CAPITAL ACCOUNT REGULATIONS AND MACROECONOMIC POLICY: TWO LATIN AMERICAN EXPERIENCES

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Resumen

Las regulaciones que establecen limites a la integración financiera internacional han sido el centro de un reciente debate de política económica. Todo país en vías de desarrollo puede beneficiarse del desarrollo financiero, pero mayores grados de integración financiera internacional implica asumir mayores riesgos de inestabilidad macroeconómica. El enfoque que se ha privilegiado en Chile y Colombia consiste en una integración financiera limitada y gradual que busca incrementar la efectividad de las políticas monetaria y cambiaria. La reducción en el premio de riesgo demandado por inversionistas ha creado un presión a la caída sobre las tasas de interés reales domésticas, sin embargo tasas substancialmente más bajas podrían incrementar el gasto público, el nivel de precios y el déficit en cuenta corriente. Entre las políticas implementadas para ello, están los incrementos en la flexibilidad del tipo de cambio y los impuestos al financiamiento del exterior. Ambos países han tenido un exitoso desempeño macroeconómico, y deben su éxito, en parte, a las regulaciones de la cuenta de capitales. La efectividad de las regulaciones es demostrada por el hecho de que se ha evitado una apreciación violenta de la moneda que sea seguida por una tendencia a la depreciación y en que el déficit de cuenta corriente se ha mantenido a niveles sustentables. En otras palabra, las regulaciones sobre la cuenta de capitales han evitado la sobreapreciación del tipo de cambio real que hubiera ocurrido con grandes cantidades de entradas de capital de corto plazo. El uso de restricciones más fuertes, como sería el caso de restricciones cuantitativas, no solo crearían significativos costos microeconómicos y un desarrollo económico y financiero lento sino que, además, muy probablemente resultarían inefectivas.

Abstract

The regulations that limit international financial integration have been at the center of a recent policy debate. Any developing economy can benefit from financial development, but international financial integration implies the risk of macroeconomic instability. The approach that has been favored in Chile and Colombia is one of gradual and limited financial integration, attempting to increase the effectiveness of monetary and exchange rate policies. The reduction in the risk premium demanded by investors has created downward pressure on domestic real interest rates, however a lower interest rate would increase domestic expenditure, the price level and the current account deficit. Among the policies put into effect to deal with this problem are increasing exchange rate flexibility and taxing external financing. Both countries have registered a successful macroeconomic performance, with the success partly owing to effective capital account regulation. The effectiveness of the regulations is shown in that a once and for all currency appreciation followed by a depreciating trend has been avoided, and that the current account deficit has been kept at sustainable levels. In other words, capital account regulations have avoided the overshooting (over appreciation) of the real exchange rate that would have occurred with large amounts of short term capital inflows. Using stronger restrictions on capital flows, quantitative limits for example, would not only create very significant microeconomic costs and slow economic and financial developments, but also most likely would be ineffective.

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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 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 an increased volatility in variables such as the real exchange rate, domestic interest rates and stock prices. This increased volatility may induce an inadequate resource allocation process and discourage investment and international trade. Then the final effect is a worsening of welfare conditions coming from possible impacts on macro stability. In addition to effects caused by higher volatility, 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.[1]

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[1] 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 first half of the 90s. 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 firts half of the 90s, 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 first half of the 90s. 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 advantages. 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. Certain comparative advantages for financial development partly stem from the experiences derived from an earlier liberalization attempt, that allow for the development of regulatory framework that has operated successfully, and the possibility of benefiting from the existence of scale economies. It must be stressed that in developing economies, capital account openness implies larger net capital inflows on a sustained basis, due to the higher productivity of capital because of labor abundance and the availability of natural resources. This capital inflows allows for a higher growth and implies a reduction in the cost of capital.

(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. After all, domestic financial assets represents rights to domestic income stream, basically determined by production. 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.

iii) Finally, capital flows from abroad enable domestic residents to isolate their consumption decisions from domestic economic fluctuations. This enables to reach better welfare conditions through a stabilization of the consumption path.

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. If this process takes place in a short period of time, then a source of macroeconomic imbalances can be developed 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.[2]

(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) Real 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

[2] See Budnevich, 1994 for a model of this kind of transition.

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.[3] 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 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.[4] This adjustment is

[3] Throughout this paper we use the Latin American definition of the real exchange rate (RER); that is, the RER increases when the domestic currency depreciates in real terms.

[4] It is also possible to explain the dynamics of capital inflows, with booms and busts, in terms of bandwagon effects, yet this model seems not appropriate for the Chilean reality of the 1990s. There is no evidence of a bubble in asset prices. Assets prices and the real exchange rate appear to be in line with fundamentals.

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.[5]

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 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.[6]
Furthermore, facilitating capital outflows reduces the risks faced by foreign investors by making easier the exit. (See Labán and Larraín, 1993.)

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 arbitraged 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.

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[5] Experiences of the lack of immediate response 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, 1993.)

[6] Institutional investors and banks are subject to regulations and supervision of their investments abroad because of the systemic risk and public insurance problem. These restrictions are not related to the regulation of capital flows to preserve macroeconomic stability. It is important to mention that there are regulatory restrictions that limit bank exposures to foreign currency.

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 costs 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.[7]

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 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.[8]

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[7] This point is developed in G. Sanhueza, 1995.
[8] An exception to this rule is the reserve requirement imposed on secondary ADR inflows in Chile.

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 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 large over small enterprises, and to encourage informal means of financing. They are thus not free of private and social costs. There are also costs derived from weaknesses of the regulation that make the reserve requirement not completely effective. In a country like Chile, with a long and a deep seated law abiding tradition, these effects are more important than direct evasion.

Other types of restrictions 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 discretional authorization or 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 maneuver to domestic monetary policy.

