IV. REAL MACROECONOMIC STABILITY AND THE CAPITAL ACCOUNT IN CHILE AND COLOMBIA

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INTRODUCTION

The management of real macroeconomic balances has shown to be a significant factor in explaining the growth performance and behavior of productive investment in emerging economies (EEs). The environment provided by macroeconomic policies to producers, including the 'rightness' of macro-prices and the consistency between aggregate demand and potential GDP, have emerged as significant variables explaining the poor recent performance of LACs. Together with fiscal responsibility and prudential financial regulation, those variables conform a comprehensive set of real macroeconomic balances. In the present stage of globalization of financial volatility, capital flows have played, in emerging economies, a crucial role for the sustainability of those balances and their interplay with growth (Ffrench-Davis, 2005; Ocampo, 2005). Here we examine the macroeconomic policies implemented by Chile and Colombia since 1990, the successes and failures achieved, focusing in growth performance and macroeconomic sustainability.

In 1995, when contagion from the tequila crisis was spreading to several countries in Latin America, Chile and Colombia were exempt from contagion and presented high rates of growth, without significant signs of financial distress. Several elements worked to explain this positive performance. Chile benefited from high copper prices and capital flows to Colombia were encouraged by the discovery of an important oil camp. Still, many analysts attribute this positive performance, to a large degree, to the fact that both countries had undertaken prudential measures in order to avoid 'excessive' exposure to short term capital flows. In particular, they were at that time using a reserve requirement on short-term foreign indebtedness and several other instruments addressed to reduce domestic vulnerability to capital flows. Also, authorities in Chile and Colombia had effectively worked against the pressures of capital inflows towards excessive real appreciation of their domestic currencies.

The parallelism between Chile and Colombia continued to be present after the Asian and the Russian crises of 1997 and 1998. In this period, however, the results were not so positive. The central banks of both countries had been intervening in the foreign exchange markets through crawling currency bands for many years. In 1998, those bands became strait jackets from which it was extremely difficult to escape from without losing credibility and without exposing the foreign exchange markets to destabilizing dynamics. Despite the fact that short-term debt represented only a small share of total foreign liabilities in both countries, vulnerability to the international financial crisis was significant in those years, real interest rates rose sharply in 1998 and GDP growth was negative in 1999.

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The similarities between Chile and Colombia, however, do not go much farther. During most of the decade, Chile presented very high fiscal surpluses and saving and GDP growth rates rose significantly, while in Colombia GDP growth was below historical records, the public sector deficit increased rapidly, and saving rates followed a decreasing trend.

Thus, the macroeconomic outcomes of Chile and Colombia were quite different, but still their response to the international financial crises of 1995 and 1998-99 shared several common elements. This may be due to the fact that both countries used similar instruments to regulate capital inflows and foreign exchange markets. This makes the comparative analysis of the two economies particularly attractive.

Section 1 aims to provide an overview of the macroeconomic frameworks of Chile and Colombia during the 1990s. Section 2 follows the evolution of exchange rate regimes. Section 3 discusses the rationale of capital account regulations and analyses the policy instruments that were adopted in each country to regulate capital flows. Section 4 presents some concluding remarks.

1. Macroeconomic environments of Chile and Colombia during the 1990s [1]

a) Inflation and economic activity

Chile and Colombia had, before the 1990s, a long tradition of relatively high inflation rates, which created strong inertia in the price setting processes. The CPI annual inflation rates were quite similar in both countries during the 1980s. Between 1982 and 1989, they averaged 20.7% in the Chilean case and 22.5% in Colombia (table 1). During the 1990s, the central banks -which were quite autonomous- adopted very similar institutional policies, and tried to avoid shock treatments and rather chose a gradual approach to the process of disinflation. The large capital inflows that dominated most of the period created pressures towards the appreciation of domestic currencies and helped the central banks in the process of reducing inflation. However, neither of these countries used exchange rate anchoring in order to reduce inflation. In the early 1990s, the inflation rate started a steady process of reduction, which was more rapid in Chile –this country reached one-digit inflation rates in 1994, while Colombia did it in 1999.

Notwithstanding the similarities in monetary policy, there were deep differences in the behavior of economic activity in Chile and Colombia during the 1990s. The Chilean economy had suffered a deep crisis in 1982-83 –with a 14% drop in GDP and a severe financial crisis– which generated a large gap between effective and potential GDP, discouraging capital formation and the growth of potential GDP. In 1986, actual GDP started to recover, and the gap initiated a gradual reduction trend until it disappeared in 1989. Between 1990 and 1997, both effective and potential GDP grew vigorously, with an average yearly rate of 7.6%. Dynamism of the economy slowed down in 1998, and a 0.8% drop in GDP was observed in 1999. Since 2000,

[1] The table in the Annex shows the relative sizes of both countries: Colombia has a population and a GDP at current prices 2.9 times and 1.3 times those of Chile, respectively, but a GDP per capita that is only 2/3 that of Chile and 1/6 that of the USA (at World Bank PPP prices).

growth resumed at a rate far below the levels that were observed before 1998.[2] In any case, the yearly average in 1990-2003 was 5.5% (table 1) –it doubled the 2.9% recorded in 1974-89, the sixteen-year period of the Pinochet regime (Ffrench-Davis, 2002, ch. 1).

(Table 1)

Colombia also experienced a boom by the mid-1990s but it was much milder and shorter than in Chile. Colombian GDP growth averaged 5.3% yearly between 1993 and 1995. For the rest of the 1990s, it was well below the historical standards. The annual GDP growth rate in 1990-2003 averaged only 2.7%. Even during the period of the Latin-American debt crisis, Colombia had attained a higher average growth rate. Moreover, the recession in 1999, with a drop of 4.2%, was much deeper than in Chile and the recovery in more recent years has been slower. As a result, *per capita* GDP in 2003 was at the level of 1994 and 5% below 1997, mirroring a significant output gap.

b) Fiscal balances

The outstanding behavior of economic activity in Chile during most of the 1990s took place in an environment of fiscal surpluses. Until 1997, there was a fiscal surplus of 2% of GDP in average and the central government expenditure as a share of GDP was relatively constant –at around 20% (table 2). Since 1998, government expenditure rose gradually by three percentage points of GDP, reflecting increases in social expenditure as well as a counter-cyclical fiscal policy. Even so, the deficits of both the central government and the consolidated non-financial public sector were very moderate, notwithstanding the tax revenue foregone due to a gap between effective and potential GDP and a depressed price of copper.[3]

(Table 2)

In contrast with Chile, the poor performance of economic activity in Colombia along the 1990s coincided with an unprecedented increase in government expenditure and fiscal deficits. Central government expenditure, that before 1990 had been close merely to 10% of GDP for more than three decades, increased to 21% in 2001-03 (similar to the Chilean level). Several analysts have attributed this unprecedented increase in public spending to the Constitutional reform of 1991, which accelerated the process of fiscal decentralization and incorporated into the Constitution new citizens rights that should be covered with public resources. In addition, the transition from the pay-as-you-go system towards a pension regime based on individual capitalization accounts implied, as it had done in Chile in the 1980s, a huge increase in government expenditure as measured by cash flows, although it contributed to reduce the actuarial debt. The absence of an equivalent increase in public revenues implied that the central government fiscal deficit rose from less than 1% of GDP in the early 1990s to almost 6% of GDP

[2] It is estimated that potential GDP grew 7% until the arrival of the negative shock brought by the Asian Crisis, and did adjust downward to 4% thereafter (Ffrench-Davis, 2002, ch. 1). Actual GDP growth averaged 3.1% in 1999-2004.

[3] Since 2000 the government has been working with a scheme of structural fiscal budget, estimated with a "normal" price of copper and tax proceeds as if actual GDP were equal to "potential" GDP.

between 1999 and 2002. In turn, the consolidated non-financial public sector, which had a surplus until 1994, presents a deficit close to 4% of GDP since 1999.

c) Savings and investment

The contrasting performance of economic activity and fiscal accounts in Chile and Colombia implied a very different behavior of savings and investment (table 3). With an economy persistently operating at full employment of installed capacity, high rates of GDP growth and outstanding fiscal surpluses, savings and investment rates in the Chilean case were in the 1990s notably above historical standards. Fixed capital formation reached historical peaks in the 1990s, averaging 28.5% in 1991-98 (in 1986 prices). This figure contrasts with 19.9% during the last quinquennium of the Pinochet era (1985-89) and with an even lower average in the prior years. Although the crisis of 1999 implied a significant decline in investment, fixed capital formation between 1999 and 2003 was still well above its average level in the 1980s.

Fixed investment in Colombia presented large swings, with a significant increase until the mid-1990s and a rapid decline thereafter. However, even during the boom period, between 1993 and 1995, the Colombian ratios of fixed capital formation were much lower than in Chile. After the crisis, since 1999, fixed investment experienced a dramatic drop and stayed below 15% of GDP. These low levels of investment will make it much more difficult for Colombia to recover high and sustainable rates of economic growth in the near future.

The Colombian savings rates plummeted dramatically during the 1990s. They went down by about four percentage points of GDP between the late 1980s and mid-1990s and by nearly eight additional points during the second half of the decade. In the Chilean case, in contrast, in the 1990s the savings ratios were systematically higher than in the 1980s.

(Table 3)

d) Financial sector

An outstanding contrast between Chile and Colombia during the 1990s has to do with the behavior of the financial sector. In Colombia, the reduction in domestic saving rates and the rise in investment during the first half of the decade were accompanied by an impressive financial boom, which was to a large degree fed with capital inflows (Barajas and Steiner, 2002). Outstanding credit of the financial sector rose from around 24% of GDP at the beginning of the decade to 40% in 1997. During the subsequent crisis this figure went down dramatically, back to 25%, while the quality of the portfolio of the financial system deteriorated substantially (table 4).

