

The Surge in Capital Inflows to Developing Countries

Prospects and Policy Response

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Foreign interest rates have been the "push" factor driving capital inflows and determining their magnitude, but country creditworthiness has influenced the timing and geographic destination of the new capital flows. Recipient countries face a series of policy choices to respond effectively to the inflows.



Summary findings

After being excluded from world capital markets during the debt crisis, many developing countries have experienced large capital inflows in the past five years. The challenges these inflows pose for domestic policy have generated a substantial literature.

Fernandez-Arias and Montiel review and extend that literature. They characterize the new inflows, assess their causes and likelihood of sustainability, analyze the policy issues they raise, and evaluate possible policy responses. Their conclusions tie desirable policy responses to characteristics of both the flows themselves and to those of the recipient economy.

Regarding the forces driving the current episode, they conclude:

- Generally, the role of foreign interest rates as a “push” factor driving capital inflows and determining their magnitude has been well-established.
- On the other hand, country creditworthiness has helped determine both the timing and destination of the new capital flows.
- Even if creditworthiness is maintained, the early level of inflows is unlikely to be sustained. The pace of reduction in flows to countries that have been receiving them since the early 1990s depends on the path of foreign interest rates and the role of stock adjustment. But a loss of creditworthiness caused by a deterioration in domestic policy would stop inflows quickly and, depending on the circumstances, inflows may be replaced

by substantial outflows and an outright balance of payments crisis.

What are the implications for policy in recipient countries? Briefly:

- The receipt of capital inflows may strengthen the case for removing macroeconomic distortions, either because such inflows aggravate the cost of such distortions or because they ease the constraints that originally motivated their adoption.
- While direct intervention with capital inflows may not be feasible (because controls may be easily evaded), controls may sometimes be a second-best policy.
- To the extent that capital inflows are permitted to materialize, the desirability of foreign exchange intervention depends on what is required for macroeconomic stability.
- Sterilized foreign exchange intervention to prevent overstimulation of demand with a fixed exchange rate may not be feasible or effective. A commensurate reduction in the money multiplier, achieved by increasing reserve requirements, may also have limited effects. The effectiveness of both measures depends on the structure of the domestic financial system.
- If domestic monetary expansion is not avoided, or if an expansionary financial stimulus is transmitted outside the banking system, the stabilization of total demand will require fiscal contraction.

This paper — a product of the International Finance Division, International Economics Department — is part of a larger effort in the department to analyze foreign investment in emerging markets. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rose Vo, room S8-114, extension 33722 (47 pages). June 1995.

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THE SURGE IN CAPITAL INFLOWS TO DEVELOPING COUNTRIES:
PROSPECTS AND POLICY RESPONSE*

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SUMMARY

After being excluded from world capital markets during the debt crisis, a substantial number of developing countries have experienced large capital inflows during the past five years. This paper critically reviews and extends the substantial literature generated by the domestic policy challenges posed by these inflows, describing the characteristics of the new inflows, assessing their causes and likely sustainability, analyzing the policy issues they raise, and evaluating potential policy responses.

While regaining access to capital markets constitutes a welcome relief from the constraints of credit rationing, it also poses structural and macroeconomic policy problems. In contrast to the inflow episode leading to the debt crisis, absorption of the current inflows by the private sector ensures that the market test is passed. However, the potential roles of a variety of distortions implies that a laissez-faire policy stance may not be warranted on microeconomic grounds. Moreover, though capital inflows may represent the outcome of a favorable external shock, their implications for macroeconomic stability may call for a policy response on these grounds as well.

The analysis indicates that, in the aggregate, country creditworthiness has played an important role in determining both the timing and geographic destination of the new capital flows and that the role of foreign interest rates as a "push" factor driving capital inflows is well established. Less is known about the importance of external structural factors and the relative weights to be attached to foreign factors and specific types of domestic factors in individual countries, which is crucial for the design of policies.

Concerning sustainability, loss of creditworthiness may lead to an outright balance of payments crisis. According to the creditworthiness index used in this paper, for most countries the risk of such an extreme form of hard landing lies in domestic shocks rather in systemic factors. Even if creditworthiness is retained, however, the early level of inflows is unlikely to be sustained. Apart from the gradual deterioration of external factors forecasted in this paper, this is because the nature of stock adjustment would make the level of inflows diminish over time, and perhaps lead to a hard landing in case of deterioration, even with stable external financial conditions. The key gap in knowledge here for assessing the possibility of a hard landing is how large the temporary stock adjustment component of the recent inflows has been, relative to the "permanent" flow component.

The paper then analyzes the implications for policy in the recipient countries. The case of capital controls is analyzed first. Their feasibility appears problematic. If feasible, the case for direct intervention would be generally based on second-best considerations, either on microeconomic or macroeconomic grounds, whose trade-offs are difficult to assess. The exceptions are certain microeconomic distortions that directly induce excessive liabilities, in which case a Pigouvian tax (or equivalent capital control) would be first-best policy.

Finally, to the extent that capital inflows are permitted to materialize, a broad range of macroeconomic policy responses is analyzed and evaluated, namely foreign exchange flexibility, sterilized foreign exchange rate intervention, monetary policy aimed at reducing the money

multiplier, and contractionary fiscal policy. Choices confront the policymakers at each step in this progression. Relevant considerations include the economy's level of capacity utilization, the identity of the nominal anchor, the sterilization tools available to the Central Bank, the degree of capital mobility, the financial health of domestic banks, the sophistication of the financial system, and the flexibility of fiscal policy, among others.

The desirable policy response depends both on the characteristics of the flows themselves as well as those of the recipient economy. In view of the multiplicity of factors that should in principle influence the response of macroeconomic policies, as well as the sustainability considerations specific to each country, no single combination of policies is likely to be optimal in all cases. Substantial uncertainty and risks concerning the sustainability of the inflows compound the policy problem and put a premium on prudence.

I. Introduction

Flows of foreign financial capital to developing countries have exhibited an episodic pattern over the past two decades. The period 1973-81 witnessed massive capital flows to countries in many parts of the developing world, largely in the form of private syndicated bank loans directed to the public sector. Such lending effectively dried up for many (but not all) developing countries during the debt crisis period 1982-89. In recent years, however, a number of developing countries in various regions of the world have once again begun to receive substantial inflows of foreign capital. These flows have been notable not only for their magnitude, but also for the break that they represent from the period of the debt crisis for many of the countries now receiving the inflows. Though reduced access to foreign saving was previously perceived as a serious constraint on growth prospects for many such countries, the recent surge in capital inflows has not been taken as an unmitigated blessing. Indeed, the surge of inflows has triggered a new literature investigating the appropriate policy response on the part of the recipient countries. The urgency of this issue has increased following the Mexican financial crisis at the end of 1994.

This paper assesses the state of this literature. It is intended both to provide a summary of what is currently known about the various dimensions of the new capital inflow episode, focusing specifically on its causes and sustainability, as well as to evaluate suggested policy responses.² The paper is divided into seven sections. The next section provides background, describing the international environment in which the recent capital inflow episode has materialized, as well as the broad characteristics of the flows themselves. Section III explores why the receipt of capital inflows by a developing country may pose problems for domestic policy. Because the answer to this question depends in part on the factors that drive the inflows and their likely sustainability, these two issues are taken up successively in the two sections that follow. Section VI describes and evaluates possible policy responses on the part of the recipient countries. The final section summarizes what we think we know about the new inflows, focusing specifically on the policy message.

II. Empirical background

In this section we examine the characteristics of the recent capital-inflow episode, based on the experience of a broad sample of countries. After describing in broad-brush fashion the changed (relative to previous episodes) international and domestic environments in which the new flows of capital to developing countries have materialized, we discuss their magnitude, timing, regional and country destination, asset composition, and sectoral destination. Finally, we examine macroeconomic outcomes during inflow episodes for a sample of recipient countries.

² The paper does not treat policy issues that may arise either in the creditor countries or for the international financial community in association with the new patterns of capital movements. For the latter, see Bacha (1993).

A. The domestic and external context

Since voluntary capital flows reflect endogenous responses of investors to the perception of profitable investment opportunities, they must arise in response to changes in the economic environment in the recipient country, the source country, or perhaps both. The recent capital-inflow episode has emerged in a very different international environment than that which characterized both the previous episode that started in the 1970s and the period 1982-89, with substantial changes in the economies both of the industrial source countries and the developing recipient countries. The scope of such changes covers the macroeconomic and regulatory environments in both sets of countries.

