The Role of Preventative Capital Account Regulations

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Abstract

Preventive capital account regulations have three potential roles in developing countries. First, as a macroeconomic policy tool, they provide some room of manoeuvre for counter-cyclical macroeconomic policies, to help to cool aggregate demand and to avoid the accumulation of unsustainable debt burdens. Second, as a 'liability policy' they help to avoid risky corporate balance-sheet structures (excessive reliance on short-term external debts, maturity and currency mismatches) and thus the worst effects of the volatility of capital inflows. Finally, capital controls help to avoid asset bubbles and thus prevent potential crashes. The experiences of Chilean, Colombian and Malaysian regulations on capital inflows indicate that they fulfilled those key aims. However, the macroeconomic effects depended on the strength of the regulations and tended to be temporary. The basic advantage of the price-based instrument used by Chile and Colombia was its non-discretionary character, whereas quantity-based controls in Malaysia proved to be stronger in terms of short-term macroeconomic effects.

I. Introduction

Since the 1970s, developing countries have faced significant problems with their capital accounts in the face of rapidly expanding but highly volatile and unregulated international financial liquidity. In the case of Latin America, which has some of the most open capital accounts in the Third World, few practical economic problems have been as complex as the question of how to handle sharp externally-generated financial cycles. These financial cycles have been characterized by phases of large inflows (such as those created by bank lending in the 1970s and portfolio inflows during the 1990s), followed by sharp reversals and large negative

transfers (1980s and 1999-2003).{1} Asian economies experienced a similar process in the 1990s, leading to a crash in 1997 that brought the world financial system to the brink of a global crisis.

For developing countries, the crucial issue is whether domestic markets can deal with these sharp financial cycles on their own and, in particular, whether domestic financial and asset markets can absorb positive and negative external shocks of this magnitude without manias and crashes. At the same time, there is the issue of whether the real economy has the capacity to adjust effectively to the rapidly changing economic environment that results from these cycles. In terms of policy in a capital-importing developing country, the optimal policy mix for dealing with these cycles is not obvious. This chapter underscores the role of preventive capital account regulations on capital flows in this policy mix.

Unfortunately, recent experiences of developing countries with open capital accounts have shown that these sharp financial cycles are highly likely to lead to financial crises. There are three reasons for this. First, during periods of surges in inflows the incentive mechanisms and resource allocation dynamics of financial markets have failed under the pressures generated by the increased liquidity brought about by these surges.{2} As a result, borrowers and lenders ended up accumulating more risk than was privately, let alone socially, efficient; this risk has become evident in the alternate phase of the cycle (that of the 'sudden stop' in external financing).{3} Second, the real economy has found it extremely difficult to deal with financial cycles of the magnitude experienced by countries with open capital accounts. Indeed, in developing economies characterised by significant currency mismatches in their financial portfolios some typical adjustment mechanisms -- such as the relative price (real exchange) adjustment -- have failed when faced with sharp changes in external liquidity; instead of helping to bring these economies back to equilibrium these adjustment mechanisms have tended to exacerbate cyclical swings through their pro-cyclical wealth effects. Third, in financially liberalised economies, governments and central banks have found their degrees of freedom for counter-cyclical macroeconomic policies to offset the effects of these externally generated cycles seriously limited; indeed, market forces have often pushed them into opposite, pro-cyclical, macroeconomic policies.

These recurrent financial crises in developing countries have opened up political and academic debates at least on two fronts: first, on whether these crises have been the result of market interferences (mostly in the form of unhelpful government interventions that distorted the working of otherwise efficient financial and other markets), or the result of actual market failures; second, on the policy responses most likely to help developing countries to absorb the sharp swings in capital inflows characteristic of the last two decades.

Regarding the first issue, those who argue that primarily exogenous destabilizing mechanisms led developing countries into financial crises have emphasized the moral hazards created by government deposit insurance and bailouts by international institutions, as well as the 'crony-mechanisms' that have often distorted the access to finance. In turn, those who emphasize the existence of endogenous market failures are primarily concerned with the study of how the combination of a particular type of international financial market and a particular form of financial liberalization in developing countries may have led to the creation of an economic environment in which the maximization-cum-equilibrium process failed. One of the issues at the centre of the resulting debate regarding the policy options most appropriate to reduce the likelihood of financial crises is the relative effectiveness of price-based and quantity-based controls of capital <u>inflows</u>.

This chapter reviews the experiences of three developing countries -- Chile, Colombia and Malaysia. After having opened up their capital accounts, these countries fine-tuned their integration into international financial markets through the reintroduction of capital controls, in order to deal with the 1990s surge in private capital inflows, particularly short-term portfolio inflows. The following section examines the dynamics of capital flows into developing countries, and presents some contrasting experiences of Latin America and East Asia. The chapter then analyses the nature and effects of regulations on capital inflows in these three countries during the 1990s -- in particular, their effects on the magnitude and composition of capital flows, on the macroeconomic policy space that the authorities enjoyed under these circumstances, and on asset prices. Finally, the chapter presents some conclusions.

II. The Dynamics of Capital Flows: The Contrast Between Latin America and East Asia

One of the most clear stylised facts of developing countries' access to international finance is that when international financial markets have opened up their doors to these countries they have done so in the form of sharp cycles (e.g., the 1820s, 1860s, 1890s, 1920s, 1970s and 1990s). Figure 7.1 shows this phenomenon during the last three decades.

<INSERT Figure 7.1 here>

A remarkable feature of the 1990s cycles is that while the 1970s surge in inflows had to wait for a half century after the previous boom (1920s), the one in 1990s took place less than a decade after the 1982 debt crisis (see Figure 7.2). In the case of Latin America, one well-known reason for this rapid return of inflows is that the

US government had to act in the late 1980s to sort out the problems left by the 1970s cycle and the subsequent problems of the highly exposed US banks. This eventually led to the 'Brady Plan', which effectively created a secondary market for Latin American securities. This new market not only helped US banks to unload their Latin American debt, but also facilitated the inclusion of Latin America -- and emerging markets in general -- into the booming security markets that had been developing in the industrial world in the 1980s.

<INSERT Figure 7.2 here>

Although these capital flow cycles were <u>external</u> from the point of view of the developing world, domestic policies did play a role in the specific timing of the capital account booms, both in their composition and in their effect on the recipient countries. Figure 7.3 shows the remarkable turnaround in the capital account of some Latin American and East Asian countries after their respective processes of domestic financial and capital-account liberalizations; this striking turnaround generated the dynamics that eventually led to financial crises in these countries. It is also widely recognized that the macroeconomic policy followed by different countries during periods of booming inflows also influenced the vulnerability of countries once a sharp turnaround in the capital account had taken place. This chapter deals with precisely that positive role that preventive regulations on capital inflows had on a group of developing countries willing to apply them (see also the chapters by Frenkel; and by Epstein, Grabel, and Jomo in this volume).

<INSERT Figure 7.3 here>

The cyclical movement of the aggregate net inflows hides the sharply different dynamics of the three main components of private capital inflows and, in particular, their sequential booms: first came credit inflows (particularly bank lending), then portfolio inflows and finally FDI inflows. This is illustrated in Figure 7.4 for Latin America through the evolution of the net transfer of resources (net capital inflows minus interest and dividend payments). In the case of bank lending, the boom of the 1970s was followed by an extended period of net resource outflows that has lasted more than two decades. Indeed, strikingly, bank lending continued to generate strong negative resource flows to Latin America at the same time as the Asian economies were experiencing a surge in bank lending between 1990 and 1996. Also, the net transfer of resources accumulated during the boom periods are moderate -- US$(2000) 243 billion from 1972 to 1981 and US$(2000) 203 billion

from 1991 to 1998 -- and, even then, these two periods are among only a very few years out of the last two centuries when the net transfer of resources has actually been positive for Latin America. Put in other terms, interest and dividend payments have exceeded most of the time net capital inflows into the region or have reinforced the negative effect of capital outflows during crises.

<INSERT Figure 7.4 here>

A comparison of the relationship between changes in current and capital accounts in Latin America and East Asia also reveals two crucial differences between these two regions, differences that are critical for the analysis of the appropriate macroeconomic and regulatory policies. One is the asymmetric nature of the cycle in Latin America -- i.e., the inability of Latin America to generate current account surpluses even at times of capital outflows and domestic recession -- which contrasts with a very different pattern in East Asia (see Figure 7.5). This is mainly the result of both the problems generated by the composition of Latin American exports (particularly the high sensitivity to commodity price fluctuations and the low share of manufacturers that are dynamic in world trade and Latin America's endemic under-investment in export diversification. A major implication of this incapacity to generate current account surpluses is that it inevitably affects its capacity to repay principal, thus increasing the likelihood of running into Ponzi-type finance.

<INSERT Figure 7.5 here>

The other is the different time sequence that characterizes the joint dynamics of the current and capital accounts in the two regions. This difference between Latin America and East Asia can be tested with the help of the Granger time-precedence test (often misleadingly called the Granger-causality test). The results of this test show a major difference between Latin America and East Asia in the time sequencing between the changes in the current and the capital accounts. In Latin America, changes in the capital account tend to precede changes in the current account, while in East Asia the time precedence is the opposite (see Appendix). This is an important finding because if the primary source of the Latin American financial cycle is an externally induced change in the capital account, capital controls are more likely to be an obvious counter-cyclical policy option to deal with the cycle at its source.

In East Asia, the results of the test indicate a more macroeconomic textbook time-sequence: changes in the current account -- the result of developments in the domestic real economy -- precede changes in the capital account. It therefore seems less clear that in this region capital controls should be the dominant component of a policy to deal with the inflow problems at source. This does not mean that capital control cannot help -- as discussed below, inflow controls in Malaysia in 1994 were remarkably effective in the short-run; it means that the best policy in this case would be to deal with the domestic problems leading to the changes in the current account: in this case, mainly the huge levels of deficit finance of corporate investment. For example, in the case of the Republic of Korea (mainly due to declining profitability -- a decline that had little to do with productivity trends and much with collapsing micro-electronic-prices{4}) -- the corporate sector had to finance its high, but relatively stable, levels of investment (of just under 30% of GDP) switching from own profits to external finance. This change led to a rapid increase in the deficit of the corporate sector, from about 5% of GNP (1987) to nearly 20% of GNP (1996), which absorbed not only all the increase in the surplus of the capital account but also that of the household and government sectors as well (Palma, 2002).

Not surprisingly, Latin America and East Asia followed different routes to their respective financial crises. Even though there was a similarity in terms of the surges in capital inflows and in the speed of credit expansion between these two regions, there also was a crucial difference in the use made of this additional credit. While in Latin America additional credit to the private sector was mainly directed towards increased consumption and asset speculation, in East Asia it helped to sustain high levels of corporate investment (in the face of falling profitability). As mentioned above, the difference was related to the macroeconomic dynamics that had led to booming capital inflows in the first place. In East Asia, it was mainly an endogenous pull: additional finance was actually needed to sustain high levels of investment at a time of rapidly falling profit levels. In Latin America, meanwhile, it was a mixed response. First, though there was an endogenous pull, it was of a very different nature from that of East Asia, based on the need to attract foreign finance to help service the huge foreign debt in the face of the region's inability to generate current account surpluses. Second, there was a crucial exogenous push of foreign capital -- particularly portfolio flows -- searching for new market outlets (see Figure 7.6). Among the many macroeconomic challenges that emerged, of course, was how to absorb the surge of liquidity resulting from non-sterilised inflows; an age-old mechanism was followed: additional inflows eased the access and reduced the price and the transaction costs of liquidity. In turn, easy access to cheap credit fuelled expectations regarding the performance of the economy, a performance that was enhanced by the additional expenditure brought about by extra borrowing and availability of foreign exchange.

Thus, for a while, improved expectations fed a self-fulfilling prophecy. As a result, from the point of view of this exogenous push of foreign capital, in Latin America the propensity to 'over-lend' led to the propensity to 'over-borrow'.