In the Chilean case, the degree of financial depth was much higher than in Colombia since the beginning of the 1990s and continued to be so after the crisis. In addition, in contrast with most other Latin American countries, the index of credit/GDP behaved counter-cyclically.[4] This helped to explain the fact that the deterioration of quality of the loan portfolio during the crisis was extremely mild. While non-performing loans as a share of outstanding credit reached

[4] In a comparative study for the eight largest Latin American economies, Barajas and Steiner (2002) show that the Chilean case was exceptional in this respect.

11% in Colombia in 1999, they did not surpass 1.8% in Chile.[5] One main reason behind this strength of the Chilean financial system is the strict prudential supervision, built after the generalized collapse of the banking sector in 1983-86 as a result of the debt crisis.

(Table 4)

In summary, the cycle in foreign capital inflows was leveraged in Colombia by the behavior of domestic credit, which was not the case in Chile. Together with the stricter supervision of the financial sector in the Chilean case, two other factors may have contributed to these contrasting results. First, in Colombia the boom of capital inflows coincided with a reform in the financial sector, which implied that the central bank undertook an important reduction in the reserve requirements on domestic deposits between 1991 and 1998. Thus, as stressed by Carrasquilla and Zárate (2002), domestic financial regulation in Colombia was highly pro-cyclical. Second, the higher degree of financial depth may have worked in the Chilean case as a buffer against the capital inflows shock. This hypothesis would endorse the idea that foreign capital account regulations are even more important when the domestic financial system is less developed.

e) Foreign savings and the current account

In the Chilean case, probably as a consequence of very active regulations on capital inflows, the current account deficit was kept under control during the first half of the decade. In 1993, due to a sharp drop in the copper prices, the deficit went up to 5.4% of GDP. However, the current account deficits were below 3% of GDP, averaging 2.3% between 1990 and 1995 (see table 5 below). After the tequila crisis, the current account deficits rose to less sustainable levels, close to 5% of GDP between 1996 and 1998. As shown later, this coincides with the period in which the regulation of capital inflows became less active.

In Colombia, in contrast, the deterioration of the current account was particularly acute during the first half of the decade. Between 1991 and 1994 –coinciding with a process of trade opening, currency appreciation and capital flows liberalization– a current account surplus of 4.9% of GDP was transformed into a deficit of 4.5%, level around which it remained until 1998.

The drop in international liquidity after the Asian and the Russian crises implied drastic adjustments in the current account deficits. In 1999, such adjustments represented 5.0% and 5.7% of GDP in Chile and Colombia, respectively. As shown in the next section, the paths followed by the current account balances of Chile and Colombia during the 1990s were matched by the behavior of their real exchange rates.

2. Exchange rate regimes

[5] There is heterogeneity in the definition of non-performing loans. In Chile it refers to the installments of loans overdue for more than 90 days. In Colombia, the definition changed several times along the 1990s.

During most of the 1990s, the exchange rate regimes of Chile and Colombia were dominated by the currency bands, which in both countries were dismantled and replaced by floating regimes only in 1999. Those regimes shared many common elements.

a) Chilean exchange rate regime

After the crisis of 1982-83, and much earlier than Colombia, Chile introduced a minor width currency band. Since the beginning, the upper and the lower bounds of the band were devalued daily, according to an estimate of net inflation. Discrete nominal devaluations, however, were added at various junctures, serving to achieve the notable real depreciation of 130% between 1982 and 1988. In 1989 the band was widened to ±5%, allowing for an orderly and not traumatic depreciation of the peso, which was required to compensate for the rise in imports associated to a sharp increase in economic activity in 1988-89.

The evolution of the foreign exchange regime since 1990 reflected the purpose of the central bank to regulate the surge in capital inflows. Since June 1991, as we will see in the next section, an unremunerated reserve requirement was established on foreign loans, and a tax on domestic loans applied to up to one year of each operation was extended to foreign loans. In January 1992, the currency band was widened to ±10%. In contrast with what had happened three years earlier, the widening of the band in this case was addressed to allow for some additional appreciation of the peso. In June 1992, the dollar was replaced by a basket of currencies as the standard for the exchange rate. Replacing the dollar with the basket meant greater stability for the real exchange rate as perceived by producers of tradables, and introduced greater uncertainty in the peso-dollar exchange rate, thereby reducing incentives for interest rate arbitrage and short-term capital movements (Ffrench-Davis and Tapia, 2001, p. 87). Remember that, by this time, capital inflows were very large and it was already clear that the Chilean economy was booming. As we will see in the next section, the objective of deterring interest rate arbitrage was being simultaneously addressed through the reserve requirement on capital inflows, thus providing space for an active counter-cyclical monetary policy. In the following years capital inflows continued, and the real exchange rate experienced a moderate appreciation (averaging 1% yearly between 1989 and 1995).[6] Naturally, that appreciation contributed to reduce inflation. However, it was an equilibrating, sound, real appreciation. Consistently, as said, the current account deficit between 1990 and 1995 averaged only 2.3% of GDP.[7]

Following the tequila crisis, the behavior of the Chilean economy was so strong that expectations of appreciation and capital inflows were greatly reinforced after 1995. The central bank kept accumulating significant amounts of international reserves with the exchange rate at the then appreciating bottom of the band, until the end of 1997. Several parameters of the band were adjusted during that period in order to allow for some additional appreciation of the peso and to reduce monetary pressures from the accumulation of foreign reserves. Since November

[6] Central Bank figures provide a higher estimate of appreciation --an annual average of 2.5%-- because it uses wholesale price indexes for measuring external inflation and CPI for domestic inflation. We use figures of ECLAC that also measure external inflation on the basis of CPI. This procedure is consistent with that of Colombia.

[7] Appreciation of the real rate was "equilibrating" in the sense that it was consistent with the net increases of productivity in Chile, as the sustainable external deficit suggests. Keeping a low current account deficit was among the explicit objectives of the exchange rate policy of the Central Bank in that period (see Zahler, 1998).

1995, the rate of nominal depreciation of the band was designed to allow for a 2 percent real appreciation per year, based on the assumption that Chilean productivity growth would be faster than that of its trading partners. In addition, the external inflation used to calculate the referential exchange rate was overestimated, which generated considerable additional revaluation. Furthermore, in early 1997, the band was broadened from ±10% to ±12.5% as a mechanism to allow for further appreciation of the peso and served to reduce inflation (see Ffrench-Davis and Tapia, 2001, pp. 95-96). As a consequence, the peso appreciated 20% in real terms between March 1995 and October 1997, notably faster than before the tequila crisis (figure 1).

(Figure 1)

When the exchange rate expectations shifted to depreciation, in late 1997, following the Asian crisis, the Central Bank started to sell abundant reserves to avoid a depreciation of the exchange rate even within the lower half of the exchange rate band in order to prevent a rise in inflation. The anti-inflationary bias of the Central Bank interventions in the foreign exchange market became even more evident in mid-1998, when the band was drastically shortened, right at the moment of greatest uncertainty, in order to send a signal that the authorities would not give in to market pressures towards devaluation. This measure implied that the macroeconomic adjustment process that was needed as a consequence of the drastic decline in the terms of trade and of the shortage of capital flows had to be led by interest rate hikes and monetary contraction.[8] Then, the strategy chosen by the authorities of the Bank was more consistent with a fixed exchange rate regime than with a currency band system. Naturally, credibility in the new band rapidly deteriorated. The band was widened again at the end of 1998 and then suspended in September 1999 in order to allow for the exchange rate to adjust freely, now in the context of strongly depressed domestic absorption.

Given the significant appreciation recorded in 1996-97, it was clear that the center of the band had become an "outlier" price, leaving no space within the band to make feasible the necessary exchange rate adjustment (Ffrench-Davis and Larraín, 2003). Actually, most of the depreciation in the real exchange rate in Chile in recent years took place after the dismantlement of the currency band in 1999. Between August 1999 and July 2003 the real exchange rate depreciated by 30%.

b) Colombian exchange rate regime

As in Chile, the Colombian currency experienced a notable real devaluation during the 1980s, which was required by the shortage of foreign savings. The devaluation of the peso was managed within the traditional crawling-peg regime that had been introduced since 1967 and lasted until 1991, and that, in contrast with Chile, avoided any discrete jump in the exchange

[8] The authorities of the Central Bank stated that an adjustment in the exchange rate would have caused both pressure on prices and costs associated to currency mismatches in large non-tradable firms. Ffrench-Davis and Tapia (2001) point out that these effects were overrated and implied an over-adjustment in the productive sector. Corbo and Tessada (2002) estimate a VAR model for Chile and conclude that i) the defense of the exchange rate in January 1998 was well justified by potential inflationary costs and, ii) however, a devaluation in mid-1998 would have not represented an inflationary risk.

rate. Even in 1985, when nominal devaluation was almost 50%, it was instrumented through small and continuous daily movements.

In 1989, Colombia decided to depreciate its real exchange rate even further, in order to compensate for the decline in coffee prices after the collapse of the International Coffee Agreement and to prevent negative effects of the sharp opening up of the trade balance on the domestic production of tradables (Ocampo and Villar, 1992). However, this strategy rapidly proved to be inconsistent with the contractionary monetary policy that the central bank was trying to undertake in order to curb inflationary pressures. As in Chile, large capital inflows and pressures towards appreciation of the peso dominated during most of the 1990s, until mid-1997. Most of the adjustments in the Colombian exchange rate regime were introduced in order to manage those pressures.