III. REGULATED FINANCIAL INTEGRATION IN CHILE

During the first half of the 90s, 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 first half of the 90s. 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.[9]

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.

The volatility of international capital flows played a very important role in setting off the crisis. A significant proportion of capital flows 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 first half of the 90s, 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 first half of the 90s 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.

[9] A description of the regulations and capital account results in Chile in the 1990s may be found in Le Fort and Varela, 1995.

B. Foreign Exchange Market Regulations and Intervention

During the first half of the 90s 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.

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[10]

Direct investment is subject to a minimum stay of one year for the principal. Profits, 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[11]

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.

Loans and bonds[12]

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[13]

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

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[10] Decree Law 600 (DL-600), and Chapters XIX and XIV of the Central Bank Foreign Exchange Regulations (CBFER).

[11] Chapter XXVI of the CBFER.

[12] Chapter XIV of the CBFER.

[13] Chapters III and XIII of the CBFER.

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[14]

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. This measure has greatly facilitated 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[15]

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 Basle 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.

D. Capital Account and Macroeconomic Results

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 1990-1994, with a maximum of 9.4% of GDP in 1990. With a current account deficit averaging only 1.5% of GDP, the

[14] Chapter XII of the CBFER.
[15] Chapter XXVIII of the CBFER.

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 which represents 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 first half of the 90s. 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.[16] 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 first half of the 90s. The expenditure control has been achieved through high interest rates, higher than the standards in the developed world. Despite strict monetary policy, the economy has been able to grow at an average rate close to 7% per year during the first half of the 90s. Exports have lead the expansion, for example during 1995 real GDP grew by 8,5%, and exports by 11% in real terms.

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

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[16] 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.

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 47% of GDP in 1990 to 67% 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 20%, 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 50% of GDP in 1990.

Moreover the country shows a strong international financial position. Total external debt net of international reserves is just equivalent to 10% of annual GDP or 35% of annual exports.

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 of 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 regime; 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 its 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 República (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.[17]

[17] 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.

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 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:

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

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):

$$P_{ecdollar} = 0.875 . ER_T$$

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 rise eliminating the initial interest rate rise, unless sterilization with peso-denominated debt was practiced. 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.[18]

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, should be channeled 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 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

[18] 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.

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.[19] 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 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

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[19] Carrasquilla illustrates with the alarming statistic that the domestic debt of the Bank grew from 1.5% of GDP in 1989 to 7% in 1991.

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 Financiaciones). 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 the issuance day if the buyback was performed immediately. If redemption was made on a later date, the corresponding 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 by the agents:

Certificate Maturity (Months)	Reserve Requirement Rates
12	93%
18	64%
24	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. 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 differs from that used in Chile where the RR has been oriented towards closing the gap of interest rate arbitrage only for operations of up to one year. For longer maturities, the greater uncertainty and risk may act as deterrent to longer-term arbitrage.

Annex 2, however proves that under the assumption of risk neutrality and flat term structures of interest rates and expectations of devaluations, the reserve requirement which eliminates arbitrage for different durations, increases as the maturity increases.

D. The Capital Account and Macroeconomics

During the first half of the 90s, 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 1990s was moderated, started to increase significantly in the last two years. Our interpretation is that the current account deficit caused the capital account surplus to increase. This is because trade liberalization generated an expansion in imports which needed to be financed, trade liberalization usually increase the use of voluntary external financing. Thus, the current account deficit contributed to the balance of payment static equilibrium through a capital account surplus, partly generated due to better expectations of the future income stream.

With respect to the composition of the capital account, there is a stable trend towards an increase in FDI. 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 authors 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 large 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. It is important to say that both countries had already attained fiscal equilibrium before the turn of the decade, generating conditions for a sustainable fiscal balance.

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 first half of the 90s have been reviewed. Both countries, Chile and Colombia, have registered an impressive performance compared to their historical record and to the contemporary results 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,[20] 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 fulfill 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,

[20] See, for example, S. Valdés and M. Soto (1995).

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 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 large 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)

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

Annex 2: International Arbitrage and Reserve Requirement

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

$$(1) \qquad (1+i^*) = \frac{(1+i)(1-\varepsilon)}{(1+\hat{e})} + \varepsilon$$

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, ε is the reserve requirement ratio (RRR from now on), and ê is the expected depreciation of the domestic currency. The solution for the RRR 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:

$$(2) \qquad \varepsilon = \frac{(i^* - i) + \hat{e}(1+i^*)}{\hat{e} - i}$$

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

For an investment of X periods, and where 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.

$$(1') \qquad (1+i^*)^{X/12} = \frac{(1+i)^{X/12}(1-\varepsilon)}{(1+\hat{e})^{X/12}} + \varepsilon$$

where we can obtain equivalently to (2);

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

It can be shown that the necessary condition for the RRR to increase with the maturity of the operation, i.e. the partial derivative of ε 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		
	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, IMF 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	2.0	1.2	-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)

	Chile		Colombia	
	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)

	Chile				
	Real E. Rate. 1/	GDP Growth	Inflation	Fiscal Surplus / GDP	Real Int. Rate
1990	112.8	3.3	27.3	0.8	9.4
1991	106.4	7.3	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

	Colombia				
	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 based on data of the Banco Central de Chile, Banco de la República de Colombia, IMF and DANE, Colombia.
1/ Index base Dec.1989=100, an increase is a local currency depreciation

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

	Chile		
	Inv/GDP (a)	**Nat Sav /GDP (b)**	**Ext. Sav/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			
	Inv/GDP (a)	**Nat Sav /GDP (b)**	**Ext. Sav/GDP (c)**	**Ext. Sav/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 in dollars.
(b) National Savings over GDP
(c) External Savings
(c') Non-domestic savings over GDP, defined as investment 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.