The period 1989-93 was a slow-growth period in the industrial world as a whole.³ The rate of growth of real GDP, which reached 4.4 percent for the G-7 countries as a group in 1988, averaged 2.8 percent in 1989-90 and 1.1 percent in 1991-93. Monetary policy has been used in countercyclical fashion in the United States during this period, and both nominal and real interest rates fell to extremely low levels in that country after 1988. This was also true of rates of return on other assets, such as real estate. Short-term nominal interest rates peaked at 9.1 percent in 1989, and had fallen to 3.2 percent by 1993. Long-term rates also fell dramatically, by roughly half. Regarding the international trading environment, during the six-year period 1988-93 developing countries as a group, as well as those in the regions of Asia and Latin America specifically, experienced adverse movements in their terms of trade. For developing countries as a group, the cumulative deterioration amounted to 5 1/2 percent over the period. In spite of slow industrial-country growth and poor terms of trade, however, exports from both Asia and Latin America grew rapidly at the outset of the current capital inflow episode.⁴

Concerning the regulatory environment, continued financial liberalization in industrial countries has produced changes that have made these countries' capital markets more hospitable to developing-country borrowers.⁵ For example, several industrial countries have relaxed regulations on foreign public issues in their capital markets. SEC Rule 144A and Regulation S in the United States eliminated settlement delays, and also facilitated registration and the payment of dividends (see El Erian (1992)). Market credit rating standards for public bond issues have been eased in Japan, and minimum rating requirements have been eliminated in Switzerland (see Jaspersen and Ginarte (1993)). All of these changes have eased access of developing-country borrowers to capital markets in the industrial countries. In addition to these, the anticipated

³ The data in this paragraph are taken from IMF (1994).

⁴ This was also the case during the episode that preceded the debt crisis.

⁵ For an overview, see Goldstein and Mussa (1993).

ratification of the North American Free trade Agreement (NAFTA), with the announced intention to incorporate in the near future other Latin American countries besides Mexico (Chile is the next prospective candidate) is likely to have operated in the same direction.

On the part of the developing countries themselves, the last five years have seen substantial changes in policy regimes, as many countries have moved in the direction of improved macroeconomic management and widespread liberalization. During the pre-1982 capital inflow episode in Latin America, increases in fiscal deficits and inflation were widespread (see Montiel (1993)). During the current episode, however, inflation and fiscal deficits have both been reduced, and the rate of economic growth has increased.⁶ Export composition has become more diversified in many countries. For example, in Chile, Colombia, and Mexico, the primary export accounted for about half of total exports in the early eighties, but for only about a third by the end of the decade.⁷ Among the structural changes adopted by developing countries during the latter part of the eighties were the removal of restrictions on foreign ownership which had impeded inflows of foreign direct investment. Mexico removed many such impediments in 1991, while Chile had done so several years earlier. In addition, broader capital account liberalization has been undertaken in a number of countries.⁸

B. Characteristics of the new inflows

1. Magnitude

Measuring the size of capital inflows raises a number of conceptual problems. These concern whether the relevant measure should capture both private and official flows, whether flows should be measured on gross or net terms, whether in addition to the changes in the liabilities of domestic residents changes in their foreign assets should be included as well, and if so, whether foreign exchange reserves should be considered as part of those assets. Various observers have resolved these issues in different ways, and thus the figures cited in different studies are not always comparable. In this study, we adopt two different measures depending on the purpose: i) characterizing the new inflows, addressed in this subsection and shown in Tables 1-3, or ii) describing the macroeconomic outcomes in recipient countries, covered in the next subsection and shown in Tables 4-5.

For the purpose of describing recent inflows, we report in Tables 1-3 *net* changes in the *liabilities* of domestic agents to foreign *private* creditors. While gross capital flows may be of

⁶ For a review of recent reform experience in Latin America, see Edwards (1995).

⁷ See Kuczynski (1992).

⁸ The recent experiences of Mexico and Peru, for example, are described in Mathieson and Rojas-Suarez (1992).

interest for certain purposes -- such as judging the extent of financial integration -- for most of the purposes that will interest us here it is the net flow that matters.⁹ Data limitations force us to restrict our attention to changes in the *liabilities* of domestic agents only, so changes in the stocks of *assets* held abroad by domestic residents are not included in the capital flow numbers described in Tables 1-3.¹⁰ This necessity has potential virtues, however: country risk, for example, may be determined by the net obligations imposed on domestic agents by foreign liabilities. If so, the stock of private-source external liabilities may indeed be the relevant construct to measure the pressure imposed by capital inflows on country creditworthiness. We report changes in liabilities to *private* creditors only, because these types of flows have dominated the recent inflow episode. For the purpose of assessing the additional resources provided by capital inflows to finance domestic absorption, however, the relevant capital-inflow measure is the capital account of the balance of payments, which includes both changes in liabilities to official creditors and changes in assets held abroad by domestic residents. This is the measure adopted in Tables 4 and 5.

How large, then, have recent inflows been? Irrespective of the particular definition chosen, the answer appears to be that they have been quite large compared to the preceding years in the 1980s, but somewhat smaller than in the years preceding the 1982 debt crisis when measured as a proportion of exports or national product. To see this, it is useful to consider the four-year period 1990-1993 as a basis for the measurement of capital inflows in the current surge, the four-year period 1978-1981 for the measurement of capital inflows in the surge preceding the debt crisis, and the debt crisis period 1982-1989. Table 1 presents the annual averages of capital inflows in all developing countries for the three periods based on net flows from private sources, both long- and short-term.

Even at this level of aggregation, the last four years look very different from the period of the debt crisis. In the developing world as a whole, average capital inflows increased from their debt-crisis levels by 1 1/2 percentage points of GNP to reach almost 3 percent of GNP. For this group of countries, most of the "surge" took place in 1992-93, when total inflows averaged 3.8 percent of GNP, a notable increase over 1.7 percent in 1990-91. Indeed, though inflows over

⁹ The existing literature has not always drawn a clear distinction between an increase in financial integration and the receipt of capital inflows.

¹⁰ Our data are from the World Debt Tables, which do not include capital outflows. The alternative of using the capital account of the balance of payments (from IES) would not permit us to separate out private from official flows, nor to classify flows by asset type or sectoral destination, as done in Tables 2 and 3.

the entire period 1990-93 were somewhat smaller in relation to GNP than those observed prior to the debt crisis, over the last two years the magnitudes have been quite similar.¹¹

Table 1 Annual Private Capital Net Flows (All Developing Countries)

		1978-1981	1982-1989	1990	1991	1992	1993	1990-1993
Long Term	US\$ mill.	53512	34581	44548	57560	98971	157656	89684
	% Exports	12.3	5.9	5.4	6.5	10.9	16.6	10.1
	% GNP	2.7	1.2	1.1	1.4	2.4	3.7	2.2
Short Term	US\$ mill.	22586	5379	13097	23404	28873	33546	24730
	% Exports	5.2	0.9	1.6	2.7	3.2	3.5	2.8
	% GNP	1.1	0.2	0.3	0.6	0.7	0.8	0.6
Total	US\$ mill.	76098	39961	57645	80964	127844	191202	114414
	% Exports	17.5	6.8	7	9.2	14.1	20.2	12.8
	% GNP	3.8	1.4	1.4	2	3.1	4.5	2.8

Note 1/ Includes all developing countries in the Debtor Reporting System of the World Bank as reported in the World Debt Tables 1994-95. Private long-term net flows comprise long-term debt net flows from private creditors and equity net flows, both direct and portfolio, as reported in the World Debt Tables. Private short-term net flows are total short-term debt net flows as reported in the World Debt Tables (which excludes IMF). Therefore, imputed flows due to the accumulation of interest arrears and to debt stock reduction operations are not included. Note 2/ Percentages of exports and GNP are based on accumulated flows over the entire period reported, so they may differ from the simple averages of annual percentages.

Source: Debtor Reporting System and World Debt Tables 1994-95 (World Bank).

2. Timing

The timing of the recent episode has not been uniform across countries. As shown above, for developing countries as a group a break with prior experience is suggested in 1991 but is not clearly evident until 1992-93. However, in some regions a discernible change occurred before that time. The new surge in capital inflows first became manifest in Asia, a region in which by and large developing countries did not lose access to world capital markets during the period following the outbreak of the international debt crisis. Inflows accelerated during 1988 in Thailand, during 1989 in Malaysia, and during 1990 in Indonesia, according to Bercuson and Koenig (BK, 1993). The surge started later in Latin America. The data compiled by Calvo, Leiderman, and Reinhart (CLR, 1992) suggest that the break in the capital inflow experience of this region came in 1990, when total net inflows as defined above amounted to US\$ 24 billion, compared to a peak of US\$ 15 billion during the post-debt crisis period 1983-89. For other regions of the developing world matters are less clear, as indicated in the next subsection.

¹¹ It is worth noting that what is measured in each case is the magnitude of *ex post* flows, which are endogenous with respect to a variety of policy interventions. Thus, even if the flows are driven by events that are external to the recipient countries, these numbers do not have an interpretation as measures of the size of an external shock.

3. Regional and country destination

The regional breakdown of capital inflows to developing countries reveals that the surge phenomenon is widespread, but is especially pronounced in East Asia and Latin America. To show this, in Table 2 below we allocate the long-term private net flows reported in Table 1 into the regions traditionally analyzed by the World Bank.