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From this perspective, therefore, the path to financial crises in Latin America started with a surge in inflows, an explosion of credit to the private sector, and low levels of interest rates (after stabilization); all these produced rapid real-exchange appreciation, consumption booms, asset bubbles in stock and real estate markets, a reduction in savings, and a deterioration of current accounts (massive in several cases). In the meantime, not only did foreign-debt levels increase but also their term structure deteriorated. It did not take much for this Latin route of inflow absorption to lead to a state of such financial fragility that a sudden collapse of confidence and withdrawal of finance were almost inevitable.

In East Asia, there were also massive inflow surges and an increase in private credit and low interest rates, but there were no consumption booms and only more limited asset bubbles. In fact, there were none at all in the Republic of Korea, whereas in Malaysia and Thailand, asset bubbles were not anywhere near as huge as in Latin America. Rather, in the context of declining profitability and rapid technological change, there were high levels of investment that ended up producing remarkably high corporate debt/equity ratios. Despite stunning growth records, a high degree of competitiveness and fundamentals that although not perfect were the envy of most developing countries, this East Asian route to financial fragility also led to financial crisis.

III. Capital Account Regulations in Chile, Colombia and Malaysia

A. The Nature of the Regulations

In a world of highly volatile and unregulated international liquidity, the basic task of capital controls is both to help avoid the pro-cyclical dynamics created by surges in inflows and to counteract the strong market incentives to adopt pro-cyclical macroeconomic policies that tend to develop in economies that have chosen to integrate into international capital markets with open capital accounts.{5} From this perspective, there are two basic issues for developing countries; the first is how to deal with the remarkable volatility of capital flows, particularly in some of its components -- see Figure 7.6. The second, the fact that the liberalisation of capital accounts, instead of creating automatic stabilisers vis-à-vis these volatile flows, tend effectively to create, in the

words of Stiglitz (2003), 'automatic destabilisers'. In this context, preventive capital account regulations attempt to deal both with the first problem at source, and to give monetary authorities more room for manoeuvre in order to deal with the second.

In the 1990s most countries in Latin America and some in East Asia opted for rapid liberalisation of their capital accounts. However, the experiences of China, India and Taiwan show that a more selective path of participation in international capital markets was also possible, and proved a more effective way of avoiding the pro-cyclical swings associated to the volatility generated by unrestricted capital flows (see Epstein, Grabel, and Jomo this volume). In turn, what the experiences of Chile, Colombia and Malaysia have in common is the fact that although they initially opted for a process that was eventually to lead to practically unrestricted integration into international capital markets, they later decided to 'fine-tune' this integration using different forms of preventive regulations to control unwanted capital <u>inflows</u>.

The central instrument used by Chile and Colombia was price-based regulation, namely unremunerated reserve requirements (URR) for specific foreign-currency liabilities. The advantage of this system was that it created a simple, non-discretionary and preventive price-based incentive to regulate capital inflows; in particular, these measures penalized short-term foreign-currency liabilities. In the case of Chile, these price-based capital account regulations were established in June 1991 and strengthened in May 1992. Some other modifications were also made in that time period, particularly the closing of a major loophole: foreign currency term deposits in domestic institutions. Capital inflows were subject to a flat-rate foreign-currency deposit in the Central Bank, originally 20% but raised to 30% in May 1992; these unremunerated deposits continued until June 1998. These deposits were originally meant to be kept for a three-month period, but they were soon extended to 12 months. In 1995 these regulations were strengthened, particularly by extending them to some portfolio flows that until then had been exempted from reserve requirements (another major loophole in the system). There were also other less important changes throughout the period, particularly those aiming at closing ambiguities and adjusting other secondary provisions.

In 1993 Colombia adopted the unremunerated reserve requirement system. Initially, these reserve requirements only applied to credits with maturities below a specified term (initially 18 months), with the amount of the deposit originally being inversely proportional to the term of the credit. It is interesting to emphasize that the introduction of this system was initially conceived to help <u>liberalise</u> the capital account, as it replaced a more traditional system of capital controls in which regulations were based on the final use of the loans.{6} Reserve requirements were modified in Colombia more frequently than in Chile, including not only

changes to the minimum maturity of loans subject to regulations but also to the rates and maturities of the reserve requirements (Ocampo and Tovar 2003). In 1994, the regulatory system was strengthened on two occasions; initially the minimum maturity subject to the deposit was increased to three years and later again to five years. However, in early 1996, the regulatory system was put in reverse, the minimum maturity was decreased to three years, and a unique deposit rate was established; regulations were strengthened again in 1997, when the minimum maturity was restored to five years;{7} soon afterwards, the whole system was replaced by a scheme more clearly resembling that of Chile, a system which applied to all loans and thus eliminated the principle of a minimum maturity-period. The main difference from the Chilean system was that the deposit (originally 30% of the inflows, which had to be kept in the central bank for 18 months) was made in the local currency and was therefore not protected from devaluation.

In both Chile and Colombia, economic agents could opt to substitute the unremunerated deposit with a one-off payment to the Central Bank of a sum equivalent to the opportunity cost of the deposit. This made the regulation into a *de facto* 'Tobin-type' tax -- i.e., a fixed cost for external borrowing. However, by Tobin tax standards, the tax was very high; in Chile it was about 3% for one-year loans during most of the period, and tended to fluctuate in response to changes in certain macroeconomic factors, such as international interest rates. The level for Colombia was higher, being on average equivalent to 13.6% for one-year loans and 6.4% for three-year loans during the 1994-1998 period. In the case of Colombia, the domestic interest rate and devaluation expectations also determined the magnitude of the implicit tax. These taxes were meant to have a counter-cyclical role, which is why they were raised (particularly in Colombia) during periods of surges in capital inflows and lowered -- eventually to a zero rate in both countries -- when external conditions deteriorated following the 1997 East Asian crisis and the 1998 Russian default.

Although the central feature of the system was price-based, other administrative regulations on capital flows complemented reserve requirements. To contrast them with price-based regulations, we will refer to them as 'quantitative' in nature. In Chile, all inflows (including FDI) were subject to one-year minimum-stay requirements (a requirement that was lifted in May 2000), and the issuing of ADRs and similar instruments were subject to minimum amounts of issues and adequate risk classification; they also were subject to direct approval by the central bank. In Colombia, the Superintendence of Securities regulated the amount of the funds that portfolio investors could bring into the country and their domestic use, as well as bond and ADR issues made by Colombian firms on foreign markets. And although, unlike in Chile, trade loans were exempt from reserve requirements, other types of regulation were used to control this type of borrowing (minimum repayment

periods for imports, except capital goods). Finally, in both cases, the reserve requirement implied an obligation to register all loans at the central bank. In Colombia, this included short-term commercial credits, which prior to the regulation had not been subject to this requirement.

Malaysia also offered major innovations in the area of capital account regulations in the 1990s, but relied more on provisions of a quantitative nature. After a surge of net private capital inflows that in relative terms climbed to extraordinary heights, net private inflows (including errors and omissions) increased as a share of GDP from minus 3% in 1988 to 25% in 1993 (see Palma, 2000) -- the Malaysian authorities decided to take radical action. To stop this surge, in January 1994 this country adopted a series of drastic measures that were mostly quantitative in character. It prohibited non-residents from buying a wide range of short-term securities, placed limits on non-trade-related liabilities of commercial banks, and prohibited commercial banks from making swaps and forward transactions with foreigners (see Negara Bank 1994; Park and Song 1997; Ötker-Robe 2000; and Palma 2000). Also, deposit interest rates were drastically reduced: real deposit rates fell from an annual average of 4.2% in 1993 to one of minus 0.9% in 1994, and real lending rates from 6.2% to 1.8%, respectively (Palma 2000). This was done in order to reverse arbitrage flows.

As these measures were so drastic, and as they included such a strong quantitative component, the effect was not only immediate but also remarkable, so much so that as early as September of the same year, some of the controls were already beginning to be lifted, and by the end of the year most had disappeared. The Malaysian authorities seemed to have developed some anxiety about the degree of effectiveness of these controls.{8} In fact, net private inflows fell in one year by no less than 18 percentage points of GDP; the main component of this fall was short-term flows, which fell by an amount equivalent to more than 13 percentage points of GDP.{9} These measures seem to have been particularly effective vis-à-vis short-term flows, which fell by more than 13 percentage points of GDP in just one year. Although these restrictions were lifted relatively soon, some in August 1994 and others in January 1995, the shock effect they generated seems to have affected the expectations of economic agents in a more permanent way than the Latin American-style price-based mechanisms (see below).

The other Malaysian innovation came in 1998 with the East Asian financial crisis but applied to capital outflows. These regulations were aimed at limiting ringgit speculation by both residents and non-residents, particularly by eliminating offshore trading of the domestic currency. As in the case of the 1994 regulations, they effectively segmented access to domestic financial transactions between residents and non-residents. In February 1999, a price-based instrument, an exit tax, which would be phased out in the following years,

replaced this regulation. As these regulations affected outflows rather than inflows, they will not be considered in this chapter.{10}

B. Policy Objectives of Regulations

As extensive literature on the subject has emphasised, the accumulation of risks during periods of surges of capital inflows depends not only on the flow imbalances that can eventually lead to unsustainable private and public-sector debts, but also on their effects on corporate balance sheets and asset prices (especially stocks and real estate). Regulations on capital inflows, therefore, have three potential roles. The first is as a macroeconomic policy tool; the key aims are to provide some room for counter-cyclical macroeconomic policies, to help to cool aggregate demand, and try to avoid the accumulation of unsustainable debt burdens. The second role is as a 'liability policy' which helps to avoid risky corporate balance-sheet structures (especially due to excessive reliance on short-term external debts, and the maturity and currency mismatches typical of private sector financial structures in developing countries), and thus the worst effects of the volatility of capital inflows. Finally, capital controls help to avoid asset bubbles, given the sharp cyclical pattern that characterizes asset prices in developing countries.

Viewed as a macroeconomic policy tool, regulations on capital inflows can provide some room to 'lean against the wind'" during periods of financial euphoria, through the adoption of a contractionary monetary policy and/or reduced appreciation pressures. Furthermore, if they are effective in reducing the magnitude of inflows, they can reduce or eliminate the quasi-fiscal costs of sterilized foreign-exchange accumulation. Their role depends on the dynamics of capital inflows and their relation to current account deficits and their domestic counterparts (savings and investment behaviour). If capital flows generate an exogenous push on current account and domestic imbalances, as they seemed to have done in Latin America, they can help to control the direct source of the financial disturbance. If they respond to an endogenous pull, as in East Asia, they can work in an indirect way to limit the finance available for domestic investment. In either case, the effect of regulations may be limited by the fact that integration into capital markets tends to generate strong pressure to adopt pro-cyclical macroeconomic policies (in particular, as discussed above, to allow domestic interest rates to fall to unreasonable levels, or to allow the exchange rate to appreciate excessively).

Viewed as a liability policy, capital-account regulations take on board the fact that markets usually reward sound external debt profiles (Rodrik and Velasco, 2000). This phenomenon reflects the fact that during times of uncertainty markets tend to respond to gross (and not merely to net) financing requirements; this means

that the rollover of short-term liabilities is not financially neutral. Under these circumstances, a loan and bond maturity profile that leans towards longer-term external obligations will reduce the risk of a balance of payments crisis. At the same time, on the equity side, foreign direct investment (FDI) -- properly defined -- also should be preferred to other portfolio flows, as it has proved in practice to be least volatile. Equity flows have the additional advantage that they allow all risks associated with the business cycle to be shared with foreign investors, and FDI may bring parallel benefits (access to technology and external markets). These benefits should be balanced against the generally higher costs of equity financing.

