Asia's supposedly successful capital flow management. The recent currency crises in a number of East Asian countries – including in Thailand,

Malaysia, the Philippines, Indonesia and South Korea – has raised, once again, analysts' interest on issues related to the management of capital flows. Questions related to capital account sustainability and the feasibility of fixed nominal exchange rates in a world of capital mobility, among others, have moved to the fore of policy discussions. It may be tempting to argue that Latin America and East Asia were not so different after all. It appears as if it was a matter of timing, with the Mexican crisis leading the way to the more recent developments in East Asia. Moreover, the volatility experienced by financial markets during the fall of 1997 has raised the question of "contagion." Analysts have wondered whether in an era of capital mobility rumors and changes in expectations in a particular country can spread to other nations with healthy fundamentals.

This paper deals with Latin America's experience with capital flows during the last decade and a half. It concentrates on a number of issues of increasing interest among academics and international observers, including the effect of capital inflows on domestic savings, the way in which capital mobility affects the ability to engage in independent monetary policy, and the effectiveness of capital controls. Latin America's experience with capital mobility should provide insights to scholars interested in other regions of the world. Indeed, as will be seen in this paper, during the last few years the Latin American countries have been a laboratory of sorts, where almost every possible approach towards capital mobility has been tried. The paper is organized as follows: Section I is the introduction and provides the motivation. Section II reviews the behavior of capital flows to Latin America during the last twenty years. It is shown that during this period the region has gone through wild cycles. In the mid to late 1970s the countries of Latin America were on the receiving end of petrodollars recycling, and were flooded

with private capital. All of this came to an end with the eruption of the Mexican debt crisis in 1982. During the next eight years the international capital market dried up for every country in the region, and net private capital inflows became significantly negative. Things changed in 1991, when once again private capital began to pour into the region. In this section I also discuss the most important causes behind the surge of capital flows into the area experienced during 1996-97.

In Section III I discuss the extent to which capital mobility has been truly restricted in Latin America. I argue that in most developing countries there are significant differences between the degree of legal capital mobility and “true” capital mobility, and provide some estimates of the latter. Section IV concentrates on the effects of capital mobility on real exchange rates and international competitiveness. In this section I also address the important question of capital flows sustainability and the dynamics of adjustment, and I briefly discuss issues related to the sequencing of economic reform. Section V concentrates on the effectiveness of monetary policy when there is (some) capital mobility. In particular, I discuss Latin America’s experiences with policies aimed at sterilizing capital flows. In this section I also address the role of capital controls as a device for isolating emerging economies from the volatility of international capital markets. I review the experiences of Chile and Colombia and I argue that, by and large the effectiveness of capital controls has been limited in these two countries. In section VI I deal with the role of the banking sector in intermediating capital flows in Latin American countries. Finally, in section VII I present some concluding remarks.

It is important to stress at the outset that Latin America is an extremely diverse region with sophisticated as well as backward economies, with large and very small countries, with

stable and volatile economic systems. This means that broad generalizations are bound to be misleading and to provide oversimplified views of the region. For this reason, then, in this paper I make an effort to make distinctions across countries, as well as to discuss broad regional trends.

## **II. Capital Flows to Latin America: Historical Background and Recent Trends**

### ***II.1 From Petrodollars Recycling to the Mexican Debt Crisis of 1982***

During the 1960s and early 1970s Latin America was basically cut off from private international financial markets. With the exception of limited amounts of direct foreign investment (DFI), very little private capital moved into the region. During most of this period Latin America relied on official capital flows – largely from the World Bank, the Inter American Development Bank and the IMF . In a way the region was a captive customer of the multilateral institutions. In the mid and late 1970s, however, things began to change as international private liquidity increased significantly, and Latin America became a major recipient of recycled “petrodollars”. In 1981 alone the region received (net) private capital inflows in excess of 21 percent of exports. Individual country cases, however, differed significantly during this period. While in Brazil, Mexico and Venezuela a majority of these flows were captured by the government and were used to finance large (and increasing) fiscal deficits, in Argentina and Chile – two nations embarked at the time on early market-oriented reforms – they were largely channeled to the private sector.<sup>3</sup>

By 1981 casual observers of the Latin American scene were surprised by how smoothly things were going. In spite of major commodity price shocks, most countries in the region continued to grow at healthy, if not spectacular rates, and a handful of them in the Southern Cone



were even experimenting with market oriented reforms. What most observers missed at the time – as they would again a dozen years later in Mexico – was that in most countries three worrisome developments were taking place: (a) real exchange rates had appreciated significantly, seriously hurting export's competitiveness: (b) domestic savings remained flat, at rates inconsistent with sustainable rapid growth; and (c) that a large proportion of the capital inflows were being used to finance consumption and/or investment projects of doubtful quality. Most of these funds were intermediated by banks that were subject to little supervision, and that quickly became the Achilles heel of these economies.<sup>4</sup> And, to make things even worse, during that period in most of the region productivity growth was extremely low.

In August of 1982 Mexico informed a stunned international community that it was not able to meet its financial obligations, and that it was seeking IMF support and the postponement of its debt payments. The financial community reacted badly to this news, and with traditional herd instinct decided to pull out of Latin America as a region. In late 1982 and early 1983, country after country saw the access to international financial capital market disappear. Even Chile and Colombia, two countries that played by the rules of the game, and did not attempt to reschedule their debts, experienced a drying up of private international financing. They were subject to what Ocampo (1989) has called the Latin "neighborhood effect".

## ***II.2 From Muddling Through to the Brady Plan***

Between 1982 and 1989 most of the Latin American nations muddled through, while they tried to negotiate debt reduction deals with their private creditors. The initial reaction by the creditor countries was that the debt crisis represented a temporary liquidity problem that could be solved with a combination of macroeconomics adjustment, debt rescheduling agreements, and

some structural reforms. This approach was pushed by the United States government and, in practice, was coordinated by the IMF and the World Bank. The official approach called for "new monies" (up to US\$20 billion) to be lent to those countries that indeed engaged in structural reforms. Not surprisingly, the banking community endorsed this view, although they argued for shifting the burden of new financing to the multilateral and official institutions: "...realism demands an increased share of new money to be furnished by official sources during the next several years" (Morgan Guaranty 1987 p. 2). Debt restructuring operations --IMF-sponsored programs and World Bank structural adjustment loans -- were the most important elements of the early official strategy.

The 1984 issue of the International Monetary Fund's *World Economic Outlook* and of the World Bank's *World Development Report* included optimistic projections, predicting a steady decline of the debt/export ratio in the Latin American countries until 1990. Things, however, did not work as expected, and in the following years a growing number of analysts came to recognize that the magnitude of the problem had been seriously underestimated. By 1987 it was becoming increasingly clear that the debt burden had greatly reduced the incentives for reforming the region's economies and was seriously affecting the ability of the debtor nations to grow. Between 1985 and 1987 net resource transfers – defined as net capital inflows minus interest and dividends payments to the rest of the world – were significantly negative, averaging almost 28 percent of exports.

In March of 1989 a fundamental breakthrough in the official approach towards the debt crisis took place, when the creditor nations and the multilateral institutions recognized that, in many cases, it was in everyone's interest to provide (some) debt forgiveness. The basic idea was

that for countries facing a very high implicit marginal tax on foreign exchange earnings, partial forgiveness of the debt would be equivalent to lowering the implicit tax and, thus, would encourage the type of market-oriented reform conducive to higher exports and faster growth. In March of that year U.S. Secretary of the Treasury Nicholas Brady announced a new initiative based on *voluntary* debt reduction. This basic proposal amounted to exchanging old debt for new long term debt, with a lower face value. The exact conversion ratios, and the detailed characteristics of the new instruments, were to be negotiated between the debtor countries and their creditors. In order to make this new approach feasible and attractive to creditor banks, the advanced nations and the multilateral institutions devoted a substantial amount of resources -- in the order of US\$30 billion -- to guarantee the new "Brady" concessional bonds. Typically, principal payments on these new securities were backed by thirty year zero coupon U.S. Treasury Bills, and interest payments were subject to rolling three year guarantees.

Starting in 1989, then, the official approach towards the crisis combined two basic mechanisms for alleviating the debt burden. First, the use of debt-reduction schemes based on secondary markets operations was actively encouraged. Although this technique for reducing the debt had been used since the mid-1980s, it acquired especial momentum after 1988, when, in a number of countries, debt-equity swaps became an important mode for privatizing state owned enterprises. Second, direct debt reduction agreements between creditors (commercial banks) and individual countries became increasingly common after the introduction of the Brady Plan. Between 1989 and 1997 Costa Rica, Mexico, Venezuela, Uruguay, Argentina, Brazil and Peru reached agreements with their creditors to reduce their debt burdens.

In order for countries to be eligible for Brady Plan negotiations they had to show willingness “plus some prior action” to engage in serious market-oriented economic reform. From an incentives point of view this new initiative was aimed at having two effects. First, it was seen as a way of rewarding countries truly committed to implementing modernization reforms, and second, it was expected that in some countries it would lift the debt overhang burdens associated with extremely high payments. In 1989 Mexico and Costa Rica were the first countries that, within the Brady Plan framework, reached broad agreements with their creditors to reduce the value of their debt. Venezuela and Uruguay followed in 1990 and 1991, and Argentina and Brazil signed draft agreements in 1992. In 1996 Peru became the latest country to come to term with its creditors within the context of the Brady Plan. Table 1 contains the details of selected Brady deals.

By 1990 the vast majority of the countries in the region had embarked on market-oriented reforms. Although programs varied across countries, they exhibited three common components: (1) the implementation of stabilization programs aimed at reducing inflation and generating a sustainable current account balance. In most countries fiscal retrenchment, including major tax reform, were at the core of these programs. (2) The opening up of these economies to international competition. While every country reduced its trade barriers very substantially, the approach towards capital account liberalization was very diverse. While in some nations – Mexico, Argentina, for example – capital controls were abolished, in other such as Brazil, Chile and Colombia, some form of capital controls was maintained. (3) Major privatization and deregulation programs, aimed at reducing the importance of the state in economic affairs. As the reforms proceeded, many countries added the implementation of social programs targeted to the

poor as a fourth component of the new development strategy (Edwards 1995a).

### ***II.3 The Resumption of Private Flows: Magnitudes and Some Issues***

Starting in 1991 the majority of the Latin American countries were able, once again, to attract private capital. By 1992 the net volume of funds had become so large – exceeding 35 percent of the region's exports – that a number of analysts began to talk about Latin America's "capital inflows problem" (Calvo et al 1993; Edwards 1993). To many analysts this sudden change from capital scarcity and negative resource transfers to foreign capital overabundance was surprising and reflected a surge in speculation in international markets. To others, the fact that merely a dozen years after a major crisis these countries were able to tap the international market, reflected the success of the market-oriented reforms. If the market is willing to reward these countries with plentiful funds, the argument went, it must reflect that the reforms are bearing fruit.

Figure 1 presents the evolution of net total capital flows (in billion of dollars) into Latin America during the period 1975 through 1996. Figure 2, on the other hand, presents data on net resource transfers as a percentage of exports for the same period. Finally, Figure 3, presents the evolution of net official capital inflows as a percentage of exports during 1990-96. Several interesting aspects of the Latin American experience emerge from these figures. First, the cyclical – almost paranoid, one could say – nature of capital inflows into Latin America comes out clearly. Figure 1 shows the abundance of the late 1970s and early 1980s, followed by the collapse in inflows during most of the 1980s, and the remarkable return to abundance in the last few years. Figure 2 shows the severity of the crunch in the 1980s, when the region as a whole was transferring (in net terms) almost 30 percent of its exports to the rest of the world. And the

data in Figure 3 show a new reality in the 1990s, where official capital flows – and in particular funds coming from the multilateral institutions such as the IMF and the World Bank – have declined very significantly in relative terms. Notice, however, that this figure shows a major jump in net official flows in 1995, when as a result of the Mexican crisis, the IMF, the World bank, the IDB and the U.S. government transferred very large amounts of funds to Mexico. This is a vivid reflection of the significant change experienced by official financing during the last few years. It has gone from being the most important provider – and in some countries, the sole provider – of foreign funds, to being a provider of stabilizing funds. In a way the multilateral official institutions have become insurance companies of sorts, whose main role is providing relief when a bad state of nature occurs.

Figure 4 presents data on *net* capital inflows for eight selected countries. Figure 5, on the other hand, contains data on the composition of capital inflows in these Latin American countries for 1975-96. Three type of flows are distinguished : (A) Direct Foreign Investment. These flows reflect, at least in principle, a long term commitment on behalf of the investor in the host country. (B) Portfolio Investment. This category includes transactions in equity and debt securities. (C ) Other type of flows. This rather broad category includes trade credit (both long and short term) and official (bilateral and multilateral) loans. Several important trends emerge from these figures. First, portfolio investment is a relatively new phenomenon in these countries. Until the late 1980s “other” constituted the dominant form of inflows in most countries. Second, in some countries portfolio flows were by far the dominant form of inflows after 1991. This has been particularly the case in Argentina and Mexico. Figure 5 also shows that Brazil has experienced a tremendous surge in portfolio funds in the last few years. These portfolio flows

take two basic forms: equities acquisitions – mostly in the form of American Depository Receipts (ADRs)—by foreign investors, and bond issues in international markets. The World Bank (1997) has reported that an increasing number of institutional investors (including pension funds) in the advanced countries are adding emerging economies equities to their portfolios. This heavy reliance on equities and bonds contrasts with the 1970s, when syndicated bank loans constituted the dominant form of private capital inflows into Latin America. Third, figure 5 shows that the importance of DFI varies significantly across countries. Chile, Colombia and Peru have received particularly large volumes of DFI in the last few years. In all three cases these funds have been largely devoted to natural resources intensive sectors – mining in Chile and Peru, and oil in Colombia.

The recent surge in capital inflows – and in particular of portfolio inflows -- to Latin America has been the result of two basic forces: first, developments in international financial conditions, and in particular the decline in US interest rates since in 1990-91, have encouraged investors in the advanced countries to seek higher returns in other markets, including Latin America. Calvo et al (1993) provided an early, and very influential, study on the determinants of capital inflows into the region. These authors argue that cyclical external factors have been by far the most important determinant of these flows. These results have recently been confirmed by the World Bank's (1997) massive study on private capital inflows to the developing countries. Second, the improvement in Latin America's economic prospects – including the reduction in country risk that has been associated with the implementation of market oriented reforms – has increased the attractiveness of these countries to international investors. In an extension of the Calvo et al (1993) study, Chuhan and associates (1993) found out that the recipient country's

own fundamentals were as important as cyclical factors in explaining the surge in portfolio flows into Latin America. In a recent analysis on the determinants of capital inflows into Chile, Larrain et al (1997) argue that while interest rate differentials play a key role in determining short term flows, they are unimportant in determining longer term ones. These are affected by longer term structural variables, and in particular the country's impressive market-oriented reforms.

The prominent role played by external cyclical factors suggests that, once external conditions change, there may be massive flows reversals. Although it is too early to know whether this will indeed be the case, there is already some evidence indicating that flows volatility has declined somewhat. First, there has been a significant reduction in the degree of variability of quarterly inflows into the large countries. For example, for the 1980s the coefficient of variation of quarterly aggregate net inflows in Argentina, Brazil and Mexico was 5.4, 3.1 and 9.3, respectively. For 1990-97 this coefficient had declined in all three countries to 2.1, 2.6 and 1.3. Second, it seems that the extent of cross-market contagion has declined significantly. This was apparent in the aftermath of the Mexican currency crisis of 1994, when in stark contrast with previous episodes – including the debt crisis of 1982 -- the international financial community did not herd out of Latin America. In fact, this time around, international investors were quick to realize that there were significant differences across Latin American countries, and after a brief hesitation, they even increased their exposure in those countries with strong fundamentals. Both of these developments suggest, then, that in spite of the importance of cyclical elements in determining the direction of capital flows, countries with strong fundamentals – including modern bank supervisory systems – will not face an eminent collapse once the international financial conditions change.