Table 2 Annual Long-Term Private Capital Net flows (By Region)

		1978-81	1982-89	1990	1991	1992	1993	1990-93
SSA	US\$ mill.	4673	2490	920	1548	676	2144	1322
	% Exports	9.8	6	1.7	3	1.3	4.4	2.6
	% GNP	2.7	1.5	0.6	1	0.4	1.3	0.8
EAP	US\$ mill.	7906	9633	20520	25556	42538	62782	37849
	% Exports	9	6.5	8.2	8.9	12.9	17.2	12.3
	% GNP	1.8	1.5	2.3	2.6	3.9	5.4	3.7
LAC	US\$ mill.	28850	10311	10651	22755	27894	57708	29752
	% Exports	27.4	8	6	12.7	14.6	28.7	15.9
	% GNP	4.4	1.4	1	2.1	2.3	4	2.5
MENA	US\$ mill.	4100	3484	167	-130	1609	1618	816
	% Exports	7.3	6	0.2	-0.2	1.9	2.2	1
	% GNP	2.2	1.2	0.1	0	0.6	0.7	0.3
SA	US\$ mill.	684	2786	2606	2978	1786	5643	3253
	% Exports	3.4	9.8	6.5	7	4.1	11.1	7.4
	% GNP	0.4	1	0.7	0.9	0.5	1.7	1
ECA	US\$ mill.	7299	5784	9649	4599	24330	27759	16584
	% Exports	6.1	3.2	4.3	1.9	11.6	13.3	7.5
	% GNP	2.3	0.8	0.7	0.4	2.3	3	1.4

Note 1/ Net flows are as reported in Table 1 and regions are defined as in the World Debt Tables 1994-95.

Note 2/ Percentages of exports and GNP are based on accumulated flows over the entire period reported, so they may differ from the simple averages of annual percentages.

Source: Debtor Reporting System and World Debt Tables 1994-95 (World Bank).

Leaving aside the transition economies, and comparing the debt crisis period with the most recent period, it is evident that the "surge" has primarily been an East Asian and Latin American phenomenon. A break from prior experience is already suggested for East Asia by 1990, and for Latin America by 1991. In both cases, the pace of inflows accelerated after 1991. There is a suggestion in Table 2 that the phenomenon may recently have become more widespread, reaching South Asia as well as Sub-Saharan Africa in 1993.¹²

¹² Impressionistic evidence suggests that the phenomenon has recently become important in India and Pakistan, as well as in Kenya and Uganda.

Within each region, new capital flows have been concentrated in several large developing countries. Over the period from 1989 to mid-1993, for example, 85 percent of all portfolio flows to East Asia were accounted for by China, Indonesia, Korea, and Thailand, while in Latin America Argentina, Brazil, Mexico, and Venezuela accounted for almost 95 percent of portfolio flows over the same period (Gooptu (1994)).

4. Asset composition

Table 3 presents our estimates of the broad asset composition of the portfolio of claims acquired by private external investors on developing countries during the current capital inflow episode, decomposing the flows reported in Table 1 into foreign direct investment (FDI), portfolio (bond and equity) flows, and other. The latter consists primarily of bank lending.

Table 3 Asset Composition and Sectoral Destination of Long-Term Private Capital Net Flows (percentages)

	1978-1981	1982-1989	1990	1991	1992	1993	1990-1993
FDI	18	38.7	55.9	61.1	46	41.3	47.6
Portfolio equity flows	0.1	2.3	8.5	13.1	14.2	29.7	20.1
Portfolio debt flows	3.3	7.6	7.2	17.9	10.7	25.2	17.8
Other debt flows	78.7	51.4	28.5	7.8	29.1	3.8	14.5
equity	18.1	41	64.3	74.3	60.2	71	67.7
debt	81.9	59	35.7	25.7	39.8	29	32.3
to the private sector	38.3	40.7	85.4	89.4	81.5	82	83.4
to the public sector	61.7	59.3	14.6	10.6	18.5	18	16.6

Note 1/ New flows are as reported in Table 1.

Note 2/ Breakdowns follow World Debt Tables 1994-95 classifications:

- i) Portfolio debt flows comprise bond debt and other debt flows are obtained as a residual;
- ii) Equity flows comprise direct and portfolio equity flows, and debt flows comprise portfolio debt flows and other debt flows;
- iii) Private sector destination comprises all equity flows and private non-guaranteed debt flows, and public sector destination comprises public and publicly guaranteed debt flows.

Source: Debtor Reporting System and World Debt Tables 1994-95 (World Bank).

The recent experience is in stark contrast to what came before: i) there is a shift away from debt instruments in favor of equity instruments, both direct and portfolio; ii) within debt flows, syndicated bank loans are relatively unimportant; and iii) in contrast to the entire period 1978-89, portfolio flows have increased immensely in importance. The greatly reduced role of commercial banks during the current episode is immediately evident in the shrinkage of the category "other" during 1990-93 in Table 3. It is clear from this table that capital flows to developing countries have not expanded because banks have gotten back into the business of lending to such countries, but rather because a new category of lenders has become involved.

The regional breakdown of asset composition reveals that the above trends away from commercial bank lending and in favor of portfolio and equity investment are widespread. However, significant disparities remain. For example, in Latin America other debt flows are negligible and portfolio investment accounts for the majority of inflows, while in East Asia the composition is more balanced, with FDI being the most important item. It thus appears that, though changes in FDI flows have been significant in the aggregate, their regional distribution has not been uniform. Overall, 44 percent of the increase in inflows was in the form of FDI in Asia, though FDI accounted for only 17 percent of the new inflows in Latin America (CLR (1993)). Lack of uniformity in the composition of inflows has also characterized country experience even within the same region. According to BK, for example, long-term flows accounted for 45 percent of the improvement in the capital account in Thailand, but for 70 percent in Malaysia and for all of the improvement in Indonesia.

An important characteristic of the assets acquired by investors in association with the new inflows is that to a large extent they are denominated in domestic currency, in contrast with the syndicated bank loans associated with the previous episode. This means that, unlike in the earlier episode, external creditors are now exposed to exchange-rate risk -- specifically, the risk of sudden devaluation.¹³

5. Sectoral destination

There is a common perception that recent capital inflows have primarily been directed to the private sector in the recipient countries, but hard data on the sectoral distribution of capital inflows broadly defined is scarce. Table 3 presents our estimates of the share of long-term private-source capital inflows reported in Table 1 that was invested in the private sector of the recipient economy (excluding investment guaranteed by the public sector). The last two rows of this table suggest quite a drastic change in the sectoral composition of capital inflows during the recent episode, both in relation to the debt crisis period and to the previous inflow episode. The sectoral identity of the borrower presents by far the most stark contrast between the current inflow episode and previous experience, and has important implications for policy in the recipient countries, to be taken up in Section III.

C. Macroeconomic outcomes in recipient countries

From the balance of payments identity, changes in capital inflows (i.e. capital account inclusive of official transfers and errors and omissions) can be decomposed into changes in the trade balance, net factor payments, and international reserves. National accounting identities, in turn, equate the trade deficit to the excess of domestic absorption over domestic production. For given

¹³ This has been emphasized by Dooley, Fernandez-Arias, and Kletzer (1994). The recent Mexican crisis confirmed this concern.

domestic output and factor payments, additional capital inflows can be used to accumulate foreign exchange reserves, increase domestic investment, or increase domestic consumption. How have they in fact been used during the current episode?¹⁴

Table 4 provides evidence on this issue for 14 recipient developing countries experiencing the largest surges of private inflows relative to the size of their economies. The first three columns of this table express reserve accumulation, net factor payments, and the trade deficit (defined as minus the resource balance) as shares of the capital inflows (measured as the capital account defined as above) for each of the 14 countries during their respective "surge" periods. Columns 4 and 5 refer to the domestic absorption use of the trade deficit financed with capital inflows by examining how increases in absorption between "pre-surge" and "surge" periods were allocated to increases in consumption (that is decreases in domestic saving) and investment. Column 6 estimates the fraction of capital inflows used for investment purposes once reserves accumulation and consumption leakages are deducted.

Two points are clear. First, a large proportion of the capital inflows have been used for reserve accumulation rather than domestic absorption. In half of the countries in the sample, the accumulation of reserves accounted for at least 40 percent of the inflows, and in the case of Brazil and Colombia, reserve accumulation exceeded the value of capital inflows, as both the current and capital accounts were in surplus during the relevant period. Excluding Brazil and Colombia, no major differences emerge between East Asia and Latin American countries with regard to the importance of reserve accumulation as opposed to current account deficits. Second, in some countries the domestic saving ratio declined as absorption increased. While similar with regard to reserve accumulation, the East Asian and Latin American regions are very different in this respect. More generally, they differ in regard to changes in the composition of absorption (columns 4 and 5). While increases in absorption between the "pre-surge" and "surge" periods were dominated by increased investment in Indonesia, Korea, Malaysia, and Thailand, increases in consumption were dominant in Argentina, Mexico, and Colombia. Like the East Asian countries, Chile, Bolivia, and Venezuela also experienced larger increases in investment than consumption, but in none of these countries were the changes in the composition of absorption as heavily biased in favor of investment as in East Asia.

Some features of the broader macroeconomic experience of recipient countries are reported in Table 5. As shown in the fifth column of this table, base money growth has not tended to accelerate widely in the recipient countries. With few exceptions, however, (Venezuela, Portugal, the Philippines, and Malaysia) money multipliers have increased. Nevertheless, increases in inflation have not been widespread (column 8). By contrast with inflation trends, real exchange rate

¹⁴ To address this question, Tables 4 and 5 define capital inflows on a balance-of-payments basis -- i.e., as net changes in *all* (private and official) external liabilities as well as assets of domestic agents, excluding the central bank.