From the point of view of domestic balance sheets, the lack of depth in developing countries' financial markets can lead agents in the private and public sectors to hold variable mixes of maturity and currency mismatches in their portfolios. These mismatches tend to be interrelated. Indeed, due to the limited availability of domestic financing -- and long-term domestic financing in particular -- agents may be inclined to borrow abroad if external financing is easily available, but will then accumulate currency mismatches if their revenues are generated in domestic currencies (e.g., if they operate in the non-tradable sector). Capital account regulations thus can help avoid currency mismatches, particularly if they establish different rules on access to external capital markets by firms in the non-tradable sector (or, to the extent that this can serve as an imperfect proxy, by residents). Domestic prudential regulations that take into account the particular currency mismatch that characterises non-tradable sectors can serve as a partial substitute in this regard (see Ocampo 2003a; Rojas-Suárez in this volume). To the extent that maturity and currency mismatches are interrelated, obvious but long-term solutions are policies aimed at deepening domestic financial markets.

Recent literature also has emphasized the crucial role that asset prices play in the business cycle. In developing countries, a surge in capital inflows often generates over-optimism (or 'irrational exuberance', to use Robert Shiller and Alan Greenspan's terminology) and, as such, may well end up producing excessively high market valuation of stocks and real estate. Portfolio inflows may directly fuel stock price booms and may lead to speculative financing to profit from stock-market revaluation. In turn, rising real estate prices may generate excessive investment in residential construction as well as help fuel the boom in domestic financing, based on overpriced loan collaterals. These booms can produce increased financial fragility; and when there is a (in the case of developing countries, practically inevitable) sudden stop in external financing, this would lead to large price corrections; also, after a collapse of asset prices, banks may find that their loan portfolios lack adequate collateral and this may even fuel further downward corrections in prices if they decide (or need) to sell at large discounts the collateral they had received in lieu of debts.

A look at the rationale behind the imposition of regulations of capital inflows in Chile, Colombia and Malaysia indicates that authorities were explicitly aiming to increase their room for macroeconomic policy manoeuvre and to change the composition of external finance towards less volatile flows. Averting asset bubbles seem to have figured less prominently in their explicit policy objectives. In the following sections, the extent to which there is evidence that they were successful in their task will be explored.

C. Effects on the Magnitude of Capital Inflows

Figure 7.7a shows the level and composition by source of net private capital inflows in Chile before, during and after capital controls. As is fairly evident from the graph, capital controls in Chile seem to have had a significant but rather short-term effect, at least in terms of levels. By 1994, the 1991 reduction seems to have evaporated, even in the face of the strengthened regulations adopted in May 1992. The reduction brought about by the 1995 strengthening of controls seems to have lasted for only one year. Of course, what levels these inflows would have reached had it not been for these controls may never be known, but the evidence seems to indicate that private inflows did bounce back after having been affected briefly by the imposition of controls. In terms of volume, then, these controls seem to have had the effect of 'speed bumps' rather than permanent restrictions (Palma 2000). There also were changes in the composition of capital flows towards foreign direct investment, but this was a broader regional (and global) trend which also occurred in countries that did not open their capital accounts in any significant way and those that did open them but did not rely on preventive capital account regulations.

<INSERT Figure 7.7 here>

The speed-bump character of inflow regulations in Chile is even clearer in Figure 7.7b. In terms of volume, net equity securities and 'other' investments, went from generating large negative flows in 1988 to large positive flows in 1990. The 1991 regulations did interrupt this process, but only by a year, and their strengthening in 1992 does not seem to have prevented a renewed capital account boom. The 1995 regulations generated a new lull that, as had happened in 1991, only lasted for a year. The fact that the effects of regulations on capital inflows were only temporary may, of course, not be independent from the level of the implicit tax, which was much lower in Chile than in Colombia (see below). Also, loopholes in the regulations were a constant source of concern and led to a series of measures aimed at closing them.

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In Colombia, frequent changes in the regulations make annual data an unreliable clue to their effect on capital flows. So Figure 7.8 concentrates on the most widely used series in Colombia to analyse capital flows: private capital flows involving cash transactions (thus eliminating those flows that are tied to trade transactions or involve investment in kind, both of which were not subject to the URR. As the figure makes clear, the major turning points in the dynamics of private capital flows in Colombia during the 1990s closely followed the timing of policy decisions.

<INSERT Figure 7.8 here>

Indeed, capital account liberalization, which came in two steps (February 1992 and September 1993),{11} led to a boom in external financing. The strengthening of controls in March 1994 had only moderate effects, but the stronger decisions adopted in August 1994 generated, with a lag, a sharp reversal of the trend. The lag was due to the fact that there were broad-based expectations, based on policy announcements by the new Administration (which took power in that month) that controls would be strengthened; this led to a speculative wave of registrations of new loans in anticipation of such policy change. The less restrictive regulations introduced in early 1996 prompted, in turn, a rapid increase in capital inflows. By late 1996, speculative attacks threatened to break the floor of the currency exchange band (as reflected by the peak observed in the data for December 1996). The series of regulations imposed early in 1997 reversed that trend again, bringing capital inflows to more moderate levels; these levels were maintained until early 1999, when the Brazilian crisis triggered rapid capital outflows.

Figure 7.9 shows the very strong surge in private capital inflows experienced by Malaysia between 1988 and 1993. This was the background for the decision adopted by the Malaysian authorities to impose strict controls on capital inflows at the beginning of 1994. As we have seen, and unlike the Chilean and Colombian experiments with capital account regulation, the key characteristic of these controls was their quantitative administrative character. Also, domestic interest rates were reduced to reverse arbitrage flows.

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As mentioned above, these measures were so drastic that the effect was immediate. In part due to the very success of these controls, and in part due to strong political pressure from the domestic and foreign

financial systems, some of the controls began to be lifted as early as August of the same year; by January most had disappeared.

Although capital flows recovered with the lifting of controls, the recovery was relatively mild compared, for example, with the recovery of net private inflows in Chile after 1995. Moreover, the recovery took place only in 'other' inflows, leaving net portfolio inflows still negative; in turn, 'errors and omissions' changed from a large positive figure in 1993 to a large negative one in both 1995 and 1996. Thus, quantitative controls generated a short but sharp shock, which had both stronger short-term and longer-lasting effects than the continuing (and strengthening) Chilean or Colombian price-based controls.

One of the main peculiarities of the Malaysian case is the large size of the balance of payments 'errors and omissions' item. This is relevant not only because it reveals pre-1994 deficiencies in Malaysia's Central Bank accounting practices, but also because, with controls in place, they first disappeared and then became negative. The relevance of this is that one of the most repeated criticisms of controls is that they tend to be ineffective because capital will always find ways of bypassing them. In Malaysia it seems to have been the other way around: with controls came a successful tightening of procedures for recording inflows and a massive reduction, rather than an increase, in this item.{12}

In any case, not all elements of the macroeconomic policy package were dismantled at the end of 1994: low interest rates were maintained to discourage a possible rapid return of private capital inflows after the end of quantitative restrictions. This certainly helped to maintain the volume of arbitrage inflows at a relatively stable level, but may have helped to fuel the real estate bubble of 1996, which made the 1997 crisis much worse than it would have been otherwise (see below).

D. The Broader Macroeconomic Effects

While there is little room to doubt the capacity of the 1994 Malaysian controls to affect capital flows, the price-based capital account regulations of Chile and Colombia have generated a great deal of debate. In particular, contrary to the broad agreement on the positive impact they had on external debt profiles (see below), their effectiveness as a macroeconomic policy tool has been subject to a great deal of controversy.{13}

Nonetheless, judging from the solid evidence with respect to the sensitivity of capital flows to interest rate spreads in both Chile and Colombia, it can be asserted that URR do influence the volume of capital flows at given interest rate spreads.{14} This may reflect the fact that available mechanisms for evading or eluding regulations are costly,{15} and that national firms' access to longer term external funds is more limited than

access to shorter-term funds. In Colombia, where these regulations were modified more extensively over the 1990s, there is strong evidence that increases in URR reduced overall flows; this evidence is consistent with the more qualitative evidence of the links between the timing of major turnarounds in the capital flows and policy decisions regarding the capital account (Ocampo and Tovar 1998; 2003). In any case, as mentioned above, a significant part of the history of these regulations, particularly in Chile, was associated with the closing of regulatory loopholes.

However, the macroeconomic effect of price-based regulations cannot be judged only on the basis of their effect on the magnitude of capital flows. Indeed, one of the explicit policy objectives of their introduction in Chile was allowing interest rates to remain at levels that were higher than parities; at the same time, at least according to some analysts, URR were meant to avoid further exchange rate appreciation. In turn, in Colombia, the strengthening of such regulations in 1994 was aimed at both opening up the space for a contractionary monetary policy (as the central bank judged that the credit and demand boom of 1992-1994 was generating undesirable effects), and reversing the exchange rate appreciation that the country had been experiencing.

In terms of interest rates, the available econometric evidence regarding the effects of capital account regulations is less controversial. It indicates that URR were able to increase domestic interest rates in both Chile and Colombia.{16} The evidence of the effects of URR on exchange rates is more mixed, but this may well reflect more the difficulties inherent in exchange rate modelling (see Williamson 2000, ch. 4), or the inability of URR to affect exchange rates at the levels they were actually applied (rather than any intrinsic ineffectiveness of URRs vis-à-vis exchange rates.)

The links between the different macroeconomic effects of regulations is also clear in the evolution of the regulatory instruments themselves. Thus, in Chile a basic problem of regulations was the variability of the rules pertaining to the exchange rate, since the lower limits of the exchange rate bands were changed several times during the period of controls (1991 to 1999). During capital account booms, this gave rise to a safe bet for agents bringing in capital, because when the exchange rate neared the floor of the band (in pesos per dollar) it was highly likely that the floor would be adjusted downwards. In Colombia, the main problem was the frequency of the changes made in reserve requirements. Changes that were foreseen by the market (particularly those of August 1994) led to speculative movements that reduced the effectiveness of such measures for some time.

Thus, in broader terms, the usefulness of capital controls as a macroeconomic policy tool must be evaluated first on their ability to give monetary authorities improved policy choice -- particularly between

reducing capital flows (and thus the money supply or the magnitude of sterilization) and increasing domestic interest rate spreads; and between higher domestic interest rates and exchange rate devaluation.{17} The fact that policy choice and other macroeconomic factors play a role brings into focus the fact that URRs are a complement to, rather than a substitute for, other macroeconomic policies; this fact was explicitly recognized in both Latin American experiments with price-based controls. In Chile, these other macroeconomic policies were applied more effectively, particularly in relation to fiscal policy.

The macroeconomic effect of capital regulations is shown in Figure 7.10 in a simple diagram that relates capital inflows to the interest rate spread under imperfect capital mobility. Regulations shift the relationship between both variables downwards, allowing either lower levels of inflows (and sterilization) for a given level of interest rate spread (i.e., a movement from A to B), or higher interest rates/exchange rate devaluation for a given level of inflows (a movement from A to C). The final equilibrium (including, of course, an intermediate outcome between B and C) will depend on other policy variables and macroeconomic conditions.

<INSERT Figure 7.10 here>

Given the multiple channels through which the URR can affect the economy, the effectiveness of these regulations can be best measured by a broad index of monetary pressures that includes the three possible channels through which capital inflows can affect the economy: the accumulation of international reserves, exchange rate appreciation, and a reduction in interest rates. Figure 7.11 provides an index similar to others used in the relevant literature, in which the weights for the three indicators are their standard deviation during the period analysed.

<INSERT Figure 7.11 here>

An inspection of the graph indicates that the 1994 Malaysian controls were extremely effective in reversing the strong expansionary effect of capital surges in previous years, particularly in 1993. The price-based capital-account regulations of Chile and Colombia had weaker effects, particularly in the first case. Indeed, the introduction of such regulations in Chile in June 1991 and their strengthening in May 1992 was not accompanied by a reversal of the expansionary trend (though the index remained stagnant for a few

months);{18} those instituted in July 1995 had a more discernible effect. In Colombia, which used price-based regulations more aggressively, the effects were stronger. In particular, the movement in the index of expansionary pressures is more closely tied to the changes in capital-account regulations in 1993-7. In both Chile and Colombia, the capital account turned contractionary in 1998, with the reduction in the URR having only a negligible effect on this trend.