In recent years a number of analysts have become concerned about the very low level of savings in the region – on average, Latin America saves 19 % of GDP, compared with 32% in East Asia (see Edwards, 1996). This concern has grown after the Mexican peso crisis of 1994. The surge in capital inflows experienced by Mexico in 1991-94 allowed Mexican nationals to increase their expenditure greatly. Starting in 1990, the country experienced a consumption boom that put additional pressure on an already appreciated real exchange rate, and contributed to the creation of a large current account deficit. This rapid increase in consumption had as a counterpart a steep decline in domestic savings, from almost 20% of GDP in 1988 to 16% of GDP in 1993. In the 1993 *Trends in Developing Economies*, the World Bank staff already expressed its apprehension in vivid terms and stated that "[i]n 1992 about two-thirds of the widening of the current account deficit can be ascribed to lower private savings...If this trend continues, it could renew fears about Mexico's inability to generate enough foreign exchange to service debt or remit dividends" (p. 330). After 1993 the decline in savings became more serious, as fiscal policy was somewhat relaxed. The extent to which capital inflows – or more specifically, the accompanying current account deficits – crowd out domestic savings has long been a subject of inquiry by authors interested in understanding savings behavior. In a recent study on savings in Latin America Edwards (1996) found out that an increase in the current account deficit of 1 percent of GDP is associated with a decline in private savings of only 0.2 percent of GDP. Interestingly enough, however, these results suggest that in Latin America higher current account deficits have a somewhat greater crowding out effect on public sector savings.

### III. The "True" Degree of Capital Mobility in Latin America

For many years the majority of the Latin American countries restricted international capital mobility through a variety of means, including taxes, administrative controls and outright prohibitions. Legally speaking, then, and as the IMF documented year after year, most countries in the region had a closed capital account. From an economic point of view, however, what matters is not the *legal* degree of capital restrictions, but the actual or "true" degree of capital mobility. There is ample historical evidence suggesting that there have been significant discrepancies between the legal and the actual degree of controls. In countries with severe impediments to capital mobility -- including countries that have banned capital movement --, the private sector has traditionally resorted to the overinvoicing of imports and underinvoicing of exports to sidestep legal controls on capital flows. The massive volumes of capital flight that took place in Latin America in the wake of the 1982 debt crisis clearly showed that, when faced with the "appropriate" incentives, the public can be extremely creative in finding ways to move capital internationally. A number of authors have resorted to the term "semi open" economy to describe a situation where the existence of taxes, licenses or prior deposits restrict the effective freedom of capital movement. However, the questions of how to measure, from an economic point of view, the degree of capital mobility, and the extent to which domestic capital markets are integrated to the world capital market are still subject to some debate.

In two early studies Harberger (1978, 1980) has argued that the effective degree of integration of capital markets should be measured by the convergence of private rates of return to capital across countries. He used national accounts data for a number of countries -- including eleven Latin American countries -- to estimate rates of return to private capital, and found out that

these were significantly similar. More importantly, he found that these private rates of return were independent of national capital-labor ratios. Harberger interpreted these findings as supporting the view that capital markets are significantly more integrated than what a simple analysis of legal restrictions would suggest. Additionally, Harberger (1980) argued that remaining (and rather small) divergences in national rates of return to private capital are mostly the consequence of country risk premia imposed by the international financial community on particular countries. These premia, in turn, are determined by the perceived probability of default, and depend on a small number of "fundamentals", including the debt/GDP ratio and the international reserves position of the country in question.

In trying to measure the effective degree of capital mobility, Feldstein and Horioka (1980) analyzed the behavior of savings and investments in a number of countries. They argue that if there is perfect capital mobility, changes in savings and investments will be uncorrelated in a specific country. That is, in a world without capital restrictions an increase in domestic savings will tend to "leave the home country", moving to the rest of the world. Likewise, if international capital markets are fully integrated, increases in domestic investment will tend to be funded by the world at large, and not necessarily by domestic savings. Using a data set for 16 OECD countries Feldstein and Horioka found that savings and investment ratios were highly positively correlated, and concluded that these results strongly supported the presumption that *long term* capital was subject to significant impediments. Frankel (1989) applied the Feldstein-Horioka test to a large number of countries during the 1980s, including a number of Latin American nations. His results corroborated those obtained by the original study, indicating that savings and investment have been significantly positively correlated in most countries.

In a recent comprehensive analysis on the degree of capital Montiel (1994) estimated a series of Feldstein-Harioka equations for 62 developing countries, including fifteen Latin American nations. He argues that the estimated regression coefficient for the industrial countries should be used as a benchmark for evaluating whether a particular country's capital account is open or not. After analyzing a number of studies he concludes that a saving ratio regression coefficient of 0.6 provides an adequate benchmark: if a country regression coefficient exceeds 0.6, it can be classified as having a "closed" capital account; if the coefficient is lower than 0.6 the country has a rather high degree of capital mobility. Using this procedure he concludes that the majority of the Latin American nations exhibited a remarkable degree of capital mobility -- indeed much larger than what an analysis of legal restrictions would suggest. Table 2 contains the estimated Feldstein-Horioka "b" regression coefficients reported by Montiel (1994). As may be seen, for a large number of these countries the regression coefficient is below the 0.6 cut-off level.

Although Harberger and Feldstein-Horioka used different methodologies -- the former looking at prices and the latter at quantities --, they agreed on the need to go beyond legal restrictions in assessing the extent of capital mobility. In a series of studies Edwards (1985, 1988) and Edwards and Khan (1985) argued that time series on domestic and international interest rates could be used to assess the degree of openness of the capital account (see also Montiel 1994). Using a general model that yields the closed and open economies cases as corner solutions, they estimated the economic degree of capital integration. They argued that capital restrictions play two roles: first, they introduce divergences to interest rate parity conditions and, second, they tend to slow down the process of interest rate convergence. The application of this model to the cases of a number of countries (Brazil, Colombia, Chile) confirms the results that, in general, the actual

degree of capital mobility is greater than what the legal restrictions approach suggests. Haque and Montiel (1991) and Reisen and Yeches (1991) have provided expansions of this model that allow for the estimation of the degree of capital mobility even in cases when there are not enough data on domestic interest rates, and when there are changes in the degree of capital mobility through time. Their results once again indicate that in most Latin American countries “true” capital mobility has historically exceeded “legal” extent of capital mobility.

#### **IV. Capital Mobility, Real Exchange Rates and International Competitiveness**

The new growth strategy embraced by the Latin American countries in the late 1980s is largely based on achieving export-led growth. This requires, in turn, maintaining competitive real exchange rates – that is real exchange rates that do not become overvalued. Starting in 1991-92, however, the surge in capital inflows allowed the Latin American countries to increase substantially aggregate expenditure, generating a significant pressure towards real exchange rate appreciation and, thus, a loss in international competitiveness. This phenomenon has generated concern among academics, policy makers and financial sector operators. As Calvo et al. (1993) have pointed out, however, real exchange rate appreciations generated by increased capital inflows are not a completely new phenomenon in Latin America. In the late 1970s most countries in the region, and especially the Southern Cone nations, were flooded with foreign resources that led to large real appreciations. The fact that this previous episode ended in the debt crisis has added dramaticism to the current concern about the possible negative effects of these capital flows.

Figure 6 presents the evolution of bilateral real exchange rate (RER) indexes for a selected group of Latin American countries for the period 1970 through the first quarter of 1997.<sup>5</sup> An increase in the values of these indexes represents a real depreciation and, thus, an increase in the country's degree of international competitiveness. A number of characteristics of real exchange rate behavior in Latin America emerge from these figures. First, RERs have historically been very volatile in Latin America. Comparative analyses on real exchange behavior have indeed shown that, for long periods of time, RER variability has been greater in Latin America than in almost any other part of the world. Second, these figures show that in all eight countries the RER depreciated drastically after the 1982 debt crisis, only to experience very large appreciations in the 1990s. These downward swings in RERs were largely caused, as I will argue later, by the surge of capital inflows in the 1990s. Third, these figures show that for the majority of the countries in the sample the appreciation trend has slowed down in the last two or three quarters and, in some of them, it even seems to have ended.

Figure 7 shows the relationship between aggregate (net) capital inflows and the real exchange rate for a selected group of countries.<sup>6</sup> As may be seen, in all of them there is a negative relationship between capital inflows and the real exchange rate: increases in capital inflows have been associated with real exchange rate appreciation, while declines in inflows are associated with RER depreciation. I explore this relationship further in Table 3, where I present correlation coefficients between a proxy for quarterly capital inflows and the RER index. As may be seen, in every one of the seven largest Latin American countries there is a negative relationship between capital inflows and the real exchange rate, and in some of them the coefficient of correlation is quite large (in absolute terms). This table also includes the results

from a series of causality tests. These show that in seven out of the eight cases it is not possible to reject the hypothesis that capital flows *cause* real exchange rate. In three of the seven countries it is not possible to reject two-way causality, and in none of the seven cases analyzed it was found that real exchange rate caused capital inflows. These results, then, provide some support for the view that the recent surge in capital flows has been (partially) responsible for generating the loss in real international competitiveness reported above.

The exact way in which capital inflows will be translated into a real exchange rate appreciation will depend on the nature of the nominal exchange rate system. Under a fixed exchange rate regime, the increased availability of foreign resources will result in international reserves accumulation at the central bank, monetary expansion and increased inflation. This, in turn, will pressure the RER towards appreciation. As is discussed in greater detail in section V, many countries have tried to tackle this problem by attempting to sterilize these flows. Under a flexible exchange rate regime, on the other hand, large capital inflows will generate a *nominal* – as well as real – exchange rate appreciation.

A number of analysts have argued that the appreciation of the real exchange rate following a surge in capital inflows is an equilibrium phenomenon – that is, one generated by fundamentals – and, thus, should not be a cause for concern. This was, for example, the approach taken by the Mexican authorities during 1991-94 when a number of independent observers argued that the real appreciation of the peso was not sustainable and was bound to generate a major currency crisis.<sup>7</sup> The view that an increase in capital flows will lead to an appreciation of the real exchange rate is correct from a simple theoretical perspective. Indeed, in order for the transfer of resources implied by a higher capital inflows to become effective, a real

appreciation is *required*. A limitation of this interpretation, however, is that it fails to recognize that the rate at which capital was flowing into Mexico in 1991-93 -- at levels exceeding 8 percent of GDP -- was clearly *not* sustainable in the long run. This means that at some point the magnitude of this flow would have to be reduced, requiring a reversal in the real exchange rate movement.

Although there are no mechanical rules for determining the volume of capital that can be maintained in the long run, there are some helpful guidelines that analysts can follow in order to detect departures from capital inflows sustainability.<sup>8</sup> In general, there will be an "equilibrium" level of a country's liabilities that foreigners will be willing to hold in their portfolios. Naturally, this "equilibrium portfolio share" will not be constant, and will depend, among other variables, on interest rate differentials, the perceived degrees of country and exchange risk, and the degree of openness of the economy. Moreover, when countries embark in (what is perceived to be) a successful reform program, the "equilibrium" level of the country's liabilities that will be willingly held by international investors is likely to increase, as they will be eager to take part in the country's "take-off". In a recent paper Calvo and Mendoza (1996) have argued that in a world with costly information it is even possible for very large volumes of capital to move across countries on the bases of rumors. They estimate that, in the case of Mexico, the belief of a change in domestic returns by one half of one percent could result in capital movements of approximately US\$14 billion.

The following simple framework provides a useful way for approaching the capital inflows sustainability issue: assume that in equilibrium international investors are willing to hold in their portfolios a ratio  $k^*$  of the home country's (Mexico, say) liabilities relative to its



GDP.<sup>9</sup> This ratio will depend on a number of variables, including the country risk premium and interest rate differentials. If, for example, the perceived degree of country risk goes down, and the country is seen as more stable,  $k^*$  will increase. This approach has two important implications. The first one has to do with the long run the sustainable level of capital inflows and, thus, of the current account deficit. This will depend on two factors: (a) the stock international demand for the country's securities; and (b) the real rate of growth of the economy. If, for example, foreign investors are willing to hold national securities amounting to 50 percent of the country's GDP and the rate of growth is 4 percent per year, the long run sustainable deficit will be 2 percent of GDP. If, however, the demand for the country's securities is 75 percent of GDP, the sustainable current account deficit will be 3 percent of GDP. More specifically, long run sustainable capital inflows as a percentage of GDP will be given by the following equation:<sup>10</sup>

$$C/y = g k^*$$

where  $C$  is the current account deficit,  $y$  is GDP  $g$  is the real rate of growth of the country and  $k^*$  is the ratio of the country's liabilities to GDP that are willingly held by international investors. According to Bank of Mexico data, at their peak foreigners holdings of Mexican securities reached approximately 50 percent of the country's GDP. Growth, however, averaged less than 4 percent during the first four years of the 1990s. These figures indicate that Mexico's long run sustainable current account deficit was in the neighborhood of 2 to 3 percent of GDP, significantly below the 7 to 8 percent levels actually attained during this period. On the other hand, in a country such as Chile, with a rate of growth of approximately 7 % per year, the sustainable level of capital inflows is much larger. If, for instance, the steady state foreign demand of Chilean liabilities is 65 percent of the country's GDP, the sustainable inflow of capital will be almost 6% of GDP.

The second implication of this framework is related to the dynamic effects of capital inflows on the current account and the real exchange rate. Transitional issues are particularly important when there are large shifts (positive or negative) in the international portfolio demand for the country's liabilities. If, for example, there is a reduction in the country's degree of country risk, or, or if the country in question opens to the rest of the world, foreigners will increase their demand for small emerging economies' securities. In the short run -- while the newly demanded securities are accumulated -- capital inflows (and the current account deficit) will exceed in the short run -- that is, they will overshoot -- the levels predicted by the preceding long run analysis. Once portfolio equilibrium is regained, however, and investors hold in their portfolios the desired amount of the small country's securities, capital inflows (and the capital account balance) will again revert to their long run equilibrium levels. In most instances, this adjustment process will not be instantaneous. In some cases it will even take a few years. Historically, episodes of capital inflows surges have been characterized by increases in the demand for the small country securities of the order of 20 to 30 percent of GDP, and by peak annual inflows of the order of 7 to 9 percent of GDP. Table 4 contains data on the accumulated and maximum inflow in recent surges episodes in Latin America.

One of the most important dynamic effects of the transition described above is on the real exchange rate. As capital flows in, there will be an increase in expenditure and an appreciation in the real exchange rate. Once capital stops flowing in, or even when the rate at which it flows slows down, the real exchange rate will be "overly" appreciated and, in order to maintain equilibrium, a massive adjustment may be required. The dynamics of capital inflows and current account adjustment will require, then, that the equilibrium real exchange rate first appreciates and

then depreciates. And while during the surge in inflows the real exchange rate appreciates without any impediment, when the availability of foreign capital declines nominal wage and price rigidity will make the required real depreciation difficult under a pegged exchange rate.<sup>11</sup> Mexico's clinging to the rigid exchange rate system, and a succession of negative shocks made the possibility of a smooth landing increasingly unlikely as capital flows declined during 1994.

Naturally, the situation will become even more serious if, as a result of external or internal developments, there is a *decline* in the international portfolio demand for the country's securities -- as was the case in Mexico after December 20, 1994 and in Argentina in the first half of 1995. Under these circumstances, the capital account balance will suffer a very severe contraction -- and the current account may even have to become positive -- during the transitional period towards the new equilibrium. As is well known by now, while Mexico was unable to maintain the peg under the new circumstances, Argentina decided to stand firm and to engineer a major aggregate demand adjustment that generated a major hike in the rate of unemployment.

The effects of changing capital flows on the equilibrium real exchange rate, the current account and reserves accumulation can be analyzed using simple numerical simulations. Edwards, Steiner and Losada (1996) present results based on a model of a small open economy with tradables and non-tradables. In this framework, an increase in capital inflows allows residents of the country in question to increase expenditure on both types of goods. As a result of the surge in capital inflows there will be a higher current account deficit and a real exchange rate appreciation. The specific magnitudes of these effects will depend on the price and expenditure elasticities of demand and supply of nontradables. This analysis suggests that, under plausible values for the relevant parameters, an increase in the international demand for a small

country's securities equivalent to 20 percent of the country's GDP, will generate an inflow of capitals that will peak at approximately 8 percent of GDP – notice that these figures correspond closely to Latin America's historical experience reported in Table 4. In turn, this inflow of capital will generate (under the assumed elasticities) a real exchange rate appreciation of almost 10 percent. Perhaps the most important aspect of this analysis is that it clearly shows that after capital inflows have reached their peak and begin to decline to their new level, the real exchange rate has to depreciate until it achieves its new equilibrium level. In a fixed exchange rate regime, this real depreciation can only be achieved by means of reducing domestic inflation to a rate below foreign inflation, or, in terms of the framework developed by Edwards et al (1996), by actually reducing the price of nontradable goods.

The above discussion suggests that the relevant question regarding events in Mexico was not, as some analysts incorrectly thought during 1994, whether the inflows observed during 1991-93 were sustainable, but how and when was Mexico going to adjust towards a lower availability of foreign resources. Mexico's clinging to the rigid exchange rate system made the possibility of a smooth landing increasingly unlikely as 1994 unfolded.

