


Capital Account Regulation and Macroeconomic Policy:  
Two Latin American Experiences

by

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## I. INTRODUCTION

A new policy debate has arisen in Latin **American** countries after international investors' recent re-awakening **to** opportunities in emerging markets. Two polar positions have been defined in this policy debate. On the one hand, the "integrationists" defend financial integration on the grounds that free market operation will always produce the best result **for** the developing economy. On the other, the "isolationists" consider financial integration dangerous for macroeconomic stability, and prefer a developing world without market-determined international capital movements. The regulations that limit international financial integration have been at the center of this policy debate, as they define the degree **of** financial integration and the distance between reality and these two polar positions.

The debate is in itself surprising. An international macro-economist from only five or ten years ago would be extremely puzzled to see that the external financing problems that some Latin American countries are struggling with today relate no longer to the lack, but rather to the excess, **of** external financing. Colombia and Chile were denied access to external financial markets operating on a voluntary basis during the second half **of** the 1980s. Many analysts back then considered that market-based external financing was not to be resumed anytime soon. But everything changes, and so did the lenders' perceptions of the risk involved in holding emerging market assets. In the **mid-1990s**, market-based external financing, including medium- and long-term debt, direct investment, and portfolio investment, have been abundant for both

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countries.

In our opinion the polar positions are both to be rejected. Any developing economy has the need for international financial integration, not only because of the external financing needs of a rapidly growing economy, but also because of the long term advantages that can be derived **from** financial development, including risk diversification and the efficient provision **of** financial **services**. Despite these advantages, the **immediate** and complete opening up of the capital account implies very significant potential costs **for** the macroeconomic stability of the developing economy. Several experiences **of** the negative effects of excessive spending and external indebtedness prompted by private capital flows have already been recorded. Thus, the discussion that has been focused in terms of the convenience or inconvenience of opening the capital account should, we argue, instead be focused on the particular *strategy for international financial integration*.

The approach that has been favored in both Chile and Colombia is one of gradual and limited financial integration. Foreign exchange market regulations and capital account intervention (including regulations) have been used to limit the secondary effects of international financial integration and to deter interest-rate arbitrage, destabilizing speculation, bubbles and overshooting behavior **of** asset prices (including the real exchange rate). The strategies differ in the instruments used and in the emphasis of policies and objectives, but both place particular emphasis on neutralizing the disturbances to the current account and domestic prices caused by net capital inflows. The regulations are not exclusively based on macroeconomic policy considerations. In addition, they also relate to the potential problems derived from public insurance of the liabilities of financial institutions, and the need for monitoring and limiting their risk taking. Both deposit insurance and exchange rate guarantees may encourage over-intermediation of international funds by banks and an increase in systemic risk, expanding *therefore* the vulnerability **of** the banking system.\*

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<sup>2</sup> See Le Fort 1994 **for** a discussion on this subject.

This paper describes and analyzes the policies followed in Chile and Colombia regarding their external capital accounts during the 1990s. The policies are analyzed and assessed in the context of the macroeconomic and financial results obtained in the **period**. The first section of the paper deals with the **main** analytical issues relating to international financial integration, its costs and benefits, its implications for monetary and exchange rate policy, and the main limitations to financial integration. The second section of the paper describes the experience of regulated financial integration in Chile during the 1990s, including a brief historical review, a review of the foreign exchange market regulations and the regulations on capital **movements**, **and** the results in the capital account and at the macroeconomic level. The third section of the paper is devoted to an analysis **of** the Colombian case, including a review of the main regulations and intervention schemes in the foreign exchange **markets** and the regulations for different types **of** capital movements, with special emphasis on their reserve requirement system, and the results obtained. The last section presents our concluding remarks.

## II. MAIN ISSUES IN INTERNATIONAL FINANCIAL INTEGRATION

This section analyzes some important issues relating to the integration **of** the so-called emerging markets with the world's financial markets without making reference to specific countries. To some extent, this integration is the result of the change of views of investors regarding the risks represented by emerging markets, and to some extent it is the result of an explicit financial integration strategy pursued by developing countries during the 1990s. The issues discussed include the benefits and costs of financial integration, the implications *of* integration for monetary and exchange rate policy, and the policy instruments used to limit international financial integration.

The limits imposed upon the international integration **of** financial markets should not be seen as, themselves, a macroeconomic policy objective,

but rather as instrumental to more effective monetary and exchange rate policies. Given that these instruments have some **shortcomings**, they should be used only to a certain extent; the need for their use arises mainly as a result of concern about the effects of abundant external financing on the external *current* account and debt positions. This concern **in** general relates to the fact that large current account deficits and increasing external indebtedness erode the **country's** creditworthiness, rendering domestic macroeconomic stability vulnerable to external financial turbulence.

### A. Benefits and Costs of Financial Integration

#### Benefits

An open capital account has important benefits for an economy that is developing an outward-oriented development strategy, characterized by the growth of the sectors in which the country has comparative advantage. In principle, and perhaps oversimplifying, it can be said that the opening up of the capital account can be associated with two types of benefits:

(i) **Development of** the financial services sector: A developing economy may have comparative advantage in the production of financial services; if that is the case, an export sector would develop after the elimination of restrictions to international financial integration. However, it is also possible that foreign competition may take control of this industry, and the country may become a net importer of financial services. In any case, international integration would imply lower costs and better quality for users of financial services. Financial integration then allows for a reduced cost of capital and more efficiently provided financial services to help in the **intertemporal** stabilization of **consumption**.

(ii) Integration allows for a greater diversification of the asset portfolio of domestic economic agents, by making the composition of domestic portfolios independent of the composition of **domestic** production. In a financially closed economy, the composition of domestic asset portfolios tends to be closely related to that of domestic output. In a financially integrated

economy, foreign securities that derive returns **from** external productive activities which are independent from those of domestic activities allow for greater domestic income stability through greater diversification. **Income** of domestic residents becomes more stable to the extent that their portfolios include assets that derive their returns **from activities more or less** independent *from* domestic exports. Such diversification may be **used** to **compensate** for the (often great) volatility of national income that affects open economies due to the variability of individual export prices.

#### costs

Financial openness also, however, **poses** several costs, some of which are only valid during the transition to a fully integrated economy. Among these costs can be distinguished:

(i) Transitional costs: One way of looking at the process of financial integration is that it constitutes **a** way to overcome a stock imbalance. Financial liberalization allows stock adjustments, directing capital towards regions where the expected profitability of capital is greatest, or to where opportunities exist for risk diversification at a reasonable cost in terms of profitability. It is clear that in countries like Chile and Colombia, the returns to capital are typically higher than in the developed world, a condition that stimulates foreigners to invest and finance *investments in* them. Full *integration* implies **a** jump in asset prices within a relatively short period of time, and a massive inflow **of** foreign capital that lasts until the stock adjustment **is** completed and risk-adjusted domestic rates of return converge **to** the levels **of** foreign rates. This process, if it takes place in a short period of time, can be a source of macroeconomic imbalances in the form of **rapid** growth in investment, wealth and consumption, real currency appreciation, inflationary pressures and a widening current account deficit. It can create destabilizing wealth and expenditure effects, resulting in confusing signals to domestic consumers with detrimental effects on domestic savings, exchange rate stability and the stability of the growth process.

(ii) **Policy costs:** In a financially open economy monetary **policy** loses its ability to affect domestic macroeconomic conditions without modifying the external balance. In general, an increase in the real interest rate directed at controlling inflationary pressures will also result in an exchange rate appreciation, both of the nominal and real rates. The appreciation helps in reducing inflation, but may generate a larger current account deficit. In fact, under some conditions, in a financially open economy monetary authorities may be forced to choose between the inflationary target or the external balance objective. It is true that a tighter fiscal policy may be used in place of monetary restraint under these circumstances; however, real world fiscal policies lack the flexibility needed for short- or medium-term stabilization, particularly when the fiscal accounts are already in balance or in surplus.

(iii) **Deal costs:** Financial integration leaves the economy exposed to the turbulence of international capital markets, adding a risk factor and volatility to the exchange market which may affect macroeconomic balances. International capital markets can move very rapidly and almost without warning signals, from an optimistic lending phase in which funds are abundant and relatively cheap, to a pessimistic phase in which funds are not available and a sharp adjustment is forced. *The recent case of Mexico* and that of most Latin American countries in the 1980s come to mind in this respect.