In June 1991, the traditional crawling-peg regime was modified. The Banco de la República would exchange dollars for "Certificados de Cambio" (dollar-denominated bonds) that could only be redeemed at the "official exchange rate" after a given maturity. The exchange rate would be determined by the secondary market for those bonds. The new regime, which was in place until January 1994, implied a nominal appreciation of the peso, which marked an important shift in the policy strategy that had been in place during almost a quarter of a century. During this period, there was a drastic relaxation in monetary policy addressed to reduce domestic interest rates and to discourage foreign capital inflows attracted by interest rate arbitrage. However, between 1991 and 1994, the real depreciation of the peso that had taken place in 1989 and 1990 was entirely reversed (see figure 1 above). In January 1994, the Banco de la República decided to discontinue the mechanism of the "Certificados de Cambio" and introduced an explicit exchange rate band system (Urrutia, 1995). The amplitude of the band was set at ±7% and the center was increased every day at a predetermined crawling rate. In December 1994, however, the exchange rate band was shifted downwards as a consequence of the actual increase in long-term capital flows and of the expectations of additional inflows associated to the development of recently discovered oil camps.

The currency band established in December 1994 was kept without important changes until September 1998. During more than three and a half years, therefore, it helped to reduce the medium-term instability of the exchange rate in an effective manner. For instance, the upper limit of the band helped to avoid an extreme depreciation during the first half of 1996, when there were speculative pressures related to the process against President Samper for allegedly illegal resources in his presidential campaign. Also, few months later, the lower bound of the band helped to avoid extreme appreciation of the peso when it became clear that President Samper would stay in office and large inflows were coming into the country, associated with the privatization of important public companies.

After the Asian crisis had exploded, in the final months of 1997 and during the first half of 1998, the role of the currency band was much more controversial. The exchange rate had depreciated and was hitting the upper limit of the band, so the central bank was forced to sell large amounts of foreign exchange while implementing a highly contractive monetary policy. Nonetheless, due to the slope and of the amplitude of the band, the depreciation of the Colombian peso was quite substantial. The peso price of the dollar by mid-1998 had depreciated

by about 8% in real terms, without any change in the currency band mechanism. The upward shift in the currency band was decided in September 1998, when a new government was in office and the macroeconomic program for 1999 had gained some credibility. After a short-lived overshooting, the new currency band worked smoothly during the last quarter of 1998 and the first quarter of 1999. The Central Bank stopped losing reserves and the domestic interest rate experienced a relatively rapid downward trend.

In the second quarter of 1999, the financial crisis, the deeper than expected recession and the further deterioration of the fiscal accounts, damaged the credibility in the macroeconomic program and new pressures towards devaluation appeared. In June, the band was again shifted upwards and its amplitude was widened from ±7% to ±10%. Simultaneously, the government and the central bank announced that they had agreed to design an IMF backed program in order to recover confidence from the international financial community. By late September, immediately after the agreement with the IMF was reached, the currency band was dismantled. Having been shifted twice in less than a year, its credibility had eroded. Also, at the international level, the initial success of other Latin-American countries with their new floating regimes (notably Brazil in February and Chile in early September) had created strong pressures against the band system, both in the market and in the multilateral financial institutions. This facilitated the appearance of speculative attacks. Most analysts however considered at that time, that the real exchange rate was already close to its long-run equilibrium level. Interestingly enough, this was verified *ex-post de facto.* Since the currency band was abolished, the exchange rate fluctuated inside the dismantled band during more than two years, despite a very rapid decline of the domestic interest rate.

Therefore, the real depreciation of the peso that took place as a consequence of the crisis was instrumented within the currency band system.[9] Subsequently, between September 1999 and May 2002, the real exchange rate fluctuated around the levels reached by the third quarter of 1999. After May 2002, the contagion from the Brazilian crisis and a higher degree of uncertainty on the sustainability of the Colombian foreign debt, led to an additional real depreciation of the peso, which was reinforced by the end of that year with the effects of the Venezuelan crisis.

Since the last quarter of 1999, Colombia has a floating exchange rate regime. Although this type of regime does not allow the central bank to target any specific nominal or real exchange rate, it contemplates two transparent and publicly known mechanisms for central bank intervention: (i) The central bank can buy or sell international reserves through *put* or *call options* that are auctioned in limited amounts of foreign exchange at the end of each month. This mechanism has been used mainly to buy international reserves and to recover the international liquidity indicators that Colombia had before the 1998/99 crisis. Since February 2003, however, given the rapid pace of depreciation, the Banco de la República has also used the call options in order to mitigate pressures on the exchange rate that may risk the attainment of the inflation target. (ii) The second mechanism is addressed to reduce extreme short-run volatility of the exchange rate and consists of additional auctions of *put* or *call* foreign exchange options which are triggered whenever the market rate deviates in an 'unusual' manner from its own 20-day

[9] By the third quarter of 1999, before the currency band was dismantled, the real exchange rate had recovered the levels of the late 1980s.

moving average.[10] In practice, short-run volatility of the exchange rate has been low and these trigger conditions only took place in the second half of 2002, when contagion from the Brazilian crisis implied a rapid depreciation of the peso.

c) Common and contrasting elements of the exchange rate regimes in Chile and Colombia

From the above description, it is possible to highlight some common and some contrasting features of the exchange rate regimes that Chile and Colombia had in the 1990s:

(i) During most of the 1990s, central bank interventions in both countries implied large amounts of international reserve accumulation. In this sense, the currency bands worked as limits against appreciation of the exchange rate and not as anti-inflationary devices.

(ii) As accumulation of international reserves, led by the capital surges to emerging economies, created monetary pressures and (short-run) quasi-fiscal costs of sterilizing monetary intervention, it became more difficult for the central banks to resist the market pressure for appreciation. Giving up to those pressures would contribute to keep inflation under control, so the currency bands were widened and shifted downwards in several opportunities, allowing for a sizeable appreciation of the real exchange rate during most of the decade in Colombia and in the second half in Chile.

(iii) The degree of flexibility of the foreign exchange market in the inner part of the bands proved to be much lower in Chile, where the central bank, with intramarginal intervention, was more active in trying to stabilize the exchange rate market than the Colombian one. This is mirrored in the fact that both the accumulation of international reserves during the boom and the losses during the crisis were much larger in Chile (see table 5 below).

(iv) In both countries, the limits of the currency bands seemed to be more effective to control pressures towards currency appreciation than towards currency depreciation. As the bands have an explicit or implicit pre-announcement of their limits, the exchange rate regime loses credibility when those bands are shifted or widened. If that happens in response to a speculative attack against the upper limit of the band, the credibility in the anti-inflationary commitment of the Central Bank is also damaged. It is interesting that currency bands in Chile and Colombia disappeared almost simultaneously, in September 1999, when there were strong pressures towards depreciation. However, the simultaneity in the dismantling of currency bands may also say a lot about IMF preferences and fashions in the international financial community.

(v) The floating regime introduced in Chile and Colombia after dismantling the currency bands does not imply absence of Central Bank intervention.[11] What they have in common is the assumption that the Central Bank cannot target specific levels of neither the nominal nor the real exchange rates. Still, central banks have some room to alter the short-term foreign exchange market through their

[10] An 'unusual' deviation was initially defined as 5% and since December 2001 was redefined as 4%.

[11] Colombia accumulated US$ 2.2 billion since it entered the floating regime. Chile accumulated reserves in 2000 and 2002 but lost US$ 600 million in 2001 and US$ 400 million in 2003 (table 5).

interventions, which in turn may be discretionary or follow publicly known rules. While Chile has exerted discretion in intervening the market, Colombia is following strict rules since 1999. In any case, the experiences of both countries show that the optimal exchange rate policy is far from leaving the exchange rate determination to the short-termist markets.[12]

3. Capital account regulations[13]

a) The rationale for capital account regulations

The rationale for capital account regulations arises from the hypothesis that full liberalization of the capital account in a developing economy, is likely to 'trap' domestic policies into short-term bias and non-sustainable macroeconomic equilibrium (Ffrench-Davis and Ocampo, 2001).

The exchange rate regimes of Chile and Colombia provide a clear example of the difficulties created by foreign capital flows to macroeconomic policies. Capital flows greatly reduce the autonomy of domestic economic authorities to jointly manage the real exchange rate, the real interest rate, and aggregate demand, even in the short and medium run. Large capital inflows tend to reduce both the exchange rate and the interest rate, and to increase aggregate demand, while capital outflows tend to increase both macro-prices and to reduce economic activity. As far as capital flows to developing economies have been proved to be highly pro-cyclical, the real exchange rate, the real interest rate and aggregate demand become highly pro-cyclical too.

As a general rule, the capital account regulations that have been used both in Chile and in Colombia are oriented to:

(i) Enhance the ability of monetary and exchange rate policies to act in a counter-cyclical way. When capital inflows are very large, they push the domestic demand into a boom and lead to a deficit in the current account. Under those circumstances, the capital account regulations are addressed to discourage capital inflows in order to mitigate pressures towards lower real interest rates –which would artificially reinforce the aggregate demand boom– and towards a real appreciation- which would increase the current account deficit.

(ii) Reduce the vulnerability of the domestic economy to sudden changes in the international financial environment. This explains the emphasis of those regulations in reducing the share of short-term and liquid liabilities in total capital flows, and in imposing limits on the net uncovered foreign exchange positions of the domestic economic agents.

[12] Ffrench-Davis (2003, p.12). See also Edwards (2002), who argues that "it is perfectly possible that the optimal policy … is one where the central bank intervenes from time to time" (p.17). Those interventions, also, may be consistent with an inflation targeting regime without implying a "fear of floating".

[13] Revised and updated version of a paper presented in a Geneva meeting of the G-24, September 2003.

(iii) Improve the capacity of a country to use foreign savings as complementary to domestic savings and not as substitute. Again, this explains the emphasis of those regulations in reducing the share of short-term capital, which tends to finance consumption, *vis-à-vis* long-term capital, which usually finances productive investment.

b) Reserve requirement on capital inflows: A price-based capital account regulation

The most famous mechanism of capital account regulation used in both Chile and Colombia during the 1990s is the reserve requirement on capital inflows. As we will see, the height of the requirement and several details of its operation changed along time and were different in each country. The regulations used in both countries, however, shared three very important characteristics: (i) they were not quantitative controls but price-based regulations, (ii) they affected capital inflows and not capital outflows, and (iii) they were designed to have more impact on short-term than on long-term capital flows.