## **V. Capital Mobility and the Effectiveness of Monetary and Exchange Rate Policy**

Most Latin American countries have tried to minimize the macroeconomic – and in particular the real exchange rate -- consequences of capital inflows surges. Basically, three approaches have been used to deal with this phenomenon: (1) The imposition of some form of capital controls aimed at slowing down the rate at which foreign funds come into the country. Brazil, Chile and Colombia have relied on these type of controls. (2) Sterilized intervention,

aimed at offsetting the monetary -- and inflationary -- consequences of the capital inflows.

Almost every country in the region has attempted this approach. And (3) increased nominal exchange rate flexibility. While strictly speaking, the adoption of a more flexible exchange rate regime does not avoid the real appreciation, it allows for the accommodation of the required real appreciation without a surge in domestic inflation. Chile is the only country that has used to any serious extent -- and long period of time -- this mechanism. In addition to these three mechanisms in a number of countries there have been discussions about using fiscal adjustment to compensate for the monetary impact of capital inflows on the real exchange rate. In no country, however, has this discussion actually become implemented into policy. In this section I review some of the Latin American country experiences with these policy responses.

### ***V.1 Capital Controls in Chile and Colombia***

Chile and Colombia have relied on capital controls in an effort to avoid some of the destabilizing short term effects -- and in particular the real exchange rate appreciation -- of capital inflow surges. In their current form capital controls were introduced in 1991 in Chile and in 1993 in Colombia.<sup>12</sup>

In Chile these restrictions have taken two basic forms: minimum stay requirements for direct foreign investment flows, and non remunerated reserve requirements on other forms of capital inflows. Table 5 contains details on these regulations, as of the third quarter of 1997. In Colombia, on the other hand, capital controls have taken the form of a variable reserve requirement on foreign loans -- except trade credit -- obtained by the private sector. Initially this reserve requirement was set at a rate of 47%, and was only applicable to loans with a maturity shorter than 18 months. During 1994, and as the economy was flooded with capital inflows, the

reserve requirements were tightened. In March they were made extensive to all loans with a maturity below 3 years; in August they were extended to loans of 5 years or less. Moreover, the rate of the reserves requirement became inversely proportional to the maturity of the loan: 30 days loans were subject to a stiff 140% reserve requirement – making them virtually prohibitive -, while 5 year loans had to meet a 42.8% deposit. See Figure 8 for the actual reserve requirements for alternative loan maturities.

Both in Chile and Colombia restrictions to capital movements act as an implicit tax on foreign financing. In recent studies Cardenas and Barreras (1996) and Valdes-Prieto and Soto (1996) have calculated the tax-equivalence of these controls in order to analyze the effects of these restrictions on capital movements. In particular they estimate a number of capital inflows equations to investigate whether these mechanisms have succeeded in affecting the rate at which capital has flown into their countries. These authors found out that aggregate capital inflows have not been sensitive to this tax-equivalent factor, and concluded that these capital restrictions have been ineffective in slowing down capital controls. In both countries, however, capital controls have resulted in a change in the composition of capital inflows, with flows not affected by these implicit taxes growing faster than they would have otherwise. See Budnevich and Lefort (1997) and Larrain et al (1997) for similar results. Valdes Prieto and Soto (1996) have persuasively argued that, in the case of Chile, the existence of capital controls has actually had an important negative effect on welfare. There are two reasons for this. First, to the extent that trade credit is also subject to reserve requirements, these are also an implicit barrier to free trade, and are subject to the traditional welfare consequences of protectionism. Second, by introducing a wedge between domestic and foreign interest rates these controls result in a misallocation of

intertemporal consumption and discourages investment.

In view of the questionable effectiveness of capital controls, policy makers in a number of countries have considered alternative mechanisms to smooth the volume of *net* capital inflows. Some analysts have argued that the relaxation of restrictions on capital *outflows* from the developing country provide an effective way of achieving this goal (Budnevich and Lefort 1997; World Bank 1997). According to this view, if domestic residents can freely move funds out the country (for portfolio diversification, or other reasons), net inflows will be lower, and so will be the pressure on money creation, inflation and the real exchange rate. Laban and Larrain (1997), however, have argued that a relaxation of restrictions on capital outflows may further complicate macroeconomic management. This will be the case if investors interpret the new policy as reducing the overall cost of investing in the country. This, in turn, will make investment more attractive than before, and (perhaps paradoxically) will generate an increase of net capital inflows into the country.

### ***V.2 Sterilized Intervention: Is it possible? How Costly is it?***

Most countries in Latin America have tried to offset (at least partially) the monetary impact of the recent capital inflows surge. Several mechanisms have been used to this effect, including increasing commercial banks marginal reserve requirements, transferring public sector deposits to the central bank – which is equivalent to imposing a very high reserve requirement on this type of deposits --, and sterilized intervention on behalf of the central bank. This latter mechanism has been used in almost every country in the region, and is usually carried out through the sale of central bank securities to the public at large. Figure 9 illustrates the extent of sterilization in Argentina, Colombia and Mexico. As may be seen, in each of these countries,

changes in reserves have been associated, in the last few years, with changes in the opposite direction domestic in credit (during the same quarter).

A problem with sterilized intervention, however, is that it can be very costly for the central bank. This is because interest earnings on international reserves are rather low, while the central bank has to pay a relatively high interest rate to persuade the public to buy its own securities. Calvo (1992), for example, has argued that this cost can become so high that it may end up threatening the sustainability of the complete reform effort. Moreover, as Frankel (1995) has pointed out, in an economy with capital mobility and predetermined nominal exchange rates it is not possible for the monetary authorities to control monetary aggregates in the medium to long run. This view has been confirmed by econometric estimates of the monetary "offset" coefficient for a number of countries (see for example the studies in Steiner, 1995).

Colombia's experience with sterilization during the early 1990s illustrates very clearly what Calvo (1992) has called "the perils of sterilization". In 1990 newly elected President Gaviria announced a trade liberalization program aimed at eliminating import licensing and greatly reducing import tariffs. At the same time a twenty year old exchange and capital controls mechanism was eliminated. By March of 1991, however, it was becoming increasingly clear that the trade reform was not having the effects the economic team had anticipated. Perhaps the most surprising fact was that imports were not growing and that, as a result of it, the country was experimenting an increasing trade surplus. This, in conjunction with larger inflows of capital, was pressuring on money supply, making macroeconomic management very difficult. As inflation increased, the real exchange rate began to lose ground, and both exporters and import competing sectors began to lose competitiveness. The Banco de la Republica reacted to this



situation by implementing a series of policies, which in retrospect appear to have been contradictory among themselves. First, an aggressive policy of sterilizing reserve accumulation was undertaken. This was done by issuing indexed short term securities (the OMAs). In the first 10 months of 1991 the stock of this instrument shot up from US\$ 405 million to US\$ 1.2 billion, or 85% of the total monetary base. Naturally, this policy resulted in an increase in domestic (peso denominated) interest rates, and a significant interest rate differential. This attracted further capital into the country, frustrating the sterilization policy itself. Second, the authorities decided -- as it had done in the past when facing coffee booms -- to postpone the monetization of export proceeds. For this reason, in 1991 the monetary authority stopped buying foreign exchange in the spot market. Instead it started issuing "exchange certificates" (*certificados de cambio*) in exchange for export foreign currency proceeds. These certificates could be transacted in the secondary market, and initially had a 3 months maturity, which was later extended to one year. Moreover the Central Bank established a maximum discount for the certificates in the secondary market of 12.5 percent. All of this, of course amounted to an attempt at controlling too many variables -- the spot and future exchange rates, the nominal interest rate and the stock of money -- at inconsistent levels. During the first 10 months of 1991 Colombia had been trapped in a vicious circle: a very rapid process of reserve accumulation generated high inflation and a real exchange rate appreciation; but the policies put in place to combat these phenomena created incentives for capital inflows and a further appreciation of the real exchange rate. These events generated two political problems to the Gaviria administration. First, exporters and import competing sectors were becoming increasingly unhappy about the real appreciation of the

peso, and second the lack of progress in the anti-inflationary front was a black spot in an otherwise quite positive picture.

### ***V.3 Nominal Exchange Rate Flexibility: Chile's Band Experience***

After a major and protracted macroeconomic crisis, in early 1986 Chile adopted a nominal exchange rate system based on a crawling band system. The band was originally quite narrow, allowing fluctuations of  $\pm 2\%$  around a backward looking crawling central parity. Through time however, two innovations were introduced to the system. First, the band became increasingly wider, reaching  $\pm 12\%$  in 1997; and, second, the central parity was defined relative to a three-currencies basket. The latter measure was based on the idea that basket-pegging would add some uncertainty to the system, discouraging (very) short term speculators. Throughout, however, the rate of crawl of the band has been backward looking, and is determined as the previous month rate of domestic inflation minus an estimate of international inflation. The adoption of this band was an integral part of an economic program aimed at achieving very fast rates of growth -- mostly driven by exports expansion -- while reducing inflation.

Figure 10 presents the evolution of Chile's band and actual exchange rate since 1989. Four important features emerge from this figure. First, given the alterations introduced into the system the Chilean band has been, de facto, non linear relative to the US dollar. Second, throughout much of the period the actual rate was at the bottom of the band. This has been directly the result the very large capital inflows, that created a great abundance of foreign exchange. From all practical points of view, then, during this period the band acted as an effective floor for the nominal exchange rate. There is, in fact, little doubt that if it had not been

for the band the nominal value of the peso would have appreciated significantly during the period. Third, the form of the band has given significant flexibility to the system, allowing the economy to accommodate external shocks, such as the (short lived) scare following the Mexican crisis of 1994. And fourth, the band has allowed the peso to remain very stable in nominal terms in the last 18-24 months, taking away inflationary pressure from the system. There is evidence, however, suggesting that the widening of the band added uncertainty to the economy, and resulted in an increase in domestic interest rates.

Although the Chilean band it has not avoided real exchange rate appreciation, it has maintained it at a relatively controlled level. In fact a new World Bank (1997b) study indicates that the Chilean peso is still slightly undervalued. Second, it has allowed the gradual reduction of inflation -- in 1997 it will be approximately 5%. In fact, in spite of having an elaborated indexation system, Chile has been able to reduce the degree of inflationary inertia significantly. Given the relative success of the Chilean band system, it is surprising that more countries have not adopted this type of regime.

## **VI. The Role of the Domestic Banking Sector**

The resurgence of capital inflows into Latin America has raised some important questions: will there be another reversal? Are institutional investors likely to behave in a herd fashion, as in the past? How vulnerable are the Latin American countries to a contagion effect coming out of East Asia or other emerging markets? The analysis presented in the preceding sections suggests that the conditions behind capital flows have changed. These appear to be less volatile than in the past, and investors are becoming increasingly sophisticated and understand

that there are significant differences across regions and countries. However, the issue of vulnerability still remains. What makes the situation particularly difficult is that in many Latin American countries commercial banks – which (ultimately) intermediate the capital inflows – continue to be financially weak, even in the aftermath of the Mexican crisis. Moreover, in most nations supervisory systems are inefficient and unable to monitor effectively the quality of the portfolio and the extent to which banks indeed abide by existing rules and regulations.

Latin America's own history justifies the current concern on banks vulnerability. As previous episodes in the region have shown, when banks fail the effects of financial crises are greatly magnified. Past experiences in Chile and Mexico illustrate this point vividly. Banks were at the center of the Chilean crisis of 1982. After intermediating very large volumes of capital inflows during 1978-80, commercial banks had become increasingly vulnerable to negative shocks stemming from the international economy. In mid 1981, as international interest rates increased rapidly, asset prices in Chile began to fall and the demand for deposits experienced a significant decline. Some firms had difficulties in paying their debts, and in November of 1981 two major banks – *Banco Español* and *Banco de Talca* – ran into serious difficulties and had to be bailed out by the government. During late 1981 and early 1982 aggregate production collapsed, domestic interest rates continued to increase, and the number of bankruptcies increased greatly. In the first half of 1982 deposits in the Chilean banking system – and especially deposits by foreigners – continued to decline steeply. During the first five months of 1982 alone, foreign deposits in commercial banks dropped by 75 percent. An interesting feature of the Chilean episode was that most commercial banks were owned by large conglomerates (the so-called *grupos*), who received major loans from the banks themselves.

Many times these loans were made sidestepping financial criteria, and were guaranteed by assets with highly inflated prices. In June 1982 the government decided to devalue the peso, in the hope of alleviating the speculative pressure on the economy. The devaluation, however, affected negatively the financial conditions of many firms that had borrowed heavily in dollars.

Depositors decided to fly from peso denominated assets, commercial banks continued to accumulate bad loans, and the Central Bank had to inject large amounts of funds into the economy. In January 1983, the government concluded that the cost of this muddling through strategy were too high, and pulled the rug from under some of the major commercial banks. By mid-1983 a number of banks had gone bankrupt, and Chile's financial crisis was in full swing. At the end of the road the massive bank bailout that followed cost the country (in present value terms) in excess of 20 percent of GDP. What makes this story fascinating is its parallel to the 1997-98 crises in Indonesia and Korea. All the key elements are there – a rigid exchange rate policy, marked overvaluation, a high current account deficit, reckless lending by conglomerate-controlled banks, poor bank supervision, and a major asset bubble. In fact, one cannot avoid thinking that, had watchers of East Asia studied the Chilean financial crisis of 1992, they would not have been so shocked by the turns of events in the once called Asian “tigers.”

In a similar way it is possible to argue that both the magnitude and timing of the 1994 Mexican crisis were affected by the behavior of the banking system. Throughout 1994, as international interest rates increased and Mexico was hit by a series of political shocks, the Mexican authorities made great efforts to maintain domestic (peso-denominated) interest rates at a relatively low level. A two-prong approach was followed: on the one hand a cap was imposed on peso-denominated interest rates. And second the authorities issued increasingly large

amounts of dollar-denominated securities – the so-called *Tesobonos*. The investment house JP Morgan summarized this state of affairs in its July 22, 1994 newsletter: “[h]alf of the 28-day and 91-day Cetes [peso-denominated securities] were issued; the central bank would not accept the high yields required by the market to auction the full amount...” And on July 23d The Economist pointed out that “[t]he central bank has also had to issue plenty of tesobonos – dollar linked securities that are popular with investors that worry about currency risk.” This strategy -- which in retrospect has mystified so many analysts – partially responded to the Mexican authorities concerns regarding the financial health of Mexican banks. This concern had begun in late 1992, when a large increase in past-due loans became evident. In 1990, non-performing loans were estimated to be only 2 percent of total loans; that ratio increased to 4.7 percent in 1992, to 7.3 percent in 1993 and to 8.3 percent at the end of the first quarter of 1994. With the fourth largest bank – *Banca Cremi* – in serious trouble, the authorities tried to buy additional time as they worked out an emergency plan. By the end of the first semester, the State Development Banks had developed a relief program based on some write-offs of commercial banks past due interests, and government issued loan guarantees. In the belief that the peso was sustainable and that they had superior information, Mexican banks engaged in aggressive derivatives operations, accumulating sizable dollar denominated off-balance sheet liabilities (Garber 1996). On December 19th 1994, however, with the bank of Mexico having virtually run out of reserves the Mexican authorities decided to widen the exchange rate band. It was, however, too little, too late. In the months to come it became increasingly clear that a key element in the stabilization policy would be to contain – or at least minimize – the extent of the banking crisis.

## **VII. Concluding Remarks**

This paper has dealt with Latin America's experience with capital flows during the last decade and a half. It has covered a number of issues of increasing interest among academics and international observers, including the effect of capital inflows on domestic savings, the way in which capital mobility affects the ability to engage in independent monetary policy, and the effectiveness of capital controls. The data analysis presented in section II shows that the Latin American countries have gone through wild cycles. In the mid to late 1970s they benefited from the recycling of petrodollars, and were flooded with private capital. After the eruption of the Mexican debt crisis in 1982, the international capital market dried up for every country in the region, and net private capital inflows became significantly negative. Things changed in 1991, when once again private capital began to pour into the region. Although this turn of events has been largely welcomed, it has also generated some concerns among analysts and policy makers. In particular there are still questions on the sustainability of these flows, as well as on the extent to which the region will be affected by the still developing East Asian crisis. In early 1998, the consensus seems to be that this time around Latin America has strong fundamentals, and is facing the crisis with a strong footing. This view is nicely summarized by the following quote from ING Barings (1998, p. 7): "Latin America is relatively insulated from the direct contagion effect of Asia...[T]he policy response of the Latin authorities to the recent turbulence in the emerging world has been impressive and the general resilience of Latin America to a more difficult global economic backdrop has much to do ...with an improving microeconomic base."