Table 4 Use of Capital Inflows During Surge Periods a/

	Allocation of Capital Account (%)			Use of Domestic		Marginal Investment Impact of Capital Inflows
	Reserve Accumulation	Net Factor Payments	Net Resource Balance Deficit	Absorption (Percent)		
				Consumption	Investment	
Argentina	40	37	23	73	27	16
Chile	57	71	-28	21	79	34
Mexico	21	24	55	69	31	24
Venezuela	5	136	-41	40	60	57
Turkey	14	-44	130	117	-17	-14
Thailand	41	10	48	-196	296	174
Portugal	66	-118	152	196	-96	-33
Philippines	26	4	69	49	51	38
Malaysia	70	37	-7	13	87	26
Korea	31	35	34	-6	106	73
Indonesia	35	91	-27	-59	159	103
Colombia	425	241	-567	68	32	-103
Bolivia	10	31	59	20	80	72
Brazil	143	149	-193	b/	b/	b/

a/ Surge periods are country-specific based on observed capital inflows profiles. They are as follows: Argentina (1991-93), Chile (1989-93), Mexico (1990-93), Venezuela (1991-93), Turkey (1990-92), Thailand (1988-92), Portugal (1989-92), Philippines (1989-93), Malaysia (1990-93), Korea (1991-93), Indonesia (1990-92), Colombia (1992-93), Bolivia (1990-93), and Brazil (1991-93). Due to data limitations, Bolivia, Brazil, and Colombia figures may exclude 1993 and Korea figures may include only 1991. For the calculation of columns (4) and (5), pre-surge periods are also country-specific and were defined as the period immediately before the surge period such that both pre-surge and surge periods are of equal length.

b/ Results are not reliable because the variation in total absorption is negligible.

Col (1), (2) and (3): Reserve accumulation, Net Factor Payments and minus Net Resource Balance as percentages of Capital Account (inclusive of Grants and Errors and Omissions) during surge period (IMF). Col (4) and (5): Ratio of the change in the average value of consumption and investment from pre-surge to surge periods to the total change in domestic absorption over the same time period (based on consumption, investment and domestic absorption ratios to GDP). (World Bank) Col (6) Calculated as $(100 - \text{Col}(1))$ times the investment fraction given in Col (5). (It assumes that on the margin net factor payments are constant, but the increase in domestic absorption is offset by reserve accumulation as measured by col (1).)

Source: The World Bank and IMF.

appreciation has been common, particularly in Latin America. The significant devaluation that Mexico was forced to make in December 1994 suggests that these changes cannot simply be integrated as equilibrium phenomena. Indeed, there is a sharp regional contrast regarding the evolution of the real exchange rate, with four out of five East Asian countries avoiding real appreciation, while only two out of seven Latin American countries in our sample have done so. Larger real exchange rate appreciation translates into more imports and less exports. For example, during 1991-92, export revenue growth slowed sharply in Latin America. By contrast, recession in industrial countries and poor terms of trade performance have not prevented the rapid growth of export revenues for Asian developing countries throughout the 1989-93 period.

Table 5 Macroeconomic Outcomes (Surge periods relative to pre-surge periods) a/

	Cumulative Real Exchange Rate Appreciation b/	Real Export Growth c/	Real Import Growth c/	Real GDP Growth c/	Monetary Base Growth c/	Money Multiplier (M1) d/	Money Multiplier (M2) d/	Domestic Inflation d/
Argentina	107.2	-12.7	55.1	11.8	-3949.9	47.4	61.7	-2631.0
Chile	7.3	2.0	-2.1	0.4	19.8	39.6	35.7	1.3
Mexico	39.5	0.2	-8.4	1.4	-5.0	96.2	39.9	-7.2
Venezuela	15.5	-6.3	42.7	8.9	-53.3	-29.9	-13.6	-28.0
Turkey	18.5	-3.4	10.6	2.9	-20.0	12.2	26.2	-3.1
Thailand	-1.9	-1.2	4.7	3.0	0.0	-0.1	16.0	2.7
Portugal	21.1	-1.9	-9.2	-1.5	15.9	-38.7	-38.3	2.0
Philippines	13.1	-4.5	-13.6	-3.4	6.5	-10.1	0.3	6.0
Malaysia	-6.3	-2.7	-10.6	-0.3	-0.3	-4.4	-6.0	1.1
Korea	-5.8	11.3	-4.9	-0.9	-0.8	16.1	6.9	-0.3
Indonesia	-2.0	8.0	17.6	0.1	2.2	6.9	41.0	1.1
Colombia	28.0	-2.3	37.9	0.7	5.6	8.4	8.4	-4.6
Bolivia	-13.8	-16.0	1.4	0.3	-21.8	20.2	51.2	-0.8
Brazil	-4.5	-11.6	-23.2	0.4	-628.6	-913.8

a/ Surge and pre-surge periods are as defined in Table 4.

b/ First quarter 1994 with respect to the average prevailing two years before the surge.

c/ Difference of the simple average of annual rates between the surge and pre-surge periods.

d/ Percentage change between pre-surge and surge periods.

Source: The World Bank and IMF.

III. The Policy Problem

As indicated in the introduction, the recent surge in capital inflows has been perceived as presenting a policy problem for the recipient countries, despite the urgency with which renewed access to world capital markets by indebted countries was previously sought. This section addresses the question of why this is so. We proceed in two steps. First we describe the textbook conditions under which external borrowing can be welfare-enhancing, and then we examine ways in which deviations of actual circumstances from those assumed in the textbook case can cause a surge in capital inflows to do economic harm.

A. The case for capital inflows

At first glance, it is not obvious why an inflow of foreign saving to developing countries should provide cause for policy concern. Capital inflows are obviously not harmful *per se*. For a small economy facing perfect international capital markets, the optimal textbook policy -- i.e., that

which would be chosen by a planner maximizing the discounted utility of a representative agent -- simply amounts to increasing investment until its marginal return equals the given cost of capital, and choosing a path for consumption that both distributes consumption optimally over time and satisfies the economy's intertemporal budget constraint. Such an economy may thus import capital to smooth consumption or to finance profitable investment opportunities that exceed the level of domestic saving.¹⁵ The paths of consumption, investment, and external borrowing that would be chosen by the planner would also be generated by decentralized, competitive private economies as long as there are no distortions associated with the private allocation of foreign saving.

This well-known analysis is of more than theoretical relevance. While the slowdown in developing-country growth during the debt crisis has often been attributed to the adverse effects of the debt "overhang" on domestic investment, some observers have concluded instead that the culprit was the liquidity crunch imposed by credit rationing -- i.e., the cessation of net capital inflows (see Borensztein (1990), and Cohen (1993)). If so, the removal of the debt overhang would be important not because of the direct effects that doing so would have on the incentives facing economic agents in the indebted countries, as is conventionally presumed, but precisely because resolution of the debt overhang would permit the resumption of capital inflows.

If this analysis is correct, then the recent resumption of capital inflows is precisely what was required in order to reactivate growth in the heavily indebted countries. To identify the source of harmful consequences from capital inflows, and thus to address the policy issues raised by the current capital-inflow episode, it is necessary to understand how the case for free capital mobility based on the textbook analysis of optimal borrowing can break down.

B. Micro distortions and macro stability

One potential mechanism that would have this effect, while of possible relevance to the previous inflow episode, is clearly not operative this time around. Specifically, if external borrowing is centralized in the hands of a "planner" who is either unwilling or unable to act in such a way as to maximize the welfare of the representative domestic agent, then the economic outcomes associated with external borrowing need not be desirable. In the previous inflow episode, when external borrowing was primarily undertaken by the public sector, the benevolence and competence of the "planner" may have been a relevant issue. As indicated in Section II, however, these issues are of much less importance during the current episode, when external borrowing has been overwhelmingly undertaken in decentralized fashion by private agents.

What is at issue in the context of the current episode is indeed whether decentralized borrowing by private agents will reproduce the desirable outcomes that would be generated by a benevolent and omniscient planner. There are two broad classes of reasons why this may fail to be

¹⁵ This analysis concerns net capital flows. Gross flows also serve an important economic purpose, providing portfolio managers the opportunity to diversify, thus improving on the risk-return tradeoff they would face under financial autarky.

the case -- the potential incidence of domestic microeconomic distortions and the effects of inflows on macroeconomic stability. Neither of these issues, both of which can motivate a concern with the possible harmful effects of capital inflows, are addressed in the textbook argument for the welfare-enhancing role of capital inflows presented above. In the case of micro distortions, the analysis in the textbook case, based on the behavior of atomistic agents operating in perfectly competitive markets, neglects the possible role of a wide variety of distortions that could affect the efficiency with which external resources are allocated in the capital-importing countries. Allowing for such distortions qualifies the case for *laissez faire*, as we argue in Section VI. Macro instability, on the other hand, is a phenomenon not well captured in the representative agent models that underpin the textbook case for optimal external borrowing.