As with any price-based mechanism, the reserve requirement on capital inflows was not intended to block the way for those inflows, but to discourage them at the margin, *placing sand in their wheels.*[14] In order to make capital inflows more costly under a large external supply, two key elements were present as complements to the reserve requirement: (i) restrictive policies on any type of dollarization of deposits in the domestic financial system, and (ii) strict prudential regulations on the net foreign exchange position allowed to financial intermediaries. These two elements together guaranteed that the domestic financial intermediaries could provide foreign exchange denominated loans only when they were funded with foreign credit and subject to the reserve requirement. At the same time they inhibited the domestic financial system from becoming a major actor in the speculation in favor or against the peso.

The introduction of a non-remunerated reserve requirement in Chile in June 1991 was explicitly addressed to soften appreciatory pressures and provide more breath and autonomy to monetary policy (Zahler, 1998, p. 69). The deposit of the reserve requirement was initially equivalent to 20% of foreign loans and had to be kept for a minimum of 90 days and a maximum of one year, according to the term of the operation. In order to increase its effect, in May 1992, it was raised to 30% and the term of the deposit was raised to one year, independent of the maturity of the loan, which increased the bias against short-term capital inflows. In July 1995 it was extended to the purchase of Chilean stocks (secondary ADRs) by foreigners.

Although the objective of regulating capital flows continued to be present in Chile after 1996, the attitude of policy-makers was much less pro-active. Despite the fact that there was a significant surge of capital inflows in 1996 and 1997, and that the effectiveness of any regulation tends to decline with time, the authorities did neither accommodate the height of the reserve

[14] As any kind of regulation or tax, the reserve requirement implies some efficiency costs at the microeconomic level. Forbes (2004) stresses some of those costs and argues that, more than "sand in the wheels", capital controls are "mud in the wheels of market discipline". However, prudential regulations, of which the reserve requirement is one, are directed to reconcile the interests or freedom of all agents, discouraging negative externalities and time inconsistencies.

requirement to the increased supply of funding nor generalized its scope.[15] The surge clearly weakened the fundamentals of the Chilean economy: the current account deficit increased, the exchange rate appreciated much faster and the stock of liquid foreign liabilities grew. When the Asian crisis contagion arrived, therefore, these fundamentals of the Chilean economy were much weaker than they had been during the tequila crisis of 1995. This fact contributed to increase the magnitude of the crisis of 1998 and 1999 when, as we will see, private capital outflows were quite large, including funds of the domestic private pension system (see Zahler, 2005). The reserve requirement was reduced from 30% to 10% in June 1998 and then to 0% in September.

Inspired by the Chilean experience, the Colombian reserve requirement on capital inflows was decreed in September 1993, coinciding with the final steps of the process of dismantling administrative capital controls that had started in 1991. The size of the reserve requirement was high enough to make it prohibitive in practice. Exemption made for trade financing, the requirement applied to any "short-term" foreign loan. "Short-term" was initially defined as less than 18-month maturity: this term was raised in March and August of 1994 to three and five years, respectively.[16] In 1996, when the exchange rate was at the most depreciated limit of the currency band and the central bank was loosing reserves, the minimum maturity of the foreign loans to be exempted from the reserve requirement went down to three years.

After the huge increase in international reserves that took place in the last part of 1996, the Colombian government issued a State-of-Emergency Decree, which, among other measures, established an explicit Tobin tax on all capital inflows (trade financing included) in addition to the reserve requirement regulated by the Central Bank. The Decree was declared unconstitutional in March 1997 but the central bank rapidly increased the reserve requirement again.

In May 1997, the Colombian Central Bank introduced several changes in the reserve requirement system, making it simpler and more similar to the Chilean one. A flat deposit in local currency (instead of a dollar denominated deposit) was required for all loans, independently of the maturity. The minimum maturity was thus abandoned but, as in the Chilean case, the new mechanism implied that the tax equivalent of the deposit was lower the longer the maturity of the loan. Initially, the size of the reserve requirement was 30% of the foreign loan and had to be kept during 18 months. These numbers were reduced in January and again in September 1998 as a response to the weakened capital inflows. Between September 1998 and May 2000, the reserve requirement was only 10% of the foreign loan and had to be kept during 6 months. In June 2000, the reserve requirement was reduced to zero. Colombian authorities stated, however, as had done the authorities in Chile, that this was not the end of the mechanism, but only a resetting of the parameters, and the mechanism could be used again if needed to confront renewed capital surges.

Besides the similarities among the Chilean and the Colombian reserve requirement instruments to deter capital inflows, it seems clear that Chile used them more proactively during the first half of the 1990s than after 1995. In contrast, Colombia used them more proactively in the second half of the decade.

[15] Le Fort and Lehmann (2003) argue that in order to mitigate elusion, it would have been required to eliminate exemptions to direct suppliers credit and to some investment inflows, but these measures faced strong opposition from the private sector and the previous coherent consensus within the public sector had been weakened.

[16] A history of the reserve requirement on capital inflows in Colombia is summarized in Ocampo and Tovar (2003).

c) Non-FDI private capital flows and the effectiveness of private capital account regulations

The behavior of non-FDI private capital flows shows significant common elements in Chile and Colombia (see table 5, column e). Those flows were highly positive for several years until 1997 and became highly negative in both countries during the crisis of 1998/99.

In Chile, these flows averaged US$ 2.4 billion yearly between 1990 and 1996 and did not have extreme swings during that period. Even in 1995, when the tequila crisis was taking place, they amounted to US$ 2.0 billion. In contrast, between 1998 and 1999 they implied a net outflow of US$ 8.4 billion. Capital outflows had a pause in 2000 but were high again since 2001.

In Colombia, private non-FDI capital inflows became important only after 1992. During the initial years of the decade, net capital flows were negative, reflecting perhaps the existence of direct controls which were more effective to discourage inflows than to restrain outflows. As already mentioned, those controls were dismantled between 1991 and 1993. Private non-FDI capital flows averaged US$ 2.7 billion per year between 1993 and 1996. As in Chile, they were high even in 1995, when they amounted to US$ 2.5 billion, despite the tequila crisis. The reduction in this type of inflows took place in 1997, probably because of an increase in the costs of the reserve requirement implemented at the beginning of that year, before the Asian crisis started. In 1998 they became very small but still positive, and starting in 1999 they turned highly negative (see table 5).

(Table 5)

Based on these figures, it appears easy to doubt the effectiveness of the reserve requirement that was used to regulate capital inflows. Both in Chile and in Colombia, net capital inflows were highest precisely during the periods in which that regulation was being used. However, the coexistence of large capital inflows and the reserve requirement may reflect a policy reaction function in which the introduction of capital regulations is caused by the large supply of capital inflows.[17] That was, evidently, the actual sequence in both cases.

In any case, it is clear that the regulations on capital inflows used in Chile and Colombia were not able to avoid the large net capital outflows that took place in the final years of the 1990s and the beginning of the new century. Our hypothesis may be summarized as follows: the reserve requirement was useful and effective as a temporary policy tool during the boom of capital inflows. Its effectiveness may be seen from two different perspectives. First, as a *short-run macroeconomic policy*, it enhanced the ability of the domestic authorities to act in a counter-cyclical way and to deal with the trade-offs between exchange rate and monetary policies. Second, as a *liability-flows policy*, it was effective in reducing the short-term component of capital inflows. Thus, the reserve requirement enhanced the absorptive capacity of a given total inflow, by raising the share of funds more associated to productive investment and, consequently, reduced the vulnerability to sudden stops; by contributing to resist appreciating pressures on the exchange rate, it contributed to increase the share of tradables in GDP.

[17] Cardoso and Goldfajn (1998) successfully test this hypothesis for the Brazilian case.

On the other hand, however, the reserve requirement and, more generally, the set of policies adopted by Chile and Colombia, were not fully effective to deal with a major and lasting crisis as the one observed after 1997. This is not a reason to discard the temporary use of this type of policies under new capital surges, but to stress the need of other complementary regulations. The experiences of Chile and Colombia since 1998 highlight the need for more strict controls on the behavior of the stocks of foreign exchange denominated assets and liabilities. For example, as we will argue later, there should be financial regulations addressed to discourage large currency mismatches in the balance sheets of firms in the non-tradable sectors. Also, there should be regulations on the ability of institutional investors to manage portfolios in foreign currency. Opening the way for outflows of domestic capital in periods of abundance proved to be ineffective in reducing the excess supply, while in periods of scarcity of external supply led to an extremely pro-cyclical outcome.[18] In the Colombian case, it is clear that the large growing fiscal imbalances that took place since the mid-1990s implied a rapid increase in foreign exchange liabilities and made it much more difficult to manage the crisis.

d) The reserve requirement as a macroeconomic policy tool

In evaluating the effectiveness of the reserve requirement on capital inflows as a macroeconomic policy tool, most analysts have focused on the effects of this regulation on the volume of total capital inflows. Empirical results on this topic are mixed.

Some econometric studies for both Chile and Colombia failed to find effects of the reserve requirement on the total volume of capital inflows, even though they found an effect on the composition of flows.[19] Those studies argue that there is a high substitution between capital inflows of different maturities, which implies a compensatory increase in long-term inflows when the reserve requirement induces a reduction in the short-term ones. From there, they conclude that this type of price-based regulation does not have an impact on net capital flows.

Other recent studies, however, obtain very different results. Le Fort and Lehman (2003) and Ffrench-Davis and Tapia (2004) show that, in the Chilean case, the reserve requirement did have an effect on the total volume of private capital inflows, once the effects of interest rate differentials and the evolution of the supply of funds are well taken into account. Gallego, *et al*. (2002), find a significant effect of the reserve requirement on capital inflows when actions taken by the Central Bank to close loopholes are considered, highlighting the need for an active approach as a necessary condition for succeeding in the use of capital controls.