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## ENDNOTES

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<sup>1</sup> On the Latin American reforms see, for example, Edwards (1995a) and Inter American Development Bank (1996)

<sup>2</sup> On the Mexican crisis see, for example, Dornbush and Werner (1994), Dornbusch et al (1995), Bruno (1995) and Calvo and Mendoza (1996), On the benefits and costs of capital controls see, for example, the essays collected in Edwards (1995b)

<sup>3</sup> On the behavior of the Latin American economies during this period see, for example, Dornbusch (198X) and Edwards (198x).

<sup>4</sup> Naturally, since funds are fungible it is very difficult to know exactly how the capital inflows were finally used. The above description, however, shows an accurate picture of the economic developments in the region at that time.

<sup>5</sup> These bilateral indexes relative to the US Dollar, and have a base of 1990=100. In their construction the US PPI and each individual country CPI were used.

<sup>6</sup> These are the countries for which the International Monetary Fund provides quarterly data on aggregate capital inflows. In order to have a larger sample, in table 2 I have used data on quarterly changes in international reserves as a proxy for capital inflows.

<sup>7</sup> For discussions on Mexico's real exchange rate appreciation in 1991-94 see, for

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example, Dornbusch (1993), Dornbusch and Werner (1994), and Edwards (1993). On Mexico's official position regarding these developments see ,for example, Banco de Mexico (various years).

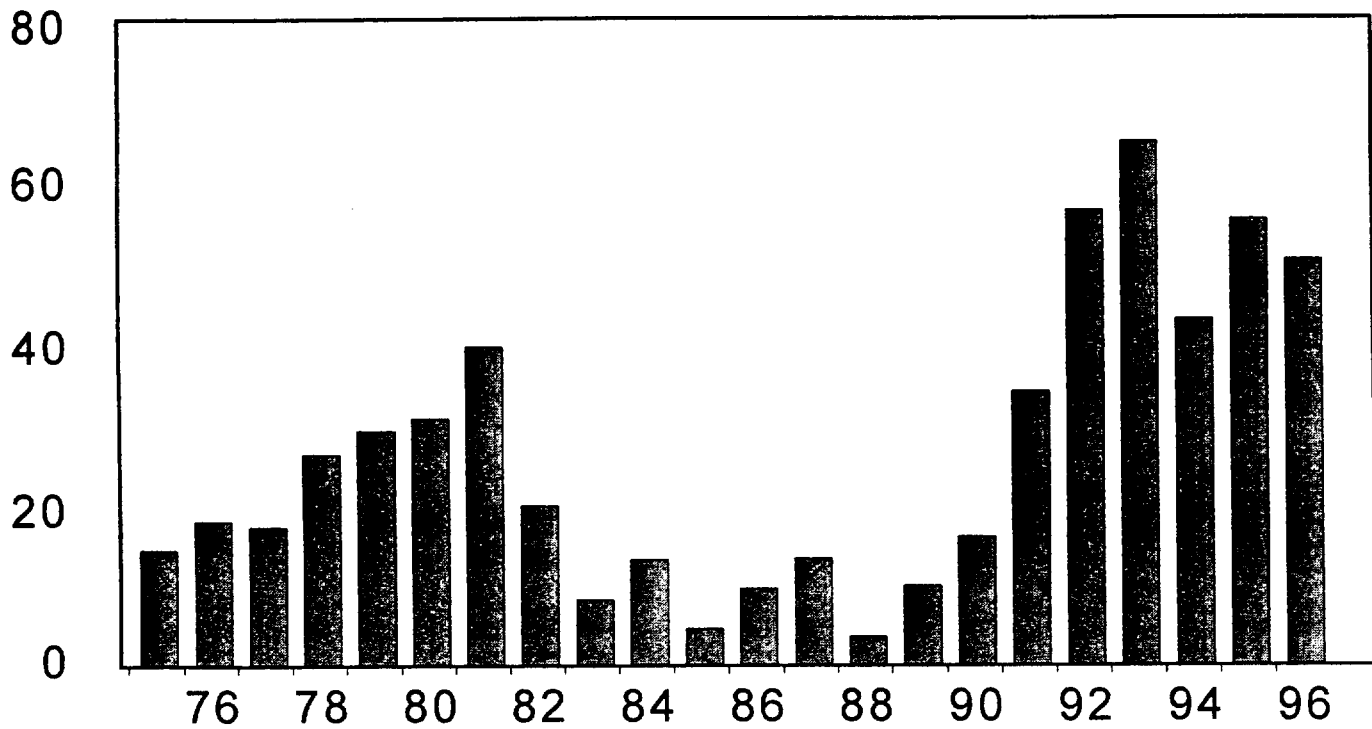
<sup>8</sup> On the issue of current account sustainability see, among others, Reisen (1995).

<sup>9</sup> Ideally this should be a forward-looking measure of GDP.

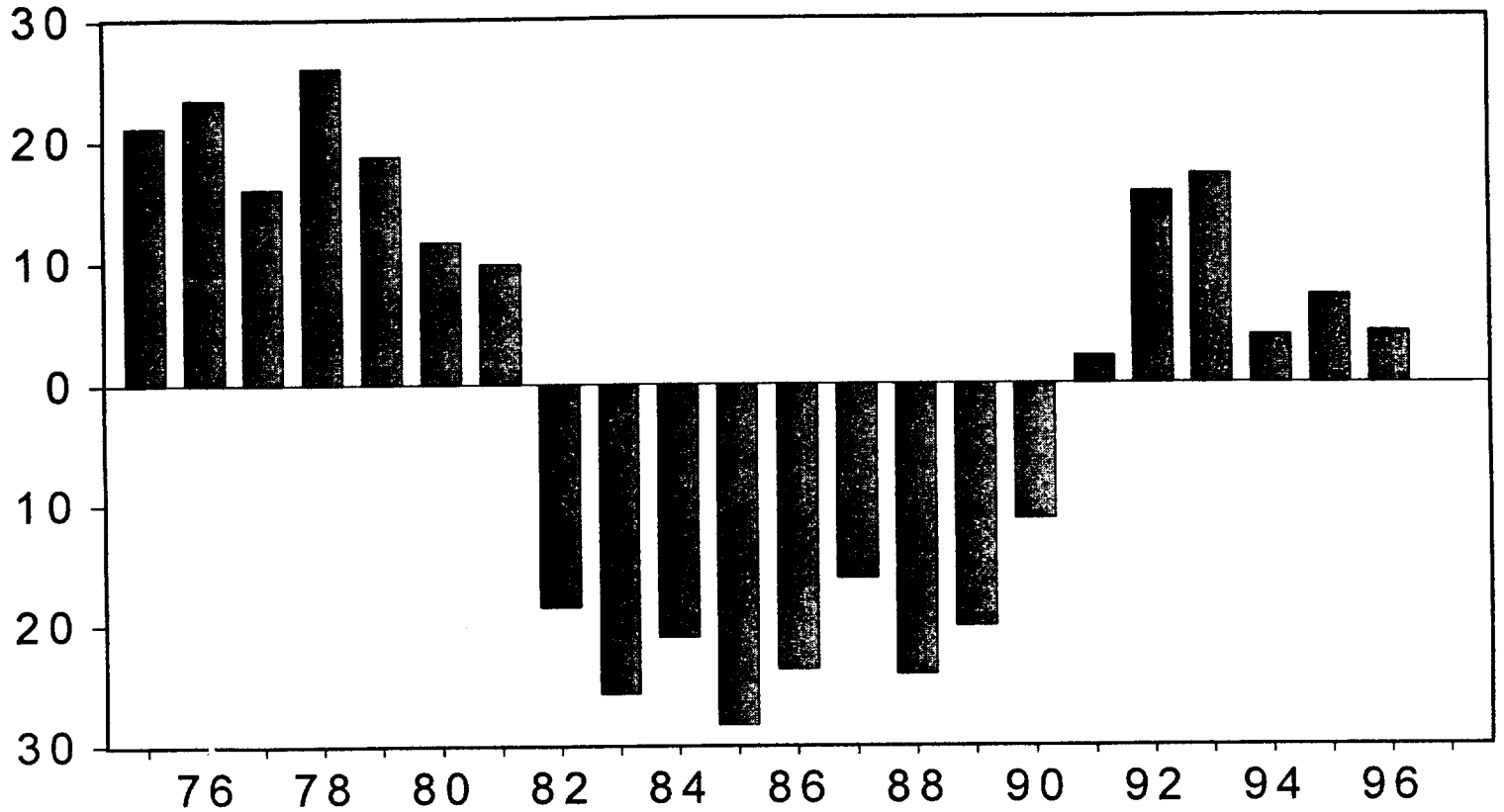
<sup>10</sup>This assumes that no international reserves are being accumulated.

<sup>11</sup> This type of analysis has been made in relationship to the sequencing of reform debate. See, for example Edwards (1984).

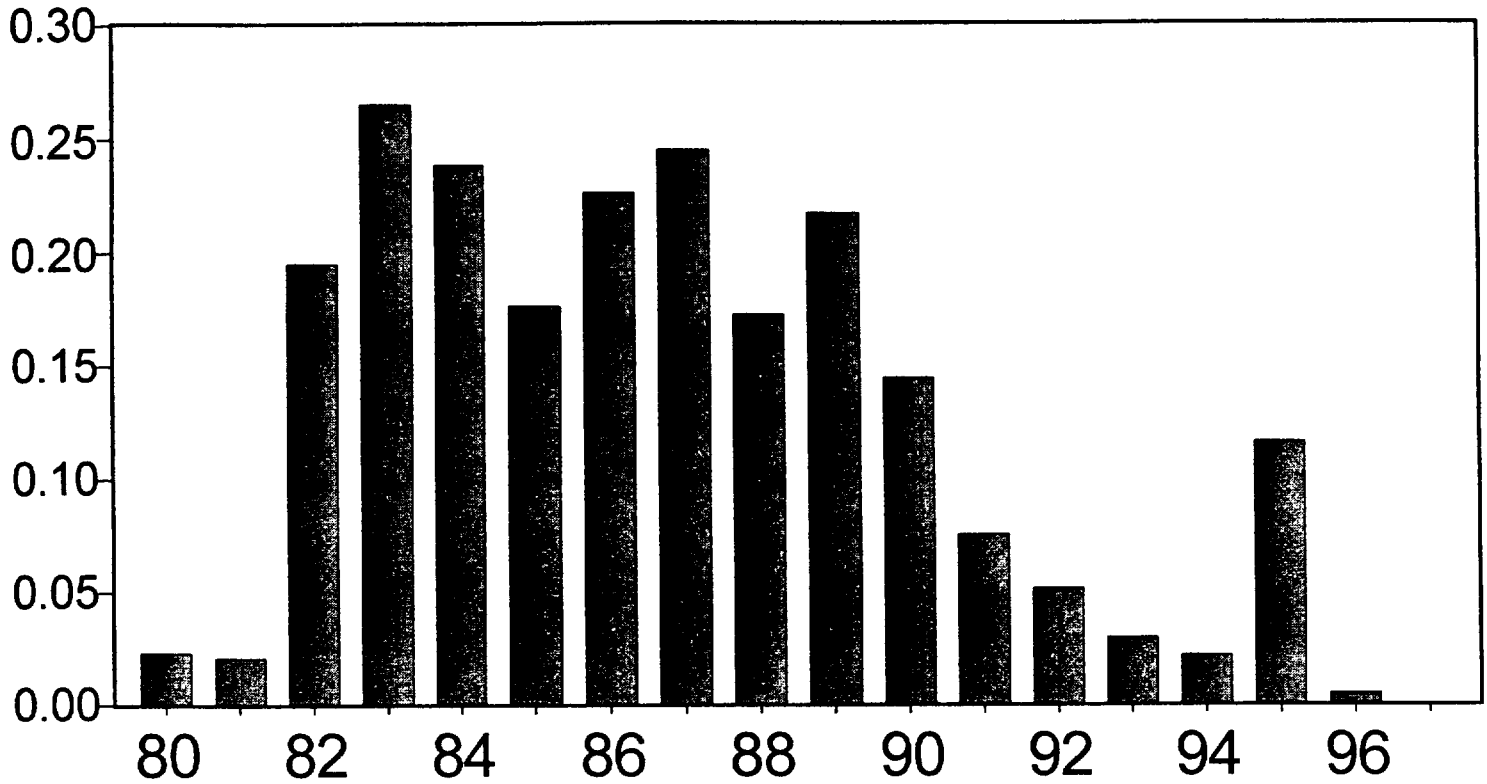
<sup>12</sup> It should be noted that both of these countries had a long tradition with capital controls before the 1990s. See, for example, Edwards (1988).



**Figure 1**  
**Total Capital Inflows into Latin America,**  
**1976-1996**



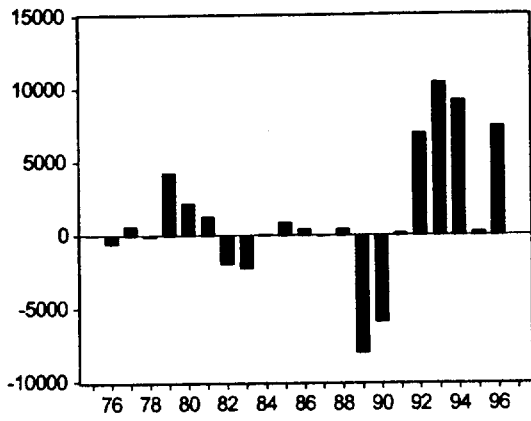
**Figure 2**  
**Net Resource Transfer into Latin America**  
**as Percentage of Exports, 1976-96**