(iv) **Systemic risk costs:** *Economic agents tend to perceive* the existence of publicly provided insurance to liabilities of financial institutions and institutional investors, whether or not it has been explicitly **offered**. This implicit or explicit insurance requires regulations that limit risk taking by those institutions. **Full** and unrestricted international financial integration allows portfolio selection from a wider set of assets, making it more difficult to control and monitor their risk-taking.

### B. Financial Integration, and Monetary and Exchange Rate Policy

The perceptions of foreign investors of the risk and *returns* from investment in the Chilean and Colombian economies have changed significantly following institutional changes and the success of macroeconomic policy. This change has **resulted in a very** significant reduction in **the risk** premium demanded by **investors** in these countries, which in turn has resulted in sizable capital inflows that have modified the degree of integration of the domestic financial markets into the corresponding international markets. It can be said that in economies like Chile and Colombia, the risk-adjusted marginal efficiency of capital has increased to levels above those prevailing in the developed world. As a result, capital tends to move into these economies, reducing the domestic cost of capital and increasing the prices of domestic assets.

Financial integration implies that **the integrating** economy is fully open to financial arbitrage. Consequently domestic real interest rates are forced to reflect the external real interest rate and a country risk premium. Any deviation from this requirement of risk-adjusted international interest rate equalization implies changes in the opposite direction in the real exchange **rate.**<sup>3</sup> However, the domestic interest rates required to generate domestic macroeconomic equilibrium may be higher than the rates forced by international arbitrage. In these conditions, when domestic interest rates are increased, in addition to the standard closed economy response in terms of a lower expansion of domestic expenditure, in the financially open economy, a real appreciation of the domestic currency takes place. The real exchange rate adjustment shifts demand towards the rest of the world, alleviating pressure on domestic output but also increasing the current account deficit.

The size and duration of the arbitrage effect of the domestic interest rate change on the real exchange rate depend on, among other factors, the horizon of planning of arbitrageurs and on the expected duration of the new

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<sup>3</sup> Throughout this paper we use the Latin American definition of the real exchange rate (RRR); that is, the **RER** increases when the domestic currency depreciates in real terms.



interest rate differential. The shorter their horizon, the lower the impact on the real exchange rate. It also depends upon the effect on the country risk premium of the exchange rate appreciation. If the increase in the country risk premium brought about by the real appreciation of the currency is significant, then the impact on the exchange rate is minimized.

International arbitrage may imply that the real exchange rate becomes and **remains, for** significant periods of **time**, out of line with respect to the authorities' external equilibrium objective. Consequently, the *current* account deficit may exceed, on a medium-term basis, what is sustainable over a longer term, rendering the economy vulnerable to a forced external adjustment. This adjustment **is** triggered if external creditors no longer consider it safe to continue lending to an addictive borrower. The market's automatic correction mechanism is the effect **of** the larger current account deficit on the country risk premium and on expectations of currency depreciation. If larger deficits make the market participants uneasy, then this by itself should stop **or** even **reverse** the capital inflows and thus correct the real exchange rate. However, it seems that market participants are not always very sensitive to this risk, and that they typically only react when it is too late, after the external conditions have worsened so much that a very large and painful domestic expenditure adjustment is **needed**.<sup>4</sup>

A first policy response to the real appreciation of the currency is to try to compensate for the effect of capital inflows on the exchange rate. This has been done through the *intervention of* the monetary authority in the foreign exchange market. However the **purchase** of foreign exchange by the Central Bank has thereby become the main source of domestic liquidity creation. To limit the effects of exchange *market* intervention on monetary conditions, the Central Banks have used different forms of sterilization, including the sale **of** bills **or** forcing the temporary holding of foreign

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<sup>4</sup> Experiences of the lack of sensitivity of market participants in the face of large external indebtedness include the Mexican crisis **of** the 1990s and the Chilean financial crisis of the 1980s. In both cases, financing was abundant up to a point at which a large adjustment was needed. (See Arellano, 1983; Budnevich and Cifuentes, 1983.)

currency certificates. **However**, this sterilization is costly for the Central Bank and losses arise from the international interest rate differential and the real currency appreciation: the Central Bank acquires assets that yield the international interest rate and that depreciate in real terms, while having to issue liabilities that pay the higher domestic interest rate and **keep** their real value. As a transitory mechanism, sterilized intervention **works**; however, on a longer-term basis, its effectiveness is impaired by the resulting financial losses.

A second alternative is to reduce the domestic interest rate. However, this reduction would create an increase in domestic expenditure that would put pressure on the price level, force a real currency appreciation and increase the current account deficit. An obvious solution **is** to reduce the interest **rate** and at the same time compensate for the effect on expenditure via a tighter fiscal policy. An austere fiscal policy directed at controlling the expansion of aggregate expenditure, limiting both public and private expenditure expansion, is a **must for** the final success of any stabilization **effort**. However, there are political limits to what **fiscal** policy can deliver, and thus restrictions or limitations to international financial integration may be required to **preserve** macroeconomic stability.

It is generally suggested that another way to compensate for capital inflows is by opening the economy to capital outflows, allowing domestic residents, **firms**, and financial institutions to hold assets abroad. Although a valid tool to favor the diversification of domestic portfolios, this is not effective as a tool to reduce net capital inflows. As domestic residents increase their holdings of foreign **assets**, they reduce the demand for domestic assets that they would otherwise be exercising. A lower demand for domestic assets, "**ceteris paribus**", is reflected in lower asset prices and higher asset **returns**, which act as additional attraction to foreign capital inflows. Furthermore, facilitating capital outflows reduces the risks faced by foreign

investors by **making easier the exit**. (See Lab&n and **Larraín, 1993.**)<sup>5</sup>

Limitations on international financial integration give additional degrees of freedom **to monetary** and exchange rate policies, allowing adjustments in domestic interest rates that cannot be arbitrated to the exchange rate. In **practice**, these restrictions give room for the use of monetary policy to gradually reduce domestic inflation, while keeping the current account deficit at reasonable levels.

The problem created by capital inflows for the effectiveness of monetary policy is better dealt with **by a flexible exchange rate**. In this connection, exchange rate stability is costly because it facilitates the international arbitrage **of interest rates**. If the Central Bank tries to actively **provide** exchange rate stability, it faces additional cost<sup>5</sup> in terms of higher **reserve** purchases, and at the end is forced to accept a more appreciated currency. In this sense, **avoiding** rules for official intervention, increasing the width of the exchange **rate band**, and using **a basket of currencies** rather than a single **currency to peg** the reference rate are measures that increase the effectiveness of monetary policy, by helping to insulate against excessive capital inflows. The ex ante volatility of the exchange rate also tends to deter short-run capital inflows as it removes exchange **rate** "guarantees" and thus helps to support a higher real exchange **rate**.<sup>6</sup>

### C. Limitations to Financial Integration

In order to reduce the need for sterilized intervention, several limitations to international financial integration have been used. These **restrictions, by** limiting the possibilities of financial arbitrage, have **given** : **some room for** the **operation** of monetary policy as **it** seeks to achieve domestic macro **balance**. In most cases the restrictions to capital transactions

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<sup>5</sup> Institutional investors and banks are subject to regulations and supervision of their investment<sup>5</sup> because of the systemic risk and public **insurance** problem. These restrictions are not related to the regulation of capital flow<sup>5</sup> to preserve macroeconomic stability.

<sup>6</sup> This point is developed in **G. Sanhueta, 1995.**

introduce registration procedures for international capital transactions. These procedures can be important sources of information for measuring the external accounts, and also for the tax authorities; but they also involve obvious **administrative** costs.

The first type of restriction is the use **of** dual **foreign** exchange markets. One market, the formal, is used for current account transactions and authorized capital flows, and the other, the informal, is used for other financial flows. In this scheme, financial arbitrage takes place in the informal market, **permitting** this secondary exchange rate to deviate from the authorities' target rate. Since the formal market is not subject to arbitrage, the current account is isolated from exchange rate volatility. During the days of scarce foreign financing, the informal rate reflected a more depreciated domestic currency than the rate in the formal market. The opposite should be the case under abundant external flows.

The dual exchange rate scheme has one serious shortcoming -- the existence of leaks that allow for arbitraging the differential between the exchange rates in the two markets. These leaks not only render the exchange restrictions ineffective, creating pressure towards the equalization of the exchange rates, but also imply significant costs. The leaks include the **over-** and under-invoicing of current account flows, and they tend to increase in importance as the absolute value of the premium becomes larger. The leaks, in general, result in quasi-fiscal losses and transfer of resources from the Central Bank to those agents that discover ways to buy foreign exchange in one market and sell it in the other at a premium. Additional costs of the leaks **are** the regulations and administrative costs incurred in the effort of preventing them.

