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Inflows of Capital to Developing Countries in the 1990s

Guillermo A. Calvo, Leonardo Leiderman, and Carmen M. Reinhart

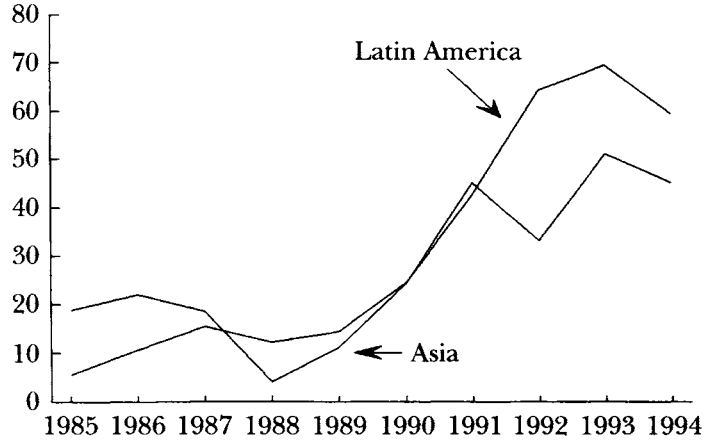
Half a decade has passed since the resurgence of international capital flows to many developing countries. About $670 billion of foreign capital has flowed to developing countries in Asia and Latin America in the five years from 1990–94, as measured by the total balance on the capital account of these countries. This is about five times the $133 billion total of the previous five years, when there was a debt crisis and many of these countries had little or no access to international capital markets. Although there was a substantial decline in capital flows to developing countries in the immediate aftermath of Mexico's currency crisis in December 1994, in most cases capital inflows have resumed and by mid-1995 have been sustained at relatively high levels.

The recent surge in capital inflows was initially attributed to domestic developments, such as the sound policies and stronger economic performance of a handful of countries. Eventually, it became clear that the phenomenon was widespread, affecting countries with very diverse characteristics. This pattern suggested that global factors, like cyclical movements in interest rates, were especially important. Moreover, the pattern reflected a growing trend toward integration of world capital markets and globalization of investments.

Capital flows from rich to poor countries are worth studying for a number of reasons. Foreign capital can finance investment and stimulate economic growth, thus helping increase the standard of living in the developing world. Capital flows can increase welfare by enabling households to smooth out their consumption over

■ *Guillermo A. Calvo is Professor of Economics, University of Maryland, College Park, Maryland. Leonardo Leiderman is Professor of Economics, Tel Aviv University, Tel Aviv, Israel. Carmen M. Reinhart is Economist, Research Department, International Monetary Fund, Washington, D.C.*

Figure 1
Asia and Latin America: Balance on the Capital Account, 1985–1994
(billions of U.S. dollars)



Note: This comprehensive measure of the balance on the capital account includes errors and omissions.
Source: World Economic Outlook, International Monetary Fund, various issues.

time and achieve higher levels of consumption. Capital flows can help developed countries achieve a better international diversification of their portfolios and also provide support for pension funds and retirement accounts into the twenty-first century. However, large capital inflows can also have less desirable macroeconomic effects, including rapid monetary expansion, inflationary pressures, real exchange rate appreciation and widening current account deficits. Hence, a surge in inflows of the magnitudes seen in recent years may pose serious dilemmas and tradeoffs for economic policy, especially in the present environment of high capital mobility.

History has also shown that the global factors affecting foreign investment tend to have an important cyclical component, which has given rise to repeated booms and busts in capital inflows.[1] For example, in Latin America, marked episodes of capital inflows during the 1920s and 1978–1981 were followed by major economic crises and capital outflows, such as in the 1930s and in the mid-1980s. The Mexican balance-of-payments crisis of December 1994 is but a recent example of this phenomenon and highlights the vulnerability of developing capital-importing countries to abrupt reversals; thus, an aim of policy is to reduce that vulnerability.

This paper discusses the principal facts, developments and policies that characterize the current episode of capital inflows to Asia and Latin America. Figure 1 presents evidence on the patterns and magnitude of the flows to these two regions,

[1] Diaz-Alejandro (1983) and Eichengreen (1991) stress the important role played by developments in the major financial centers in affecting the pattern of lending to developing countries.