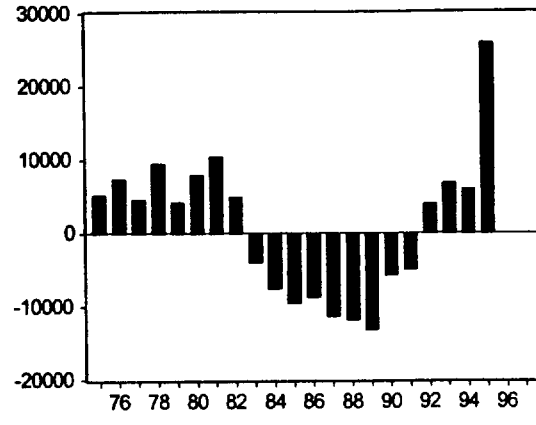
**Figure 3**

**Net Official Capital Inflows  
as Percentage of Exports 1980-97**

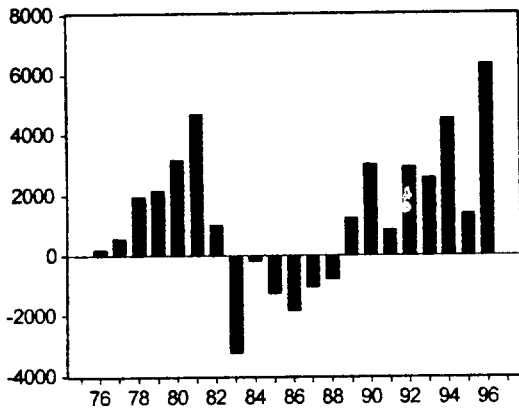




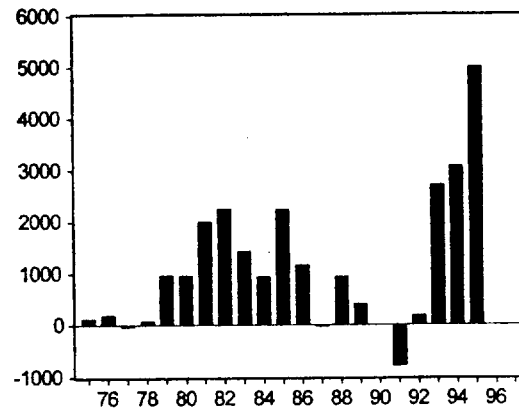
ARTOT  
ARGENTINA



BRTOT  
BRAZIL



CHTOT  
CHILE



COTOT  
COLOMBIA

Figure 4: Total Net Capital Flows in Selected Latin American countries, 1975-96

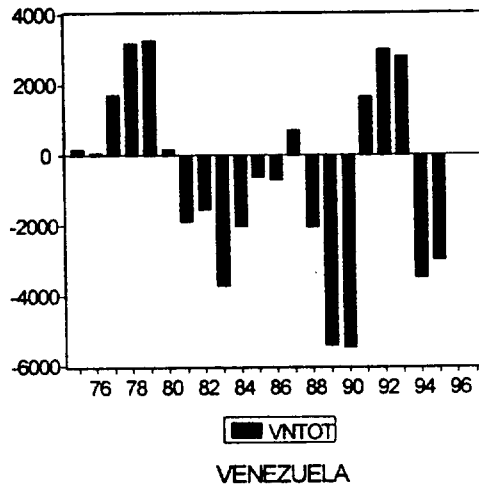
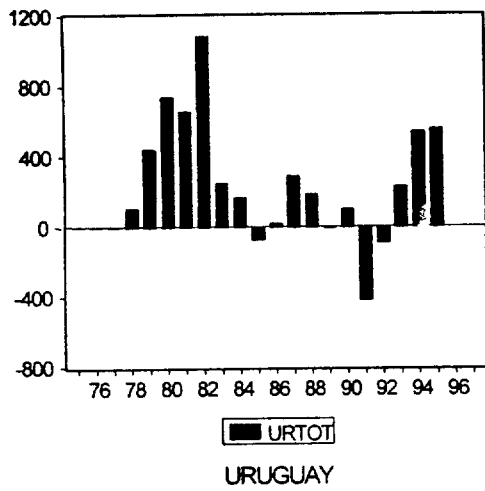
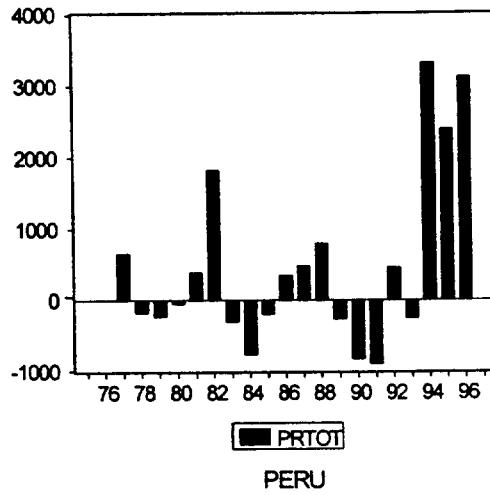
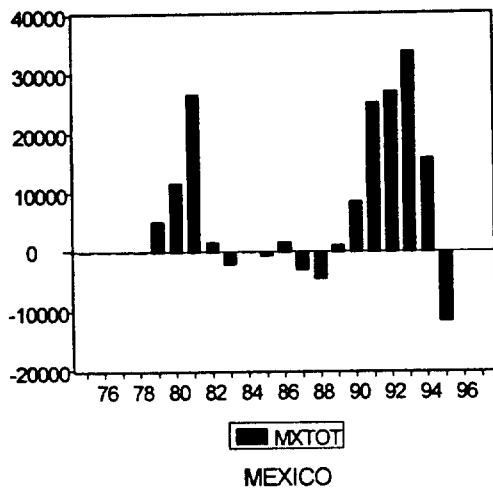


Figure 4 (contd.) : Total Net Capital Flows in Selected Latin American Countries, 1975-96

Figure 5: Composition of Capital Flows in selected Latin American Countries, 1975-96

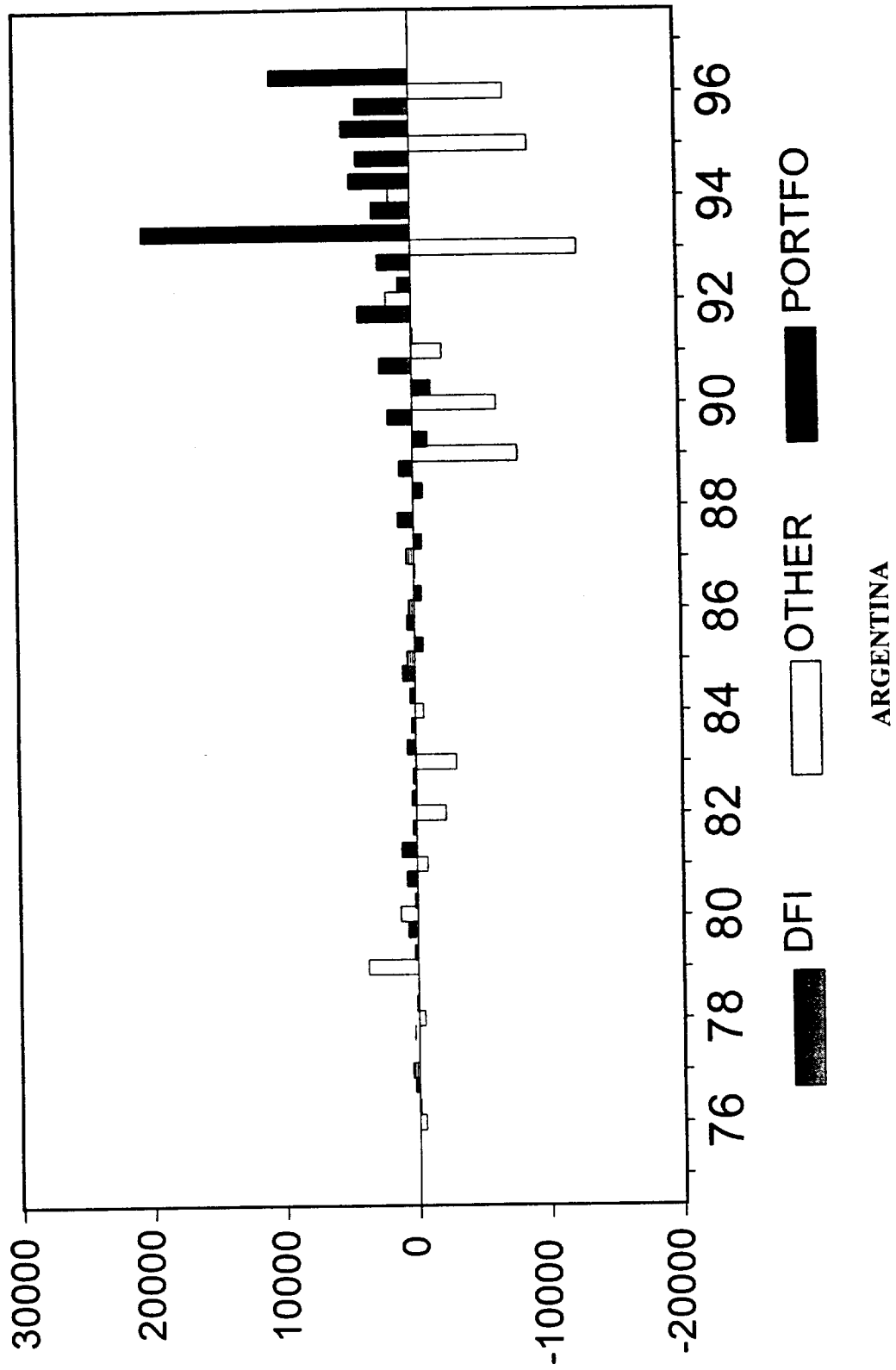
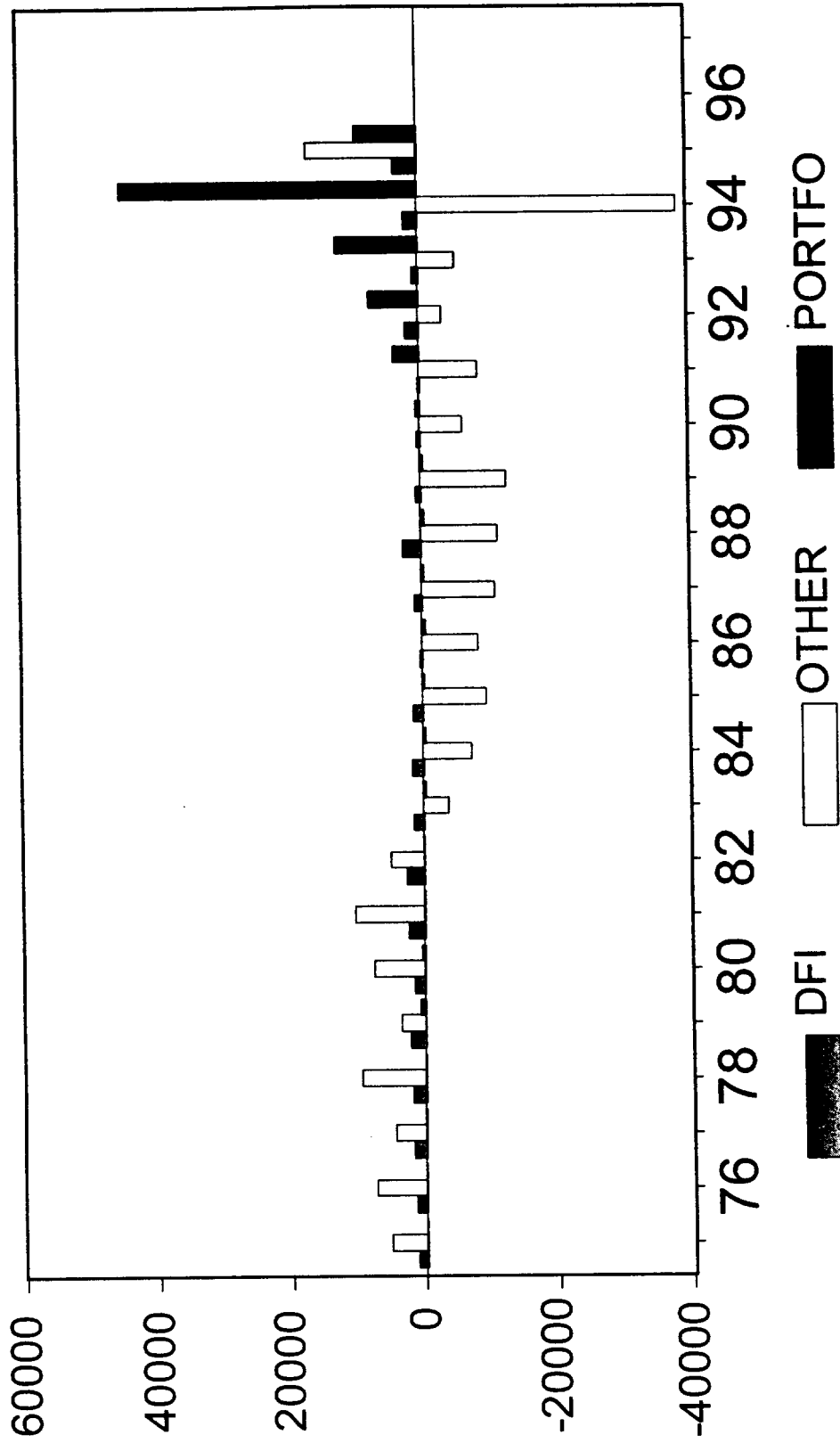
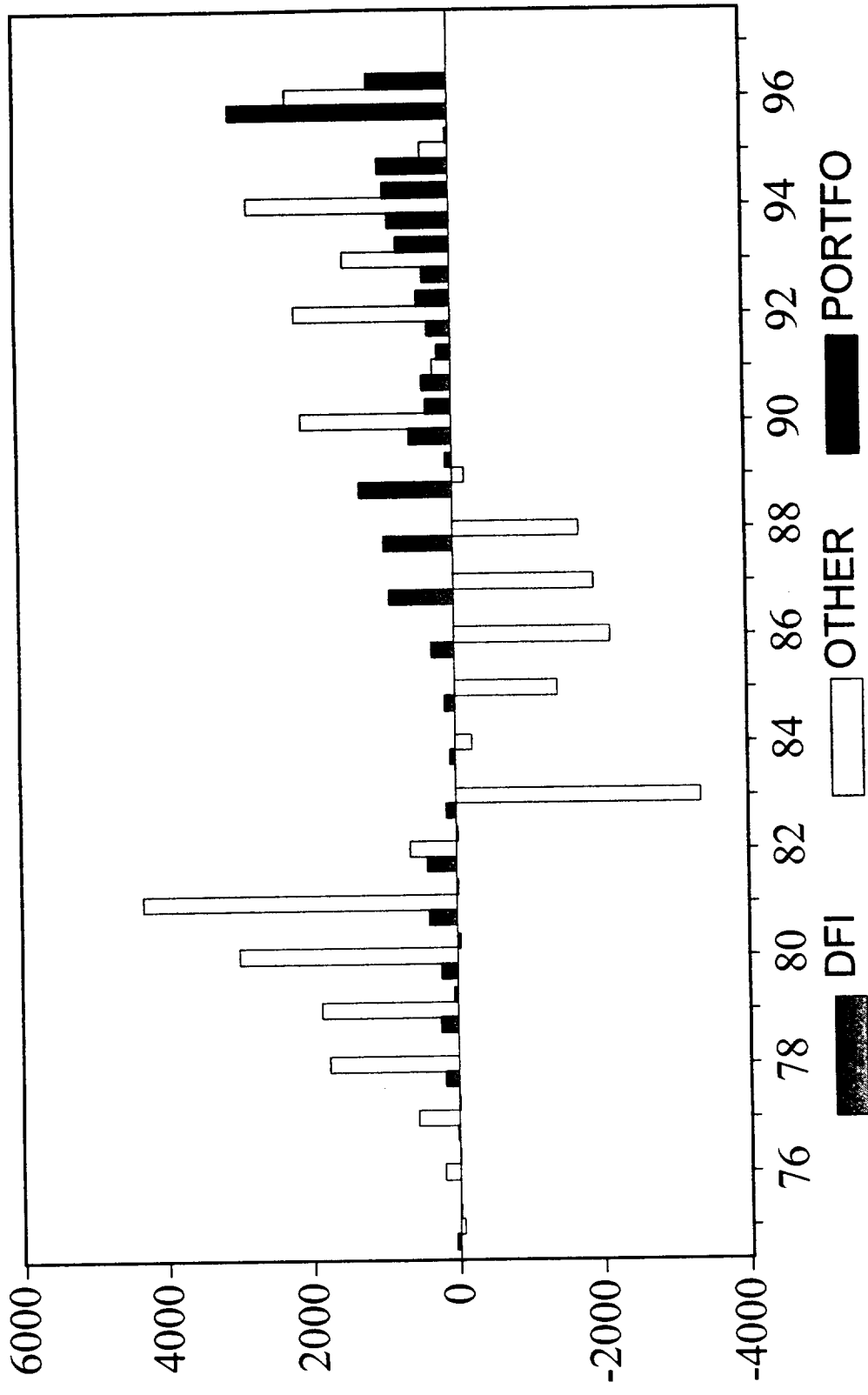


Figure 5(contd.) : Composition of Capital Flows in selected Latin American Countries, 1975-96



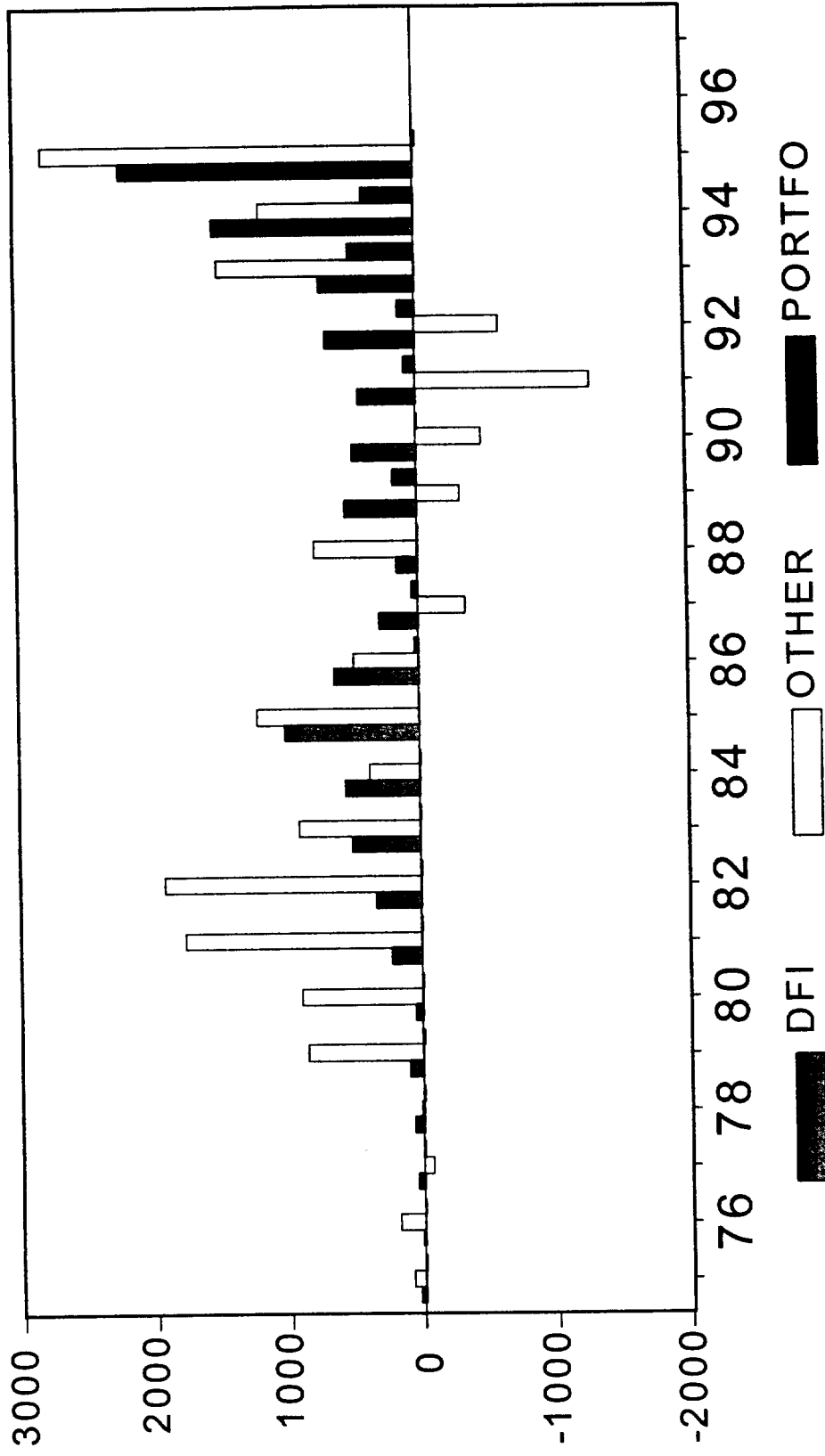
BRAZIL

Figure 5(contd.) : Composition of Capital Flows in selected Latin American Countries, 1975-96