As Table 7.1 indicates, the mix in the evolution of the three components of the index varied significantly from one episode to another, even within the same country. Thus, taking Malaysia as a standard, controls had major effects on international reserves accumulation with an additional moderate impact on the exchange rate, whereas the policy decision to reduce interest rates supported the reduction of capital inflows. The effects of the June 1991 Chilean decisions are unclear, but those of May 1992 allowed a higher interest-rate-cum-devaluation mix but were incapable of affecting reserve accumulation. In turn, those of July 1995 did have a broadly desirable outcome: they stopped reserve accumulation as well as exchange rate appreciation while allowing authorities to maintain fairly high interest rates. In Colombia, the August 1994 regulations allowed the authorities to undertake a contractionary monetary policy while avoiding exchange rate appreciation. In the context of the continuation (or, more precisely, only a gradual weakening) of such contractionary monetary policy, the decision to loosen regulations in February 1996 generated an avalanche of reserve accumulation and exchange rate appreciation, which in turn was stopped by the return to controls in January 1997 (or, to be more accurate, by a series of decisions between that month and May 1997).

<INSERT Table 7.1 here>
<INSERT Figure 7.11 here>

Both Figure 7.11 and Table 7.1 indicate, however, that much of these macroeconomic effects were temporary in nature. In Table 7.1, in particular, their effect is hardly visible in the second year after regulations were imposed or strengthened. In the terminology used above, they operated more as speed bumps rather than as permanent restrictions. Of course, this may be associated with the fact that in several cases the regulations were designed to be temporary, or that their strong initial effect prompted authorities to take immediate steps in the opposite direction. This was particularly the case of the January 1994 Malaysian controls, and the August 1994 Colombian ones. In yet another episode (the January 1997 Colombian regulations), the effects were

overwhelmed by new events (the Asian and Russian crises). Thus, the temporary character of the effects is more clearly perceived in the history of Chilean regulations.

However, more broadly, this is reflected in the fact that none of the three countries was able to avoid the cycle that developing countries experienced in the 1990s: rapid expansion up to the Asian crisis followed by a contraction when faced with the events that began with the 1997 Asian crisis. In this respect, there is a sharp contrast between the experience of these countries and those of China, India and Taiwan, which followed a strategy of keeping quantitative controls and only liberalizing them very gradually. Combined with the stronger effects of Malaysian vs. Chilean/Colombian regulations, these are clear indications of the stronger macroeconomic effects of quantitative vs. price-based regulations.

E. Effects on the Composition of Capital Inflows

Figure 7.12a demonstrates a fact that is less controversial about the effects of inflow regulations in the three countries: the regulations were effective in helping the countries to maintain a debt profile with a low share of short-term debt, a fact that proved to be very beneficial during the turbulent events of 1997-8. Indeed, in some cases, some regulations led to changes in trends that proved permanent. This is particularly true of the decisions adopted by Chile and Colombia in the mid-1990s. The 1994 Malaysian regulations also interrupted a rising trend of short-term borrowing that was only partially reversed in the following years. As demonstrated above, in all three countries there is also clear evidence that regulations did not have any adverse effects on FDI.

<INSERT Figure 7.12 here>

Figure 7.12b, however, highlights a major problem in studying the effects of controls on debt profiles. The crucial question is: what is the counterfactual -- i.e., were controls effective because they reduced the share of short-term debt vis-à-vis the historical trend, or were they effective because they helped the countries that adopted capital account regulation (Chile, in this case) to avoid the trend of rising shares of short-term debt experienced by other developing countries that did not impose controls?

As it happened, until 1995 capital controls seem to have had little lasting effect in Chile, vis-à-vis its own trend of capital flows, but a significant effect after the strengthening of controls in that year.{19} However, if the comparison is made with the trend of capital flows in countries that did not impose similar controls, such as Thailand and Brazil, then controls in Chile seem to have had quite a remarkable effect from the

very beginning. In fact, in Chile the share of short-term debt was at a similar level to Thailand's before the imposition of controls (about one quarter of the total), but by 1995 Thailand had a share twice as large as Chile's. Furthermore, at the beginning of the Plano Real and full financial liberalization in Brazil in 1994, Chile actually had a share of short-term debt five percentage points higher than that of Brazil; however, by 1998 Brazil's share was nearly four times higher than Chile's.

In the case of Malaysia following its 1994 controls, a new wave of debt accumulation developed in that country, but the debt profile was kept at more prudential levels than in other Asian countries that were hit by the 1997 crisis (Kaplan and Rodrik 2002; Palma 2000).

F. Effects on Asset Price Dynamics

Finally, Figures 7.13 and 7.14 show that, in the three countries, capital account regulations had sufficient capacity to slow down and, in some cases, to pierce asset bubbles. As is clear from Figure 7.13a, Chile was experiencing an asset bubble in its stock market in early 1991. In the four quarters preceding the first imposition of controls, the index had jumped more than three-fold; the 1991 and 1992 regulations stopped this trend for about seven quarters. However, as with the levels of net private inflows and the broader macroeconomic effects studied above, this effect soon ran its course and together with the huge new increase in inflows in 1994 the index jumped again, this time more than two-fold. The strengthening of controls in 1995 had an immediate impact on this new bubble, bringing the index down considerably. When it began to recover again in early 1997, with the new increases in inflows, its progress was halted by the mid-1997 East Asian crisis.

<INSERT Figure 7.13 here>
<INSERT Figure 7.14 here>

Something similar, but even more pronounced, took place in real estate after 1995 (see Figure 7.14). In this market, Chile was facing another bubble when capital controls were imposed in 1991. In this case, the (short-term) reduction in net private inflows that came with inflow controls did not have such an immediate effect as on the stock market. However, the strengthening of regulations in May 1992 coincided with the interruption of the real estate boom. By then, the index of real estate prices (in US dollar terms) had already increased close to five-fold in just six quarters. Nevertheless, as in the stock market, the respite was only

20

temporary, and the real estate price index doubled again between the end of 1993 and the strengthening of capital controls in the third quarter of 1995 (following the renewed increase in inflows). The subsequent fall is remarkable (more so than in the stock market), even though the economy continued to grow rapidly until 1998.{20}

In Colombia, booming capital inflows since 1992, partly fuelled by growing capital account liberalization, led to a seven-fold increase in stock prices. This process was sharply reversed by the August 1994 controls and the accompanying monetary policy. A similar reversal took place after the controls adopted in early 1997, but here the preceding boom had not reached its peak. Although no similar indices exist for real estate prices, partial evidence in this regard (the evolution of housing rents) indicates that a similar reversal took place, coinciding with the 1994 regulations.

Figure 7.13 also shows the remarkable jump in stock prices at the time of the surge in inflows into Malaysia in 1993. Before the imposition of controls, this index jumped more than two-fold in just four quarters. During the three quarters that these controls lasted in full, this index fell by 30%; it then began to recover somewhat erratically, almost reaching its previous peak again in the last quarter of 1996.{21}

A rapid bubble in real estate prices in Malaysia also took off in the four quarters before the imposition of controls in 1994. As in Chile, the piercing of this bubble was not as immediate as the one in the stock exchange. However, in contrast to Chile, the return of inflows in 1995 pushed this index back up with a vengeance. One major difference between the two countries was the level of interest rates. As Table 7.1 indicates, interest rates remained relatively high in Chile two years after the July 1995 controls. The return of inflows, low deposit rates and calm in the stock market (by pre-crisis standards), together with low mortgage rates, set in motion another real estate bubble. In just four quarters the real estate index jumped again more than two-fold.

IV. Conclusions

Overall, the experiences of Chilean, Colombian and Malaysian regulations on capital inflows indicate that they served as useful instruments for improving both debt profiles and the macroeconomic trade-offs faced by the authorities, and for restraining asset bubbles. However, the macroeconomic effects, including on asset prices, depended on the strength of the regulations and tended to be temporary -- operating more as 'speed bumps' than as permanent speed restrictions. The basic advantage of the price-based instrument used by Chile and Colombia is its non-discretionary character, whereas quantity-based controls in Malaysia proved to be stronger

in terms of short-term macroeconomic effects. Thus, when immediate and drastic action is needed, quantitative controls are more effective.

The dynamics of capital flows must be taken into account when analysing the overall and relative virtues of the different types of regulations. Interestingly, given the links between the dynamics of capital flows and current account deficits in Latin America vis-à-vis East Asia, the policy prescription should perhaps have been the opposite of what actually happened: quantitative controls for Latin America (where exogenous inflow-surges dominate) and price controls for East Asia (a region in which inflow surges have tended to be mostly endogenous).

In any case, it must be emphasized that these systems were designed for countries that initially had chosen to be fully integrated into international capital markets, but later decided to fine-tune this integration -- at least temporarily. Traditional exchange controls and capital-account regulations -- when applied effectively and transparently -- may thus be superior if the policy objective is to reduce significantly domestic macroeconomic sensitivity to volatile and unregulated international capital flows, as the experiences of China, India and Taiwan have indicated.

Notes

1. According to the database of the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), between 1973 and 1981, net private inflows into Latin America reached US$(2000) 440 billion; in the 1990s, this figure jumped to US$(2000) 580 billion (see Figure 7.2 below). In turn, between 1982 and 1990, net transfer of resources (net inflows minus net factor payments; for this calculation net inflows includes 'errors and omissions', but excludes the use of IMF credit, IMF loans and exceptional financing) became <u>negative</u> to the tune of US$(2000) 650 billion; again, between 1999 and 2003, Latin America had to deal with negative transfers of more than US$(2000) 100 billion (see Figure 7.4).

2. The remarkable size of net inflows into East Asia before the 1997 crisis -- according to the WEO-database, 'Developing Asia' received more than US$(2000) 500 billion between 1989 and 1996 -- makes Alan Greenspan's oft-quoted post-East Asian crisis remarks something of an understatement: 'In retrospect, it is clear that more investment monies flowed into these economies than could be profitably employed at modest risks' (1997, p. 1).

3. According to Kindleberger, international financial markets can do one thing that is more damaging for developing countries than over-lending: to halt that lending abruptly (see Kindleberger, 19**).

4. The D-Ram price per megabyte, for example, fell from US$26 in 1995 to US$10 in 1996, US$4 in 1997 and less than US$1 in 1998. Memory-chips were one of the Republic of Korea's main export-items. The collapse of the price of the D-Ram memory in 1995 was triggered by massive Taiwanese new investment in memory chips of more advanced technology, which came on-stream at a time when markets were already saturated. As is well known, in micro-electronic markets competitiveness only exists at the cutting edge of technology; so Korean corporations had little choice but to invest in the new technology even though collapsing prices had drastically cut short-term returns.

5. Among the pro-cyclical macroeconomic policies that developing countries tend to follow in the face of large inflows, to let interest rates fall and/or exchange rate appreciate stand out (see Ocampo 2003b).

6. The previous regulations, dating from 1991 (which, in turn, were reformed versions of the 1967 foreign exchange regulations) had established a minimum maturity of one year for foreign loans and maintained the traditional regulations on the final use of funds from such loans; i.e., these could only be used for trade or investment financing. In February 1992 for the first time, firms were allowed to contract foreign credits abroad for short-term working capital. In September 1993, when the URR were introduced, the traditional system of regulations based on final use was replaced by a system based on maturity. Additionally, domestic financial intermediaries were authorized to lend in foreign currency to domestic firms and residents regardless of the final use of the credit, to lend to foreigners in international currencies and to invest liquid assets abroad. The fact that the 1993 regulations were an effective liberalization of the capital account is emphasised by Ocampo and Tovar (1998; 2003), who show that they actually increased the sensitivity of capital flows to interest-rate differentials (arbitrage incentives).

7. This occurred after a short experiment with an explicit (Tobin) tax on all capital inflows, which was declared unconstitutional by the Constitutional Court two months after it was decreed.