A **second** type of restriction is the imposition **of** reserve requirements or other *more* direct measures that increase the marginal cost **of** external financing. The reserve requirements increase the cost of foreign financing since they demand the use **of** additional resources to finance the required deposit in the Central Bank. The reserve requirements may relate to all forms

of foreign financial flows; however, in practice, they have not generally affected direct investment and other **forms of equity** financing, **suppliers'** credits on imports, **or** advanced export returns.'

In general, the financial cost effects **of** the reserve requirements tend to be **stronger** for short-term financing and therefore work particularly against short-term arbitrage. In Chile, the required reserves must all be *kept in* the Central Bank for a **period of** one year, diminishing the relative financial burden for longer-term operations. In the case of Colombia, however, the requirement **is** variable depending on the maturity of the loan; **for** longer maturities the reserve requirement ratio (RR) is lower, implying discrimination against short-term inflows.

Mechanisms like the reserve requirements have certain limitations. First, they can be avoided by using vehicles that are not affected by the requirement; for example, accelerated export returns, supplier **credits, or** equity investments. There is a limitation, however, on what can be brought in through these alternative vehicles. The *requirements can* also be evaded by not registering capital flows, although penalties may be imposed on those who evade the regulations.

The reserve requirements are effective only under expectations of real exchange rate stability, and thus are unable to stop a speculative attack created by expectations of exchange rate adjustments. The capital gains that can be made with a discrete exchange rate jump cannot be sufficiently reduced by the financial cost **of** the reserve requirement. This implies that, despite the reserve requirement, only exchange rates that are consistent with market expectations can be successfully defended. The equilibrium trend **of** the exchange rate, even if **it** represents a significant real appreciation **of** the currency, cannot be influenced by such policies. An exchange rate adjustment can be spread more over time, but only to a certain extent. The reserve requirements as well as the other **restrictions** to financial integration

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<sup>7</sup> An exception to this rule is the reserve requirement imposed on secondary ADR inflows in Chile.

increase financing costs **for** individuals and firms, limit business opportunities for the financial *sector*, and reduce portfolio diversification for domestic **agents**. They also affect the equity-debt mix, and create financial segmentation **that** tends to favor big over small enterprises, and to encourage **informal means of** financing. They are thus not free of private and social **costs**.

Other types of restriction **affect** the ability of domestic **firms** and financial institutions to issue debt or stock in international capital markets. These restrictions can take the form of discretionary authorization or of conditions like a minimum credit rating, minimum amount issued, or others. In this respect the purpose of the restrictions **is** not only related to limiting the external capital inflows but also to screening the companies that are authorized to participate in international capital markets. Since the actions of each firm generate externalities to others, in the sense that all of them are seen as firms belonging to a particular country, some type of screening process is required.

Finally, restrictions may be applied to portfolio investors from abroad in the form of quantitative restrictions on entry into domestic markets, or minimum stay (or permanence) requirements.

Restrictions on international financial integration are effective to a certain extent but could not be considered a cure-all or a way to completely isolate the domestic economy from the realities of the international financial markets. There are always ways to circumvent the restrictions, ways that tend to be reinforced the larger is the risk-adjusted interest rate differential. Consequently, only to a certain extent is it possible to use these restrictions to give some *room* **for** manoeuvre to domestic monetary policy.

### III. REGULATED FINANCIAL INTEGRATION IN CHILE

During the **1990s**, important policy measures have been taken to regulate the financial integration of the Chilean economy with international markets. These **measures**, together with the recognition **of** the Chilean economy in financial centers, have allowed for increasing financial integration and **for important** changes in the composition of Chilean capital flows during the 1990s. The foreign exchange market and capital flows regulations existing in the Chilean economy are briefly reviewed in this section. In addition the results derived from this strategy are **presented**.<sup>8</sup>

The regulations are directed to reducing potential effects on macroeconomic stability, increasing the effectiveness **of** monetary policy, and imposing prudential regulations on banks and institutional investors. They have taken the form of exchange market regulations, capital flows regulations and other related policies.

#### A. Brief History of Regulations

Financial activity, which had been repressed **for years** by negative real rates of interest and administrative allocation of credit, and with the majority of financial institutions under government control, entered an accelerated liberalization process **in** the 1970s. After decades **of** financial repression, the **supervisory** institutions lacked the *experience necessary* to impose prudential regulations effectively. The result was a financial system with insufficient capitalization, that went into bankruptcy in the early 1980s. A deep recession, beginning at the end of 1981, eroded the solvency of financial institutions which were in a very vulnerable position. The trigger for the crisis was a sharp reduction in external capital inflows and a deterioration of the terms **of** trade, causing a sharp adjustment in domestic expenditure. The financial crisis spread throughout the financial system by the beginning **of** 1983.

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<sup>8</sup> For a complete description **of** the regulations and capital account results in Chile in the 1990s, see **Le Fort** and Varela, **1995**.

The volatility of international capital flow<sup>5</sup> played a very important role in setting off the **crisis**. A significant proportion of capital flow<sup>5</sup> entering the country in the period prior to the 1982 crisis was intermediated by the financial system. The removal of *restrictions* to capital inflows, when domestic **interest** rates, duly adjusted **for** exchange risk, widely exceeded international rates, generated a massive capital **inflow** which financed a strong expansion of domestic spending. The external debt problems provoked a drastic change in the direction of capital **flows**, forcing an adjustment and contributing to the deepening of the **crisis** of the financial system.

The financial institutions recovered *from* the crisis in the second half of the 1980s. After their experience, a macroeconomic policy characterized by caution and a concern to control the expansion of expenditure has resulted, during the **1990s**, in moderate current account deficits. Macroeconomic policy has defined a target range for the medium-term current account deficit of between **3%** and 4% of GDP. External financing has more than exceeded financing requirements, resulting in significant increases in international reserves. As a result of balance of payments flows alone, international reserves increased by almost **US\$ 10 billion** in the period 1990-1995, reaching a level of around **US\$ 14 billion** by the end of that period despite the pre-payment of public external debt of about **US\$ 1.5 billion**.

The policy of external financial opening pursued by the Chilean authorities in the 1990s is characterized by the maintenance of a series of regulations which affect the foreign exchange market and the capital account, and limit the *degree* of integration of external and domestic markets.

#### n. Foreign Exchange Market Regulations and Intervention

During the **1990s** the Chilean foreign exchange market has evolved from a dual market to an increasingly unified market. The formal foreign exchange market is affected by regulations and access restrictions, while the informal foreign exchange market is fully liberalized. Total unification has not been achieved yet, but the exchange rate differential in both markets is almost



**non-existent** -- less than a 0.5% difference on average in 1995. The dual exchange market was conceived as a way to isolate the formal market exchange rate -- the one at which *trade* flows were carried out -- from the volatility of capital flows, particularly portfolio outflows that must be carried out through the informal exchange market. **Over** time, however, the duality has lost relevance since the risk of portfolio outflows has almost vanished.

Some transactions must be effected through the formal market: in particular, all foreign portfolio capital inflows must be processed through the formal market. Investors and **borrowers** obtain, in exchange, the right to access the same market at the time of servicing the debt or remitting profits or capital. **Other** capital outflows, including foreign direct investment and portfolio investment by residents, cannot be carried out through the formal market. Finally, there are transactions that can be carried out in either of the two exchange markets. These include exports and imports of goods and **non-factor** services.

The dual exchange market approach has been gradually revised. Increasing confidence has allowed the reduction of exchange restrictions, particularly those affecting export proceeds. In several steps, the export surrender requirements **were** first reduced and then, from June 16, 1995, completely eliminated. The exchange market *regulations* that remain in place are mostly related to capital flows, and can be considered complementary to the regulation **of** foreign exchange market flows.

The formal foreign exchange market operates under a managed float within an exchange rate band. Central Bank intervention is directed to maintaining the nominal and, through it, the real exchange rate within a range consistent with a sustainable current account position. In an indexed economy like that **of** Chile, changes in the nominal rate only affect the level of the real exchange rate for a limited time. It is understood that the real exchange rate cannot be permanently affected through the nominal rate and that it is necessary to create adequate conditions in terms of real variables to attain that result.