Table 1
Selected Recipients of Large Capital Inflows: Basic Indicators, 1988–1994

			Annual Average from First Year of Inflows to 1994	
Country	*Year in Which the Capital Inflows Began*	*Per Capita GDP in 1992 U.S. Dollars*	*Balance on the Capital Account as a Percentage of GDP*	*Balance on the Current Account as a Percentage of GDP*
Asia				
Indonesia	1990	670	5.3	2.5
Malaysia	1989	2790	10.1	4.8
Philippines	1992	770	8.3	4.2
Thailand	1988	1840	9.4	6.0
Latin America				
Argentina[a]	1991	6050	4.4	3.1
Brazil[b]	1992	2770	2.0	0.2
Chile	1990	2730	5.5	1.8
Colombia	1991	1330	2.8	4.2
Mexico[c]	1989	3470	5.7	6.8

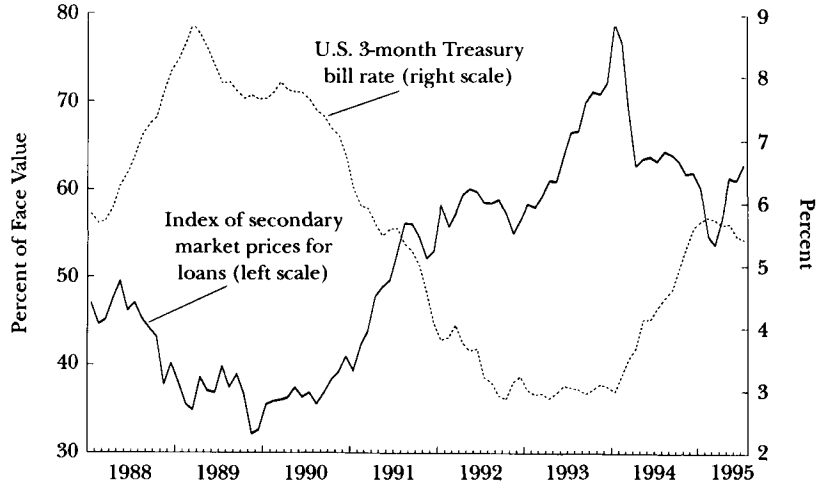
[a] The Convertibility Plan, which fixes the exchange rate to the U.S. dollar, begins in April 1991.
[b] The third phase of the Real plan, which sets a ceiling to the exchange rate relative to the U.S. dollar, begins on July 1, 1994.
[c] The Mexican inflation stabilization plan began in December 1987.
Sources: International Financial Statistics and *World Economic Outlook,* International Monetary Fund, various issues, *World Development Report,* 1994, World Bank.

while Table 1 presents some basic information about the major economies of Asia and Latin America that are most relevant to our discussion, including the approximate date of the surge in capital inflows, per capita GDP and the size of the capital inflows, as measured by the balance on the capital account as a percentage of GDP from the beginning of the inflow episode through 1994. If the country has enacted a major inflation stabilization plan, the date when it began is given at the bottom of the table. We begin by discussing the determinants of capital flows to developing countries, with emphasis on the causes behind the heavy inflow of the 1990s. We then discuss the macroeconomic effects of the inflows and whether a policy response might be useful. The final section draws some policy lessons from the recent experiences and discusses areas for future research.

Causes of the Capital Inflows

The factors that encourage or hinder international flows of capital can be categorized into those that are external to the economies receiving the flow and the factors internal to those economies. Several of these factors and trends interacted in the early 1990s to make the developing countries of Latin America and Asia fertile territory for the renewal of foreign lending.

Figure 2
Secondary Market Prices for Loans and U.S. Interest Rate



Note: Index is an average of bid and offer prices for Argentina, Brazil, Chile and Mexico.
Sources: Salomon Brothers, Inc., ANZ Bank Secondary Market Price Report and International Financial Statistics, IMF.

First, there was a sustained decline in world interest rates. For example, short-term interest rates in the United States were declining steadily in the early 1990s, and by late 1992 they were at their lowest level since the early 1960s. Lower interest rates in the developed nations attracted investors to the high-investment yields and improving economic prospects of economies in Asia and Latin America. Given the high external debt burden of many of these countries, low world interest rates also appear to have improved the creditworthiness of debtor countries that borrow at these rates (Fernandez-Arias, 1993). The improved creditworthiness and reduced default risk is reflected in the marked rise in secondary market prices of bank claims on most of the heavily indebted countries through February 1994; Figure 2 illustrates the connection. While this turn of events was heralded as good news in most developing countries, policymakers there during the early 1990s became concerned about the sustainability of this favorable interest rate environment.

Surely enough, the tightening of monetary policy in the United States and the resulting rise in interest rates in early 1994 made investment in Asia and Latin America relatively less attractive. As shown in Figure 2, higher interest rates quickly and markedly affected developing country debt prices. Indeed, the rise in U.S. rates also triggered marked corrections in several emerging stock markets. It seems likely that with highly integrated and technologically sophisticated financial markets, changes in relative rates of return will quickly translate into changes in cross-border capital flows. Also, a growing proportion of investment in Latin America and Asia is "portfolio equity," which refers to financial in-

vestments in companies that can easily be altered or withdrawn with little more than the flick of a computer key.