8. There is also evidence of a strong lobby from the domestic financial sector for the government to lift the most drastic controls.

9. Non-FDI inflows, which had reached more than US$(2000) 11 billion in 1993, turned sharply negative in 1994; FDI was the only component of capital inflows that remained unaffected by these controls.

10. On the effect of these regulations, see Epstein, Grabel, and Jomo (2003); Rajaraman (2002); and, particularly, Kaplan and Rodrik (2002).

11. See footnote 6.

12. The negative figures for this item in 1995 and 1996 probably reflect capital flight by Malaysian citizens. If this was the case, like their counterparts in Mexico before the December 1994 crisis, these domestic agents may have predicted trouble with better foresight than international funds and bank managers did.

13. For documents that support the effectiveness of these regulations in Chile, see Agosin (1998); Agosin and Ffrench-Davis (2001); Larraín et al. (2000); Le Fort and Lehman (2000; 2003); and Palma (2000). For a more mixed view, see Ariyoshi et al. (2000); De Gregorio et al. (2000); Laurens (2000); and Valdés-Prieto and Soto (1998). Similarly, for strong views on their positive effects in Colombia, see Ocampo and Tovar (1998; 2003); and Villar and Rincón (2002), and for a more mixed view, Cárdenas and Barrera (1997) and Cárdenas and Steiner (2000).

14. Indeed, evidence on the insensitivity of the volume of capital flows to capital-account regulations comes from econometric analysis in which URR is not included as a determinant of interest rate spreads but rather as an additional factor affecting capital flows; this may therefore be interpreted as an inadequate econometric specification.

15. Some of these mechanisms, such as the use of hedging, enable investors to cover some of the effects of these regulations, but in large part this is done by transferring risks (more specifically, the risk associated with longer-term financing) to other agents who would only be willing to assume them for an adequate reward. More generally, if there is no stable external demand for the domestic currency, hedging may be available only in limited quantities, a fact that affects the maturities and costs involved.

16. For the case of Chile, see Larraín et al. (2000); Le Fort and Lehman (2000; 2003); and De Gregorio et al. (2000), for Colombia, Villar and Rincón (2002).

17. This is the very apt interpretation provided by Williamson (2000, ch. 4). Indeed, under this interpretation, the apparently conflicting evidence on the Chilean case largely disappears.

18. The low level of the URR may account for this result. Valdés-Prieto and Soto (1998) find evidence of a 'threshold effect', which would explain why these regulations were only effective in reducing capital flows in 1995-6. Despite this, Agosin and Ffrench-Davis (2001) have argued that on broader grounds the macroeconomic management undertaken in the earlier part of the 1990s was more appropriate than in 1995-6.

19. In fact, according to Chile's Central Bank balance of payments statistics, after 1995 this share fell even further than is indicated by the IMF source used in this graph -- from more than 18% in 1994, to 16% in 1995, 12% in 1996, and less than 5% in 1997.

20. Chile's GDP grew at 7.4% in 1996 and 6.6% in 1997.

21. The crash after the mid-1997 crisis was equally remarkable; by the third quarter of 1998 the local currency denominated index had fallen to just 38% of its early 1997 level.

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TABLE 1

Change in Key Variables Preceding and Following
Major Capital Control Episodes

		Reserves accumulation	Real effective exchange rate percent variation a/	Average real interest rate
Chile				
June 1991	Year before	1775.0	3.6%	3.9
	Year after	2160.6	1.4%	1.5
May 1992	Year before	1540.6	7.0%	1.5
	Year after	2263.6	-4.8%	3.7
	Second year after	175.2	6.8%	6.0
July 1995	Year before	4115.2	9.5%	3.8
	Year after	-189.9	1.3%	6.0
	Second year after	2267.4	9.3%	5.3
Colombia				
August 1994	Year before	-287.4	14.6%	2.0
	Year after	217.1	-1.3%	9.5
February 1996	Year before	-87.5	-2.9%	9.4
	Year after	1725.0	18.0%	8.7
January 1997	Year before	1570.6	19.4%	9.1
	Year after	-105.4	-4.5%	4.4
	Second year after	-1020.8	-5.4%	10.2
Malaysia				
January 1994	Year before	19881.5	-3.5%	3.4
	Year after	-12060.2	-0.2%	1.2
January 1995	Year before	-12060.2	-0.2%	1.2
	Year after	-2813.7	2.9%	2.4
	Second year after	4586.3	6.7%	3.5

Source: Author estimates based on IMF, International Financial Statistics (2003)

a/ An increase means an appreciation of the domestic currency.

FIGURE 1

AFRICA, ASIA and LATIN AMERICA: total and private net capital inflows, 1970-2002
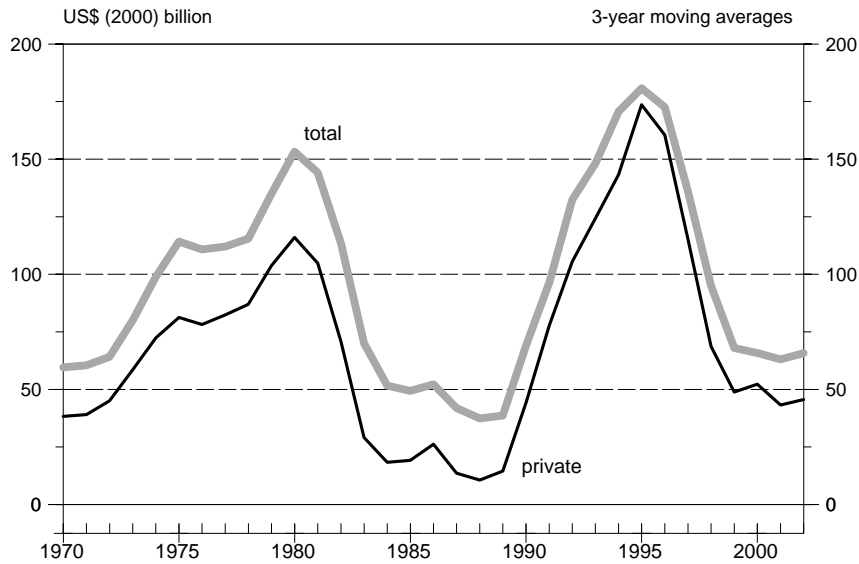
total = total net capital inflows; **private** = net private inflows. In this and other graphs below that show values in terms of 3-year moving averages, the value shown for the last year is the actual value of the year.

Source: IMF (2004a). With respect to Africa, as the IMF data-set only includes information for Sub-Saharan Africa, in order to have an estimate for the whole continent (and despite the problems of mixing data from IMF and World Bank sources), data for North Africa (Algeria, Morocco, Tunisia and Egypt) was added to that of Sub-Saharan Africa using information from World Bank (2004).

FIGURE 2

LATIN AMERICA: net private capital inflows, 1930-2002

US$ (2000) billion   3-year moving averages
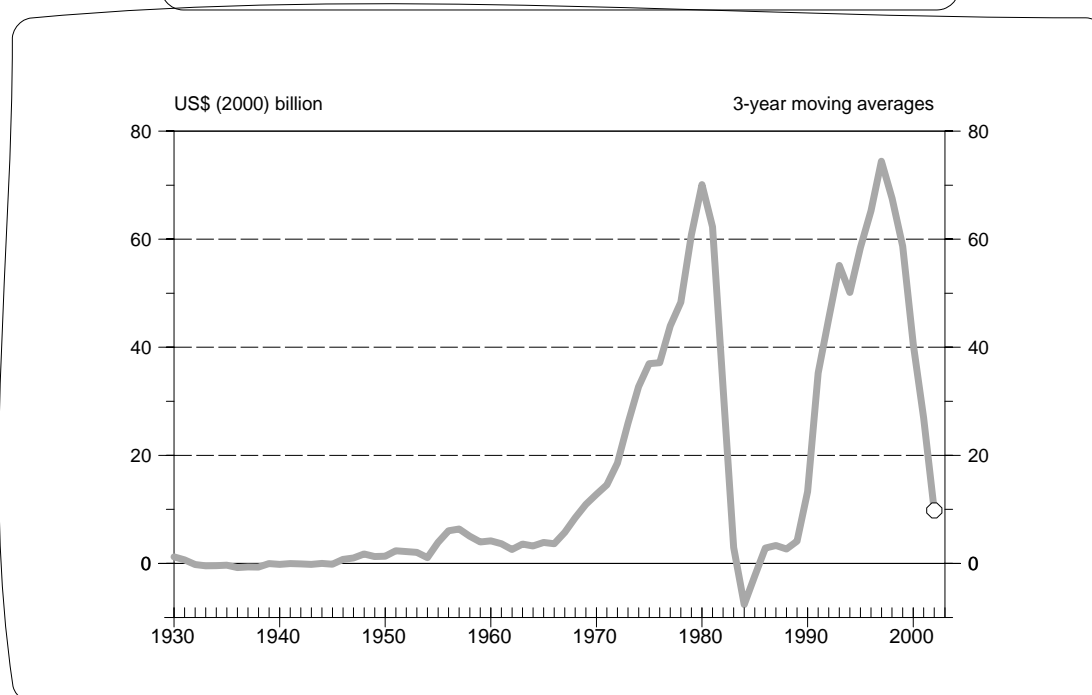
Sources: 1930-1949, B. Stallings (1990; this source only including inflows from the USA); 1950-1969, ECLAC Statistical Division (during this period, portfolio inflows include a very small amount of government bonds because Latin American countries report their balance of payments according to the IMF methodology, revision 5; in this methodology, under 'net portfolio inflows' public and private sector bonds are reported together); and 1970-2002, IMF (2004a).

FIGURE 3

LATIN AMERICA and EAST ASIA: aggregate net capital flows before financial liberalisation and between financial liberalisation and financial crisis
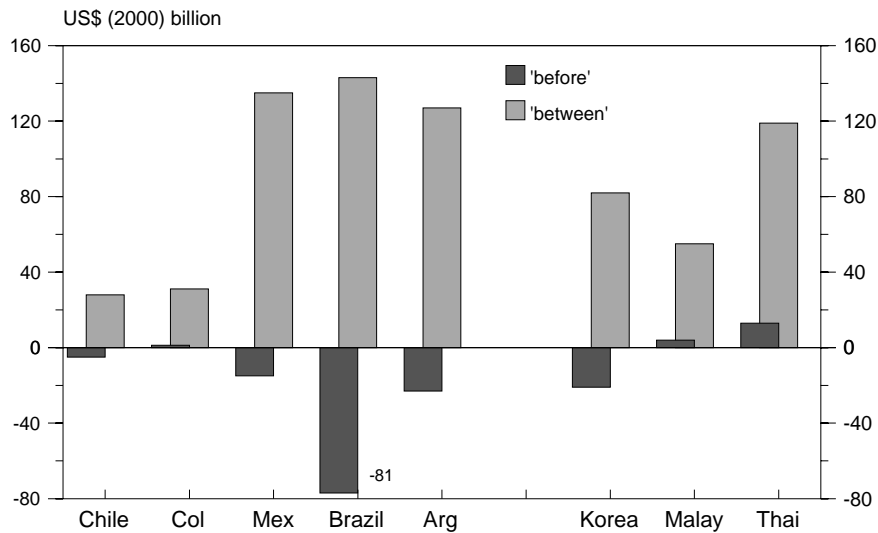
Col = Colombia; **Mex** = Mexico; **Arg** = Argentina; **Malay** = Malaysia; **Thai** = Thailand.

In each case the period '**between**' covers the years between financial liberalisation and financial crisis -- Chile, 1975-82; Colombia, 1993-1998; Mexico, 1988-94; Brazil, 1992-98; Argentina, 1991-2001; and Korea, Malaysia and Thailand, 1988-96. The period '**before**' covers a similar number of years before financial liberalisation (in the case of East Asia and Argentina, however, as the period 'before' would have included years preceding the previous 1982 debt crisis, only years since 1982 have been included).