At the microeconomic level, the presence of distortions creates the possibility that the resources absorbed in association with capital inflows will be misused, even if such resources are primarily absorbed by the private sector. Resource misallocation can arise due to the presence of distortions in the domestic financial sector and/or the real economy. Moreover, microeconomic distortions can arise as a result of an inadequate macroeconomic policy framework. In any case, domestic distortions can potentially interact with capital inflows in two distinct ways: on the one hand, the welfare consequences of existing distortions can be aggravated by capital inflows that arise from unrelated causes; on the other hand, excessive capital inflows can be directly induced by changes in distortions. The distinction is relevant for policy, as we argue below. Potential micro distortions include the following:

- a. Distortions to the perceived private cost of foreign capital could arise due to externalities associated with aggregate country risk and credit rationing resulting from limited cross-border contract enforceability.
- b. As mentioned by CLR (1992), distortions in the financial sector could give rise to improper financial intermediation. Such distortions could take the form of incomplete financial markets, pre-existing improperly-priced (possibly implicit) government deposit insurance, or speculative bubbles in particular domestic asset markets (e.g., equity and real estate) induced by the inflows themselves.
- c. Real-sector distortions, such as imperfect competition, externalities, or wage rigidity, may result in inappropriate private sector adjustment (e.g. suboptimal adjustment of the tradable sector to fluctuating exchange rates), even in the context of a well-functioning financial system.
- d. Microeconomic distortions may be created by macroeconomic policies not expected to be sustained, such as "incredible" trade liberalization or price stabilization.¹⁶

The first three effects above could be valid for any level of availability of external capital, but the cost of the distortion would presumably increase when external capital becomes more plentiful

¹⁶ See Calvo (1989), as well as Calvo and Vegh (1991).

(i.e. the supply schedule shifts upwards). Consequently, in each of these cases the costs of independently-existing domestic microeconomic distortions are aggravated by changes in the macroeconomic environment -- in the instances cited above, when foreign capital becomes more plentiful for any reason. The distortions are aggravated because of increased borrowing (a), increased intermediation through the domestic financial system (b) or increased domestic aggregate demand (c). The final argument differs, in that it attributes the capital inflow itself to the creation of a new domestic distortion. The implications of these distortions are that the resources associated with capital inflows may be devoted to consumption of low social value or invested in socially low-yielding projects, at the expense of high-value future consumption that will have to be sacrificed to service the accumulated liabilities.

The problems that have occupied most observers, however, have concerned short-run macroeconomics. Obviously, for countries that are net external borrowers a reduction in foreign real interest rates is a favorable shock. This does not mean, of course, that macroeconomic policymakers can ignore its implications. The analogy is to the case of "Dutch disease," where a favorable terms of trade shock can complicate macroeconomic management. While the shock may be favorable, the economy's macroeconomic adjustment mechanism may generate undesirable side effects. The mitigation of such effects provides the rationale for an adjustment in macroeconomic policies. Specifically, surges in capital inflows have been associated with:¹⁷

e. A loss of domestic monetary control. This is perceived to be of particular consequence in countries undergoing money-based stabilizations, but concerns a broader range of countries as well.

f. Either independently or as a result of (e), upward pressure on asset prices, an expansion of demand for home goods, and consequent increase in economic activity, which is associated with a real exchange rate appreciation, as well as an acceleration in domestic inflation and a deterioration of the current account of the balance of payments. The real appreciation is feared to undermine ongoing trade reforms and long-run external competitiveness by eroding the profitability of the traded-goods sector.

g. A potential increase in macroeconomic instability, to the extent that capital inflows are themselves unstable.

Notice that all of these reflect an interpretation of capital inflows as an expansionary financial shock acting upon the domestic macroeconomic environment, and (e) through (g) merely list alternative negative macroeconomic symptoms of such a shock.

To summarize, the argument for welfare-enhancing capital inflows can break down if there are severe micro distortions that lead decentralized economies far from the allocations that would be generated by a benevolent planner, and/or if the receipt of foreign capital threatens macro stability. Either set of circumstances may call for a policy response. It is worth emphasizing, however, that

¹⁷ See Schadler et. al. (1993).

the possibility that capital inflows may be welfare-reducing does not create a presumption that recent inflows have indeed been harmful. On micro grounds, not only can capital inflows triggered by external events arrive in a domestic environment which is free of distortions, as in the textbook case, but such flows can also be attracted by the act of *removing* distortions. Under these alternative scenarios, the receipt of foreign capital may be welfare-enhancing at a micro level. On macroeconomic grounds, the stimulus to aggregate demand provided by the arrival of inflows may be welcome in economies with excess productive capacity. Moreover, if the inflow of capital proves to be sustained, it need not be associated with increased macroeconomic instability. The upshot is that the nature of the policy problem posed by the receipt of capital inflows depends on a complex array of factors, such as the causes of the inflow (e.g., the role of changes in distortions), the allocative efficiency of the domestic economy, the domestic macroeconomic context, and factors that determine the sustainability of inflows.

IV. Causes of Capital Inflows

Of these factors, the existing literature has devoted most attention to the identification of causes. As indicated above, whether a domestic policy response is desirable in the face of a surge in capital inflows depends both on the causes of such inflows and on the characteristics of the recipient economy described previously. The assessment of causes is important for two other reasons, however, that have to do with policy design. First, the forecast of the likely evolution of the inflows, which is clearly relevant for policy design, requires the identification of causal factors. Second, the assignment of instruments, and thus the effectiveness of public policy, depends on the nature of the underlying causes. Here a domestic-foreign causal dichotomy is particularly relevant. If causes are external, they are by definition exogenous and only indirect, compensatory policies can be considered. If causes are domestic, however, more direct measures may be feasible.

A. An Analytical Framework

A useful analytical framework separates potential domestic causes into those which operate at the "project" and country levels. Building on Fernandez-Arias (1994), suppose that capital flows can potentially occur in the form of transactions in various types of assets, indexed by s , where $s = 1, \dots, n$. The domestic return on an asset of type s is decomposed into a "project" expected return D_s and a "country creditworthiness" adjustment factor C_s , which is bounded between zero and one. The project return depends inversely on the vector F of net flows to projects of all types (based on a diminishing marginal productivity argument), while the creditworthiness factor is a negative function of the vector of the end-of-period stocks of liabilities of all types, denoted S ($= S_{-1} + F$). Voluntary capital flows (components of the vector F) are determined by the arbitrage condition:

$$D_s[d, F]C_s[c, S_{-1} + F] = W_s[w, S_{-1} + F] \quad (1)$$

where W_s is the opportunity cost of funds of type s in the world economy, taken to depend on the stock of liabilities S to reflect portfolio diversification considerations for external creditors. The shift factors d , c , and w are associated respectively with the domestic economic climate, country

creditworthiness, and any creditor country financial conditions relevant for developing country investment (e.g., financial returns and capital-market regulations). The convention adopted is that the functions D_s , C_s , and W_s are increasing in the shift parameters. Equation (1) defines F implicitly. Thus, in this framework capital flows will be determined by d , c , w , and S_{-1} -- i.e., by domestic factors operating both at the project and country levels, as well as by factors pertaining to the external environment. The assumptions made above imply¹⁸ that the components of the vector F are increasing in d and c , but decreasing in w and S_{-1} . Initial stocks S_{-1} are of course dynamically endogenous. Ultimately, the sequence of flows F depends on the path of the underlying factors d , c , and w . Increases in d and c or decreases in w could generate a sustained surge in inflows like the one observed in practice.

Possible causes of the recent inflow episode can be associated with each of these variables.¹⁹ Potential domestic factors operating at the "project" level (underlying d) include:

- a. Improved policies that increase the long-run expected rate of return, and/or reduce the perceived risk, on *real* domestic investment, such as major domestic structural and institutional reforms (including domestic financial liberalization and trade reform, as well as privatization of public enterprises). Improved domestic macroeconomic policies, especially successful inflation stabilizations accompanied by fiscal adjustment widely perceived as sustainable, would also have this effect.
- b. Short-run macroeconomic policies that increase the expected rate of return on domestic *financial* instruments, resulting in *ex ante* positive interest rate differentials, for given values of the "structural" determinants of the marginal product of capital. These essentially refer to tight monetary and/or loose fiscal policies.
- c. Policies that increase the openness of the domestic financial market to foreign investors, such as the removal of capital controls and liberalization of restrictions on foreign direct investment.
- d. Structural and/or macroeconomic policies that, because of their lack of credibility, distort intertemporal relative prices -- i.e., "incredible" trade liberalizations and price stabilization programs. Tariffs cuts under domestic price rigidities, for example, may create expectations that the relative price of imports will rise over time when tariff levels are restored (CLR (1993)).

Because country creditworthiness C depends on the expected present value of resources available for external payments relative to the country's liabilities, we can interpret c as referring to the former. One way to conceptualize this present value measure is to express c in the form:

$$c = Y / (R - g), \quad (2)$$

¹⁸ Weak assumptions regarding stock effects across types of assets are also needed.

¹⁹ See Schadler et. al. (1993), CLR (1993).

where Y is some current measure of available resources, assumed to grow at the rate g , and the discount rate R (relevant to claimholders) should be based on world financial returns available at comparable maturities. Note that the country creditworthiness parameter c depends not only on domestic factors (such as Y and g) but also on foreign returns R .²⁰ Domestic factors operating at the "country" level (through c) include:

- a. Debt-equity swaps, and sustainable debt and debt service reduction agreements, as in Brady operations.
- b. Stabilization and structural policies that effect the *aggregate* efficiency of resource allocation.
- c. Shocks to national income in the form of changes in international terms of trade.
- d. Policies that affect the level of domestic absorption relative to income.