Second, the early 1990s brought recessions to the United States, Japan and many countries of Europe. This swing of the international business cycle doubtless made profit opportunities in developing countries appear relatively more attractive. However, as the OECD economies move toward recovery in the mid-1990s, this factor will become less important in generating capital flows to Latin America and Asia.

Third, there has been a trend toward international diversification of investments in major financial centers and toward growing integration of world capital markets (Gooptu, 1993). Increasing amounts of funds managed by life insurance companies and mutual funds have entered emerging markets. Regulatory changes in the United States and Europe have also made it easier for foreign firms to place their equity and bonds under more attractive conditions to investors (El-Erian, 1992).

Fourth, many heavily indebted countries made significant progress toward improving relations with external creditors. Other domestic policies that could be added to this list include the role played by debt-equity swaps in encouraging foreign direct investment (Edwards, 1991).

Fifth, several countries began to adopt sound monetary and fiscal policies as well as market-oriented reforms that have included trade and capital market liberalization. For example, Bolivia, Chile and Mexico implemented major disinflation programs in the late 1980s, while Argentina, Brazil, Ecuador and Peru have done so during the early 1990s. An effective inflation stabilization program can reduce macroeconomic risks and stimulate capital inflows.[2] A similar outcome could result from the introduction of institutional reforms, such as the liberalization of the domestic capital market (Obstfeld, 1986) and the opening of the trade account (Calvo, 1988), and policies that result in credible increases in the rate of return on investment (such as tax credits).

Finally, a large shift in capital flows to one or two large countries in a region may generate externalities for the smaller neighboring countries. These are the so-called contagion effects. For example, it could be argued that Mexico's and Chile's re-entry into international capital markets in 1990 made investors more familiar and more willing to invest in other emerging markets in Latin America. Indeed, the more recent events suggest that the Mexican crisis of late 1994 tended to make the attitude of investors toward emerging markets more discriminating.

Within this mix of external and domestic factors, it seems likely that the external factors have been quite important in the first half of the 1990s. Calvo,

[2] Over a time horizon of the early 1990s, this effect does not necessarily depend on the credibility of these stabilization programs. As the experience of various Latin American countries in the late 1970s shows, domestic policies may also attract speculative capital when policies are not fully credible. Often the partial credibility of these policies leads to relatively high returns on short-term assets, which attract foreign capital on grounds of intertemporal speculation.

Leiderman and Reinhart (1993) examine empirical evidence for 10 Latin American countries and find that foreign factors accounted for 30 to 60 percent of the variance in real exchange rates and reserves (two variables that directly reflect developments in the capital account), depending on the country. Chuhan, Claessens and Mamingi (1993) find that external variables explain about half of the bond and equity flows from the United States to a panel of six Latin American countries; for Asia, they conclude that external factors account for about one-third of bond and equity flows into the region.

While this discussion has stressed external developments, domestic factors also remain important in both the magnitude and the composition of inflows. Countries with sound domestic fundamentals attracted capital on a larger scale and with a higher proportion of long-term investment. As the cross-country evidence presented in Edwards (1991) shows, there appears to be a strong link between economic fundamentals and foreign direct investment. An earlier literature on capital flight also documented this link (Dooley, 1988).

Macroeconomic Effects

We now turn to the macroeconomic effects of the renewal of foreign lending to developing countries. This section describes the basic facts that capture some of the most important aspects of the experience of the largest recipients of capital inflows in Asia and Latin America, including Argentina, Brazil, Chile, Colombia, Indonesia, Malaysia, Mexico, Philippines and Thailand. Of course, this list of facts is meant to be illustrative, rather than comprehensive.[3]

First, a substantial portion of the surge in capital inflows has been channeled to accumulation of foreign exchange reserves. From 1990 to 1994, the share going to reserves has been 59 percent in Asia and 35 percent in Latin America. These two regions have accumulated about $209 billion in international reserves over the last five years. Three of the largest capital recipients—Brazil, Malaysia and Thailand—account for more than one-third of the total (Table 2). More recently, the pace of reserve accumulation is showing some signs of slowing, and an increasing portion of the capital inflows is taking the form of larger current account deficits. This shift was particularly pronounced in Mexico in 1993 and even more so in 1994, when large reserve losses were recorded.