Similarly, Ocampo and Tovar (2003) find that the reserve requirements in Colombia "were effective in reducing the volume of capital inflows, both due to the increased costs of short-term borrowing and to the discrete effects of regulations, associated to the imperfect substitution of borrowing at different maturities" (p. 29).

[18] It is interesting to underline that Korea, assumed to be at present a case of open capital account (evidently, it was the opposite in its period of 'miraculous' growth), still applies restrictions on outflows of domestic savings.

[19] Critical evaluations are developed in Valdés-Prieto and Soto (1998) and Cárdenas and Barrera (1997) for the Chilean and the Colombian cases, respectively. De Gregorio, Edwards and Valdés (2000) also conclude that the Unremunerated Reserve Requirement (URR) did not affect net capital inflows in Chile, but they find that it allowed for a larger interest rate differential with the rest of the world, providing room of maneuver to monetary policy.

Villar and Rincón (2003) argue that the econometric results on the effectiveness of this type of regulation on the volume of capital inflows do not solve the simultaneity problem that arises from the fact that those regulations affect the domestic interest rates, which in turn affect capital inflows. The papers mentioned in the previous paragraphs obtain partial equilibrium results: given the differential between domestic and foreign interest rates, a tax on capital inflows reduces their volume. The tax, however, should increase the domestic interest rate and it is likely that its total effect on the volume of capital inflows will be ambiguous when this channel is taken into account.

Following Villar and Rincón, the effectiveness of the reserve requirement as a macroeconomic policy tool should be evaluated also from the perspective of its impact on the domestic interest rates and the real exchange rate. Their econometric work show indeed that, in Colombia, the reserve requirement was a useful macroeconomic policy tool in a period characterized by large capital inflows, excess aggregate demand, pressures towards domestic currency appreciation and large current account deficits. This tool facilitated a counter-cyclical policy, allowing the domestic authorities to increase the domestic interest rates *vis-à-vis* the foreign rate, and hence reducing aggregate demand while avoiding additional pressures towards domestic currency appreciation.

Chile, in 1992 offers one quite illustrative case of the contribution of the reserve requirement to macroeconomic stability. Then, the USA, with a rather low interest rate, was further reducing it in order to face domestic recession, while Chile experienced some overheating and large supply of external funds. The response of Chile was to increase the reserve requirement, thus making space for monetary policy to raise its domestic interest rate with net stabilizing effects on aggregate demand. The effectiveness of capital controls to make room for monetary policy is supported by all econometric studies (see De Gregorio *et al*., 2000; Edwards, 1999; Ffrench-Davis and Tapia, 2004; Gallego, *et al*., 2002). Thus, the Central Bank could induce a policy of *mini adjustments* to *avoid maxi adjustments.*

We can conclude, therefore, that the reserve requirement was a useful macroeconomic policy tool. However, as any other macroeconomic policy addressed to affect interest rates and the exchange rate, it is essentially a short-term policy instrument,[20] and to be used only in periods of an 'excessive' supply. It is a counter-cyclical policy tool.

e) On microeconomic effects of capital controls

While the positive effects of the reserve requirement have been acknowledged by academic circles and authorities of institutions such as the BIS, IMF and the World Bank, some research on microeconomic effects has appeared. Although this paper focuses on macroeconomics, we have included this brief section on microeconomic effects because of the notoriousness that this research, particularly related to the Chilean case, has gained recently.

[20] As already discussed, the "short-term", in this respect, can refer to several years, associated to the extent of the capital surge.

Forbes (2003) finds that the reserve requirement affected more intensively 'small' firms by imposing financial constraints. Gallego and Hernández (2003) conclude that the reserve requirement affected the financial structures of the Chilean firms reducing their leverage, increasing their reliance on self-generated funds (retained earnings), and increasing the maturity profile of their debt. Both microeconomic works use as a sample a group of listed companies in stock markets.[21]

Without discussing now the specifics of those two studies, it is evident that any tax imposes some cost to taxpayers and, in doing so, changes relative prices. The crucial point is what is the net effect of capital controls on overall welfare, after contrasting both their eventual microeconomic costs and their macroeconomic benefits. As mentioned, overall, evidence show that in Chile capital controls worked well, despite the existence of loopholes and a progressive elusion, which was not monitored by authorities as they had done systematically in 1991-95. In fact, at least in terms of its intermediate objectives, the reserve requirement was able to open space for monetary policy, contributed to reduce the stock of foreign liabilities and improved their maturity profile.

From the point of view of investment and growth, the impressive growth performance of the 1990s seems to support the idea that the positive effect of the whole approach, including the capital controls and their management, was much stronger than any associated microeconomic costs. Actually, the investment ratio of Chile in the 1990s was the highest recorded in its history. In this sense, "financial constraints" as defined and reported by Forbes (2003) were not impediment for expanding the productive capacity.[22] Moreover, the microeconomic switch from debt to retained earnings in the financial structure, as well as the shift toward longer-term liabilities of 'small' firms, found by Gallego and Hernández (2003) can be considered as a positive by-product of Chilean capital controls. Indeed, the main source of private savings in EEs, tends to be non-distributed profits and depreciation reserves of firms.

On the other hand, the Chilean economy became one of the less vulnerable in the region, escaping from the contagion of the Mexican crisis. In the case of the Asian crisis, the negative effect was rather moderated and, according to Ffrench-Davis and Tapia (2004), was mostly linked to policy errors like careless liberalization of outflows by residents during the boom phase. The reserve requirement, in turn, contributed to reduce the stock of liabilities and to improve its profile (both from a micro and macro perspective). According to most international research these two factors determine strongly both the probability of crises and its associated costs. In other words, the Asian crisis would have had a stronger negative effect on the Chilean economy if the capital controls had not been there.

Finally, evidence appears to be strong in the direction that access to financing and spreads of SMEs are more intensively affected than large firms during crises. Avoiding crises via discouraging capital inflows during the boom stage tends to imply for SMEs paying higher

[21] Most listed companies in Chilean stock markets are among the biggest in the economy, therefore conclusions from these works cannot apply directly to SMEs.

[22] Forbes (2003) defines "financially constrained" firms as those that depend on their own sources of financing to invest. This definition is quite disputable, as reflected in the literature on the issue (see, for example, Kaplan and Zingales, 1997).

interest rates during the boom, but contributes to avoid sharp increases during the eluded bust and the corresponding actual financial constraints that they face during recessions.

f) The reserve requirement as a liability policy: Flows policies vs. stock policies

Empirical studies in both Chile and Colombia coincide in showing that the reserve requirement on capital inflows contributed to keep a relatively longer maturity of private foreign liabilities in the 1990s.[23] From this point of view, this was an effective tool as a *liability policy.* With a long-term maturity of foreign debt stock, a sudden stop in the supply of capital flows towards emerging markets has a much lesser impact on those markets as far as the refinancing needs are lower. In those conjunctures, what matters are gross financing needs rather than net needs. When the tequila crisis spread over most Latin-American countries in 1995, the maturity structure of foreign debt in Chile and Colombia was perceived as a significant strength of these economies and helped to make them almost immune to the crisis.

However, a high average maturity of private foreign debt is not a sufficient safeguard against a strong and long-lived shortfall in the supply of inflows. The experiences of Chile and Colombia in 1998-99 suggest that, when the economy receives that type of shock, what was originally contracted to be long-term debt may become shorter-term debt by the decision of debtors. They, indeed, buy dollar-denominated assets to hedge their positions. Also, under the pressure of weak economic activity and expectations of devaluation, they may be allowed to prepay their foreign currency liabilities before maturity, as actually happened in Colombia.[24]

Table 6 presents the evolution of the stocks of foreign debt in Chile and Colombia. The figures help to highlight the very rapid increase in the private sector foreign debt that took place during the second half of the 1990s, though from moderate initial levels. The rapid process of private debt accumulation marked a deep contrast between the period of the tequila crisis and the 1998-99 crises. At the end of 1994, when the tequila crisis was starting, total private debt was US$ 12 billion in Chile and US$ 8 billion in Colombia. Only four years later, at the end of 1998, these numbers had more than doubled (to US$27 billion in Chile and to US$18 billion in Colombia). Although the short-term component of these debts continued to be low, the huge increase in total private debt made the foreign exchange balance sheet much more vulnerable to the crisis.[25]

(Table 6)

[23] For the Colombian case, see Cárdenas and Barrera (1997); Ocampo and Tovar (2003). For the Chilean case, see Agosin and Ffrench-Davis (2001); De Gregorio, Edwards and Valdés (2000); Le Fort and Lehmann (2003); Gallego *et al*. (2002).

[24] Since 1997, the Banco de la República of Colombia allowed private debtors to prepay long-term liabilities (which had not deposited the reserve requirement on short-term capital inflows), provided that half of the original maturity had elapsed.

[25] Bleakley and Cowan (2002) use microevidence at firm level for several Latin-American countries to show that the detrimental effect of the depreciation of domestic currencies during the crisis (balance sheet effect) was outweighed by the effect of the income elasticity of firms to the exchange rate. This result suggests that firms in the tradable sectors had higher foreign debt ratios than those in the non-tradable ones. However, in the Colombian case, there is evidence that the increase in private foreign debt was more acute in firms of the non-tradable sectors. See Banco de la República (2002), p.27.