Source: World Bank (2004).

FIGURE 4

LATIN AMERICA: Net Transfer of Resources and its
Composition, 1950-2002
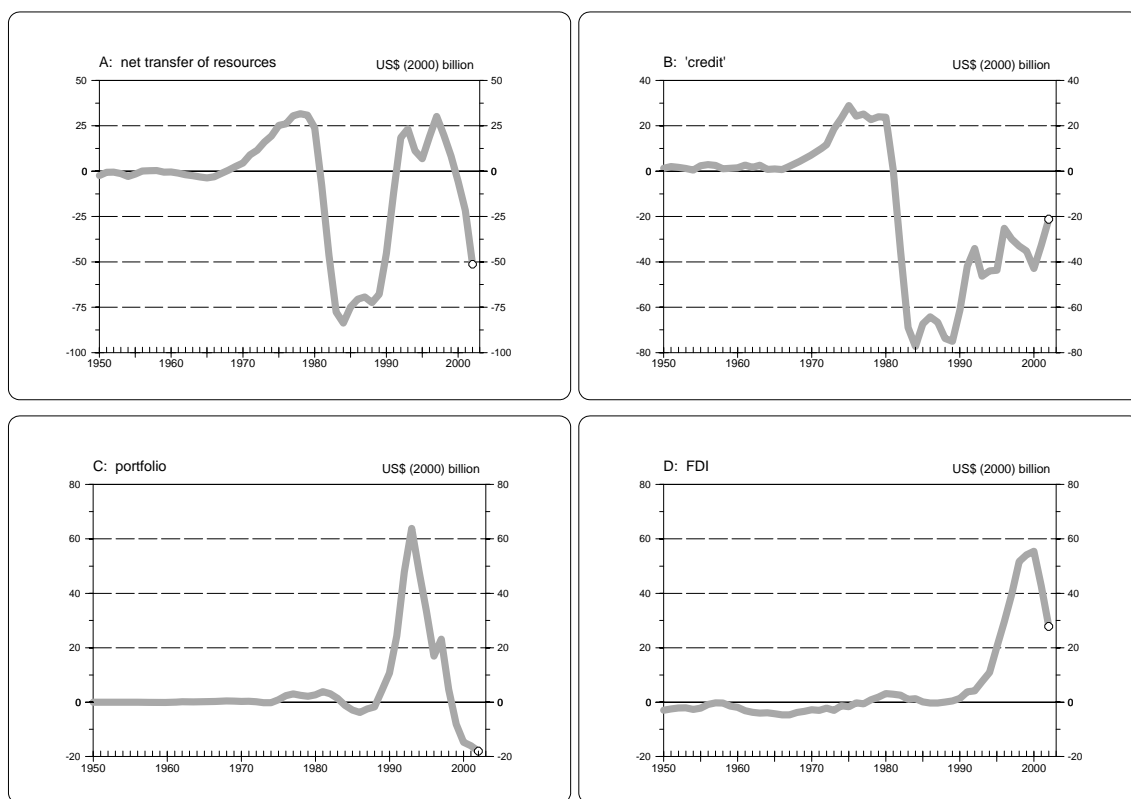
Net transfer of resources = net inflows minus net factor payments; as mentioned above, net inflows includes 'errors and omissions' but excludes the use of IMF credit, IMF loans and exceptional financing. 3-year moving averages.

Source: ECLAC's Statistical Division.

FIGURE 5

NET PRIVATE INFLOWS AND CURRENT ACCOUNT
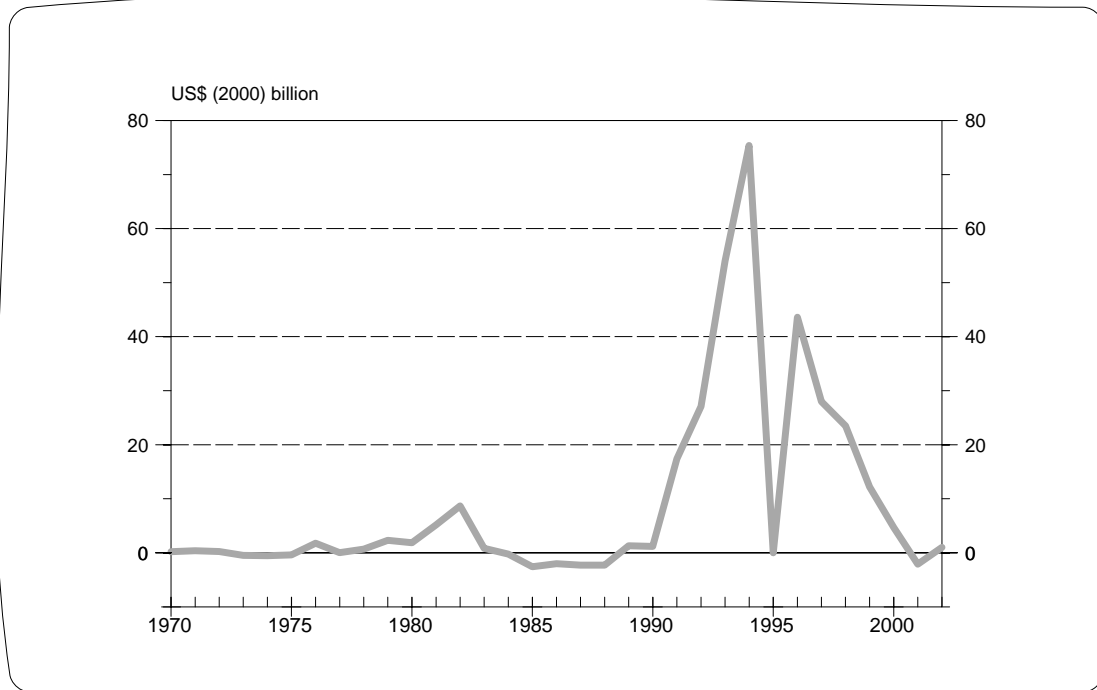
A: LATIN AMERICA, 1950-2002

US$ (2000) billion   3-year moving averages

inflows

current account

B: EAST ASIA (3), 1975-2002

US$ (2000) billion   3-year moving averages

inflows

current account
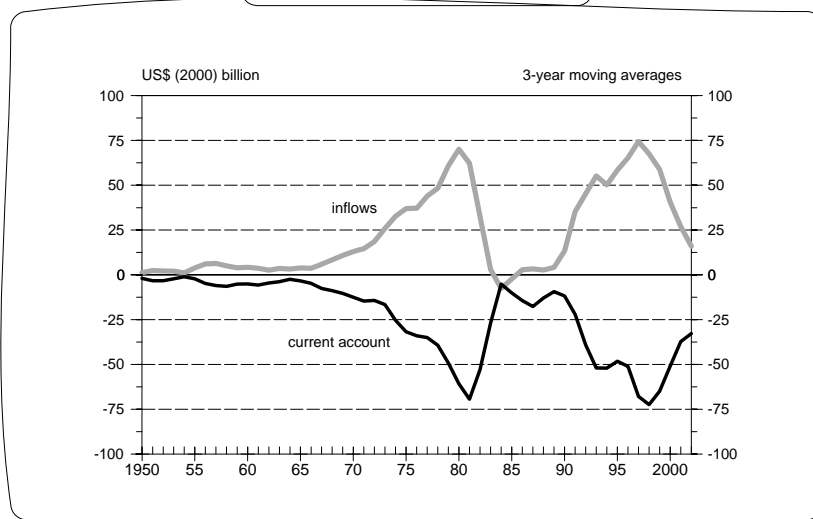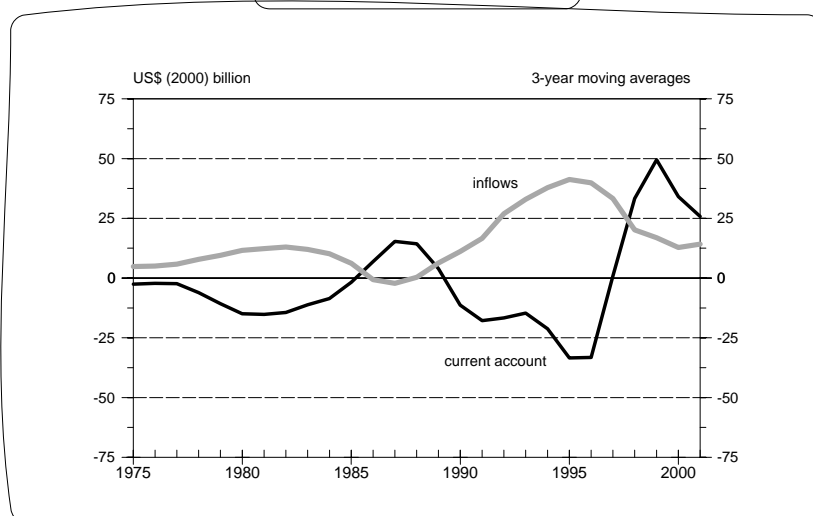
East Asia (3): Korea, Malaysia and Thailand.
Sources: Latin America, 1950-1969, ECLAC's Statistical Division; 1970-2002, World Bank (2004).
East Asia, (2004; data available only from 1975).

FIGURE 6

LATIN AMERICA: net private portfolio flows, 1970-2002

US$ (2000) billion

Source: IMF (2004a).

FIGURE 7

A: CHILE, composition of net private capital inflows, 1988-1997

US$ (2000) billion

FDI
portfolio
"other"

capital controls imposed

capital controls strengthened

1988 1989 1990 1991 1992 1993 1994 1995 1996 1997
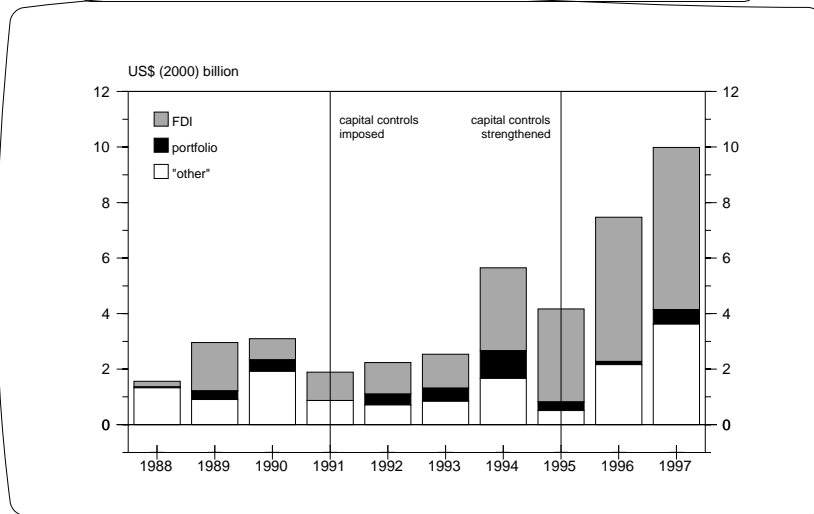
B: CHILE, net equity securities and 'other' inflows, 1988-1997

US$ (2000) billions

capital controls imposed

capital controls strengthened

1988 1989 1990 1991 1992 1993 1994 1995 1996 1997
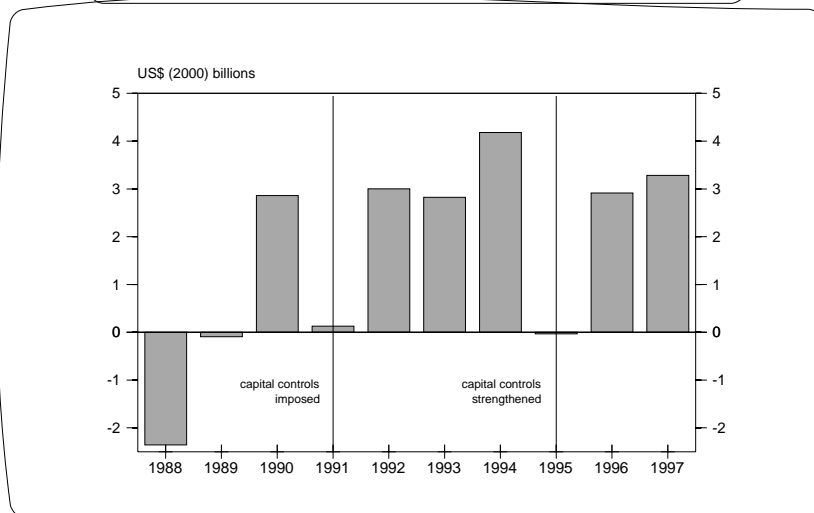
Sources: Panel A, World Bank (2004); and Panel B, IMF (2004b). See respective sources for different definition of components of private capital flows.