Second, in most countries the capital inflows have been associated with widening current account deficits. Countries such as Brazil and Chile, which have more modest current account deficits, had recorded surpluses prior to the surge in inflows. This widening of the current account has usually involved both an increase

[3] The experience of a broader set of Asian and Latin American countries is reviewed in Calvo, Leiderman and Reinhart (1993, 1994a,b). The list of capital-inflow countries also includes large economies such as India and the People's Republic of China.

Table 2
Selected Recipients of Large Capital Inflows: Macroeconomic Performance, 1988–1994

Country	Year in Which the Capital Inflows Began	Cumulative Change from First Year of Inflows to December 1994: Reserves (billions of U.S. Dollars)	Cumulative Change from First Year of Inflows to December 1994: Real Effective Exchange Rate[a] (percent)	Annual Average from First Year of Inflows to 1994 (percent change): Real GDP	Prices	Broad Money/ Price Level
Asia						
Indonesia	1990	7.0	−6.2	6.8	8.7	14.1
Malaysia	1989	19.4	−3.9	8.7	3.6	13.5
Philippines	1992	2.4	20.9	2.3	8.5	9.1
Thailand	1988	25.1	1.9	10.0	5.0	14.3
Latin America						
Argentina[b]	1991	10.2	20.1	7.7	52.8	16.6
Brazil[c]	1992	26.9	57.9	3.0	1941.9	6.0
Chile	1990	9.5	13.5	6.4	17.5	12.7
Colombia	1991	3.5	37.1	4.1	25.6	7.7
Mexico[d]	1989	0.8	23.4	3.0	16.1	10.1

[a] An increase in the index denotes an appreciation.
[b] The Convertibility Plan, which fixes the exchange rate to the U.S. dollar, begins in April 1991.
[c] The third phase of the Real plan, which sets a ceiling to the exchange rate relative to the U.S. dollar, begins on July 1, 1994.
[d] The Mexican inflation stabilization plan began in December 1987.
Sources: International Financial Statistics and *World Economic Outlook*, International Monetary Fund, various issues.

in national investment and a fall in national saving (of course, the gap between the two is the current account deficit). Investment ratios have risen in most of these countries between 1990 and 1994, while the rate of saving has declined in half of the countries considered (Calvo, Leiderman and Reinhart, 1994a). Some years ago, Feldstein and Horioka (1980) found that national savings and investment tended to be highly correlated, which they took as evidence that global capital markets were not yet well developed enough to loosen the linkage between a country's savings and its investment.[4] However, the recent behavior of saving and investment in many of these developing countries implies that these capital markets have become increasingly integrated over the years. Not unexpectedly, high investment and consumption are reflected in higher growth rates for real GDP, as shown in the fourth column of Table 2.

[4] Although it is consistent with the observations made by Frankel (1993a) that the correlations have been declining in the more recent period and by Montiel (1993), who notes that the correlations appear to be lower for developing countries.

Third, as one would expect from the fall in national saving, there has been a rise in private consumption spending. While disaggregated data on consumption are not available for most of the developing countries, the import data suggests the consumption boom is heavily driven by rising imports of durable goods.[5] This has been particularly true in the Latin American experience including Argentina, Brazil, Colombia and Mexico.

Fourth, in almost all the countries examined there is rapid growth in the money supply in both nominal and real terms, as shown in the last column of Table 2. This follows, logically enough, from the acceleration in economic activity observed in the receiving countries and, in some instances—including Argentina, Brazil, Chile, Mexico and the Philippines—from a reduction in the opportunity cost of holding money, as domestic inflation was reduced. However, several countries have demonstrated that it was possible, even in the face of large capital inflows (at least in the short run), for the central bank to curb the acceleration in the growth of the money supply. The central bank can do this in two ways. First, it can refrain from intervening in the foreign exchange market and simply allow the domestic currency to appreciate in response to the increased demand for domestic assets. In that case no international reserves are accumulated and no expansion in the monetary base ensues. Alternatively, it can issue domestic bonds to provide for all or most the foreign exchange purchases; that is, the expansionary effect on the monetary base of an increase in central bank holdings of foreign exchange reserves is offset by a reduction in domestic liquidity. Such action by a central bank is referred to as "sterilized intervention." In fact, the cross-country differences in changes in the money supply are largely due to the differences in the degree of sterilization of the capital inflows and the extent to which the authorities were willing to allow a nominal exchange rate appreciation.

Fifth, the surge in portfolio flows to the Asian and Latin American countries was accompanied by sharp increases in stock and real estate prices. Share prices for many emerging markets were sharply higher in U.S. dollar terms at the end of 1993 than at the outset of the inflows episode. For example, during 1991, Argentina posted an annual dollar return of 400 percent, while Chile and Mexico offered returns of about 100 percent.