Behind the behavior of private foreign debt during the 1990s there is a rapidly growing currency mismatch in the private sector balance sheets. Both firms and households increased their foreign exchange denominated liabilities without a corresponding increase in foreign exchange denominated assets. Households and firms producing in the non-tradable sectors increased their indebtedness in foreign currency during the period in which the peso was expected to appreciate, which suggests that the reserve requirement on capital inflows was not binding enough. Only when the crisis of 1998-99 exploded and the Chilean and the Colombian peso started to depreciate, the private sectors started to look eagerly for hedging instruments, which reinforced the pressures towards depreciating the domestic currencies.[26] The regulations in both Chile and Colombia were not strong enough to discourage the financial intermediaries passing currency mismatches through to their clients. As a consequence, when the peso actually depreciated, they had to pay a significant cost. In the Colombian experience, to some degree, the financial crisis of 1999 was explained by the sudden increase in the peso value of foreign liabilities due to the peso depreciation. Prudential regulation should have prevented this from happening by reflecting these risks in the balance sheets of the banks that used to lend to clients with this type of currency mismatch. In the case of Chile, the devaluation that was needed, because of the too appreciated exchange rate reached in 1996-97, was delayed thus giving time to private firms to reduce foreign debt with cheap dollars, at the expense of the Central Bank balance sheet and a costly monetary contraction: the delayed correction of the exchange rate was compensated with a sharp increase in the interest rate.

One main problem with the regulations that were used in Chile and Colombia is that they act on the flow of new foreign exchange liabilities and not on the stock of liabilities. Thus, *liability-flows policies* should be complemented with *liability-stock policies*. These stock policies should be primarily based on prudential regulation and supervision, imposing very stringent regulatory provisions to the banks lending to households and firms with large foreign currency mismatches (Villar and Rincón, 2003).[27] In addition, as suggested in Ocampo (2003), they could be reinforced with tax provisions applying to foreign currency liabilities. For instance, deductions for interest payments on international loans could be restricted to firms with foreign exchange revenues.

g) Foreign portfolio investment

While foreign direct investment (FDI) was entirely free in both Chile and Colombia since the beginning of the 1990s,[28] these countries maintained restrictions on foreign portfolio investment as a complementary policy to the reserve requirement on foreign loans.

Chile kept a one-year minimum stay for foreign portfolio investment (except ADRs) up to May 2000. Also, as already mentioned, since 1995 the reserve requirement was applied to the

[26] In 1998-99, the Central Bank of Chile issued dollar denominated bonds for an amount equivalent to 2% of GDP, at an exchange rate evidently overvalued, to enhancing hedging operations.

[27] Ffrench-Davis and Ocampo (2001) argue that the main problem with this option is that non-financial agents may borrow directly abroad; actually, restrictions solely on banks tend to encourage that direct borrowing.

[28] In the Chilean case, however, there was a one-year minimum stay before capital repatriation of FDI was allowed, and loans associated to FDI were subject to the reserve requirement.

purchase of Chilean stocks by foreigners (secondary ADRs). Still, foreign portfolio investment in equity played a very pro-cyclical role, as can be seen in table 7. Colombia applied a less restrictive regulation. ADRs were not subject to the reserve requirement on capital inflows and foreign investment in equity was freely allowed, provided that it was done through special purpose funds administered by financial institutions with residence in Colombia. Moreover, in order to accelerate the process of deepening the domestic capital markets for public debt, Colombia facilitated foreign investment in fixed interest securities in 1996. This purpose was certainly met during 1996 and 1997, before the crisis exploded. The stock of foreign investment in domestic public debt went from zero in 1995 to US$400 million by March 1998. Less than one year later, however, this amount had gone back to almost zero. Therefore, foreign portfolio investment in public securities, which was liberalized in order to facilitate public financing, reinforced the pro-cyclicality of foreign investment in equity.

(Table 7)

h) The role of domestic institutional investors in the foreign exchange markets

The stronger impact that the crisis of the final years of the 1990s had on the Chilean and the Colombian economies, compared with the impact of the tequila crisis, may be explained in part by factors already mentioned: the more appreciated exchange rates, the stronger and longer reduction in the supply of funds, the higher stock of debt and the higher exposure to volatile portfolio investment. An additional relevant factor may have been the role that major domestic institutional investors started to play in the foreign exchange markets during the second half of the 1990s.

Initially, the restrictions on the activity of domestic institutional investors in the foreign exchange markets were an essential part of the policy framework in which Chile and Colombia introduced the reserve requirement on capital inflows. However, the trend towards financial liberalization that dominated the international economy in the 1990s implied that some of these restrictions were gradually relaxed in the second half of the decade. This relaxation made it more difficult to avoid sudden capital outflows and portfolio reallocations as the ones that took place between 1997 and 1999, when the Asian and the Russian crises exploded. The effectiveness of the reserve requirement on capital inflows to reduce the financial vulnerability was therefore diminished by such relaxation.

The clearest example of this process of relaxation was related with the investment regime applied to the private pension funds. These funds became very important actors in the domestic capital markets in both countries. Paradoxically, their role in the foreign exchange markets was promoted during the second half of the 1990s, when the authorities in both Chile and Colombia considered that the effects of foreign capital inflows could be partly compensated by capital outflows originated by these institutional investors. They were then allowed to invest larger shares of their portfolios in foreign currency, expecting that they would play a counter-cyclical role. In practice, however, the role of these funds was highly pro-cyclical. They did not invest much abroad during the period prior to the Asian crisis, in which there were expectations of domestic currency appreciation. Instead, after the crisis exploded, they took advantage of their

more relaxed regulation in order to rapidly reallocate huge amounts of their portfolios abroad, thus reinforcing the demand for foreign currency and the pressures towards depreciation.

Hence, as argued in Ffrench-Davis and Tapia (2001), the attempt to use a more relaxed regulation on the pension funds proved not to be successful in order to encourage capital outflows during the boom. On the contrary, that attempt induced a higher degree of vulnerability of the foreign exchange markets and a reduction in the degrees of freedom of domestic monetary policies during the downturn (see also Ocampo, 2003; Zahler, 2005). Actually, the main source of the recessive adjustment experienced by Chile in 1998-99 was associated to capital outflows by the private social security agents; their net outflow was equivalent to nearly 5% of GDP.

i) Public capital flows and FDI

As mentioned in section 1, the behavior of fiscal accounts in the 1990s was entirely different in Chile and Colombia. Chile kept an average fiscal surplus of nearly 2% of GDP. Colombia, instead, experienced large and growing fiscal deficits during the last part of the decade. This implied that public financing was not an issue in Chile, while it certainly was in Colombia.

Table 5 (above) highlights the contrast between Chile and Colombia on this matter. Until 1994, both countries could use their fiscal surpluses counter-cyclically, reducing their public external debt in a period of large private capital inflows. In the Chilean case, this continued to be true in the following years. Most notably, in the biennium 1995-96, net public foreign borrowing was negative in US$ 3.6 billion, partially countervailing private inflows.

In Colombia, in contrast, there were net inflows of foreign credit to the public sector since 1995. Due to the size of the public sector deficit in Colombia, those flows became quite large, averaging US$ 1.1 billion between 1995 and 2001. Between 1995 and 1997, those flows acted pro-cyclically, reinforcing the pressures created by private capital inflows towards the appreciation of the Colombian peso.[29]

The impact of the Colombian fiscal deficit on capital flows did not only show up through foreign credit to the public sector. We already mentioned that foreign portfolio investment in Colombia was closely linked with the development of a public debt market, which in turn was urgently needed to finance the government deficit. In addition, the behavior and the characteristics of FDI in Colombia were largely influenced by the size of that deficit. This implied an important contrast with Chile.

Net flows of FDI were higher in Chile than in Colombia. The yearly averages between 1990 and 2003 were US$ 2.1 billion and US$ 1.6 billion, respectively (table 5). The difference

[29] Paradoxically, after 1997 net inflows of foreign credit to the public sector behaved again as stabilizers of total foreign financing. They, indeed, help to explain the fact that in 1998 the reduction in international reserves was much smaller, and that in the following years the recovery of those reserves was much faster in Colombia than in Chile. In that sense, the existence of larger fiscal deficits in Colombia, provided that they were financed abroad, helped to reduce the vulnerability of the Colombian economy to the changes in the mood of international financial markets.

between the two countries in terms of FDI in greenfield projects was even larger than suggested by these figures, which implies that the contribution of FDI to increase domestic capital formation and productivity was much higher in Chile. Indeed, until 1998, there was a clear positive relationship between FDI and gross capital formation in that country. Such relationship was lost in 1999, when most FDI became related to mergers and acquisitions (see Ffrench-Davis, 2002, p. 15). Still, it is interesting to notice that FDI played a counter-cyclical role in Chile in 1999 as compared to other private capital flows.

In contrast with Chile, FDI in Colombia corresponded mostly to privatizations and to investment in the oil sector. This implied that its relationship with domestic capital formation in the country was extremely week and that FDI played a pro-cyclical role. The period in which FDI was highest -1996 through 1998, according to table 5-, corresponds with a rapidly declining ratio of capital formation as a whole (see table 3). Actually, mergers and acquisitions (M&A) accounted for 58% of total gross FDI in that period (UNCTAD, 2003). A large part of FDI in Colombia was in practice an instrument of public deficit financing. This source of financing almost disappeared after 1998. Also, the natural cycle of investment in the Cusiana oil well implied a rapid decline of that source of FDI after 1998.

4. Concluding remarks

Chile and Colombia seemed to have done things right when the tequila crisis arrived in 1995, as far as they kept growing and had no signs of financial distress. After the Asian and the Russian crises, however, both Chile and Colombia were heavily affected. Does this mean that the capital account regulations that these countries had in place did not work? Was this the result of a badly designed exchange rate regime? Of course, any single answer to these questions would be extremely simplistic. From the analysis above we can extract the following conclusions:

(i) The type of capital account regulations that were used both in Chile and Colombia did work successfully in reducing the share of the short-term component of total capital inflows.

(ii) Also, they allowed monetary policy to increase the domestic interest rates relative to foreign interest rates, without strengthening the pressure to overvalue the domestic currencies. This was a positive outcome in the period of the boom of capital inflows, as far as it allowed monetary policy to behave counter-cyclically, and contributed to more sustainable real macroeconomic balances.

(iii) Some liberalization of the rules applied to both foreign portfolio investment and investment of domestic institutional investors in foreign securities, during the second half of the 1990s, created a more pro-cyclical environment for the management of the crisis of 1998-99.