By "external equilibrium" the authorities understand the maintenance of a deficit in the current account **of** the balance **of** payments, which, while allowing the use of **a** reasonable amount of external saving **for financing** domestic investment, still ensures that the increase in external debt is compatible with the long-term growth of the Chilean economy without introducing a significant source of further external vulnerability for the country. In practice, this means a deficit on current account **of** the order **of 3% to 4%** of GDP. Obviously this target **is** interpreted as an average since in any given year the current account deficit must be permitted some divergence from the average.

Since the market has been at, or close to the more appreciated end **of** the exchange rate band, the Central Bank, as noted above, has accumulated a significant amount of net international **reserves**, while a significant portion of the external public debt **has** been pre-paid. The monetary impact of official intervention in foreign exchange markets has been sterilized through the issuance of Central Bank debt.

### C. Regulations on Capital Movements

The regulation of capital movements differentiates between direct investment and debt **flows**. Direct investment is **favored** due to the assumed positive externalities associated with foreign investment, including access to international markets and the transfer **of** management techniques and technology. As a consequence, the direct investment regime is fairly liberal, while the regulations are directed to limit foreign indebtedness, particularly that of a short-term nature. The only important restriction for direct investment is the one-year minimum stay. Portfolio investment through **ADRs** placed in New York is limited by credit rating and minimum amount conditions.

#### Direct investment inflows<sup>9</sup>

Direct investment is subject to a minimum stay of one year for the

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<sup>9</sup> **Decre** Law 600 (**DL-600**), and Chapters XIX and XIV of the Central Bank Foreign Exchange Regulations (CBFXR).

principal. Profite, with the single exception of investment performed through debt conversions, are not subject to time limitations. The rules that allowed for foreign investment through debt conversions were eliminated in mid-1995.

portfolio investment inflows, ADRs<sup>10</sup>

**Procedures** relating to bonds and American Depositary Receipts (**ADRs**) -- which represent the acquisition by foreigners of stock shares of domestic companies -- set limits on the right to issue these types of instrument in terms of minimum amount and risk classification. Initially the minimum amount demanded for the issuing of non-financial firms' **ADRs** was **US\$ 50 million**. From September 1994 this was reduced to **US\$ 25 million**. At the same time it was decided to reduce the issuers' long-term debt risk rating to BBB or better for non-financial companies, and to **BBB+** or better for banking institutions. This rating has to be granted by three internationally-recognized risk-rating agencies.

Beginning in July 1995, the secondary ADR inflows are subject to the 30% reserve **requirement** that relates to most forms of foreign indebtedness. In addition, in November 1995, and for those companies that have at least one previous issue, the minimum amount for primary issues of **ADRs** (not subject to the RR) was reduced to **US\$ 10 million**. A condition imposed on the new primary issues is that all previous issues of the same company become subject to the **same** regulations as the last issue.

Other portfolio capital inflows

Regulations on debt-related capital flows and on deposits of non-residents are tighter. Instead of minimum stay or credit rating requirements, these types of flows are influenced by a reserve requirement. The purpose of the reserve requirement is to increase the cost of external financing, and consequently increase the level of the domestic interest rate at which international arbitrage results in external inflows. At present, the reserve requirement ratio is 30% of the value of the loan, bond or deposit, and the reserve deposit must be placed at the Central Bank in US dollars.

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<sup>10</sup> Chapter XXVI of the CBFER.

**Loans and bonds**<sup>11</sup>

External loans and bonds issued abroad are subject to a 30% *reserve* requirement, to be kept in the Central Bank for a period of one year, irrespective of the maturity of the loan or bond. In all cases, the reserve deposit must be constituted in US dollars; however, an alternative to the **deposit** is the payment, in advance, of the financial cost implied by the *reserve requirement*. In addition, bonds are subject to regulations similar to **those that** affect **ADRs**. There is a minimum amount of bonds to be issued, **US\$** 25 million *for* corporate bond emissions, and a minimum risk rating of BBB for non-financial issuers and BBB+ **for** banks.

**Deposits and credit lines**<sup>12</sup>

External credit lines, used mainly to finance trade operations, are also subject to the 30% reserve requirement which is applied on the average balance of the month. Similar is the case of foreign currency deposits. *Foreign* currency deposits and placements *in* foreign currency are also subject to the reserve deposit of 30%, applied on the average balance of the month.

**Capital outflows**

With respect to the acquisition of foreign assets by Chilean residents, regulations are rather liberal with the sole exception of prudential restrictions imposed on banks and institutional investors.

**Foreign investment by the Chilean non-financial private sector**<sup>13</sup>

*Foreign* investments carried out by individuals and by non-financial companies are not in practice subject to any restrictions. The only limitation is related to **access to** the formal foreign exchange market, which **is** not always granted. In any case the informal market is readily available at a rate roughly the same as in the formal market. (The spread between the two markets averaged **less** than 0.11 during 1995.) This measure **has** greatly facilitated

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<sup>11</sup> Chapter XIV of the CBFXR.

<sup>12</sup> Chapters III and XIII of the CBFXR.

<sup>13</sup> Chapter XII of the **CBFER**.

Chilean investment abroad, which has also enjoyed a notable boom since 1990. Chilean investment *abroad* is concentrated mainly in the financial services, electrical, and transportation and telecommunications sectors.

#### Foreign investments of Chilean institutional investors<sup>14</sup>

Foreign investments by pension funds, mutual funds and life insurance companies are subject to certain limits as to the amounts and types of foreign assets that they can hold. These restrictions were recently upgraded by the Central Bank *after* the approval by Congress of a new capital market law. Pension funds are authorized to hold up to 9% **of** their total funds in foreign assets, which may include a variety of fixed-income assets and company shares; the latter are limited to 4.5% of the fund. Life insurance companies are limited to investments of up to 10% of their funds in foreign assets. The limit on general insurance companies is **15%** of their reserves, and for mutual funds the limit is **30%** of the fund.

#### Foreign investments by banks

Regulations on foreign asset holdings by **commercial** banks are associated with the problem **of** systemic risk and deposit insurance affecting the banking system. Foreign financial investments by commercial banks are limited to 25% of the bank capital and **reserves**, and restricted to bills and bonds issued or *guaranteed* by foreign governments or Central Banks. Banks are also authorized to use foreign currency deposits and credit lines to finance trade within the Association for Latin American Integration (**ALADI**). In addition, commercial banks can acquire stock of foreign banks or establish branches abroad provided that the domestic banks have a capital adequacy index of 10% **or** more. (This index, based on the Baele Convention, measures capital as a proportion of the value of total assets adjusted by credit risk.) **Only** to the extent that bank supervision can be effective in monitoring the risk of foreign assets is further liberalization possible in this area.

#### p. Capital Account and Macroeconomic Results

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<sup>14</sup> Chapter XXVI of the **CBFER**.

The international perception of the reduction of the risk of Chilean investment is reflected in several indicators. The investment grade rating **for** Chilean public debt, equivalent to **S&P's** (A-), which **is** given by the **most prestigious** international agencies, **is** the highest in Latin America and comparable to that **of some countries in** Southern Europe and South East Asia.

The reduction **in** the international **perception of risk in** the Chilean economy has resulted in a substantial increase in the supply of external funds available for the country. Net capital inflows have been significant over the last five **years**, averaging 6.6% of GDP over the period 1990-94, with a maximum **of 9.4%** of GDP in 1990. With a current account deficit **averaging** only 1.5% of GDP, the available external financing has been more than necessary or desired and, as a **result**, Central Bank net international reserves increased markedly, by about 10 billion dollars, to a level equivalent to 26% of GDP and more than one year of imports by the end of 1995 (**see Table 1**).

One question that has been asked **is** whether under these circumstances the existing capital account regulations have been effective. Particularly the reserve requirement has been under scrutiny. Certainly, if effectiveness includes stopping capital flows, the regulations are not effective **since** they have continued at a significant pace. However the effectiveness of regulations should be measured only in terms of their **objectives**, which do **not** include drying up the capital account. The first objective **is** to favor equity over debt financing and long-term financing over **short-term** financing. The second is to allow the operation of a tight monetary policy without resulting in large current account imbalances.