Sixth, the evidence on the behavior of the real exchange rate presents a mixed picture. As Table 2 shows, in most Latin American countries, capital inflows have been associated with a marked real exchange rate appreciation.[6] In Asia, such an appreciation is only evident in the Philippines; for the remaining Asian countries in Table 2, the real exchange rate remained surprisingly stable through the inflow period.

[5] Here again, domestic policies may reinforce external developments. Consumption booms are a regular feature of exchange rate-based stabilization programs, including the recent Mexican plan (Reinhart and Végh, 1994).

[6] Although there has been a real appreciation in Latin America, it seems that monetary authorities have been reluctant to allow a nominal appreciation.

Although many reasons surely contribute to these differences in change of the real exchange rate, the composition of aggregate demand may play a key explanatory role. In the Asian economies, investment as a share of GDP increased considerably more during the capital inflows period than in most Latin American countries. In Latin America, the capital inflows have primarily been associated with a decline in private saving and higher consumption, particularly during the initial stages of the surge in 1990 and 1991. If investment is tilted more toward imported capital goods and consumption has a higher domestic component, other things equal, this would work in the direction of generating a stronger real exchange rate appreciation in Latin America. The behavior of public-sector consumption may also be influencing the real exchange rate: the greater the contraction in fiscal expenditure at the time of capital inflows, the weaker the extent of real exchange rate appreciation. Although several Latin American countries have had major fiscal adjustment programs, like Chile and Mexico, these mainly predated the surge in capital inflows. In contrast, the spending contractions in several Asian economies, most markedly in Thailand during 1988–1991, occurred at the time of the inflows (Schadler et al., 1993).

In addition, most of the countries that experienced a substantial real exchange rate appreciation had ongoing inflation stabilization plans during the inflow period. Some plans, such as Argentina's Convertibility Plan, Brazil's Real Plan and the Mexican plan, used the exchange rate as the nominal anchor. Such appreciations are a well-established empirical regularity of exchange rate-based inflation stabilization plans (Reinhart and Végh, 1994).

Modelling the Capital Inflows

These six effects of capital inflows on other key economic variables are not unexpected; in fact, they can readily be derived from standard open economy models.

Begin by considering an intertemporal model of consumption and saving in an open economy with capital mobility, in the tradition of Irving Fisher. In the simplest version of such a model, a representative consumer with perfect foresight chooses sequences of consumption of a traded good and a nontraded good to maximize utility over time. Of course, future consumption must be appropriately discounted.

For a debtor country in such a model, a fall in the world interest rate will induce income and substitution effects, which will result in a "consumption boom" and a widening in the current account deficit. For a debtor nation, a declining interest rate reduces the present value of its debt, which is a positive income effect. The substitution effect is that since borrowing is now cheaper, consumption should rise. These effects could become even stronger if the country was initially credit rationed in international capital markets, or if the debt is variable rate.

Furthermore, had the Fisherian model included endogenous determination of investment, then the interest rate shock could also translate to a rise in investment.

Together with the lower savings rate (the converse of higher consumption discussed above), this implies a further widening of the current account deficit. Since increases in consumption and investment spending occur for both traded and nontraded goods, and since the latter are in more limited supply than the former, then the rise in demand will result in an increase in the relative price of nontraded goods—which is another way of stating that the real exchange rate appreciates.

An alternate and complementary theoretical approach focuses on the monetary economy, as in the model of Calvo and Végh (1993). In this case, similar implications arise from a *temporary* decline in the international *nominal* interest rate. Such a decline in interest rate could happen for reasons outside the control of the capital-importing country. Or it could happen because internal developments such as the implementation of an exchange rate-based inflation stabilization program. As shown by Calvo and Végh, if the policy lacks credibility, a discrepancy arises between the current nominal interest rate and its expected higher levels in the future. In such a case, the macroeconomic outcome mimics the case of a temporary decline in international interest rates. This sort of shock also leads to a rise in consumption, an increase in the current account deficit, and a real exchange rate appreciation—much as in the Fisher-type framework. The model also predicts an increase in real money balances, both because it is cheaper to hold money, at least for the present, and because consumption and economic activity is increasing.

In any of these models, the exchange rate regime will affect the monetary consequences of the capital inflows. In most models, consumption and investment booms will be accompanied by a rise in money demand. In a small open economy operating under a free float, capital inflows will be associated with a nominal exchange rate appreciation and no change in either reserves or the monetary aggregates. Under a fixed exchange rate regime, money market equilibrium will be achieved via an accumulation of international reserves at the central bank and a rise in the money supply. For intermediate cases, the degree of monetary expansion following a rise in capital inflows will be smaller to the extent that the inflows are sterilized, or that the nominal exchange rate is allowed to appreciate.