(iv) The comparison between the Chilean and Colombian experiences illustrates the importance of fiscal austerity in periods of large capital inflows. The ability of governments to undertake counter-cyclical fiscal policies critically depends on what they do during the boom periods. The government can partially outweigh the effects of private capital inflows by reducing –counter-cyclically– its public debt during booms, as Chile actually did until 1997. Also, if there is a developed

market for domestic public debt, substitution of domestic debt for foreign debt may be a good mechanism to reduce pressures towards appreciation in periods of large capital inflows.

(v) Still, what Chile suffered in the crisis of 1998-99 shows that fiscal restraint is not enough and that private capital flows (particularly of outflows of domestic capital in that biennium) may introduce too much vulnerability, even in presence of capital controls. In fact, the capital account regulations on inflows used in Chile and Colombia were not enough to avoid that critical risk. Even with a low exposure to short-term debt, capital outflows may be very large when the domestic residents are able to invest abroad and long-term debtors can pre-pay their liabilities. This vulnerability may be mitigated with controls on the net foreign exchange position of the financial intermediaries, of the main institutional investors (like private pension funds) and of households and firms. Prudential regulation of the financial sector should require banks to reflect the risks that are implicit in lending to households or firms with important currency mismatches between their assets and their liabilities. Those mismatches could also be discouraged through tax provisions.

(vi) The exchange rate management may have played a role in aggravating the effects of the reversal in capital flows that took place in 1998-99. The exchange rate bands that were in place in Chile and Colombia were useful arrangements along most of the 1990s. The crawling bands, however, were more efficient to deal with pressures towards currency appreciation than with pressures towards currency depreciation. The credibility problems that were created by the bands led the authorities to restrict the exchange rate flexibility and to undertake very contractionary monetary policies during the crisis. The lack of exchange rate flexibility during the crisis was much more evident in Chile than in Colombia.

(vii) During the 1990s, the experiences of Chile and Colombia with domestic credit were entirely different. In Colombia, the impact of foreign capital flows was leveraged by domestic credit, thus reinforcing their pro-cyclical behavior. In Chile, the index of domestic credit/GDP behaved in a counter-cyclical way. Two lessons arise from these contrasting experiences. First, that a higher degree of financial depth and a stricter financial supervision may work as buffers against the shocks of foreign capital flows, as probably did in Chile. Second, that domestic financial regulation should not reinforce the pro-cyclical behavior of capital inflows, as actually happened in Colombia with the reduction of reserve requirements on domestic deposits before 1998.

Annex
Comparative Economic Size of Chile and Colombia, 2002

	Population	GDP (current prices)		GDP (PPP)		Gross exports of goods and services (% of current GDP)
	(million)	TOTAL (US$ billion)	Per capita (US$)	TOTAL (US$ billion)	Per capita (US$)	
Argentina	38	102	2,694	402	10,594	27.7
Brazil	174	452	2,593	1,312	7,516	15.8
Chile	15	64	4,244	149	9,853	34.1
Colombia	44	82	1,879	265	6,068	19.6
Mexico	101	637	6,314	879	8,707	27.2
Latin America (19)	**512**	**1,640**	**3,200**	**648**	**6,962**	**23.4**
Malaysia	24	95	3,915	217	8,922	113.8
Republic of Korea	48	477	10,006	784	16,465	40.0
East Asia (6)	**449**	**1,215**	**2,707**	**2,893**	**6,444**	**52.0**
South Africa	45	107	2,352	449	9,922	33.3
United States	**288**	**10,417**	**36,123**	**10,138**	**35,158**	**9.4**
World	**6,201**	**32,252**	**5,201**	**47,426**	**7,648**	**24.4**

Source: Based on figures from ADB, ECLAC, IMF and the World Bank.
East Asia includes Indonesia, Republic of Korea, Malaysia, Philippines, Taiwan and Thailand.
Latin America includes 19 countries.

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TABLE 1

CHILE AND COLOMBIA:
CPI INFLATION AND GDP GROWTH RATES, 1974-2003
(% changes per year)

	CHILE		COLOMBIA	
	CPI Inflation Rate	**GDP Growth Rate**	**CPI Inflation Rate**	**GDP Growth Rate**
1974-81	98.9%	3.3%	24.6%	4.6%
1982-89	20.7%	2.6%	22.5%	3.4%
1990	27.3%	3.7%	32.4%	4.3%
1991	18.7%	8.0%	26.8%	2.0%
1992	12.7%	12.3%	25.1%	4.0%
1993	12.2%	7.0%	22.6%	5.4%
1994	8.9%	5.7%	22.6%	5.1%
1995	8.2%	10.6%	19.5%	5.2%
1996	6.6%	7.4%	21.6%	2.1%
1997	6.0%	6.6%	17.7%	3.4%
1998	4.7%	3.2%	16.7%	0.6%
1999	2.3%	-0.8%	9.2%	-4.2%
2000	4.5%	4.5%	8.8%	2.9%
2001	2.6%	3.4%	7.7%	1.4%
2002 $_{p}$	2.8%	2.2%	7.0%	1.6%
2003 $_{p}$	1.1%	3.3%	6.5%	3.7%
Average 1990-2003	**8.5%**	**5.5%**	**17.2%**	**2.7%**

Source: Chile : Central Bank of Chile. Colombia: DANE.
p/ Preliminary

TABLE 2

CHILE AND COLOMBIA: GOVERNMENT EXPENDITURE AND DEFICIT, 1990-2003
(Shares of GDP in current pesos) [1]

	Central Government Expenditure		Central Government Surplus (+) or Deficit (-) [2]		Non-Financial Public Sector Surplus (+) or Deficit (-) [2]	
	Chile	**Colombia**	**Chile**	**Colombia**	**Chile**	**Colombia**
1990	20.2%	9.8%	0.8%	-0.9%	1.2%	-0.6%
1991	20.6%	10.9%	1.5%	-0.4%	1.5%	0.0%
1992	20.3%	12.6%	2.1%	-1.8%	2.5%	-0.2%
1993	20.5%	12.3%	1.8%	-0.7%	2.1%	0.3%
1994	19.9%	12.8%	1.6%	-1.4%	1.9%	0.1%
1995	18.6%	13.6%	2.4%	-2.2%	2.4%	-0.3%
1996	19.6%	15.7%	2.1%	-3.6%	1.6%	-1.7%
1997	19.9%	16.3%	1.8%	-3.8%	0.8%	-3.3%
1998	21.3%	17.0%	0.4%	-4.9%	-0.6%	-3.7%
1999	22.6%	19.2%	-1.4%	-5.9%	-1.5%	-4.1%
2000	22.4%	19.2%	0.1%	-5.9%	-0.6%	-4.2%
2001	22.9%	21.3%	-0.3%	-5.9%	-0.6%	-4.4%
2002 p	22.9%	21.4%	-0.6%	-5.6%	-1.6%	-3.6%
2003 p	22.4%	21.1%	-0.8%	-5.0%	-2.2%	-3.0%

Source: Chile: Dirección de Presupuesto (DIPRES) and Central Bank of Chile. Colombia: DNP - CONFIS (Cash basis) and DANE.

1/ GDP figures at current pesos have been adjusted to make old data compatible with the methodology adopted in 1996 and 1994, respectively.
2/ Does not include privatizations
p/ Preliminary.

TABLE 3

CHILE AND COLOMBIA: INVESTMENT AND SAVINGS, 1985-2003
(Shares of GDP)

	GROSS FIXED CAPITAL FORMATION (Shares of GDP at constant prices)		GROSS NATIONAL SAVINGS (Shares of GDP at current prices)	
A. CHILE	**Constant prices of 1986**	**Constant prices of 1996**	**Methodology 1986**	**Methodology 1996**
1985 - 1989	19.9%		16.5%	
1990	24.2%		23.2%	
1991	22.4%		22.3%	
1992	24.7%		21.5%	
1993	27.2%		20.9%	
1994	27.4%		21.1%	
1995	30.6%		23.8%	
1996	31.0%	26.4%	21.2%	23.1%
1997	32.2%	27.4%	21.6%	23.1%
1998	32.2%	27.0%	21.2%	21.8%
1999	26.9%	22.2%	21.8%	21.0%
2000	26.6%	23.2%	21.9%	20.6%
2001		23.2%		20.5%
2002 p		23.0%		20.6%
2003 p		23.4%		21.0%
B. COLOMBIA	**Constant prices of 1975**	**Constant prices of 1994**	**Methodology 1975**	**Methodology 1994**
1985 - 1989	15.8%		21.5%	
1990	14.0%		21.4%	
1991	12.9%		22.7%	
1992	13.9%	17.9%	19.0%	
1993	18.0%	21.8%	19.5%	
1994	20.7%	23.3%	18.6%	23.0%
1995	20.2%	22.3%	16.9%	23.0%
1996	18.5%	21.6%	12.8%	18.3%
1997		20.4%		16.2%
1998		19.0%		15.3%
1999		13.0%		13.4%
2000		12.4%		14.8%
2001		13.9%		14.5%
2002 p		14.4%		14.7% 1/
2003 p		15.7%		15.1% 1/

Source: Chile: Central Bank of Chile and IMF-IFS. Colombia: DANE -DNP
p/ Preliminary.
1/ Preliminary estimates by the National Departament of Planning.