As a **consequence** of the capital **account** regulations, a significant change in the composition of the capital account occurred in the 1990s. Foreign direct investment and longer-term portfolio investment (associated mainly with the placement of **ADRs**) grew **in** importance relative to external indebtedness. Indeed, net foreign investment **plus** portfolio investment grew from about 3% **of** GDP in 1990 and 1.2% of GDP in 1991, to 2.5% in 1993 and 4%

in 1994.<sup>15</sup> In recent years there has also been a change in the composition of external borrowing, with a trend towards more debt of medium and long term and a consequent reduction in external short-term financing. In fact, in 1990 external short-term debt financing **amounted** to 4.6% of GDP, while in 1994 short-term financing was equivalent to 2.4% of GDP (see Table 3).

Monetary policy has been tight, with the short-term real interest *rates averaging* 6% per annum while the annual inflation rate has fallen from almost 30% in 1990 to 9% in 1994. Inflation reduction has been based on the control of expenditure expansion. Expenditure control has paid off not only in terms of low inflation but also **in** that the current account deficit has averaged less than 2% of GDP over the 1990s. The expenditure control has been achieved through high interest rates, higher than the standards in the developed world. This result would not have been possible if capital account regulations had not been effective, because under such circumstances capital inflows would have made it impossible to keep rates above international levels (see Table 4).

At the same time, the economy has been growing at an average rate of 6.5% per year during the 1990s, with exports leading the expansion. It is possible to conclude that reserve requirements have been effective in limiting the international integration of fixed-income markets. The international interest rate differential would not have been possible without this type of restriction. Longer-term markets show, **ex ante**, a similar spread as short-term markets. The explanation seems to be that for longer terms the insurance premium against country risk is higher, thus offsetting **the lower** financial effect of the reserve requirement.

At the same time an important segment of the Chilean equity market has been effectively integrated with international stock markets through the **ADRs**. **However**, the risks associated with the price of each particular stock, or even

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<sup>15</sup> If we exclude *from total* foreign investments those performed through external debt instruments, the change in the composition **is** still more significant. Net foreign investments as a percentage of net capital inflows rises from 20% in 1990 to 44% **in** 1994. The remainder is external borrowing which falls from 80% to 56% in the same period.

with an index of them, make it very difficult to perform international financial arbitrage through **this** mechanism.

It **is** important to note that the reserve requirement cannot be used to avoid a trend of real appreciation of the **domestic** currency. Indeed in Chile the real effective exchange rate has shown **an** appreciating trend averaging 4% **per** year during the last five years. The **currency** appreciation trend has been an equilibrium trend, in the sense that it has been consistent with a sustainable deficit in the current account of the balance of payments of less than 2% of GDP. **In** the face of expectations of currency appreciation, the reserve requirement is ineffective in stopping capital inflows. The financial cost implied by the requirement, 2 or 3 percentage points per annum, can be easily offset by an expected appreciation of 1% or 2% in the following few weeks.

**Domestic** financial indicators show that the capital account regulations have not resulted in **an** impaired financial **system**. In fact, despite the regulations, the financial system and the capital markets have achieved very significant development in Chile over the last few years. The rapid development of the banking **system** is shown in the expansion of the total liabilities of the financial **system** to the private sector (**M7**), which have increased from 474 of GDP in 1990 to 674 of GDP in 1995. At the **same** time, the real rate of return on capital of domestic banks has been kept at a high and **stable** level. On average, between 1990 and 1994 commercial banks earned 209, in real terms, on their capital and reserves.

The results in the stock market are even more remarkable. On average, the stock market index measured in US dollar **terms** increased 40% per year in the period from December 1989 to December 1995. **As** a consequence, total stock market capitalization towards the end of 1995 increased to the equivalent of 125% of GDP, compared with 504 of GDP in 1990.

#### IV. CAPITAL ACCOUNT AND EXCHANGE **RATE** POLICY IN COLOMBIA

During the **first** half of the 1990s, the Colombian economy was engaged in



a wide-reaching program of structural reform. The **program** included the opening of the economy to international trade through the elimination of administrative restrictions to imports and a generalized reduction of tariffs; the subscription to bilateral international trade agreements with Venezuela, **Mexico** and Chile; the creation of a Ministry of Foreign Exchange and a Foreign Commerce Bank; the introduction of **measures** increasing the flexibility of the exchange rate; the enhancement of possibilities to acquire external financing for national agents; the removal of restrictions on external investment and the establishment **of** national treatment for foreign investors; the reduction **of** the overall taxation rate; labor market liberalization and privatization of part of the social security system; privatization of some public enterprises; and the reform of the central bank charter to grant it legal independence.

#### **A. Exchange Rate Regime and Sterilization**

Since the end of the **1970s**, Colombia had used a crawling peg exchange rate regime. The **Banco** de la Republica (BR), Colombia's Central Bank, has made a daily announcement of the rate at which the bank was willing to engage in foreign exchange transactions. Towards the mid-1980s, the rate of currency devaluation had consistently lagged behind inflation rate differentials, resulting in a sustained real appreciation. The BR response was an acceleration **of** the devaluation program, even above the inflation rate differential, improving competitiveness at the cost of higher **inflation**.<sup>16</sup>

In 1991, the **BR** was granted political independence through a constitutional reform. The new Central Bank charter formally established a commitment to the reduction of inflation. In a context of stubborn inflationary pressures and a tendency to currency appreciation, the **BR** reformed the exchange rate regime, introducing exchange certificates (EC), aiming at a more flexible and market oriented exchange rate. In this way, the

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<sup>16</sup> According to **Carrasquilla**, macroeconomic policy never sought explicitly the reduction of inflation since it constituted an important source of resources for the public sector, characterizing what he calls an accommodative exchange rate policy.

first **formal** exchange market **in** many years was established.

The scope for using sterilization policy hinges on the cross-border mobility of capital. As benefits, one can mention the recovery of monetary control **and** the avoidance of excessive intermediation through the banking system without increasing intermediation costs, as happens with the reserve requirement. Among the associated costs, it is worth mentioning that monetary sterilization has implied an increase in interest rates and an increase in the **quasi fiscal** deficit.

The intervention mechanism in Colombia combined, in the same transaction, exchange market intervention and sterilization. The Central Bank purchased foreign exchange with **ECs**, a dollar-denominated financial instrument issued by the BR that initially was redeemable at the BR in pesos at full value and on demand. The redemption price, in pesos, of these instruments was determined daily by the Central Bank, and corresponded to its liquidation price at the maturity date. This price is similar to the exchange rate and was called "the representative rate".

From June **of** 1991, the **ECs** maturity term was extended first to **three** months and then, *in* October, to one year. These financial instruments could be sold at a discount in the secondary market, and the Central Bank opened a discount window to redeem **ECs** at 0.875 of their value, a discount of 12.5%. Foreign exchange was sold to the BR in exchange for the **ECs** at a rate fixed by the Central Bank, the exchange certificate redemption rate (ER). The ER itself continued to operate in a crawling peg fashion but now a gap was generated with respect to the market rate. This gap was fundamentally determined by domestic interest rates (*since* the ECs were substitutes for other peso-denominated financial assets) and the expected rate of devaluation of the official exchange rate (ER). When interest rates rose, the gap became larger, and the market rate appreciated, converging to the exchange rate floor which was 0.875 (ER), the value at which the BR bought back new **ECs**.

The nominal value at time T of an "EC-dollar" was **equal** to the official exchange rate (ER) at time T. The market value of an • EC-dollar with maturity

date **of T+1**, which claims the right to 1 dollar, and is bounded by the discount price at which it can be sold to the **BR** (the floor), must be determined **as** a function of the expected official exchange rate (ER) at time **T+1**, and the opportunity **cost** given by the interest rate of peso-denominated debt issued by the **BR**. The price in **pesos** could be written as:

$$P_{\text{ecdollar}} = \frac{E(ER_{T+1} / ER_T)}{(1+r)} ER_T$$

The floor price **is** determined by the **BR**, which **buys** an "EC-dollar" at a discount of 12.5% of the official exchange rate (ER):

$$P_{\text{ecdollar}} = 0.875 ER_T$$

If the foreign-exchange market **works** efficiently, the EC price should correspond to the market exchange **rate** which depends positively on the level of the official exchange rate (ER), **its** rate **of** expected devaluation, and negatively on the interest rate.

The **ECs** tied the **BR** hands **in** the conduct of **its** monetary policy. If the **BR** raised interest rates through open market **operations**, the market exchange rate (the price in **pesos** of the EC dollar) would be pushed to the floor, and intermediaries would liquidate their EC **stocks**. **As** the **stock** of **ECs** in the market fell, the monetary stock would free eliminating the initial interest rate rise, unless sterilization with peso-denominated debt was **practised**. The system operated practically as a pseudo flotation-band, given that by arbitrage the market price could never fall below what we have called the floor. If the market rate **rose** above the ER, **agents** would lower their stock of **ECs**, which **is** equivalent to buying dollars from the **BR** to **sell** them to the market.