Thus, standard open economy models suggest that a surge in capital inflows is likely to be accompanied by a rise in consumption and investment, an increase in real money balances and foreign exchange reserves, a real exchange rate appreciation, and a widening in the current account deficit. Including other assets in the analysis is likely to indicate that rising inflows would be associated with higher equity and real estate prices. These predicted effects are indeed broadly consistent with what was actually observed in the first half of the 1990s in most of the capital-importing countries.

Policy Management of Capital Inflows

Capital inflows to developing countries have often been seen as beneficial by all parties. For the capital-rich developed economies, such investments appear a

desirable way of diversifying risk and investing in productive assets that will, in a few decades, fund the retirement of the baby-boom generation. For the relatively capital-poor developing countries, the flows can fund investment and promote economic growth. Perhaps just as valuable for a developing country, foreign investment can also come with experienced management, new technology and useful business skills.

It is easy to draw up economic models where developing countries run continual but sustainable current account deficits, and markets will handle the requisite capital flows with little need for government intervention. The main policy decisions involve the interaction between the capital flows, exchange rates, monetary policy and other policy objectives (like inflation). For example, imagine a country that wishes to increase its money supply. This might occur because of an increased money demand, which in turn could be the result of a successful stabilization program or a rise in economic growth. In such a case, rapid monetary growth would not be inflationary, and the government might decide simply to create domestic currency to accommodate the rise in money demand, allow foreign investors to purchase that currency in exchange rate markets, and then invest it. This would be called "monetizing" the capital flow. Another possibility would simply be to let foreign investors trade for your domestic currency in exchange rate markets.

At least in theory, a laissez-faire attitude toward capital flows may work perfectly well. But in reality, judging from the fact that many countries have tried to exercise some control over such inflows or their less-desirable side effects, there is apparently a perceived cost to a strategy of no intervention.

Several possible consequences of capital inflows are of special concern to policymakers. The capital inflows can lead to inflationary pressures, especially when they are monetized. Since an inflow of capital also implies a higher demand for a nation's currency, it often means an appreciating exchange rate, which may widen the trade deficit to uncomfortable levels. If a nation's banking system has difficulty handling the capital flows, there is some risk of financial destabilization and even banking crises. Overall, in a world of high capital mobility, where capital inflows can depart just as rapidly as they arrived, there is a genuine risk that their effects on inflation, the exchange rate and the financial sector can lead to severe macroeconomic instability. The experience of Mexico in the aftermath of December 1994 is a vivid illustration of these potential problems and especially of the sharp contraction in economic activity that can follow sudden reversals of capital flows. Such concerns have often led the authorities to react to the inflows by implementing a variety of policy measures.

Monetary Policy: Sterilization and Regulation

Sterilization has been, by far, the most popular policy response to capital inflows in both Latin America and Asia. This policy aims at insulating the money

supply and/or the exchange rate from the effect of the capital inflows; the intent is to mitigate inflationary pressures, the real exchange rate appreciation, and avoid the loss of control over the domestic money stock.[7]

However, it is not clear that this policy can provide a lasting solution, and it can be costly. Presumably, funds are being attracted into the country by the promise of higher expected interest rates. But if the capital inflow is sterilized, this will prevent the interest rate differential from narrowing, and may thus induce further capital inflows. In addition, since sterilization involves increasing the number of domestic bonds to offset the currency inflow, it results in an increase in public debt. Eventually, this policy could result in a rise in public debt so large as to undermine the credibility of policymakers, especially if the public begins expecting a partial repudiation of the debt—expectations that may well halt the inflows altogether (Calvo, 1991; Frankel, 1993b).

Other costs are associated with sterilized intervention. If the central bank were simply to provide its own currency for purposes of foreign exchange without sterilization, it would allow the domestic money supply to increase. The central bank would also end up holding foreign currency, which it could invest in the bonds of the foreign country. However, after selling domestic bonds to sterilize the currency inflow, the central bank must then pay interest on those bonds. To the extent that the interest rate on domestic bonds is higher than that on foreign exchange reserves (which is the case for most developing countries), this entails costs.[8] Annual estimates of these costs in Latin American countries range from 0.25 to 0.80 percent of GDP (Kiguel and Leiderman, 1994).

Sterilization can take other forms. For example, instead of reducing the money supply by selling bonds, the central bank could raise bank reserve requirements or increase the discount rate. Such steps may be especially relevant in those countries where capital inflows have taken the form of marked increases in local bank accounts. An increase in reserve requirements (an option used by Chile and Malaysia) lowers the capacity of banks to lend without the quasi-fiscal costs of sterilization. The regulatory side of monetary policy—that is, bank regulation and supervision—can also help, especially in dealing with the risk of macroeconomic destabilization. For example, regulations that limit the exposure of banks to the volatility in equity and real estate markets, as well as establishing risk-based capital requirements, would be especially timely.