But, importantly, the country creditworthiness parameter c also depends on external factors:

- e. Foreign interest rates

Finally, external factors affecting the external opportunity cost of funds W (through w) are:

- a. Foreign interest rates and/or recession abroad.
- b. Easing of regulations affecting the cost of access to capital markets in creditor countries.
- c. Bandwagon effects in international capital markets, either resulting from the efficient signalling of information on fundamentals or from speculative bubbles.

The implication of equation (1) is that any combination of these factors could operate simultaneously to influence the observed magnitude of capital inflows. Disentangling the separate contributions of these multiple factors is therefore an empirical problem. As indicated in Section II, the domestic and external environment during the recent inflow episode has featured significant changes in several of these factors, occurring at nearly the same time. Thus, the empirical identification of causes does not represent an easy task.

B. The Evidence

By and large, this task has not been attempted in a comprehensive fashion. Most observers have tended to favor one of two views about the factors driving the current inflow episode.

²⁰ This non-conventional channel of foreign interest rate effects has been emphasized and quantified by Fernandez-Arias (1994).

Typically, the "pull" view perceives inflows as attracted to the recipient countries by an improved domestic policy environment (some combination of changes in parameters d and c in equation (1)), while the "push" view attributes the phenomenon to lower returns available in the creditor countries (changes in R).²¹ At a superficial level, the "push" view seems compelling -- the timing of US interest rate decreases clearly fits that of the advent of capital flows to developing countries as a group quite closely. Chart 1 below shows the close association between aggregate private capital inflows to all developing countries and the evolution of US interest rates.

The close inverse correlation between US interest rates, both short and long term, and the capital flows reported in Table 1 is evident in the chart. While the short-term interest rate in the US trended downward during 1989-90, sharp decreases occurred both at the beginning of 1991 and 1992, and in both instances coincided with increases in capital flows during the subsequent year.

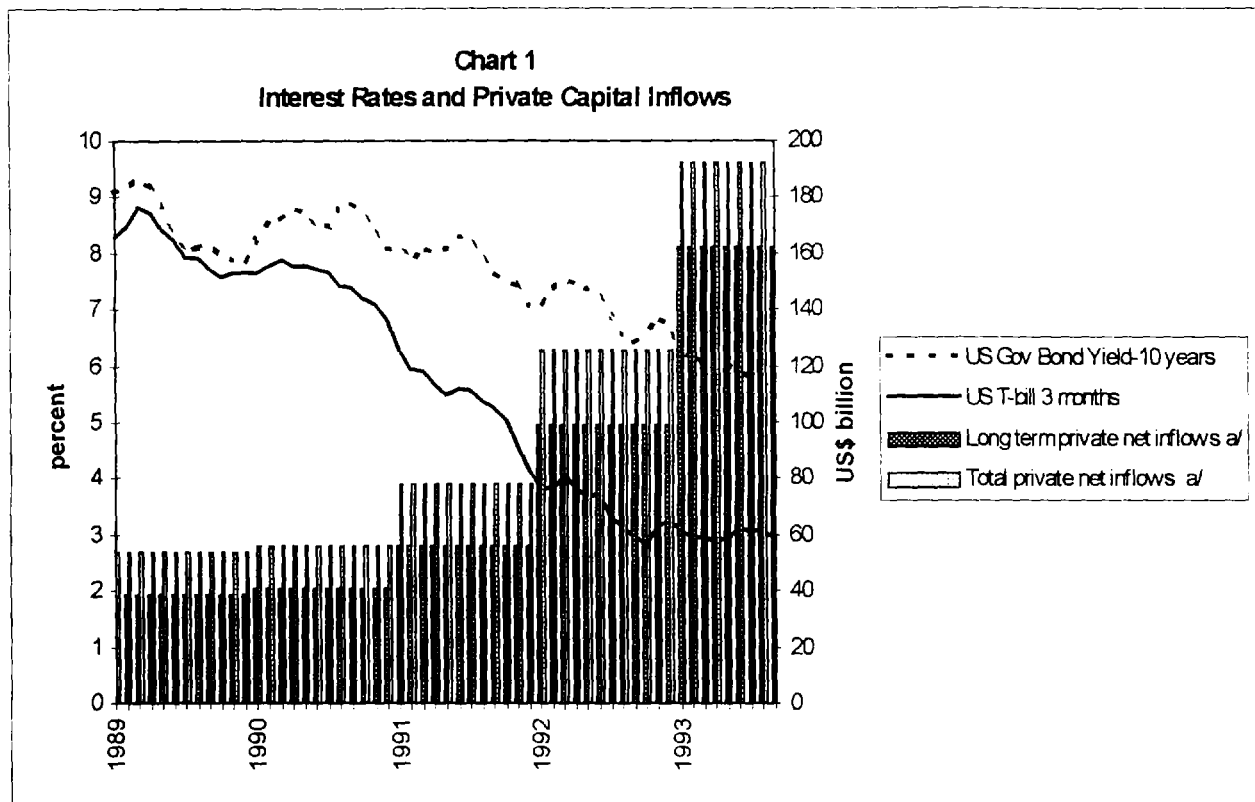
At the same time, however, case studies for individual countries that have been large recipients of capital inflows can almost invariably identify significant changes in policy regimes immediately preceding the inflow episode (see Montiel (1995)). Thus, plausible cases can be made for either perspective. The two explanations are not mutually exclusive, of course, and the issue is assessing their relative empirical importance. In the remainder of this section we describe and evaluate the formal evidence on this issue.

1. Calvo, Leiderman, and Reinhart (1992)

Much of the systematic empirical work on the issue of causation has focused on identifying whether the changes that triggered the recent capital flows originated in the creditor or debtor countries. In an influential series of papers, for example, CLR have argued that, while domestic factors were undoubtedly important in attracting inflows, such factors cannot explain why inflows occurred in countries that had not undertaken reforms or why when reforms were started earlier, the inflows did not materialize till 1990. They have thus emphasized the role of external factors. Their formal evidence takes the following form:

a. Principal component analysis establishes a significant degree of comovement among foreign reserves and real exchange rates for ten Latin American countries during 1990-91, interpreted as proxies for F . The first principal component explains a larger share of the variation in the ten reserve and real exchange rate series during 1990-91 than in 1988-89. For the rate of inflation, however, the extent of comovement diminished in the more recent period.

²¹ The characteristics of inflows described in the previous section indeed makes some of these mechanisms more plausible than others *ex ante*. The widespread and persistent nature of the inflow phenomenon would seem to favor global, persistent factors and rule out an important role for idiosyncratic, volatile factors. The latter include "incredible" trade liberalizations and price stabilizations. While intertemporal speculation may have played a role in specific cases, it is unlikely to account for the magnitude, distribution, or persistence of flows.



b. The first principal components of both the reserve and real exchange rate series display a large bivariate correlation with several US financial variables used as indicators of foreign rates of return.

c. Tests of Granger causality for individual countries tended to find causation running from reserves to real exchange rates, rather than the reverse. This pattern also held for the first principal components of the two sets of series.

d. Structural VARs involving reserves, real exchange rates, and the first two principal components of the US financial variables, suggested that the foreign factors exerted causal influences over the domestic variables, and both variance decompositions and impulse response functions indicated that the foreign factors played a large role in accounting for reserve and real exchange rate movements.

2. Chuhan, Claessens, and Mamingi (1993)

Recently, Chuhan, Claessens, and Mamingi (CCM, 1993) have attempted to disentangle the roles of domestic and external factors in motivating capital inflows. Using monthly bond and equity flows from the US to nine Latin American and nine Asian countries over the period January 1988 to July 1992, they estimated separate panel regressions explaining bond and equity flows as functions of country-specific variables (country credit rating, price of debt on the

secondary market, price-earnings ratio in the domestic stock market, and the black market premium) as well as external variables (US interest rates and US industrial activity). They found that bond flows (but not equity flows) responded strongly to the country credit rating, while price-earnings ratios were uniformly important. However, US interest rates also entered significantly with the theoretically expected negative sign in all the regressions. To assess the relative importance of domestic and foreign variables, they computed the sum of standardized coefficients for the two sets of variables, finding that domestic and external variables have been about equally important in Latin America, but domestic variables had sums of standardized coefficients that were three to four times larger than those of external variables in Asia for both bond and equity flows.

3. Fernandez-Arias (1994)

A recent paper by Fernandez-Arias (1994) addressed some of the limitations of both the original CLR study as well as that of CCM, and at the same time considered some of the less formal arguments presented by other observers in support of an important role for domestic factors. Like CCM, Fernandez-Arias relied on data that measure capital movements directly, rather than on proxies in the form of reserve and real exchange rate changes, as in CLR. However, he argued that the attribution of variation in country-specific financial variables to domestic shocks in CCM is improper, and in particular that country creditworthiness, as indicated by the price of debt on secondary markets, is itself heavily dependent on external factors. As noted above, if the parameter c in equation (1) is expressed as in equation (2), it has a domestic component given by the path of Y and an external component in the form of R .