FIGURE 8
PRIVATE CASH CAPITAL FLOWS, COLOMBIA
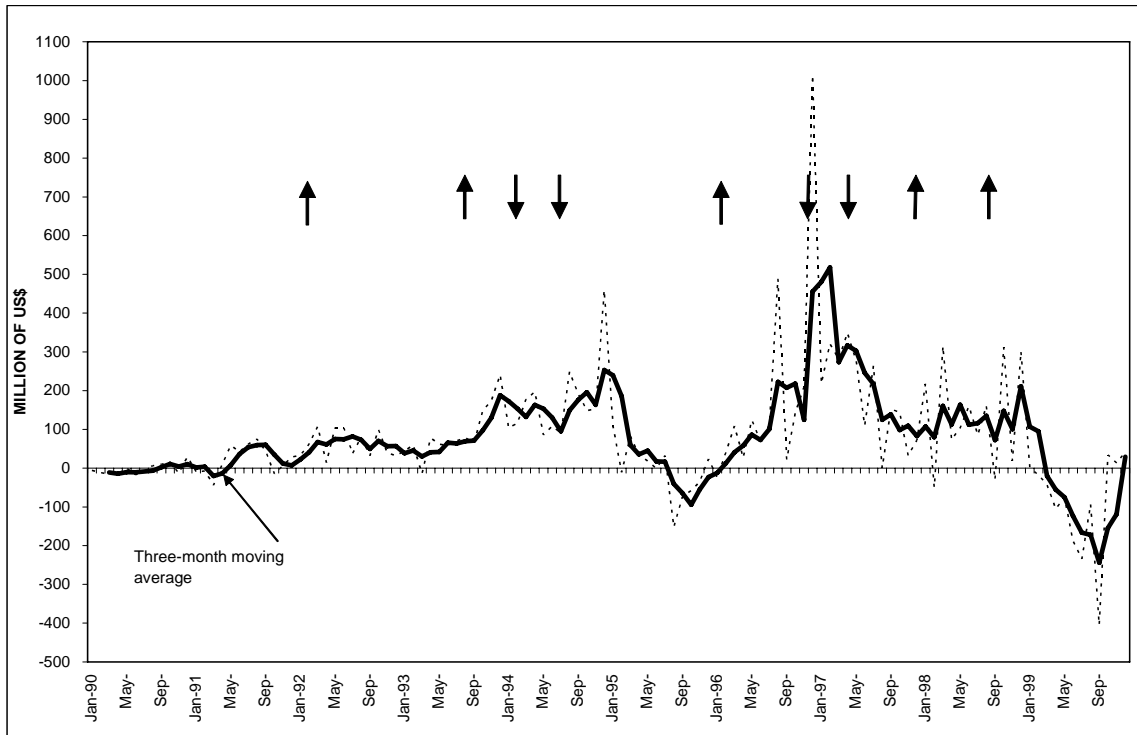
Source: Calculations based on data from the Central Bank of Colombia (Banco de la República).
↓ ↑ Imposition or relaxation of restrictions on capital inflows, respectively (the direction of
the arrows indicates expected effect on the index)

FIGURE 9

MALAYSIA: composition of net private capital inflows, 1988-1996

US$ (2000) billion

Legend:
- 'errors'
- FDI
- portfolio
- 'other'

Years on x-axis: 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996

Y-axis: -5 to 20
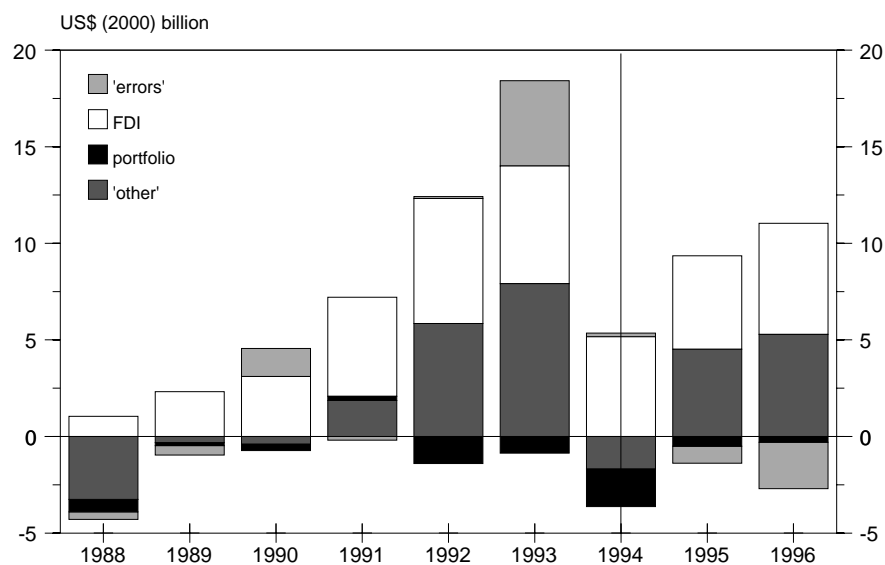
Source: IMF (2004a; includes 'errors and omissions;). See source for definition of components of private capital flows.

FIGURE 10

Inflows

A

C

B

Interest rate spread
(i - i* + e)

i: Domestic real interest rate
i*: External real interest rate
e: Annual variation of of the real exchange rate
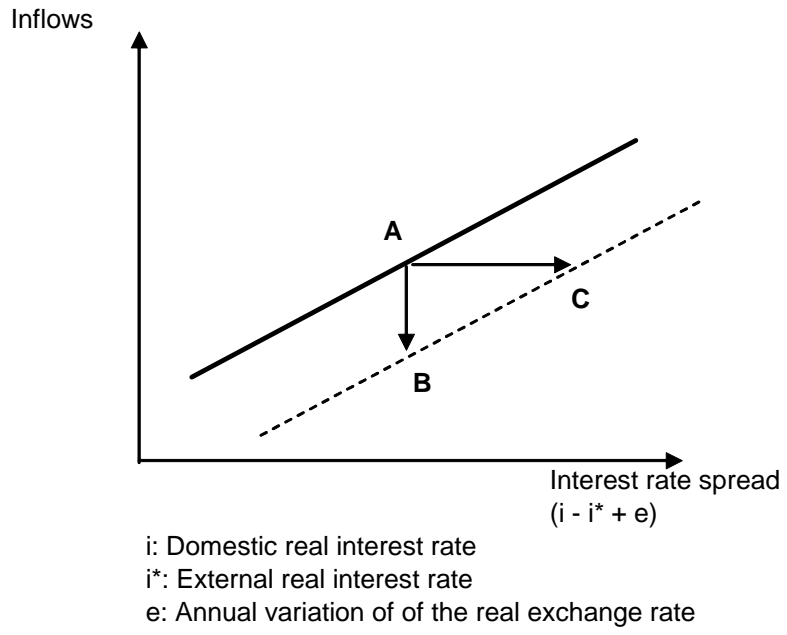
Figure 11
Index of Expansionary Monetary Pressure

A. Chile
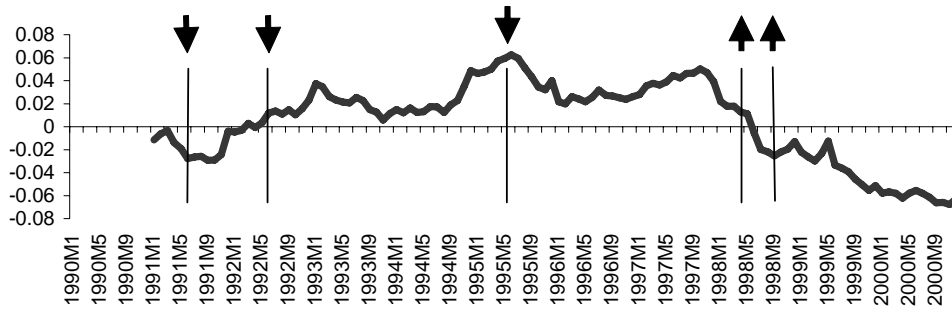
B. Colombia
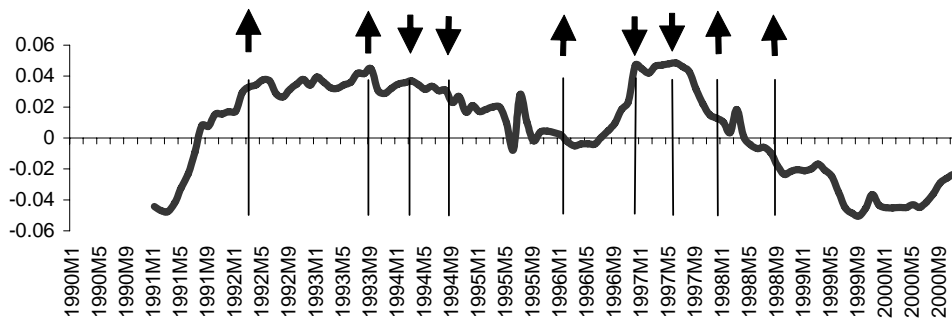
C. Malaysia
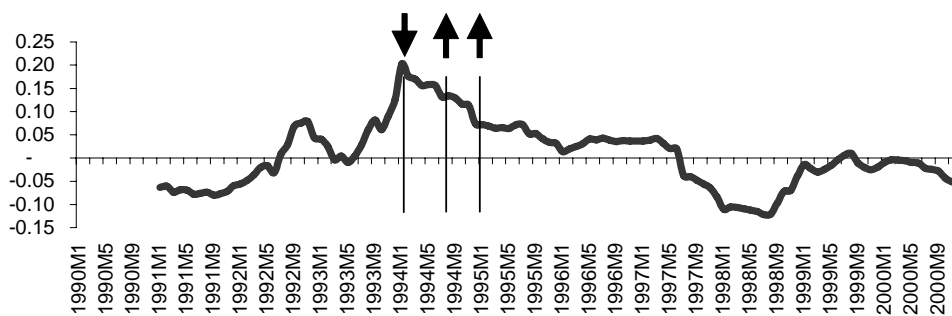
Source: Authors estimates based on IMF data.