However, many of these policies are not without their costs. They may promote "disintermediation," which refers to new institutions that develop to bypass these regulations. Moreover, greater controls on banks amount to a reversal of the underlying trends of financial liberalization in developing countries.

[7] Sterilization would not be needed if domestic agents borrow abroad to finance purchases of imported goods, since in this case the inflows are not intermediated through the domestic financial system.

[8] Most central banks hold a substantial portion of their foreign exchange reserves as U.S. Treasury bills, which were yielding relatively low returns throughout most of the early 1990s.

Controlling Capital Inflows and Liberalizing Capital Outflows

Various countries, such as Chile and Colombia, have imposed taxes on short-term borrowing abroad with the intent of discouraging inflows that are thought to be particularly speculative. For example, Chile chose to tax inflows (in effect) by imposing a reserve requirement on international loans intermediated through the banking system. The main disadvantage of such a requirement is that capital flows may eventually be rerouted through other channels—for example, the over-invoicing of imports and under-invoicing of exports—which may reduce the authorities' control on the financial system. Less explicit capital controls have taken the form of "prudential regulation," usually of the domestic banking system. Countries such as Indonesia, Malaysia, the Philippines and Thailand have sought to curb banks' offshore borrowing (a capital inflow) or their foreign exchange exposure by imposing limits on these or tightening existing regulations.

Another response has been to soften the domestic impact of capital inflows by lowering the institutional barriers to capital outflows. However, as shown by Labán and Larraín (1994), to the extent that lifting restrictions on capital outflows is viewed as a positive step toward economic liberalization, it may increase the confidence of foreign investors and thus may stimulate capital inflows.

Fiscal Policy

As noted earlier, some countries reacted to the surge in capital inflows by tightening fiscal policy, usually via a cut in public expenditures. To the extent that nontradable goods often represent a sizable share of government expenditure, cutting government spending will reduce the demand for nontradables relative to the demand for tradable goods. This step makes nontradables able to buy less of the goods traded on world markets—which effectively means limiting the appreciation of the real exchange rate.[9]

However, the effectiveness of fiscal policy is limited in this situation. Changes in legislation and sensitive political actions usually cannot be undertaken on short notice, which would often be needed to offset the effects of the capital inflows. Furthermore, optimal fiscal policy considerations suggest that taxes and expenditures be set to reflect long-term goals, rather than in response to what can be excessively volatile fluctuations in international capital markets.

Exchange Rate Policy

A final option for a capital-importing country is to let the nominal exchange rate appreciate in response to capital inflows. The main advantage of allowing greater exchange rate flexibility is that the appreciation in the real exchange rate is likely to occur through a change in the nominal exchange rate and not through

[9] Interestingly enough, the effect of such a fiscal tightening is likely to be stronger if the cut in expenditures is perceived to be temporary. If it is seen as permanent, individuals may perceive a rise in lifetime disposable income and increase their borrowing to finance higher spending—thus partially offsetting the effect of the cut in public expenditure.

higher inflation. Moreover, exchange rate flexibility might strengthen the degree of autonomy of domestic monetary policy precisely when central bank's function as "lender of last resort" might be needed—for example, during a temporary subsequent reversal of capital inflows.

A disadvantage of a pure float is that it may be associated with high volatility in the real exchange rate. Massive and rapid capital inflows may induce such a steep and rapid exchange rate appreciation that it may damage the competitiveness of strategic sectors for economic growth, like nontraditional exports. It is even possible that a sufficiently large real exchange rate appreciation, in a model with sunk costs, can induce hysteresis in the trade balance and thereby alter the steady-state real exchange rate (Baldwin and Lyons, 1994).

To reduce the risk of excessive fluctuations in the real exchange rate, several countries have adopted crawling exchange rate bands, which can be seen as an intermediate case between fixed and flexible exchange rates. In 1994, for example, Colombia joined Chile and Mexico in adopting a preannounced crawling exchange rate band.[10] The mere existence of these bands did not eliminate pressures on the exchange rate regime; in fact, faced with persistent capital inflows, Chile and Colombia had to realign their bands in 1994 by officially appreciating their central parity exchange rates. As the Argentine case highlights, this tendency toward partial flexibility has not been across the board. Yet in many developing countries, there have been theoretical and practical arguments for moving to a more flexible exchange rate arrangement. Greater exchange rate flexibility, by introducing uncertainty, could discourage speculative short-term, cross-border flows. Further, increased exchange rate flexibility grants the monetary authorities a greater degree of autonomy in the conduct of domestic monetary policy and permits them to exercise more control over the monetary aggregates.