Fernandez-Arias decomposed post-1989 increases in portfolio (bond and equity) inflows for 13 developing countries into portions attributable to changes in the domestic investment climate, country creditworthiness, and foreign interest rates. He did so by regressing deviations in such flows from their 1989 values on corresponding deviations in the external interest rate and in the price of debt on the secondary market (based on a simple burdensharing model that linked creditworthiness to this variable), using fixed-effect panel estimates for which the intercept term was interpreted as the change in the domestic investment climate. For the "average" developing country in the sample, changes in international interest rates proved to be the dominant force in explaining surges in capital inflows, accounting for over 60 percent of the deviation in such flows from the 1989 level. An extra 25 percent was due to changes in creditworthiness, leaving only about 12 percent to be explained by improvements in the domestic investment climate. Moreover, when account is taken of the role of external interest rates in determining the secondary-market debt price used as the creditworthiness indicator, thereby decomposing the latter into domestic and foreign components, fully 86 percent of the surge in inflows is attributed to movements in external interest rates.

4. Dooley, Fernandez-Arias, and Kletzer (1994)

A somewhat different approach was followed by Dooley, Fernandez-Arias, and Kletzer (1994) (hereafter DFK) based on the above-mentioned decomposition of creditworthiness into

domestic and foreign components. They argued that the price of commercial-bank debt is a sensitive proxy for capital inflows, since shifts in the demand for claims on developing countries, whether emanating from changes in domestic or external factors, should be reflected in these prices. Thus, rather than explaining capital inflows directly, they attempted to account for the behavior of secondary-market prices on debt since 1989 which, consistent with their interpretation of the relationship between such prices and capital flows, have risen markedly. They found that essentially all of the increase in price could be accounted for by declining international interest rates, once the purely arithmetic price effect of the reduction in the face value of debt for a given market value is removed, leaving almost nothing to be explained by improvements in the domestic environment.

5. Schadler et. al. (1993)

These findings concerning the crucial role of foreign factors have not gone unchallenged, however. In addition to the moderate support for the role of domestic factors provided in CCM, a recent report by Schadler et. al. (1993) argued that, while foreign phenomena may have been important, such influences cannot be regarded as dominant, for several reasons:

- a. First, they argued that the timing of the relevant changes in external factors did not coincide with that of the inflows.
- b. Second, they noted that the timing, persistence, and intensity of inflows has varied considerably across countries that have received inflows, suggesting that investors have responded to changes in country-specific factors over time.
- c. Third, they also noted that surges in capital inflows have not been universal within regions of developing countries, so that external creditors have clearly exercised some cross-country discrimination in the allocation of funds.

C. An assessment

In spite of these arguments, the weight of the formal evidence would appear to be on the side of the "push" view that falling US interest rates have played a dominant role in driving capital flows to developing countries. The strongest arguments for "pull" factors rely on geographic variation in the distribution of capital inflows. Even this, however, can be problematic -- while it is true that not all countries have been recipients of the new inflows, it is also true that flows have not been restricted to countries with well-established track records of macroeconomic and structural adjustment. Both Peru and Brazil, for instance, received substantial inflows in 1992, while both countries still confronted severe macroeconomic imbalances.

More importantly, while timing information directly relates to the notion of causality, cross-country information requires additional assumptions to separate causes from passive country-specific factors that merely interact with the underlying causes. In terms of equation (1), a change in F from an initial equilibrium must reflect a corresponding change in d , c , or w .

Because external factors underlying w and c are the same across countries, the observation that the change in F differed between countries A and B tells us only that d and/or c were different in the two countries, not that domestic factors induced changes in d or c in either country. Differences in capital inflow levels across countries confirm the importance of country-specific characteristics, but they do not imply that country-specific *changes* caused the inflows, as implied by the "pull" story. Thus, cross-country differences in capital inflows may have more to do with where "pushed" foreign capital is absorbed than with how foreign capital is "pulled."

It is important to note that even a situation where some countries receive no new capital inflows at all is consistent with the "push" view. The solution for F from equation (1) may entail an extremely low level of capital inflows or capital outflows (negative values of various components of F), implying transfers of resources that the country is unwilling to undertake. Under such circumstances, the solution for F would be subject to an inequality constraint of the form:

$$F \geq F^* \tag{3}$$

If this constraint is binding, voluntary capital flows of such types would cease, and equation (1) would become an inequality, no longer determining any observed (involuntary) capital flows., which would be determined by (3) as an equality. As long as fluctuations in external conditions leave (3) binding, capital inflows would be unchanged.

As this discussion suggests, in interpreting the evidence reviewed above it is important to distinguish between two different issues: explaining the variation of changes in F across time and countries, and explaining why many countries experienced large positive changes in F after 1989. The first is the more relevant problem for policy issues, because it essentially involves specifying the function that links F to d , c , w for each country. The capital-inflow literature, however, has largely focused on the second. Here the issue is linking observed large positive changes in F to *changes* in d , c , w that may have brought them about. Regarding this, the safest conclusion to draw is that the existing evidence probably tells us more about factors that have been important in explaining capital inflows than about factors that have not. In terms of equation (1), in other words, it is reasonable to conclude based on the evidence reviewed that for many countries observed changes in F have been associated with changes in international interest rates R , but not that they have *not* been associated with other factors inducing changes in the values of d , c , or w either in those countries or others.

In the case of the domestic factors, the main reason that this is so is that "push" variables are easier to measure than "pull" factors. In theory, inflows are endogenous with respect to a wide range of domestic policies, and no single indicator is likely to represent the broad thrust of such policies with the same degree of accuracy as external interest rates do for foreign financial conditions. Indeed, "pull" factors have been proxied in very rough ways in the literature

reviewed. Thus, measurement error is much more likely to afflict "pull" than "push" factors.²² A second reason is that much of the existing literature has been restricted to explaining portfolio flows. As shown in Section II, foreign direct investment has been at least as important in many cases, and the latter may be more sensitive to domestic factors than the more liquid portfolio flows.

With regard to external factors, we would argue that a complete story about the factors driving the new inflows must account for changes in the composition of assets acquired by external creditors as well as in the identity of domestic borrowers. As indicated in Table 3, these phenomena present a dramatic contrast between the current and previous inflow episodes. The "push" story based simply on low US interest rates fails to address this issue. External-source shocks have been proxied by foreign rates of return in the empirical literature. As a result, the role of structural changes in creditor-country financial markets that have eased access to such markets by developing-country borrowers has not been considered in such tests. This makes the existing literature unable to distinguish between changes in the degree of financial integration (except for factors pertaining to country default risk) and changes in relative *ex ante* rates of return. The distinction is crucial for the central question that has motivated this literature -- that of sustainability. To the extent that the new flows represent a one-time portfolio adjustment driven by "permanent" changes in the degree of world financial integration, their high level is not sustainable, contrary to the push story based on permanent reductions in *R*, but they are less likely to be reversed than if they are driven by temporarily low US interest rates.

Thus, a consistent story about the factors driving and directing the recent surge in capital inflows probably has to feature some combination of "push" and "pull" factors. One such story would proceed as follows: the combination of low interest rates and recession made for low rates of return on industrial-country assets (particularly in the United States), creating an incipient capital outflow as investors in these countries sought higher-yielding assets for their portfolios. The restoration of perceived creditworthiness was necessary for potential debtor countries to have access to these funds, and thus capital flowed initially to those countries whose creditworthiness was not severely impaired during the decade of the eighties --largely the rapidly-growing countries in East Asia that never underwent a debt crisis. The Brady plan, announced in mid-1989, had the effect of broadening the geographic scope for such inflows to encompass the heavily-indebted countries in Latin America, in part by writing down the face value of debt, in part by supporting policy adjustments, and in part by providing information externalities, leading to bandwagon effects. Where none of these factors have come into play -- i.e., in Sub-Saharan Africa -- capital inflows have not materialized.

Beyond this, while the weighing of push and pull factors is informative for policy for the

²² In Fernandez-Arias (1994), for example, "pull" factors are proxied by a shifting intercept term. In Dooley, Fernandez-Arias, and Kletzer (1994), their contribution is captured in the unexplained portion of the secondary debt price, a procedure which is sensitive to the validity of the underlying burdensharing model.

reasons mentioned at the beginning of the section, this is at best a point of departure for policy analysis, because the mapping from "pull" or "push" views to policy is highly imperfect. As indicated above, policy design requires the specific identification both of causal factors and country circumstances. One important additional piece of information for policy design is the assessment of the likely evolution of causes and circumstances over time (e.g. whether shocks are permanent or transitory, volatile or highly predictable, etc.). These issues are taken up in the next section. Even with a perfect forecast, policy prescriptions are far from clear. While the implicit assumption appears to be that capital inflows attracted by improved domestic policies do not present a policy problem, while those driven by expansionary monetary policy abroad do, this view is unwarranted. Even a "pull" exerted by moving from a distorted to a completely undistorted domestic microeconomic environment could generate macro stability problems, calling for a macro policy response. On the other hand, a "pull" generated by either a partial removal of domestic distortions or the introduction of new distortions could be welfare-reducing on micro grounds as well. Similarly, the implications for policy of an inflow generated by a foreign "push" are ambiguous in general, and crucially depend on the characteristics of the domestic economy discussed in Section III. The links between the factors driving inflows and the indicated policy response are discussed more fully in Section VI.