Back in the crawling-peg years, monetary sterilization had been performed through open-market operations. The introduction of **ECs** was done with the objective of eliminating the need for **such** sterilization, or

performing it directly in the exchange market. The system was of very limited effectiveness. As long as market operators accumulated EC stocks, the flow of dollars going into the market and hence central bank intervention were **reduced**. At the point when the flow of EC liquidations was equal to the issuance of new certificates, however, the sterilization effect of EC was nullified. The attempts at forcing an **increase** in the EC stock through longer maturity **for** the EC were bound to **fail**.<sup>17</sup>

In January of 1994, the EC system was discontinued, and an exchange rate band of **±15%** around a central parity entered into operation. The Central Bank intervened, within the band, in both the spot and future exchange markets. The **BR** announced daily the central parity rate for the next 10 days, and the rate of devaluation of the central parity was initially set at 11%. Parallel to the band, the BR established a "monetary corridor", that is a band for M1 which the **BR** is committed to maintain through operations in its peso-denominated debt. In December 1994, and as the market rate put pressure on the band, the band's central rate was appreciated by 7%. As a compensation the rate of subsequent devaluation of the central parity was increased to 13.5%.

#### B. Foreign Exchange Restrictions and Public Debt Policy

In 1991 a formal foreign exchange market was created, substituting for the previous exchange controls through licenses, a mechanism that had existed since 1967. Resolutions 55 and 57 authorized banks, financial corporations, and to some extent savings funds and commercial financing corporations, to operate as authorized dealers in the exchange market. Article 1.2.4.01 of resolution 57 stipulated that the more important trade and investment operations, including imports, exports, and foreign investment and loans, must be channelled through the formal exchange market.

The authorized dealers in the market could negotiate foreign exchange proceeds coming from the activities required to be in the formal market, but

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<sup>17</sup> Towards the end of 1992 and the beginning of 1993, the liquidation of **ECs** forced the monetary authorities to tighten their market operations. The **open-market** operations were made through the sale of **BR** notes.

also with currency coming *from* other activities. Dealers were also authorized to trade among themselves and with the BR. The transactions, including the exchange rates, **were** to be reported daily to the Banking Superintendent and the BR. Resolution 55 authorized the BR to intervene in the exchange market through transaction in **ECs**, certificates that **were** denominated in dollars but payable in pesos. They were freely negotiable and could be liquidated at the BR before their maturity at a discount rate. It was established that the BR was not to negotiate dollars with the public, and only to do so by means of **ECs** with authorized intermediaries or with the government.

Two measures forced dealers to align their rates with the ER. In order to sell dollars to the BR, a domestic agent had to buy **ECs** through a market dealer. In order to acquire dollars **from** the BR, the agent had to liquidate **ECs**, obtaining them **in** the secondary market. As mentioned above, the principal objective of the new regime was to give more flexibility to the exchange rate, avoiding the important **cost of sterilized** intervention. This was the first step **towards** a flexible exchange rate, which allows more flexibility in monetary policy to stop inflationary pressure.

Before the establishment of the EC regime, the BR had centered its monetary policy on the sterilization **of** the effects of significant capital flows coming from abroad. This produced a consistent financial effort for the BR since the cost of its domestic debt grew continuously in **importance**.<sup>18</sup> Inflation continued unabated as the BR tried to compensate for the observed real appreciation through a **more aggressive** devaluation calendar that induced additional capital inflows. By 1991, there was a widespread perception that the devaluation program was not sustainable. The **devaluation-intervention-sterilization** cycle was too costly for the BR and the expectations of real appreciation that ensued generated a more vigorous capital inflow. Exchange rate flexibility was the only way out **of** this pervasive cycle.

The EC system produced, in the short term, an effective sterilized

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<sup>18</sup> Carrasquilla illustrates with the alarming statistic that the domestic debt of the Bank grew from 1.5% of GDP in 1989 to 72 in 1991.

intervention. As domestic agents accumulated their EC stocks, the pressure concentrated on the exchange market until the floor was reached and pressure on money creation started. In 1993 though, the **ECs** started to mature, causing a new impulse for monetary creation that needed to be sterilized through debt issues. The **ECs** gave some degree of **freedom in** the short-term, but by no means monetary policy independence, as **it** was not a stable **sterilization** tool. What appears obvious is that the exchange market was forced to gradually evolve towards a managed float. The **EC's** term was an adaptation period, thought to create the necessary institutional background for the development of the market. We can observe that domestic open-market operations were the principal source of sterilization before, during and after the EC system.

More recently the exchange reforms contained in the **21st** resolution had the objective of advancing more quickly than the 57th resolution in facilitating transactions with international markets. The reforms were oriented towards speeding up long-term investment flows and to hold out speculative capital. The reforms applied to the capital market were mainly:

- a. Simplification of authorized exchange market operations.
- b.** Extension of the type of **operations not** subject to being made through the formal foreign exchange market.
- c. Authorization to make payments for exports and imports in Colombian pesos.
- d. **Increase** in the possibilities of obtaining loans abroad.
- e. Liberalization of capital outflows to foreign markets.

The public debt policy, **on** the other hand, had as objectives: to diversify internal financial alternatives, to develop the national financial market, to improve the external debt time profile, and to expand the possibility for public corporations to engage directly in foreign financing. Consequently, during 1993 and 1994, long-term bonds were issued and placed in international markets at favorable interest rates, relative to previous external debt issues. Part of the resources generated were used to prepay already existing debt.

The bonds issued were not only the central **government's**. About 60% were issued by public enterprises, including Ecopetrol, the Financiera Electrica **Nacional** (FEN) and the Bank of Colombia. This, along with the low international interest rates, helped to improve the liquidity and solvency of Colombia's external debt.

### **C. Reserve Requirements and Capital Account Regulations**

During the second half of the 1980s, the Colombian current account registered a sustained surplus. At the beginning of the 1990s, the authorities reacted to this surplus with trade liberalization measures, consisting mainly of a reduction of import tariffs, a mix of sterilized interventions to neutralize the monetary effects of capital inflows, and reserve requirements to limit the attractiveness of those inflows. A capital account liberalization in conjunction with tax forgiveness allowed capital repatriation. As a result, the current account went into deficit and a surplus in the capital account was created, which increased further in 1992 and 1993, due to relatively low international interest rates. Net international **reserves** grew rapidly in 1991 and 1992, but the increase slowed down in 1993 as a result of a reduction in sterilized foreign exchange intervention.

In 1993, the BR *reformed* the exchange ordinance, aiming at making foreign exchange transactions *more* flexible but at the same time maintaining some control over speculative capital movements.

In 1993, Article 30 of the **21st** resolution of the **BR** established a 47% **reserve** requirement (RR) on the value of any credit in foreign exchange obtained by a resident that had a total repayment period of up to 18 months. The deposits associated with the RR were considered as exchange operations and were to be made through exchange market intermediaries. **Once** the RR was deposited, the BR issued a certificate in exchange that corresponded to the percentage of the RR multiplied by the amount of the loan. The remaining part of the loan could enter freely. The certificate was denominated in dollars, was non-negotiable, had a maturity of one year, and **was** redeemable at its

nominal value in pesos at the ER. It was called a "Financial Foreign Currency Title" (FFCT, **Título en Divisas por Financiacionee**). The **BR** could, *if* considered necessary, acquire the **titles** before their maturity, applying a discount of **13%** over their nominal value at the **ER of** emission day if the **buyback** was performed immediately. If redemption was made on a later date, the correpondfng **ER had** to be applied.

In 1994, the **reserve** requirements were modified allowing *for* variable RR according to the maturity of the loan. The 7th resolution of 1994 established reserve requirements for operations **of** less than 36 months, the BR giving in exchange **FFCTs** with differentiated maturities and rates, with the following alternatives to be chosen from by the agents:

Certificate Maturity (Months)	Reserve Requirement Rates
12	93%
<b>18</b>	64%
<b>24</b>	50%

Certificates could be partitioned to the agents' preference, and the BR could only buy back those with maturity **of** 12 months, applying a 55% discount over the **ER** of the issuance day. Finally the 22nd resolution of 1994 established a new RR schedule extended to maturities of up to 5 years (1,800 **days**) *as can* be seen in Annex 1. This shows that in Colombia there is discrimination against short-run capital inflows; the shorter the maturity, the higher the RR. The RR is applied for the duration of the operation. Colombian authorities have attempted to generate a reserve requirement which eliminates arbitrage possibilities. The RR has been regulated so as to close the arbitrage gap. (Annex 2 proves that under the assumption of flat term structures **of** interest rates and expectations of devaluations, the **reserve** requirement which eliminates arbitrage increases as the maturity increases.) The objective was clearly to increase the cost of short-term capital inflows, in parallel with the liberalization of the capital account.