Concluding Remarks

Although strong fiscal and monetary fundamentals are essential for a sound management of capital inflows, other policy choices for small open economies facing a surge in capital inflows are limited. All in all, in a world of high capital mobility it is not clear to what extent these policies are capable of significantly reducing a country's vulnerability in the event that capital flows reverse themselves. Moreover, most of the policies that could be implemented to counteract the effects of the flows also entail costs or their effectiveness is limited to relatively short periods of time. However, there are some important lessons in macroeconomic management

[10] For analysis of exchange rate bands in Chile, Israel and Mexico, see Helpman, Leiderman and Bufman (1994). While Mexico's band became wider over time, there was considerable intervention within the band. Prior to March 1994 and the assassination of Mexican presidential candidate Colosio, the exchange rate was virtually fixed.

that emerge from the surge of capital inflows to Asia and Latin America in the first half of the 1990s.

Gauging by their economic performance and their ability to withstand the adverse side effects of the Mexican crisis, the countries that have been the most successful in managing capital flows (for example, Chile and Malaysia) have implemented a comprehensive policy package and not relied on a single instrument. At the outset of the surge in inflows, these countries reacted by treating the inflows as temporary and resisted a nominal exchange rate appreciation; the foreign exchange intervention was mostly sterilized. As the inflows persisted, sterilization efforts were scaled back and the domestic currency was allowed to appreciate. To moderate the extent of the real appreciation and prevent the economy from overheating, fiscal policy was tightened. To moderate the volume of the inflows and lengthen their maturities, exchange rate flexibility was increased and measures to curb inflows were implemented.

A less productive policy mix has consisted of persistent sterilized intervention (which keeps short-term interest rates comparatively high), heavy intervention in the foreign exchange market (which results in little short-run exchange rate uncertainty) and no controls on short-term capital movements. All of these policies have tended to provide especially strong incentives for short-term capital inflows. To a large extent, this policy mix characterized the Mexican experience through most of the early 1990s. With the benefit of hindsight, it can be said that the severity of the Mexican crisis would have been lessened had the inflows (which became outflows) been smaller, had their maturity been longer and had the inflows been accompanied by a much smaller decline in domestic saving than that actually observed.

The surge of capital inflows to Asia and Latin America in the first half of the 1990s is an enormous and multidimensional natural experiment, one that economists will be studying for years to come. Let us now turn to a few questions this research could address.

For example, theoretical models are clear in their predictions for the real exchange rate in response to an increase in capital inflows. However, despite capital flows of similar orders of magnitudes and often common policy responses, the real exchange rate has shown a stronger tendency for appreciation in Latin America than in Asia. Future research might try to account for these differences.

In the last two decades, several Latin American stock markets experienced a boom-bust cycle of proportions not seen in industrial countries in the post–World War II period. These events provide an ideal testing ground for "bubbles" hypotheses and may help understand asset price behavior in emerging markets.

Relatively little is known about how international capital flows are intermediated. Such research might help investigate the potential links between rising international portfolio flows and equity market volatility. Another relatively unexplored topic is the role of international organizations, and foreign governments, in providing support at times of capital outflow pressures. As is evident in the resolution of the recent currency crisis in Mexico, a bailout package that provided sizable

international support served to avoid default and promote confidence in the domestic economy. A key question in this context is how to design feasible international lender of last resort facilities that do not pose moral hazard problems for the policies of individual countries.

More broadly, the mix and magnitude of the economic risks confronting developing countries do not yet seem to be well understood. Consider the various risks for developing nations inherent in the integration of world capital markets, the volatility of international commodity prices, changes in world interest rates and how these countries are affected by the developments and policies in the industrial countries. Which of these factors poses the largest risks in the remainder of the 1990s? How are the risks interrelated? How are policies to deal with the risks related? In what measure are the developing countries prepared to deal with such shocks? Applied research in these areas will have to provide better measures of credibility and time-varying risk. This task is a difficult one. As discussed in this paper, capital inflows may provide ambiguous signals to market participants. Inflows may reflect renewed confidence about favorable medium- and long-term investment opportunities in the receiving country. Alternatively, capital may pour in for purely speculative purposes to a country where the lack of credibility in government policies leads to high return on domestic financial assets. Attempting to accomplish this task is essential to a better understanding of the forces driving the cycles in foreign lending to developing countries, and to gauging the vulnerability of developing countries to a reversal of such capital flows.

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