CHILE

Figure 5(contd.) : Composition of Capital Flows in selected Latin American Countries, 1975-96



COLOMBIA

Figure 5(contd.) : Composition of Capital Flows in selected Latin American Countries, 1975-96

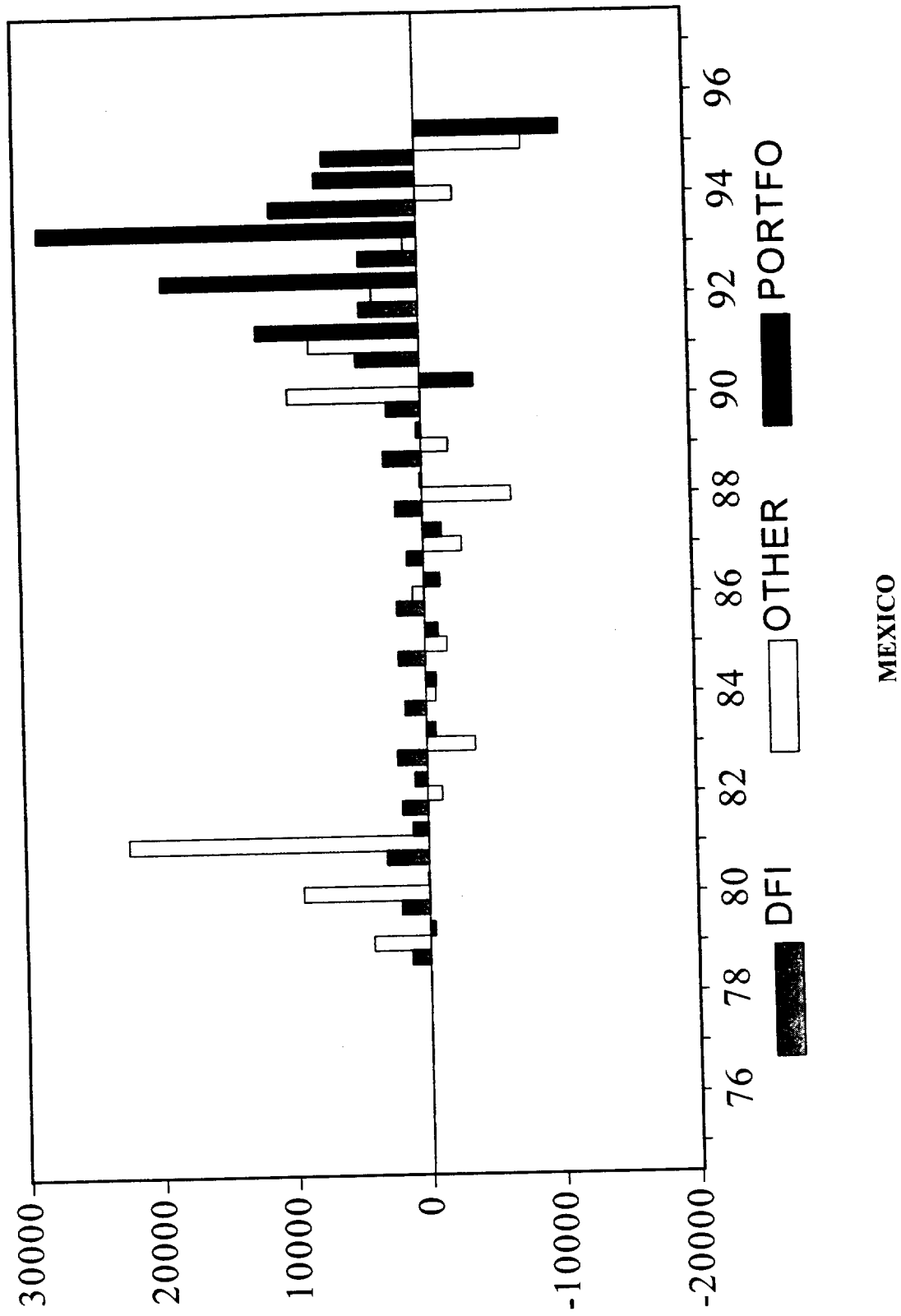


Figure 5(contd.) : Composition of Capital Flows in selected Latin American Countries, 1975-96

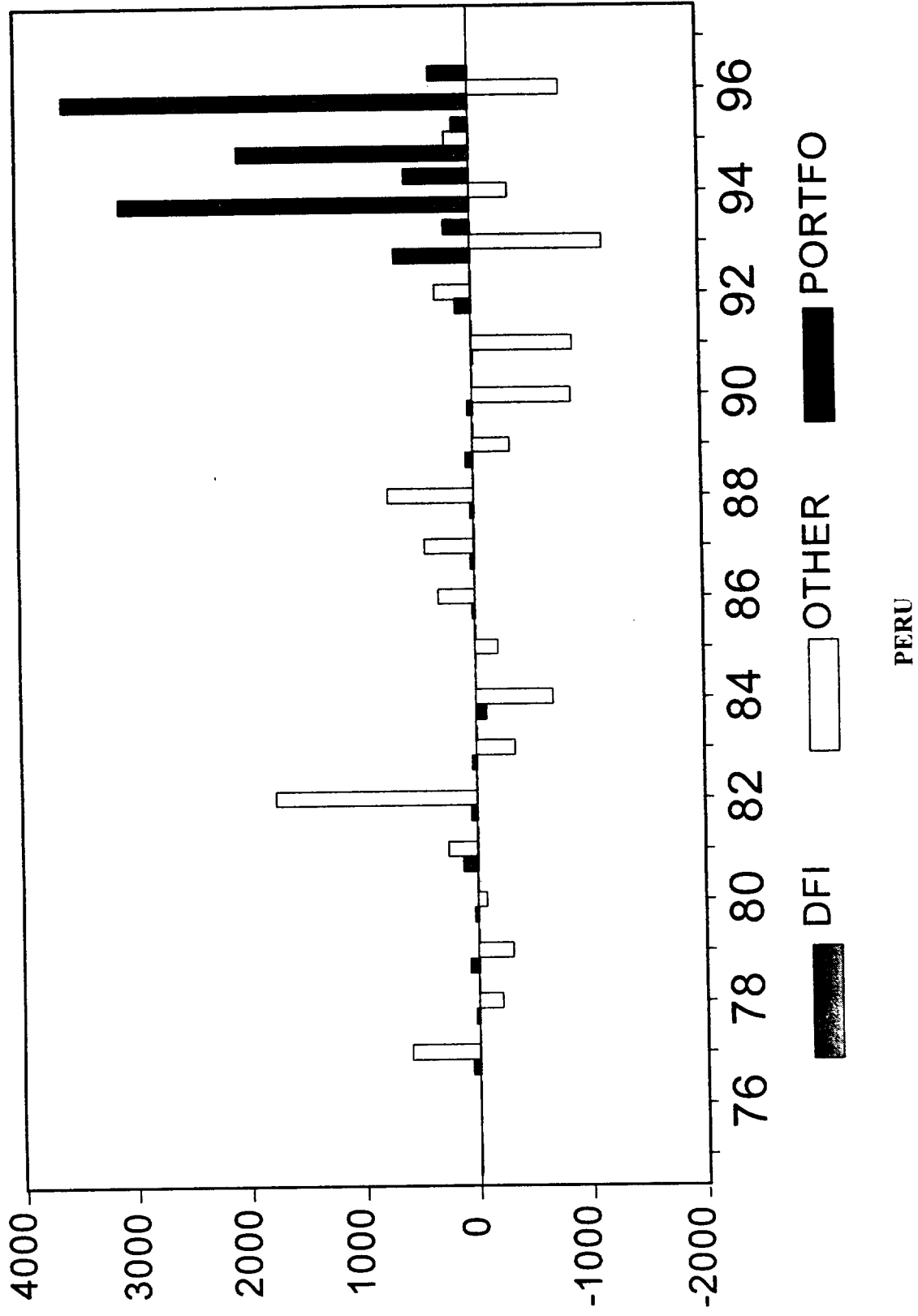




Figure 5(contd.) : Composition of Capital Flows in selected Latin American Countries, 1975-96

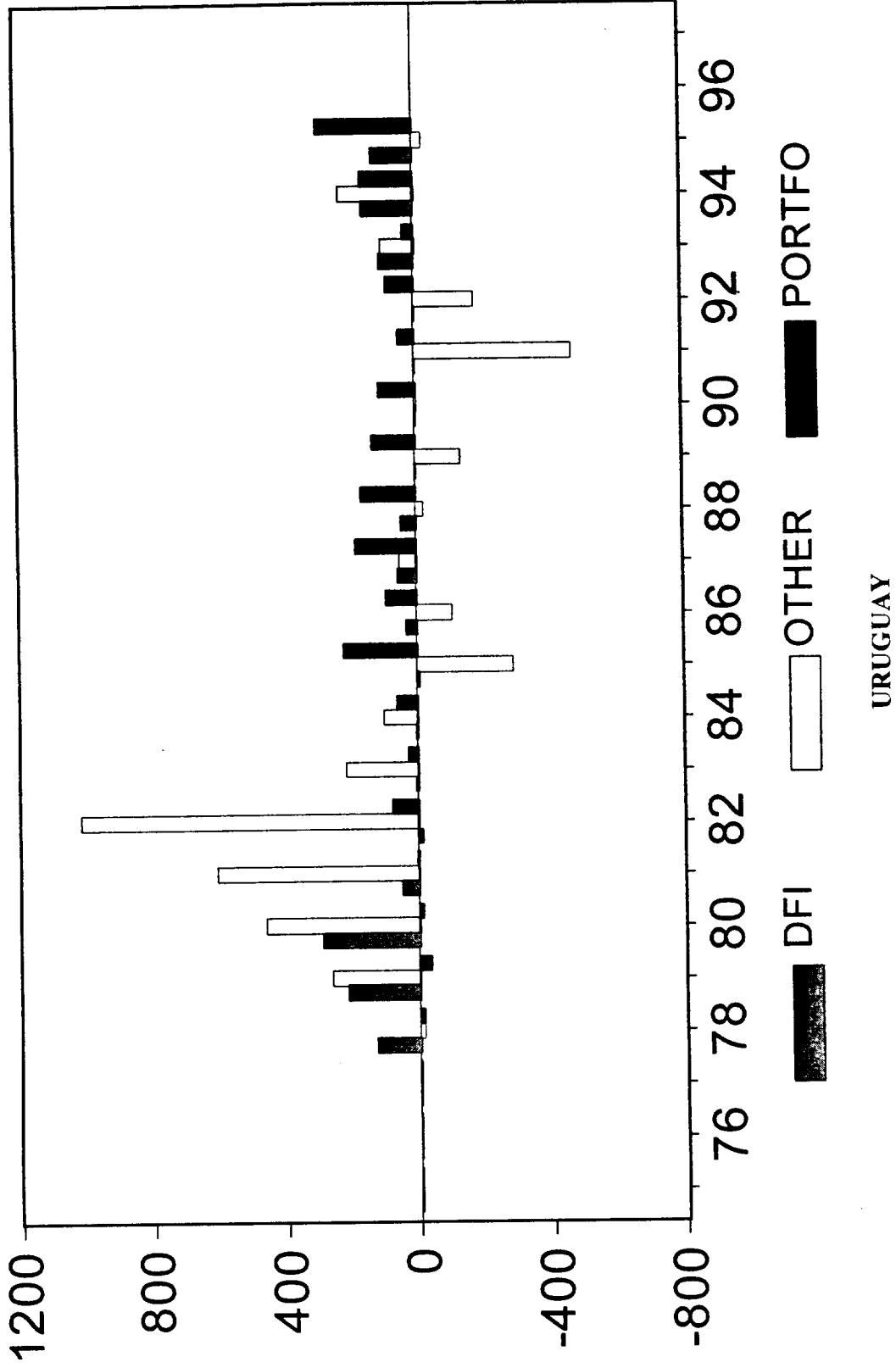
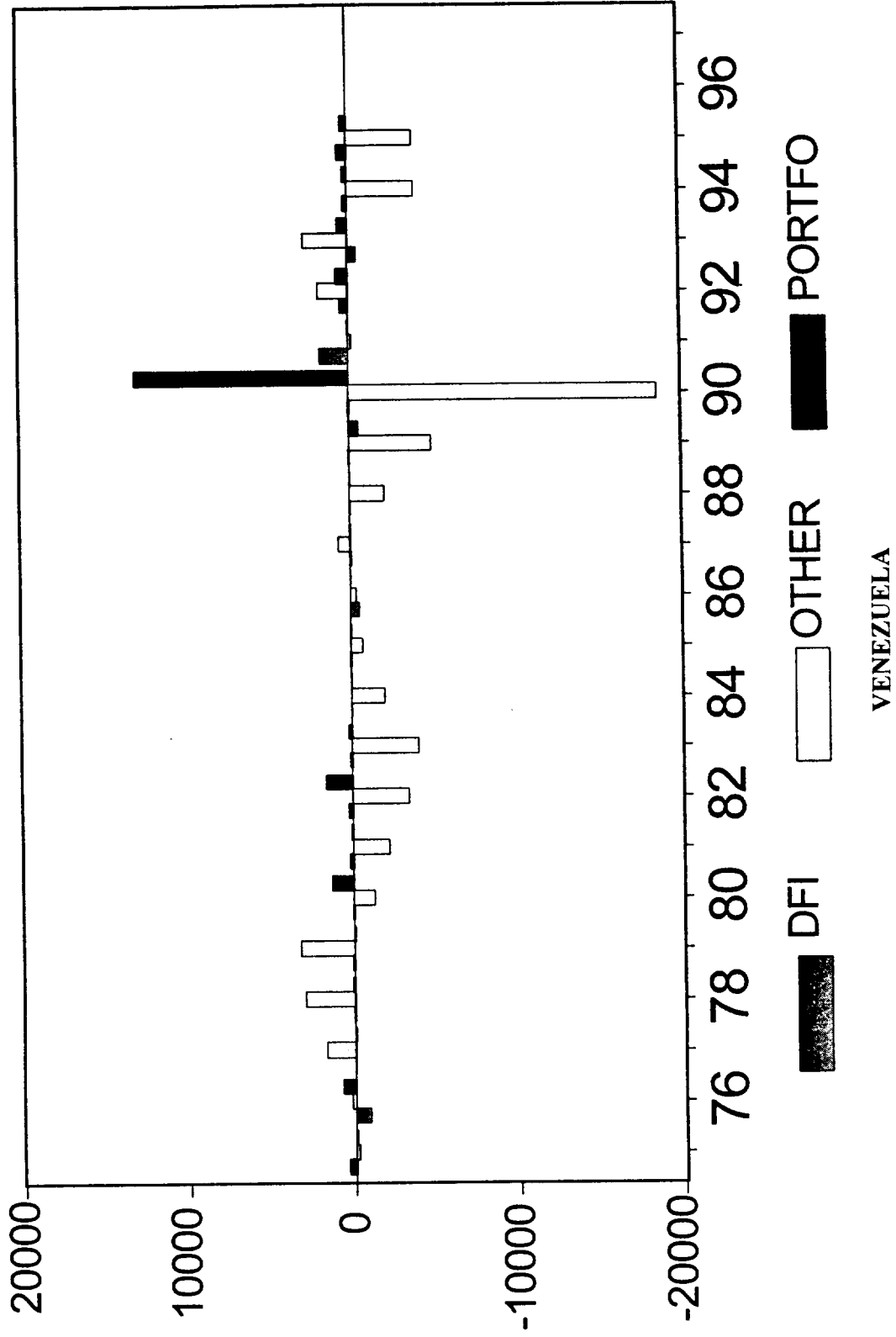
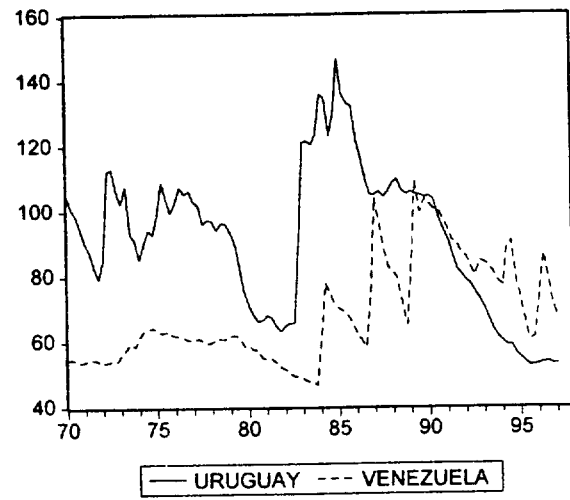
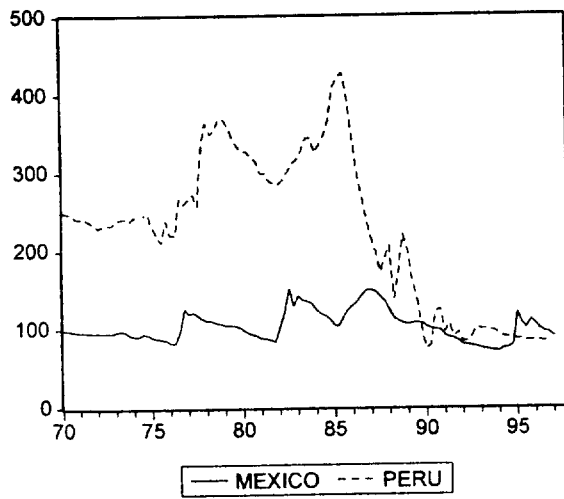
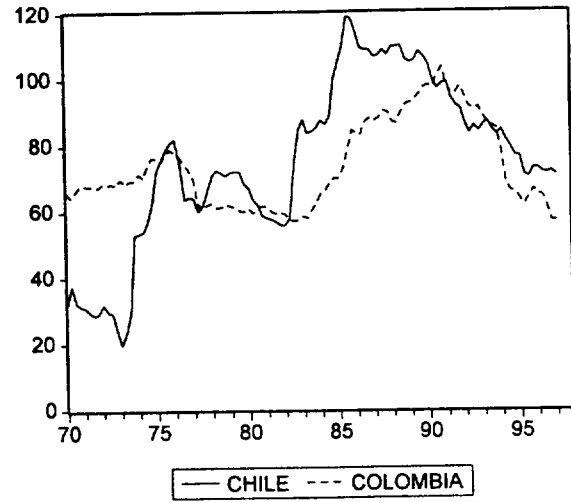
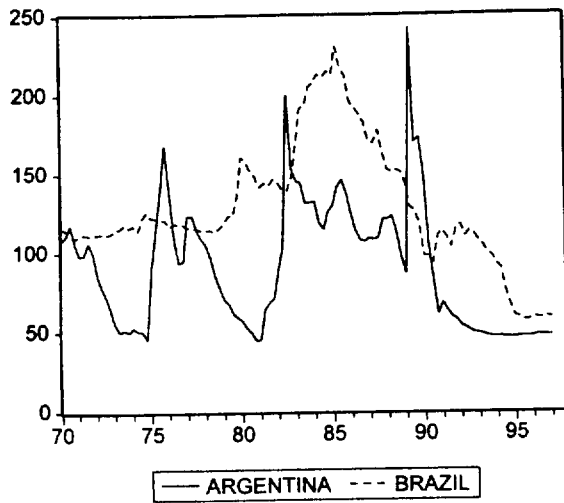
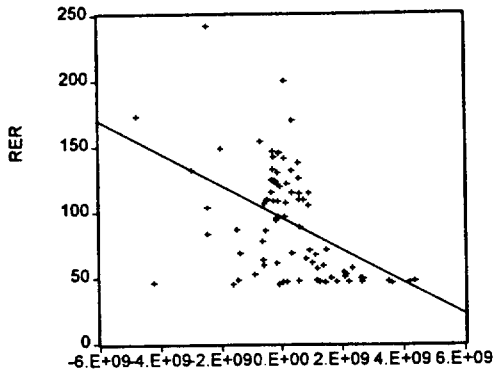