TABLE 4

CHILE AND COLOMBIA: FINANCIAL SECTOR, 1990-2003

	Outstanding Credit/GDP		Non performing Loans / Outstanding Credit	
	Chile	**Colombia [1/]**	**Chile**	**Colombia [1/]**
1990	52.4%	24.8%	2.1%	4.0%
1991	48.7%	22.7%	1.8%	4.2%
1992	51.5%	24.4%	1.2%	3.1%
1993	55.7%	28.4%	0.8%	2.1%
1994	52.8%	31.9%	1.0%	2.4%
1995	55.4%	35.5%	0.9%	3.7%
1996	59.5%	37.3%	1.0%	5.1%
1997	64.3%	39.6%	1.0%	5.2%
1998	66.8%	37.8%	1.4%	8.7%
1999	69.2%	33.9%	1.7%	11.5%
2000	69.2%	27.1%	1.7%	9.4%
2001	69.7%	25.5%	1.6%	8.6%
2002	68.2%	24.8%	1.8%	8.0%
2003	67.2%	25.0%	1.6%	5.7%

Source: Chile:Central Bank of Chile, Banks and Financial Institutions Superintendence. Colombia: Banco de la República.

1/ Outstanding credit data does not include leasing transactions.

TABLE 5

CHILE AND COLOMBIA: CAPITAL FLOWS AND CURRENT ACCOUNT FINANCING, 1990-2003
(US$ Millions)

	a. Current Account		b. International Reserves Accumulation	c. Net Direct Foreign Investment	d. Net Foreign Credit to Public Sector [1]	e. Other Flows of Private Capital = b - a - c - d
	US$ Millions	Shares of GDP				
A. CHILE						
1990	-485	-1.5%	2,121	654	-222.0	2,174
1991	-99	-0.3%	1,049	697	-955.1	1,406
1992	-958	-2.2%	2,344	538	42.2	2,723
1993	-2,553	-5.4%	173	600	-357.0	2,483
1994	-1,585	-2.9%	2,919	1,672	-313.8	3,146
1995	-1,345	-1.9%	741	2,205	-2,085.5	1,967
1996	-3,083	-4.1%	1,122	3,681	-1,540.3	2,064
1997	-3,660	-4.4%	3,320	3,809	-125.7	3,297
1998	-3,918	-4.9%	-2,194	3,144	430.0	-1,850
1999	99	0.1%	-738	6,203	429.0	-7,469
2000	-897	-1.2%	337	873	-85.3	446
2001	-1,100	-1.6%	-596	2,590	481.1	-2,567
2002	-885	-1.3%	199	1,594	886.2	-1,397
2003	-594	-0.8%	-366	1,587	1,859	-3,218
B. COLOMBIA						
1990	544	1.2%	610	484	-45	-373
1991	2,347	4.9%	1,763	437	-347	-675
1992	876	1.5%	1,274	745	-56	-292
1993	-2,221	-3.4%	464	865	-158	1,978
1994	-3,669	-4.5%	199	1,298	-1,224	3,795
1995	-4,524	-4.9%	2	712	1,388	2,425
1996	-4,642	-4.8%	1,721	2,784	856	2,723
1997	-5,751	-5.4%	277	4,753	1,146	129
1998	-4,858	-4.9%	-1,390	2,032	1,469	-34
1999	671	0.8%	-315	1,392	647	-3,025
2000	628	0.9%	870	2,069	614	-2,441
2001	-1,250	-1.5%	1,217	2,509	1,484	-1,525
2002 p	-1,580	-1.8%	138	1,258	388	73
2003 p	-1,389	-1.8%	-184	837	469	-101

Source: Central Bank of Chile.IMF. Banco de la República.
p/ Preliminary
1/ Chile: Includes Central Bank's operations and excludes operations by the state-owned commercial bank (Banco del Estado). Colombia: Corresponds to the net loans to public sector plus the net investment in bonds issued by the public sector.

TABLE 6

CHILE AND COLOMBIA: INTERNATIONAL RESERVES AND DEBT STOCKS, 1990-2003 (US$ Millions)

	Foreign Private Debt		Foreign Public Debt	Total Foreign Debt [1]	International Reserves
End Of:	Short term [2]	Long Term			
A. CHILE					
1990	1,398	4,235	11,792	17,425	6,710
1991	1,135	4,675	10,554	16,364	7,638
1992	3,027	5,592	9,623	18,242	9,742
1993	2,999	7,167	9,020	19,186	10,252
1994	3,339	9,004	9,135	21,478	13,740
1995	2,816	11,419	7,501	21,736	14,783
1996	2,823	17,438	6,011	26,272	15,805
1997	1,438	22,126	5,470	29,034	18,274
1998	1,712	25,087	5,792	32,591	16,292
1999	1,198	27,571	5,989	34,758	14,946
2000	2,694	28,464	6,019	37,177	15,110
2001	2,051	30,363	6,124	38,538	14,400
2002	2,324	31,154	7,478	40,956	15,351
2003	3,710	30,391	9,227	43,328	15,851
B. COLOMBIA					
1990	1,409	1,113	15,471	17,993	4,595
1991	1,184	981	15,171	17,335	6,500
1992	1,612	1,250	14,416	17,278	7,728
1993	2,587	2,046	14,254	18,887	7,932
1994	3,213	4,806	14,718	22,737	8,104
1995	3,920	6,880	15,540	26,340	8,453
1996	3,151	11,572	16,394	31,116	9,939
1997	3,436	14,191	16,785	34,412	9,908
1998	3,002	14,891	18,787	36,680	8,740
1999	2,267	14,267	20,199	36,733	8,103
2000	2,315	13,207	20,610	36,132	9,006
2001	2,802	12,838	23,471	39,111	10,245
2002 p	3,063	11,492	22,785	37,340	10,844
2003 p	3,210	10,455	24,531	38,197	10,921

Source: Central Bank of Chile, Banco de la República.

p/ Preliminary

1/ Colombia: Includes financial leasing transactions.

2/ Refers to transactions originally contracted for one year or less

TABLE 7

CHILE AND COLOMBIA: NET FLOWS OF FOREIGN PORTFOLIO INVESTMENT IN EQUITY, 1990-2003.

(LIABILITIES) 1/

(US$ Millions)

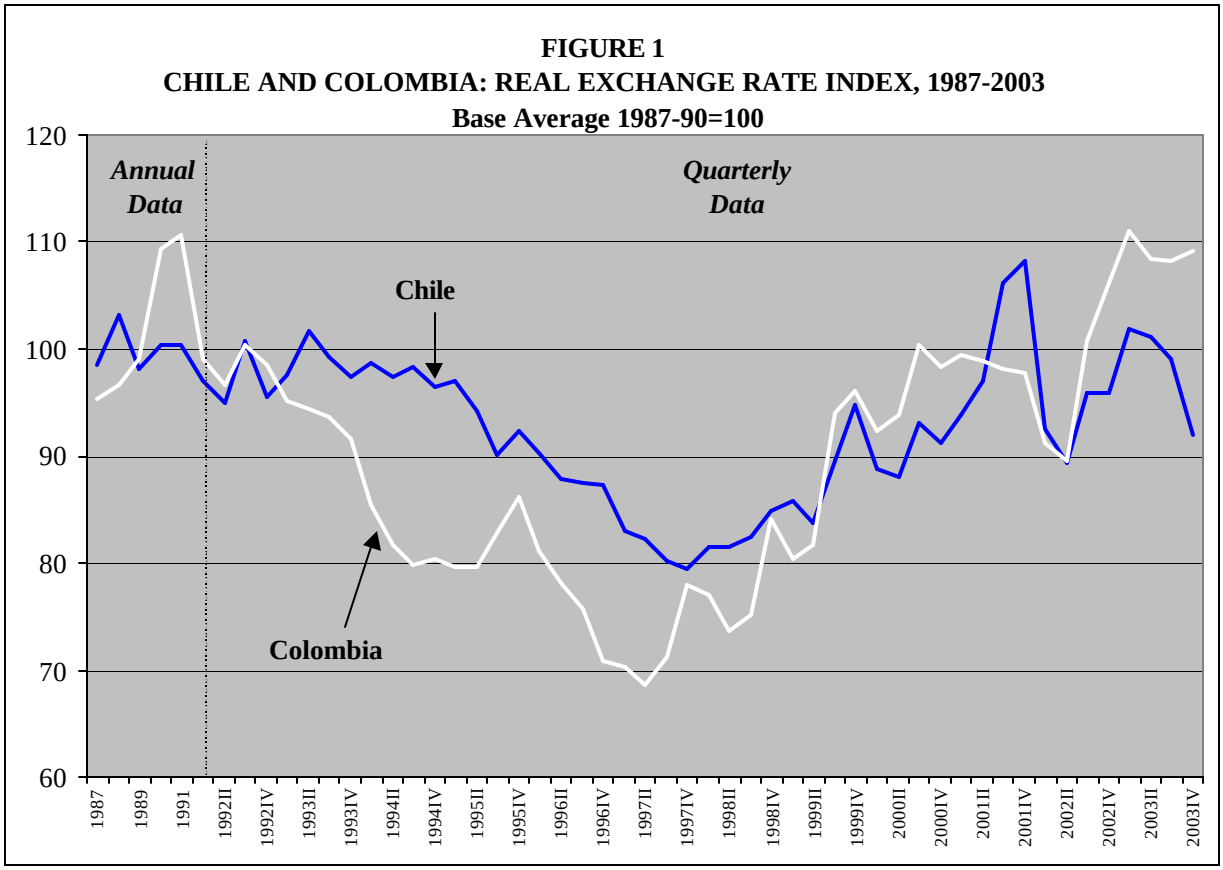
End of:	Chile	Colombia
1990	367	0
1991	24	5
1992	338	66
1993	561	145
1994	1,109	478
1995	-248	165
1996	700	292
1997	1,720	278
1998	580	47
1999	524	-27
2000	-427	17
2001	-217	-42
2002 p	-320	17
2003 p	312	-52

Source: Central Bank of Chile, Banco de la República.

1/ ADRs and Investment Funds

p/ Preliminary

FIGURE 1
CHILE AND COLOMBIA: REAL EXCHANGE RATE INDEX, 1987-2003
Base Average 1987-90=100



Source: ECLAC figures.
Average real exchange rate with main trading partners, computed with CPI. A higher real exchange rate indicates a more deppreciated domestic currency.