↓ ↑   Imposition or relaxation of restrictions on capital inflows, respectively (the direction of the arrows indicates expected effect on the index)

Index= aR + be - ci

R = International reserves corrected by log trend

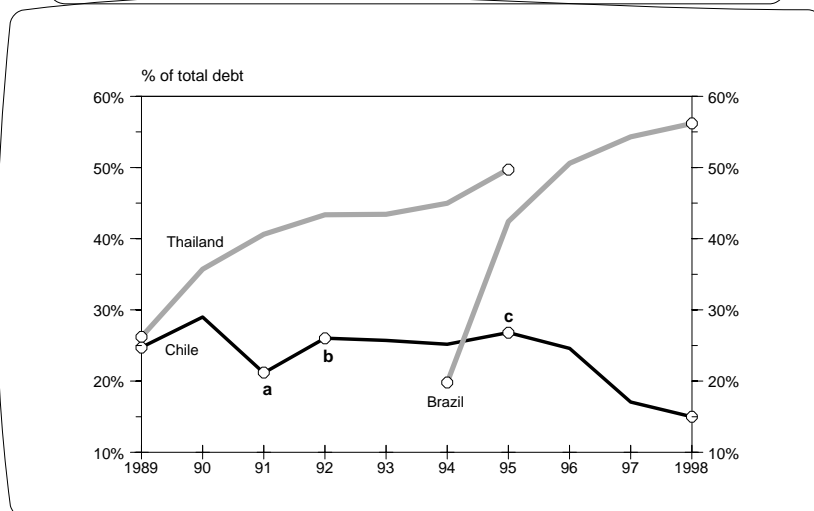e = Twelve-month variation of the real exchange rate

i = Real deposit interest rate

a, b, c = Standard deviation of R, e and i respectively

FIGURE 12

Short Term External Debt

A: CHILE, COLOMBIA and MALAYSIA, short-term external debt, 1988-98
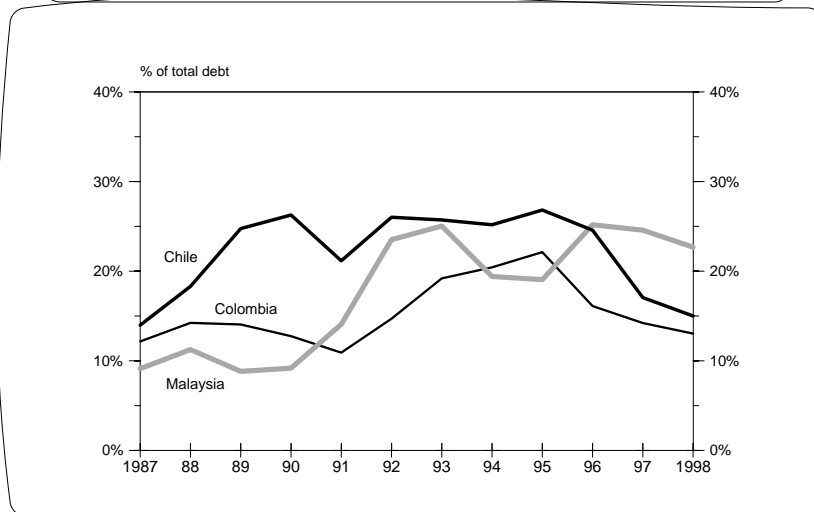
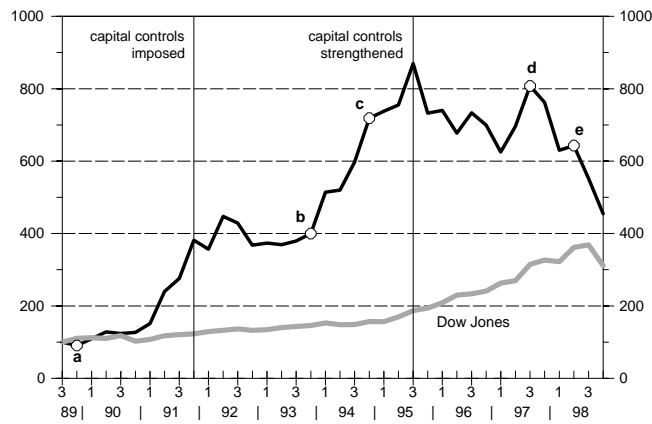B: CHILE, BRAZIL and THAILAND, short-term external debt, 1989-98

a = capital controls imposed; **b** and **c** = capital control strengthened.
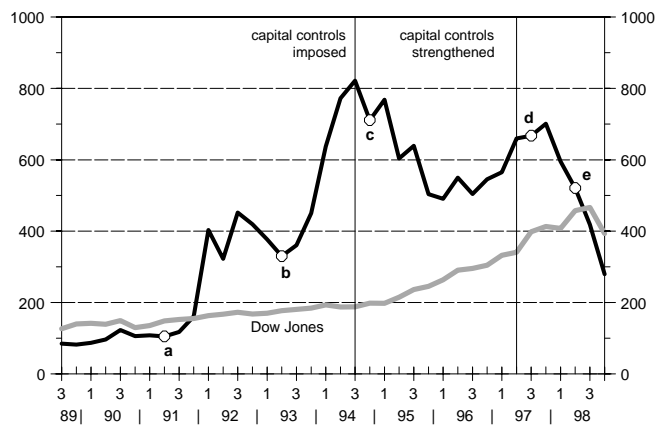
Source: IMF, (2004a).

FIGURE 13

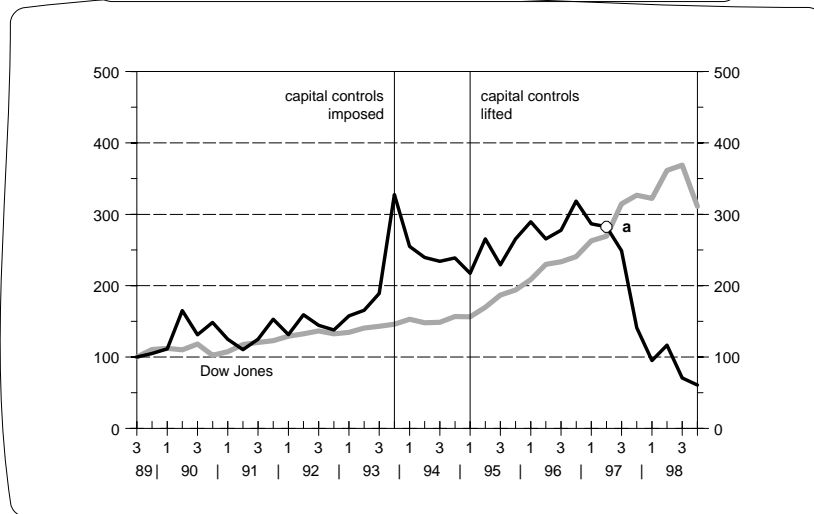A: CHILE, quarterly stock market index (US$), 1989-98

a = first democratic government after Pinochet; **b** = second democratic government; **c** = Mexican crisis; **d** = East Asian crisis; and **e** = Russian default.

B: COLOMBIA, quarterly stock market index (US$), 1989-1998

a and **b** = progressive opening of the capital account; **c** = Mexican crisis; **d** = East Asian crisis; and **e** = Russian default.
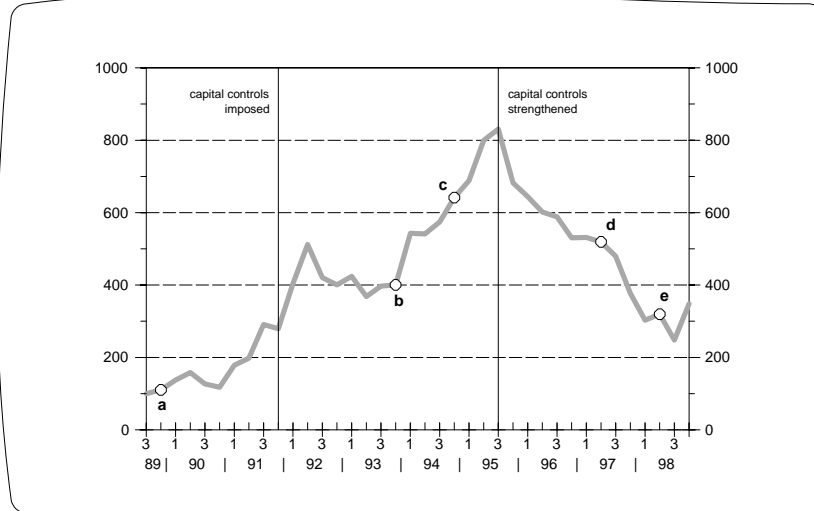
C: MALAYSIA, quarterly stock market index (US$), 1989-98

capital controls
imposed

capital controls
lifted

Dow Jones

a

3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3
89| 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98

a = East Asian crisis.

Source: DataStream.
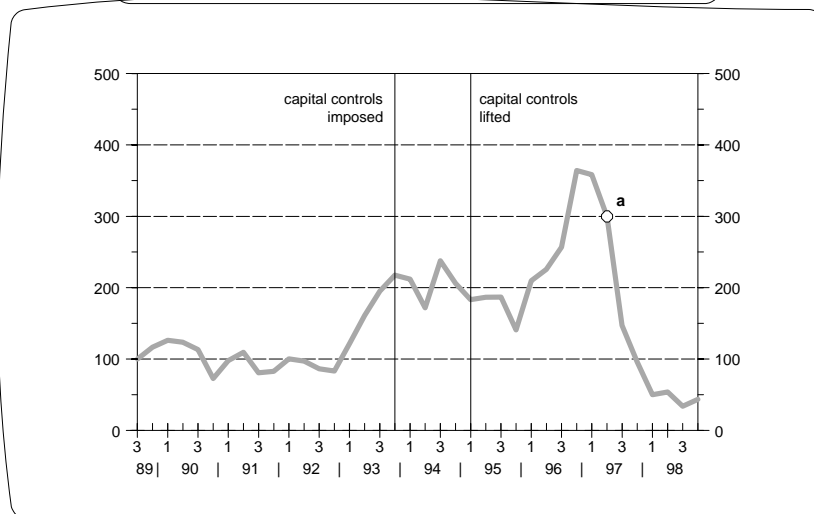
FIGURE 14

Quarterly Real State Index

CHILE: quarterly real estate index (US$), 1989-98

a = first democratic government after Pinochet; **b** = second democratic government; **c** = Mexican crisis; **d** = East Asian crisis; and **e** = Russian default.

MALAYSIA: quarterly real estate index (ringgit), 1989-98

a = East Asian crisis.

Source: DataStream.

APPENDIX: Results of the 'Granger-predictability' test between net private capital inflows and current account.

In all Latin American countries the test spans the period from 1950 to 2002, and the source of the data is ECLAC's Statistical Division. Due to lack of data, for the East Asian countries it was only possible to study the period 1975-2002; the source of these data was IMF (2004a). Following the 'Perron-sequential procedure', unit root tests indicate that all series of net private capital inflows and current account in both regions have a unit root; furthermore, with the (significant) exceptions of Chile and Malaysia, all series cointegrate. Therefore, the Granger-test for Argentina, Brazil, Colombia, Mexico, Korea and Thailand was done in levels, while for Chile and Malaysia it was done in first differences. The specification of the regressions (i.e., the number of lags) within which the null hypothesis (of no 'predictability') was tested both ways was determined by the rule of choosing the minimum number of lags that would produce a residual that was not serially-correlated.

	'p' of T1	'p' of T2	Lags T1	lags T2	'p' of Q T1	'p' of Q T2
Argentina	1.9E-08	0.50630	2	2	0.138	0.361
Brazil	0.00610	0.32485	2	2	0.375	0.784
Colombia	3.1E-07	0.16296	2	2	0.505	0.862
Mexico	0.07166	0.15202	2	2	0.503	0.871
Korea	0.32344	0.06342	2	2	0.291	0.640
Thailand	0.12219	0.01066	2	2	0.307	0.099

	'p' of T1	'p' of T2	Lags T1	lags T2	'p' of Q T1	'p' of Q T2
Chile	0.08340	3.6E-05	2	2	0.844	0.995
Malaysia	0.73646	0.10611	1	1	0.978	0.869

T1 = test of the null hypothesis that net private capital inflows do not 'Granger-predict' the current account. **T2** = test of the null hypothesis that the current account does not 'Granger-predict' net private capital inflows. **'p' of Q** = is the level of significance at which the null hypothesis of no autocorrelation up to order 3 is rejected using the 'Ljung-Box Q-statistics'.

The results of the Granger tests (in levels) indicate that in Argentina, Brazil, Colombia and Mexico net private capital inflows are a good predictor of the current account, while in Korea and Thailand there is evidence of predictability the other way around. In Chile (tested in first differences), there seems to be a two-way predictability phenomenon; in Malaysia, meanwhile, (also in first differences and up to a 10% level of significance) the null hypothesis of no predictability cannot be rejected either way; however, if the level of significance is increased to 10.7%, the test indicates that Malaysia seems to follow the same pattern as Korea and Thailand.