Figure 5(contd.) : Composition of Capital Flows in selected Latin American Countries, 1975-96

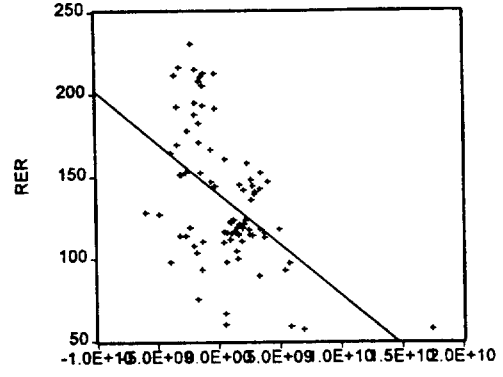




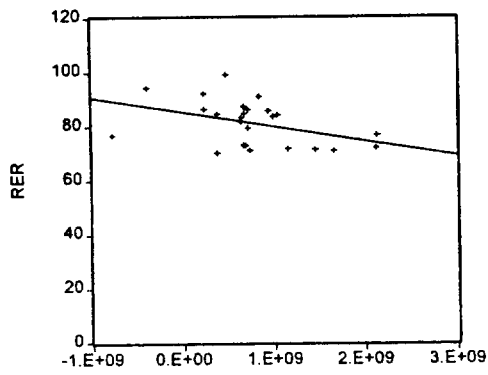
**Figure 6: Real Exchange Rate Indices  
in Selected Latin American Countries, 1970-97**