It is **important** to mention that this system differ8 from that used in Chile where the **RR** has been oriented toward8 closing the gap of interest rate arbitrage only for operation8 of up to one year. *For* longer maturities, the greater uncertainty and risk may act as deterrent to longer-term arbitrage.

#### D. The Capital Account and Macroeconomic8

During the 19908, Colombia has experienced significant accumulation of international reserves, especially at the beginning of the decade. Recently this behavior has diminished as a consequence of the movement of the current account from a significant surplus to a deficit. We interpret this behavior as a result of the international trade liberalization which led to an import boom and to a sudden adjustment of the stock of durable consumption goods. We reject the hypothesis that this behavior was driven *by* capital inflows.

The surplus in the capital account, which at the beginning of the 19908 showed a moderate surplus, start to increase significantly in the last two **years**. **Our** interpretation is that the *current* account deficit has caused the surplus in the capital account.

With respect to the composition of the capital account, there is a stable trend toward8 an **increase in** PDI. Annual **FDI** has accounted for between 1 and 2% of GDP.

Capital flows not related to **FDI** evidenced greater volatility and a steeper trend growth. Debt flows have increased from 1 to 5% of GDP. **Short-term** financing has oscillated around **zero**. Some years show an increase in short-run indebtedness and others show repayment of debts. Colombia has been more successful than Chile in controlling short run capital inflows. In Chile, short-run capital flows represented, on average, 3% of GDP.

In any event it is important to recall that the **RR** theoretically may not affect the real exchange rate path. Without an **RR**, it is **quite** possible to obtain the same real exchange rate path but with higher public debt and higher losses by the Central Bank. Some author8 have argued that the **RR** is ineffective. However, the question is how can an authority maintain higher

interest rates than the rest of the world without increasing public debt to infinity and without a deep misalignment in the real exchange rate? **If** the RR were ineffective, market interest rates **should** be lower than they are or public debt would be very high. That capital controls have been effective **is** indicated by the fact that even under high **domestic** interest **rates** and low private disposable income, due **to** the **fiscal surplus** and to inflation, there are no big capital inflows into Colombia. Both Chile and Colombia have managed to keep high interest **rates** without an explosive path **of** public debt. Moreover, real exchange **rates** have been aligned with fundamentals. **This** shows the effectiveness **of** capital controls.

With respect to macroeconomic performance during the last 5 **years**, the **fiscal** sector **shows** balance, and in some years there are even **surpluses**. Despite this fact, inflation has stayed around levels of 20 to 25% a year, **showing** another **case** of chronic inflation. Despite steady inflation and a crawling peg **system** with no intervention in the foreign exchange market, there has not been undue pressure in the foreign exchange market. This also indicates the effectiveness **of** capital controls.

The Colombian economy has maintained a moderate growth record during the nineties, with a late tendency to acceleration during 1993 and 1994.

## V. CONCLUDING **REMARKS**

In this paper, two successful macroeconomic experiences of Latin American countries during the 1990s have been reviewed. Both countries, Chile and Colombia, have registered an impressive performance compared to their historical record and to the contemporary retaults of other countries in the region. They have been able to grow on a sustained basis, Chile at an average rate **close** to 7% per year, Colombia at around **5%**, and have kept their respective external current account deficit at reasonable levels, Chile below 2% of GDP and Colombia around 3%. The main difference in **terms** of macroeconomic performance **is** that while Chile has succeeded in gradually but **consistently** reducing the inflation rate to **single** digits, Colombia maintains

the trends **of** the past with a moderate inflation rate between 20 and 25 percent per annum.

The capital account regulations used by both countries can take part of the credit for the successful macroeconomic performance. **Of** course, consistent macroeconomic policies and the right **microeconomic** incentives are the main reasons behind this success; however, the macro policies would not have been possible without effective capital account regulations.

The two polar views **in** the policy debate on international financial integration coincide in their assumptions that reserve requirements and other qualified capital account regulations, like the ones used in Chile and Colombia, are ineffective. Some critics argue that the reserve requirements have been unable to modify the appreciating trend of the **currency**,<sup>19</sup> and thus have been ineffective in favoring a gradual **sectoral** adjustment process. Others argue that the regulations have been unable to stop excessive capital inflows and reserve accumulation, thus 'defending the imposition **of** quantitative limits on capital flows. We find both types of criticism unfounded.

The fact that the appreciating trend of the Chilean currency has continued at about the same rate after the reserve requirement was introduced is not an indication of the ineffectiveness of this tool. The reserve requirement allows for keeping an interest rate differential **in** favor of the emerging economy, without having to generate an expectation of currency depreciation to fulfil the arbitrage condition. That is to say, the RR is **successful** if a once and for all currency appreciation followed by a depreciating trend is avoided. An appreciating trend could be the result more of financial pressures than of a trend in the equilibrium exchange rate; and more than indicating weaknesses **of** the RR itself, by being sustained, shows the strength **of** the existing capital account regulations, and among them **of** the RR.

The effectiveness of the RR is also shown in the change of the

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<sup>19</sup> See, for example, S. **Valdés** (1995).

composition **of** net capital inflows. Increasingly, external financing has been moving from debt *into direct* investment and equity-based portfolio investment. This implies a more flexible structure of financing, favoring risk-sharing between domestic and external partners. It also allows the attainment of externalities associated with direct investment, in the **form** of international market **access** for exports and the inward transfer **of** technology and management. At the same time, medium- and long-term **forms of** debt have gained ground and represent increasing proportions of total debt financing.

While there could be leaks in the RR and other regulations, they do not **seem** to be **of** macroeconomic significance. If the leaks were severe, short-term external financing would be of great importance, but that is not the case either in Colombia or in Chile. There are periods, however, when short-term financing is more abundant. These are periods in which the expectations of currency appreciation are exacerbated. Confronting even a small expected appreciation in a short period of time is an impossible task **for** the RR. The gains implied by the change *in* the value of the currency in a few months, cannot be compensated by the financial cost implied by the RR.

This opens the possibility of using stronger restrictions on capital flows, quantitative limits for example. In our opinion, quantitative limits not only create very significant microeconomic costs and slow economic and financial development, but also most likely would be ineffective. Quantitative controls would create **a** dual exchange market. Officially-authorized transactions would take place at the official rate, and unauthorized capital flows would be carried out at the parallel market rate, in this case a more appreciated one. When the exchange rate differential becomes significant, the incentives for arbitraging between the two exchange markets would increase, allowing some private operators to make a bundle by buying foreign currency cheap in the informal market, and selling it at a high price in the formal. Consider for instance an exporter who would sell and even over-invoice his proceeds in the official market, but would try to finance every import *in* the parallel market. The Central Bank would be **forced** to accumulate reserves

purchased at a transitory high exchange rate, and big losses would eventually accrue when the rate had to be adjusted.

Overall, the **RR and** other capital account regulations, with their limitations, have fulfilled a very important role in these two successful experiences. Perhaps the problem of the critics is what they expect that the regulations can provide. They shouldn't ask for more than supporting the effort to keep the current account deficit within reasonable bounds and at sustainable levels, while the domestic macroeconomic targets **of growth** and price stability are attained.