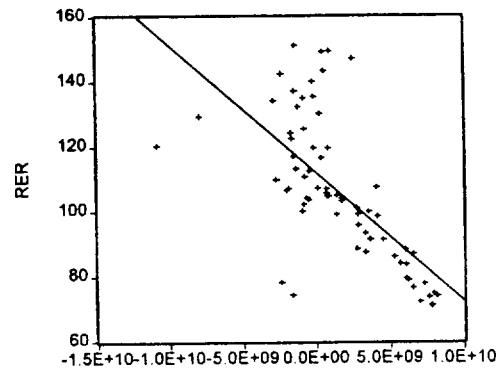
ARGENTINA: Capital Inflows



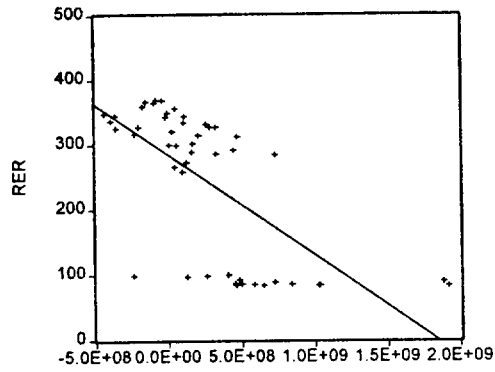
BRAZIL: Capital Inflows



CHILE: Capital Inflows



MEXICO: Capita Inflows



PERU: Capital Inflows

**Figure 7: Real Exchange Rates and Capital Inflows in Selected Latin American Countries, 1970-97**

**Figure 8 : Reserve Requirement Rate and Certificate Maturity in Colombia.**

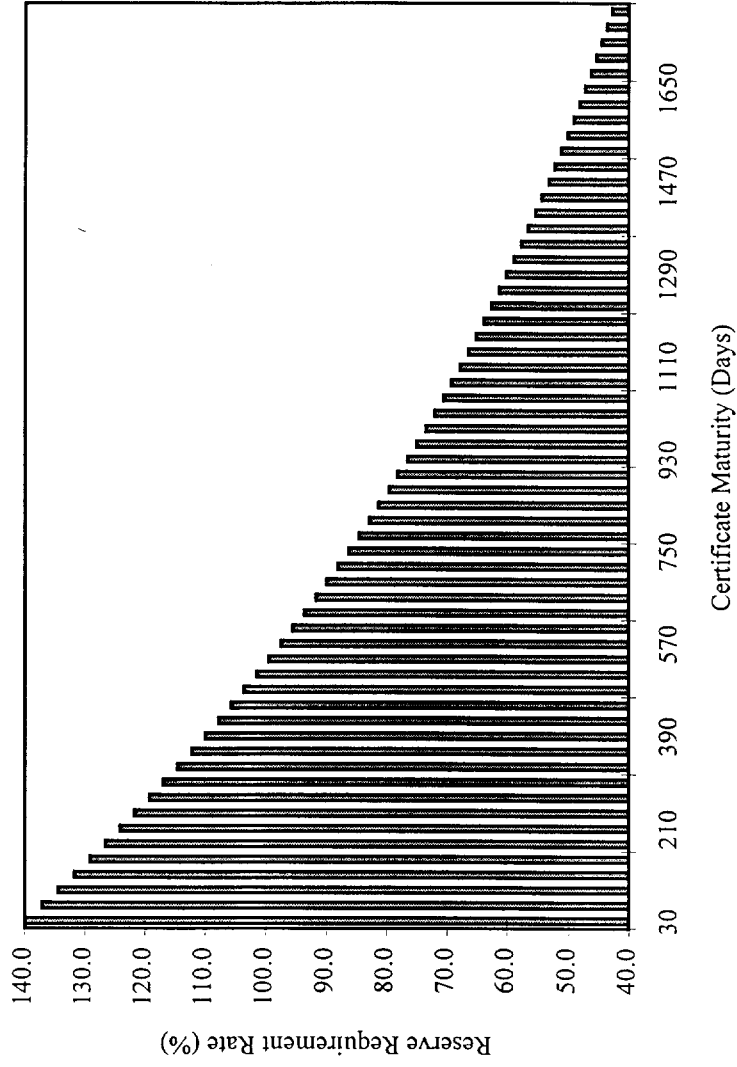


Figure 9: Sterilized Intervention in Selected Latin American Countries

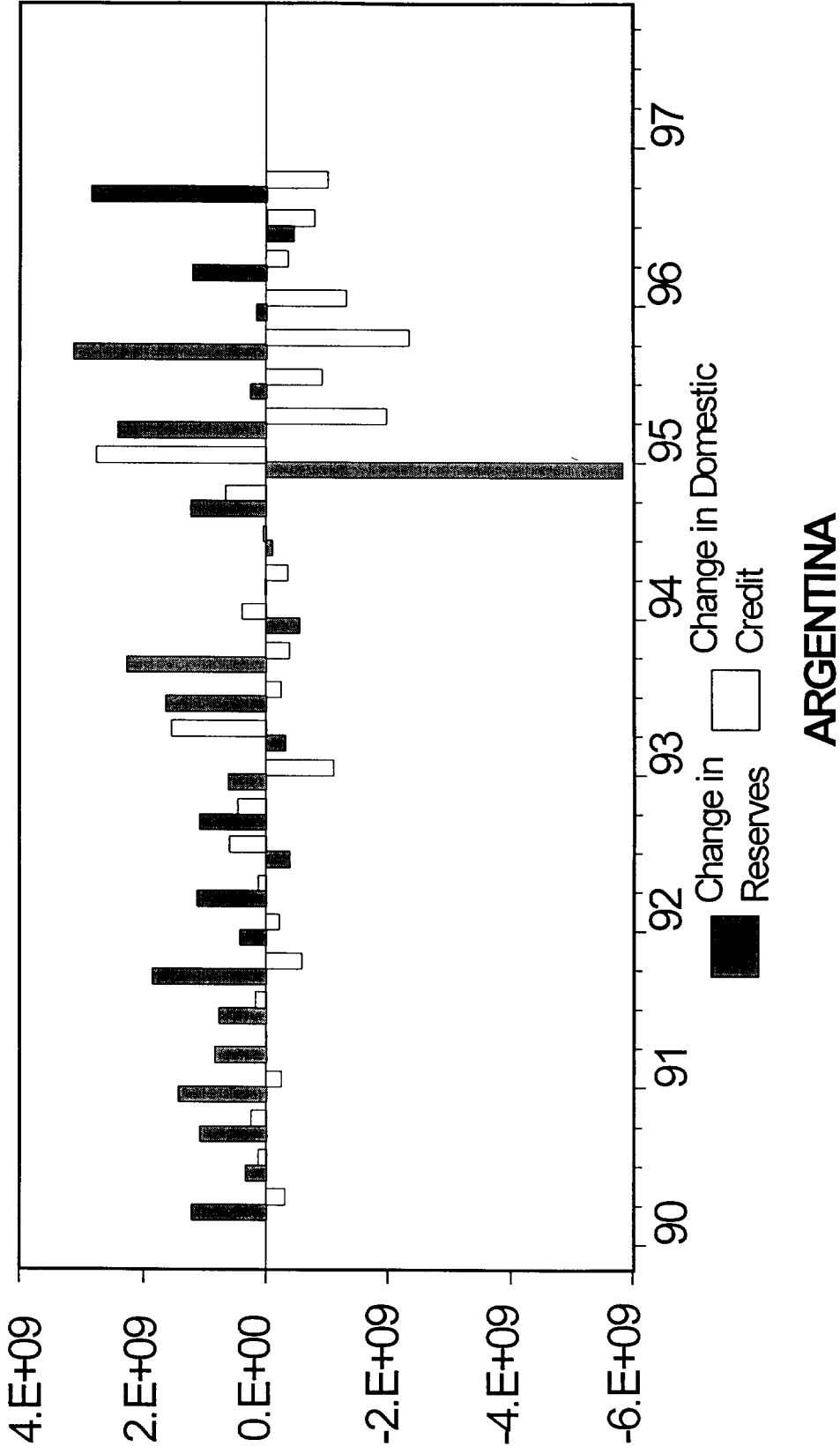


Figure 9 (contd.) : Sterilized Intervention in Selected Latin American Countries

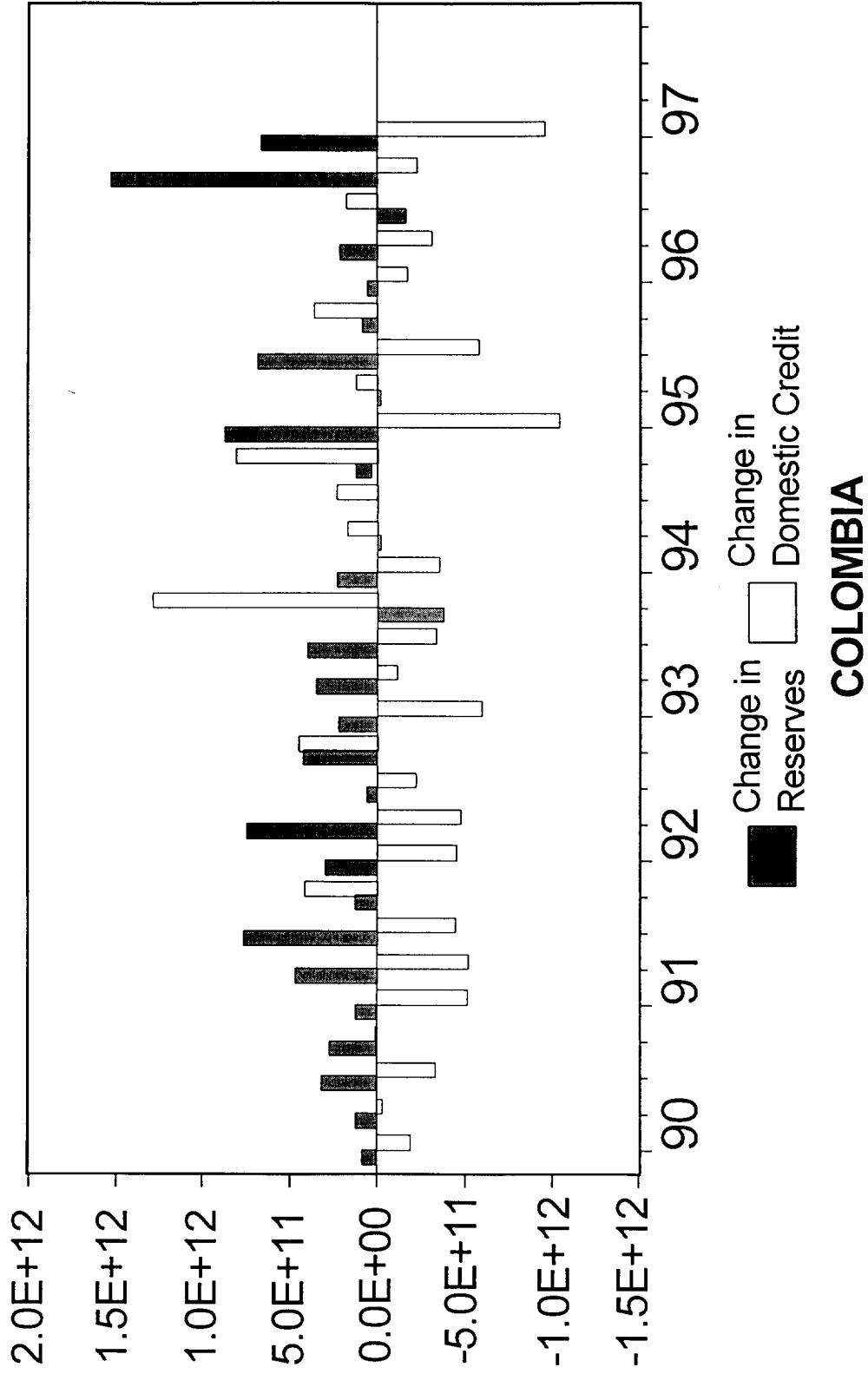
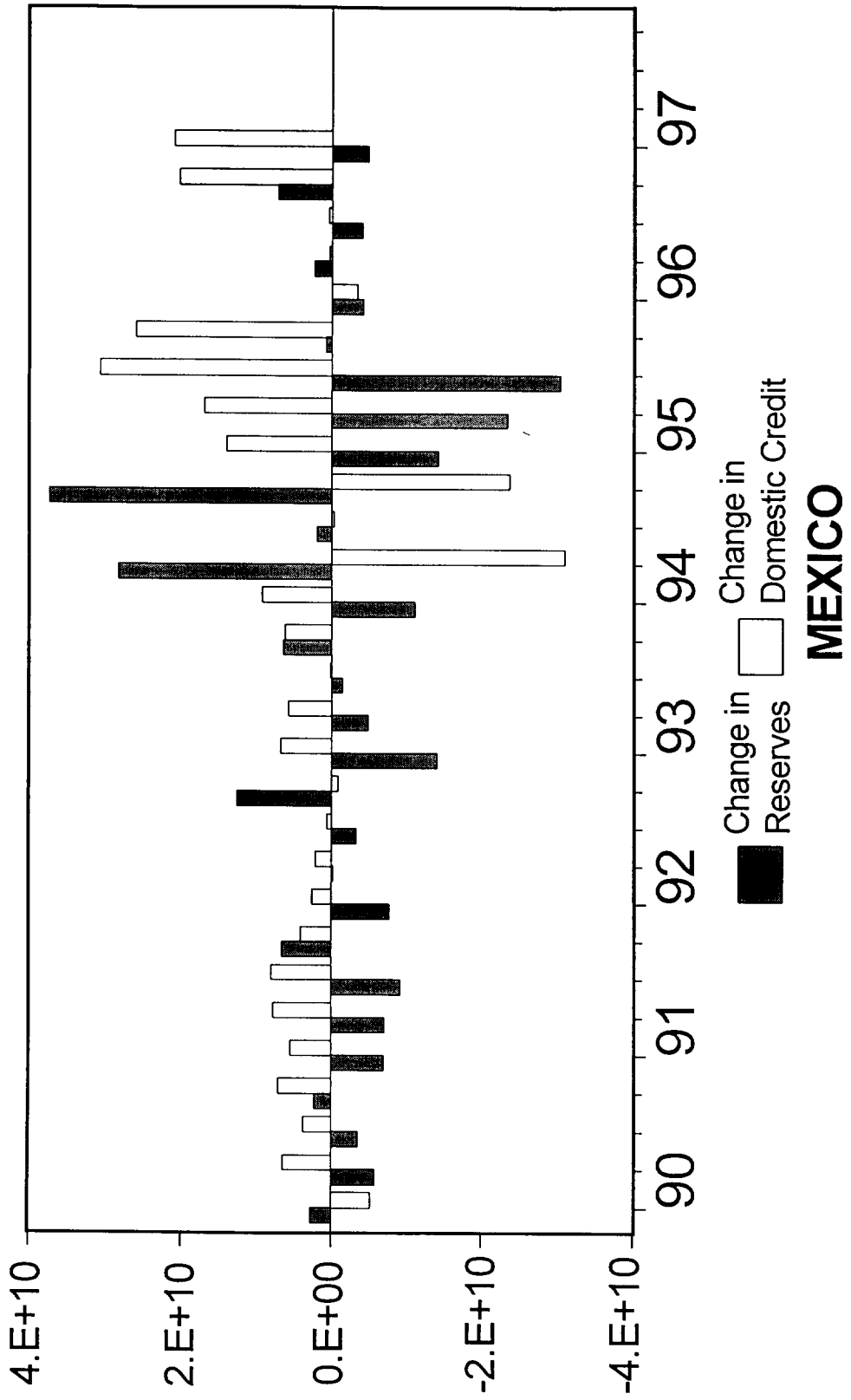
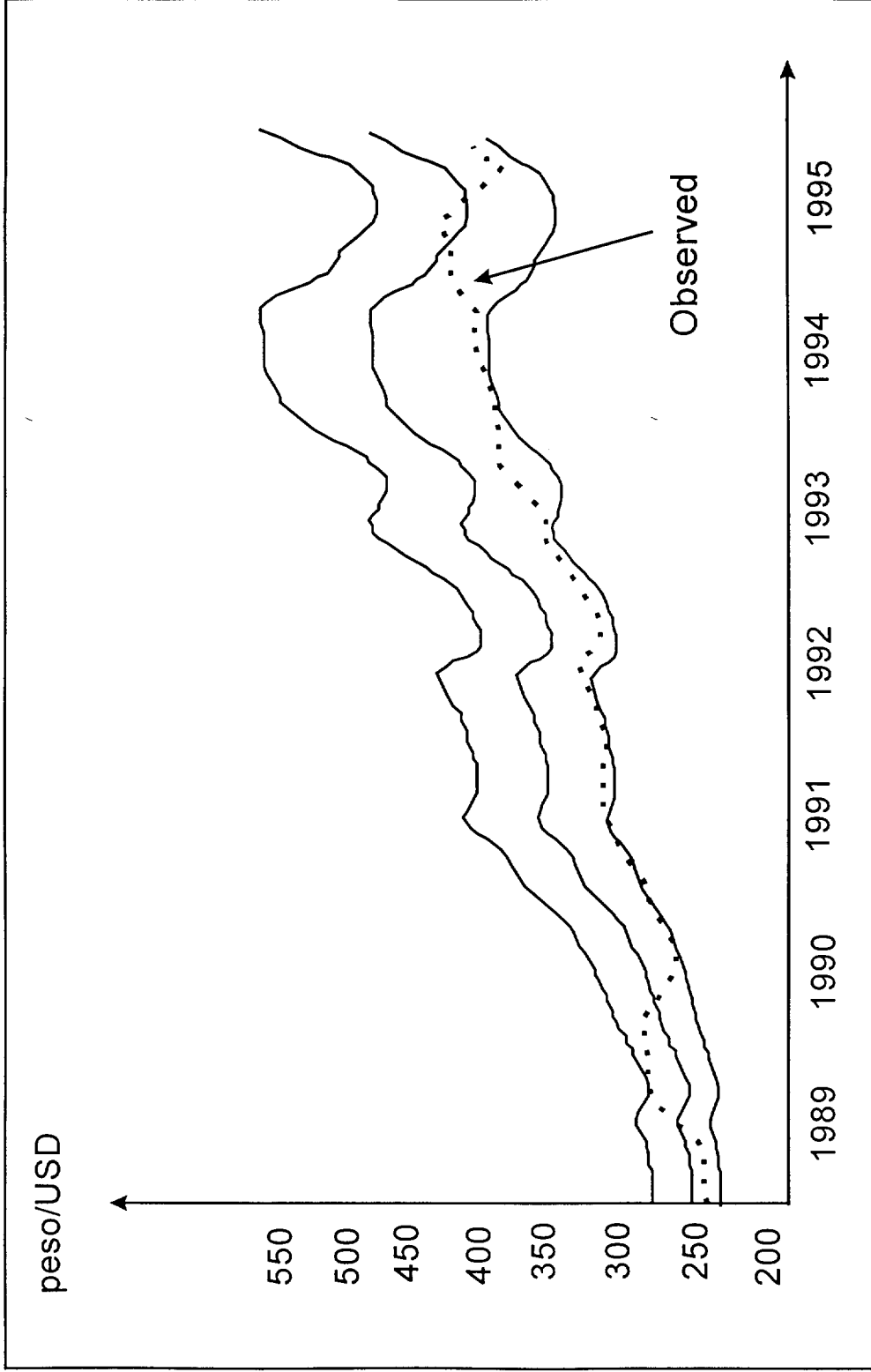


Figure 9 (contd.) : Sterilized Intervention in Selected Latin American Countries





**Figure 10: Chile's Band**



**Table 1.**  
**Brady Debt Reduction Agreements in Selected Countries of Latin America**  
(millions of U.S. dollars, unless otherwise noted)

<i>Country and date of agreement</i>	<i>Face value of eligible debt</i>	<i>Buyback<sup>a</sup></i>	<i>Discounted Bonds<sup>a</sup></i>	<i>Par bonds<sup>b</sup></i>	<i>New money<sup>b</sup></i>	<i>Total debt, December 1991<sup>c</sup></i>
Argentina, 1993	23,160 <sup>d</sup>	n.a.	n.a. (35)	n.a. (35)	0 (4-6) <sup>e</sup>	56,273
Brazil, 1993	44,000 <sup>f</sup>	0	n.a. (35)	n.a. <sup>g</sup>	n.a. <sup>g</sup>	118,148
Mexico, 1989	48,089	0	20,851 (35)	22,427 (6.25)	4,387 (LIBOR +13/16)	98,263
Venezuela, 1990	19,098	1,411 (55)	1,794 (30)	10,333 (6.75)	6,060 (LIBOR +7/8)	34,081

n.a. Not available)

a. Numbers in parentheses are the percentage discount.

b. Numbers in parentheses are the interest rate.

c. Includes IMF and net short-term debt.

d. Estimated. In addition there are \$8.6 billion in arrears, including imputed interest.

e. Interest rate increases from 4 percent in the first year to 6 percent in the seventh year; 6 percent from then on.

f. Estimated. In addition there are \$6 billion in arrears, including imputed interest.

g. Several par bonds are offered, with different maturities/grace periods, interest rates, and collateral: option A, 30/30 years, rate is 4 to 6 percent in the first seven years, 6 percent from then on, full collateral principal, twelve-month interest; option B, 15/9 years, rate is 4 to 5 percent in the first six years, LIBOR + 13/16 from then on, twelve-month interest collateral for six years; option C 20/10 years, LIBOR + 13/16, but interest above the rate in bond B is capitalized, no collateral; option D, 20/10 years, 8 percent and interest above the rate in bond B is capitalized, no collateral; option E, 18/10 years, LIBOR + 7/8, no collateral; under option E, new money is equivalent to 18.18 percent of debt tendered for debt-conversion bonds.

h. Includes past-due interest.

*Source:* World Bank, several country-specific reports.

**Table 2.**  
*Feldstein-Horioka Regressions for Latin American Countries: Coefficient of the Savings Ratio, 1970-90.*

<i>Country</i>	<i>Ordinary least squares</i>	<i>Instrumental variables</i>
Argentina	1.08 <sup>a</sup>	0.88 <sup>a</sup>
Brazil	0.58 <sup>c</sup>	0.27 <sup>c</sup>
Chile	0.51 <sup>c</sup>	0.40 <sup>b</sup>
Colombia	0.07	0.03 <sup>b</sup>
Costa Rica	-0.28	0.57 <sup>a</sup>
Dominican Republic	0.81 <sup>c</sup>	0.51 <sup>c</sup>
Ecuador	0.42 <sup>c</sup>	0.73 <sup>a</sup>
El Salvador	0.29 <sup>c</sup>	0.50 <sup>c</sup>
Guatemala	0.23	0.54 <sup>c</sup>
Honduras	0.53 <sup>c</sup>	0.80 <sup>a</sup>
Mexico	0.28 <sup>c</sup>	0.20 <sup>b</sup>
Paraguay	0.52 <sup>c</sup>	0.60
Peru	0.43 <sup>c</sup>	0.53
Uruguay	1.10 <sup>a</sup>	0.58
Venezuela	0.70 <sup>c</sup>	1.88 <sup>c</sup>

- a. Different from zero at the 5 percent level.  
 b. Different from one at the 5 percent level.  
 c. Different from both zero and one at the 5 percent level.

Source : Montiel (1994)

**Table 3**  
**Capital Inflows and Real Exchange Rates**  
**in Selected Latin American Countries:**  
**Some Basic Statistical Relations**  
**(Quarterly Data, 1980-97)\***

	<b>Correlation Coefficient</b>	<b>Do Capital Inflows “Cause” Real Exchange Rates?</b>	<b>Do Real Exchange Rates “Cause” Capital Inflows?</b>
<b>Argentina</b>	- 0.723	yes	no
<b>Brazil</b>	-0.727	yes	yes
<b>Chile</b>	-0.382	yes	yes
<b>Colombia</b>	-0.145	no	no
<b>Mexico</b>	-0.656	yes	no
<b>Peru</b>	-0.478	yes	yes
<b>Venezuela</b>	-0.146	yes	no

\* Quarterly changes in international reserves were used as a proxy for capital inflows.

Granger causality tests were performed. The results for Colombia and Venezuela are sensitive to the sample considered. If 1985-97 is used, the correlation coefficient is larger (in absolute terms), and in the case of Colombia it is not possible to reject the hypothesis that capital inflows “cause” real exchange rates

**Table 4. Net Private Capital Inflows to Selected Latin American Countries, 1990s**  
*(net long-term international private capital as a percentage of GDP)*

<i>Country</i>	<i>Inflow episode<sup>a</sup></i>	<i>Cumulative inflows/GDP at end of episode</i>	<i>Maximum annual inflow</i>
Argentina	1991-94	9.7	3.8
Brazil	1992-95	9.4	4.8
Chile	1989-95	25.8	8.6
Colombia	1992-95	16.2	6.2
Mexico	1989-94	27.1	8.5
Peru	1990-95	30.4	10.8
Venezuela	1992-93	5.4	3.3

- a. The period during which the country experienced a significant surge in net private capital inflows.

*Source* : World Bank (1997)

**Table 5**  
***Restrictions to Capital Inflows into Chile***

<b>Type of Capita Inflow</b>	<b>Restriction</b>
A. Direct Foreign Investment	Minimum stay of one year. No restrictions on repatriation of profits
B. Portfolio Inflows : Issuing of ADRs	The issuance of ADSRs by Chilean companies is strictly regulated. Only companies that meet a certain risk classification requirement (BBB for non financial companies, and BBB+ for financial institutions) can issue ADRs. There is also a minimum amount requirement: until September 1994, this was US\$ 50 million; at that time it was lowered to US\$ 25 million; and in November 1995 it was further reduced to US\$ 10 million.
C. Other Portfolio Inflows	All other portfolio inflows – including secondary ADR inflows, foreign loans, bond issues – are subject to a non remunerated 30% reserve requirement. This reserve requirement is independent of the length of stay of the inflow. In the case of loan and bonds, the recipient may choose to pay the financial cost of the reserve requirement.
D. Trade Credit	Credit lines used to finance trade operations are also subject to the 30% deposit

Source: Budnevich and Lefort (1997)