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**Annex 1: Colombia: Certificate Maturity and Reserve Requirement Rate.**  
(Reserve Deposit kept for the period of the investment)

<b>Certificate Maturity (Days)</b>	<b>Reserve Requirement Rate</b>	<b>Certificate Maturity (Days)</b>	<b>Reserve Requirement Rate</b>
<b>1-30</b>	<b>140.0%</b>	961-990	73.6
<b>31-60</b>	<b>137.2</b>	991-1020	72.1
<b>61-90</b>	<b>134.5</b>	1021-1050	70.7
91-120	<b>131.8</b>	1051-1080	69.3
121-150	<b>129.2</b>	1081-1110	67.9
<b>151-180</b>	<b>126.6</b>	1111-1140	66.5
191-210	<b>124.1</b>	1141-1170	65.2
211-240	<b>121.6</b>	1171-1200	63.9
241-270	<b>119.2</b>	1201-1230	62.7
271-300	<b>116.8</b>	1231-1260	61.4
301-330	<b>114.5</b>	1261-1290	60.2
331-360	<b>112.2</b>	1291-1320	59.0
361-390	<b>110.0</b>	1321-1350	57.8
391-420	<b>107.8</b>	1351-1380	56.7
421-450	<b>105.7</b>	1381-1410	55.5
451-480	<b>103.6</b>	1411-1440	54.4
481-510	<b>101.5</b>	1441-1470	53.3
<b>511-540</b>	<b>99.5</b>	1471-1500	52.3
541-570	<b>97.5</b>	1501-1530	51.2
571-600	<b>95.6</b>	1531-1560	50.2
601-630	<b>93.7</b>	1561-1590	49.2
631-660	<b>91.8</b>	1591-1620	48.2
661-690	<b>90.0</b>	1621-1650	47.3
691-720	<b>88.2</b>	1651-1680	46.3
721-750	<b>86.4</b>	1681-1710	45.4
751-780	<b>84.7</b>	1711-1741	44.5
781-810	<b>83.0</b>	1741-1770	43.6
811-840	<b>81.4</b>	1771-1800	42.8
841-870	<b>79.7</b>		
871-900	<b>78.2</b>		
901-930	<b>76.6</b>		
931-960	<b>75.1</b>		



## Annex 2: International Arbitrage and Reserve Requirement

## 1.- Investment and Required Reserves for an Equivalent Period of one Year

$$(1) \quad (1 + i^*) = \frac{(1 + i)(1 - \epsilon)}{(1 + \hat{\epsilon})} + \epsilon$$

Consider the arbitrage condition that equates the rate of return of domestic and international financial investment, in this case for an investment with one year maturity and where the reserve requirement should be kept at the Central Bank for the same period. In equation (1),  $i^*$  is the external interest rate,  $i$  the domestic interest rate,  $\epsilon$  is the reserve requirement ratio (RR from now on), and  $\hat{\epsilon}$  is the expected depreciation of the domestic currency. The solution for the RR that **fulfills** this arbitrage condition, depends on the international interest rate differential, on the expected rate of currency depreciation, and on the level of domestic and external interest rate according to the following **expression**:

$$(2) \quad \epsilon = \frac{(i^* - i) + \hat{\epsilon}(1 + i^*)}{\hat{\epsilon} - i}$$

## 2.- Investment and RR for an Equivalent Period of X Months

For an investment of X periods, and when the requirement is kept for the maturity of the operation, it is possible to obtain an expression similar to (1). The only difference, is that the relevant rates are the compound rate for the period in question.

$$(1') \quad (1 + i^*)^{X/12} = \frac{(1 + i)^{X/12}(1 - \epsilon)}{(1 + \hat{\epsilon})^{X/12}} + \epsilon$$

where we can obtain equivalently to (2);

$$(2') \quad \epsilon = \frac{(1 + i^*)^{X/12}(1 + \hat{\epsilon})^{X/12} - (1 + i)^{X/12}}{(1 + \hat{\epsilon})^{X/12} - (1 + i)^{X/12}}$$

It can be shown that the necessary condition for the RR to increase with the maturity of the operation, i.e. the partial derivative of  $\epsilon$  with respect to  $x$  to be positive, is fulfilled whenever the domestic interest rate exceeds the external rate adjusted by exchange rate expectations.

**Table 1**  
**Balance of Payments**  
**Chile & Colombia 1990-94**  
(In Percent of GDP)

	Chile	Colombia	Chile	Colombia	Chile	Colombia
	BP/GDP (a)	KA/GDP (b)	CA/GDP (c)	BP/GDP (a)	KA/GDP (b)	CA/GDP (c)
1990	7.7	9.4	-1.7	1.2	-0.3	1.5
1991	3.5	3.2	0.3	4.2	-2.1	6.3
1992	5.8	7.4	-1.6	2.2	0.0	2.2
1993	1.2	5.7	-4.5	-2.1	2.4	-4.5
1994	6.1	7.5	-1.4	0.3	4.6	-4.3

(a) Balance of Payments surplus over dollar GDP

(b) Capital Account **surplus** over dollar GDP

(c) **Current Account surplus over** dollar GDP

Source: Authors **calculations** based on data of the **Banco Central de Chile**, Banco de la **República** de Colombia, IMP and DANE, Colombia

**Table 2**  
**BOP Capital Account**  
**Chile & Colombia 1990-94**  
(In Percent of GDP)

	CHILE		COLOMBIA	
	(KA-FDI)/GDP (a)	FDI/GDP (b)	(KA-FDI)/GDP (a)	FDI/GDP (b)
1990	6.4	3.0	-1.6	1.3
1991	20	12	3.2	1.1
1992	5.9	1.5	-1.8	1.8
1993	3.2	2.5	0.8	1.6
1994	3.9	3.6	2.4	2.2

(a) Capital Account surplus, except Net Foreign Direct Investment over Dollar GDP.

(b) Net Foreign Direct Investment over dollar GDP

Source: Authors calculations based on data of the Banco Central de Chile, Banco de la República de Colombia IMF and DANE, Colombia.

**Table 3**  
**Time Structure of Capital**  
**Flows**  
**Chile & Colombia 1990-94**  
(In Percent of GDP )

	M- & Long-Term (a)	Short-term (b)	M- & Long-Term (a)	Short-term (b)
1990	2.2	4.6	0.5	-0.5
1991	-0.2	1.4	0.3	-2.5
1992	0.6	4.5	0.4	0.4
1993	1.1	2.4	1.9	2.1
1994	2.5	2.4	5.7	-1.1

(a) Non Investment medium- and long-term net capital flows over dollar GDP.

(b) Non Investment short-term net capital flows over dollar GDP.

Source: Authors calculations based on data of the Banco Central de Chile, Banco de la República de Colombia, IMF and DANE, Colombia.

**Table 4**  
**Summarized macroeconomic performance**  
**Chile & Colombia 1990-94**  
 (Indices, Percent Change and Percent of GDP)

	Real E. Rate <sup>1/</sup>	GDP Growth	Inflation	Fiscal Surplus/ GDP	Real Interest Rate
1990	112.8	33	27.3	0.8	9.4
1991	106.4	73	18.7	1.5	5.4
1992	97.6	11.0	12.7	2.2	5.2
1993	96.9	6.3	12.2	1.9	6.4
1994	94.3	4.2	8.9	1.7	6.3

	Real E. Rate	GDP Growth	Inflation	Fiscal Surplus/ GDP	R. Int. Rate
1990	101.0	4.2	29.9	-0.3	4.4
1991	98.0	2.0	26.8	0.2	4.8
1992	92.0	3.8	25.1	-0.3	0.0
1993	91.0	5.2	22.6	0.3	2.4
1994	90.0	5.6	22.6	2.6	4.7

Source: **Authors calculations** basal on data of the **Banco Central de Chile**, **Banco de la República de Colombia**, **IMF** and **DANE, Colombia**.

<sup>1/</sup> Index base Dec. 1989 = 100, an increase in the index denotes a depreciation of the domestic currency.

**Table 5**  
**Savings and**  
**Investment**  
**Chile & Colombia 1990-94**  
**(In Percent of GDP)**

Chile			
	Invest/GDP (a)	Nat.Savings/GDP (b)	Ext. Savings/GDP (c)
1990	26.3	24.2	2.0
1991	24.5	24.0	0.4
1992	26.8	24.7	2.0
1993	28.8	23.9	4.8
1994	26.8	25.3	1.4

Colombia				
	Invest/GDP (a)	Nat.Savings/GDP (b)	Ext. Savings/GDP (c)	Ext. Savings/GDP (c')
1990	18.5	18.9	-1.5	-0.4
1991	15.9	18.6	-6.3	-2.7
1992	17.2	17.0	-2.2	0.2
1993	20.4	...	4.5	...
1994	...	...	4.3	...

(a) Total **Investment** (**gross K** formation and inventory accumulation) over GDP.

(b) National Savings over GDP

(c) **External** Savings, or **current** account deficit over GDP.

(c') **Non-domestic** savings, defined as the **ratio** of **investment** over GDP minus domestic saving over GDP.

**Source:** Authors calculations based on data of the Banco Central de Chile. Banco de la **República** de Colombia, **IMF** and DANE, Colombia