V. Sustainability

As indicated in Section III, the policy concern with the effects of inflows has partly been based on the perception that they may threaten macroeconomic stability. This concern arises in part out of a fear that the flows may be transitory. While even "permanent" inflows can create adjustment problems, inflows that are not sustained are perceived as potentially destabilizing the domestic economy both when they arrive and when they depart. The issue of sustainability can be decomposed into two parts: First, what is the expected time path of the conditions driving the inflow episode (e.g. how long are the conditions likely to persist)? Second, what are the corresponding likely implications for capital inflows? Specifically, is the alternative to the current level of inflows a continuation of inflows at a reduced rate (soft landing), a cessation of inflows (hard landing), or pressures for the actual reversal of capital flows and a balance of payments crisis (crash)? Unfortunately, in spite of the policy concerns that motivate such questions, the literature to date has shed little light on them, apart from the identification of causes. In this section, we attempt to address the issue in a preliminary way.

The first of the two questions is not well posed as presented, since from the perspective of recipient-country policymakers it makes an important difference whether the factors driving the inflow are exogenous or endogenous to their actions. If they are exogenous then it is indeed meaningful to ask how permanent the shock is likely to be, and the optimal policy response may (but need not) be a function of the answer to this question.²³ If they are endogenous, however,

²³ The reason that optimal policy response need not depend on the expected duration of inflows is that the private sector may be as well informed about this factor as the public sector, in which case an argument for policy intervention would have to be based on the

the duration of the shock is itself an outcome of actions taken by policymakers, and not an aspect of the environment to which they have to respond. As suggested in the discussion of equation (3), the achievement of a sufficiently low level of country risk may be a necessary condition for capital inflows to materialize, and cross-country differences in this factor may help explain geographic variation in the receipt of capital inflows. Superimposed on this, however, has been a substantial external shock in the form of lower interest rates in the United States and, as indicated in the previous section, the existing evidence suggests that this may have been a key driving factor determining the magnitude of flows of capital to creditworthy developing countries (as well as improvements in country creditworthiness). Empirically, therefore, the current inflow episode is likely to represent a mix of endogenous and exogenous events. In this context, it is meaningful to ask both how long the latter can be expected to be sustained as well as what the likely consequences would be of a reversal either of domestic policies or external circumstances.

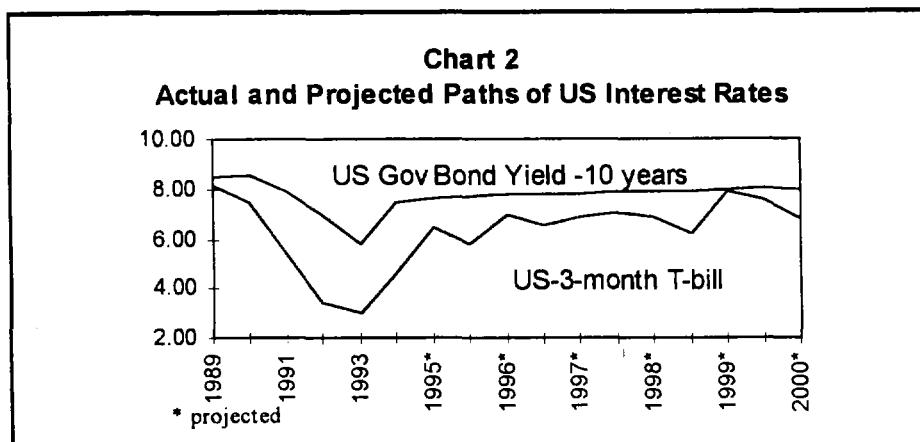
A. Duration of the external shock

One way to gauge the likely duration of the foreign interest rate shock is by examining the implicit predictions of future short-term interest rates captured in the term structure. As of the third quarter of 1994, the term structure of interest rates for the United States suggested that over the next five years interest rates are expected to rise, continuing their upward trend during 1994 (see Chart 2). Thus, markets apparently do not expect the favorable external interest rate shock to persist.

If realized, this increasing trend will, *ceteris paribus*, gradually reduce the incentives for reallocating portfolios to developing countries. Equations (1) and (2) suggest that such incentives would be reduced both by increasing the opportunity cost of funds and by increasing country risk. Thus, both mechanisms have a bearing on sustainability. They will be analyzed successively in the rest of the section.

We first analyze the country risk mechanism, which holds the key to extreme forms of unsustainability, such as the debt crisis. As indicated in equation (2), this mechanism operates through the market valuation of the value of the present and future resources available to the country as a whole to service its external liabilities. As explained in the previous section, beyond a threshold point country risk may be too high to sustain voluntary inflows: equation (1) would yield inflow levels lower than what could be generated according to the country's capacity to pay. In this case crisis and capital rationing would ensue. In what follows we construct a simple creditworthiness index to measure the pressure on repayment capacity that is exerted by the service of foreign liabilities, which can be used to shed light on the likelihood of a crisis.

presence of distortions that cause the optimality of private sector responses to depend on the duration of the shock. In the absence of distortions, unsustainability does not warrant policy intervention.



B. An index of creditworthiness

Since in the current inflow episode foreign liabilities have primarily been incurred by the private sector (see Table 3) and to a large extent denominated in domestic currency, country risk is likely to be associated with balance of payments crises and the attendant likelihood of devaluation and the imposition of capital controls, rather than with fiscal problems.²⁴ Without speculating about how such a crisis would play itself out internally (and specifically whether or not private liabilities would be nationalized)²⁵, the country's repayment capacity can be taken to depend on its ability to generate a trade surplus -- i.e., to expand exports and contract imports (as well as to deplete accumulated international reserves), which depends on its potential production of traded goods. From the perspective of external creditors, the operational significance of the quality of the domestic policy environment is reflected in this variable. Since the present and future values of maximum trade surpluses are unobservable, for the purpose of constructing a sustainability index, capacity to pay can be proxied by a fraction f of total production of traded goods, fT .

The present value of this capacity to pay can be compared with an accumulated stock of foreign liabilities S to assess whether the accumulation of additional liabilities can be supported by the country's resources. Such a comparison forms the basis for our operational measure of creditworthiness. The present value of resources is given by an expression similar to equation (2) with $Y=fT$, where g is the long-run growth rate of traded goods production. Let S be the accumulated stock of foreign liabilities and suppose that RS is a reasonable estimate of their future average service. This coincidence with the discount rate requires that returns on foreign investments adjust quickly to market conditions, as in the case of equity investments, floating-rate debt, or rolled-over short-term debt. Under those assumptions, a solvency-based

²⁴ For the role of fiscal problems in the previous episode, see Montiel (1993).

²⁵ This was the case in Chile during the early 1980s.

creditworthiness index can be constructed as the ratio of the existing stock of foreign liabilities to the present value of resources, or:

$$C = a(R - g)S/T, \quad (4)$$

where a is an arbitrary constant to base the index. An increase in this index has adverse implications for creditworthiness, and thus for the sustainability of external finance. The interpretation of C is as follows: as of any given date, the index C_t represents the ratio of the stock of external liabilities outstanding at that date to the projected present value of the resources available to service those liabilities from that date forward, expressed relative to the same ratio during the base period. Thus C measures creditworthiness in relative terms.

A simple alternative index could be based on the extent to which current capacity to pay meets short-term obligations, gauged by a liquidity-based ratio such as:

$$C^L = a'R S/T, \quad (5)$$

where R is now a short-term interest rate. While this index lacks the theoretical foundation of C , it provides an interesting benchmark. An even simpler alternative can be constructed by expanding the conventional debt-export ratio to include all external liabilities and all traded goods production:

$$C^D = a''S/T. \quad (6)$$

In Chart 3a the creditworthiness index C is calculated and contrasted with both the liquidity-based index C^L and the more traditional C^D ²⁶. The chart contains historical values of the indexes as well as projected values based on the interest rate projections presented in Chart 2 together with projections of T based on historical growth rates of foreign trade during the surge period. In Chart 3a the current value of S is maintained throughout the projection period. Therefore these indexes refer to the sustainability of the existing stock of liabilities, with zero capital inflows.

We note four main points from Chart 3a. First, the creditworthiness index is very

²⁶ To implement these calculations, we require a measure of the share of traded goods production in GDP. Lacking such a measure, we have proxied it by the standard indicator of openness -- the ratio of foreign trade (exports plus imports) to GDP. An alternative justification for our measure is that the traditional measure based on observed exports is very sensitive to the endogenous effect of the inflows themselves through their effect on real exchange rates, and may therefore be a distorted indicator of the underlying repayment capacity. The opposite bias would obtain in the case of an import-based measure. Exports plus imports, the measure chosen in this study, is significantly more robust.

sensitive to the evolution of interest rates. The path of C tracks fairly closely that of market interest rates in Chart 2. Second, creditworthiness actually improved according to our preferred measure even as capital flowed into developing countries until end-1993, contrary to what the more traditional index would suggest. In that sense, this more refined index can better explain the surge in inflows. Third, creditworthiness as defined here declines in 1994 and continues to do so in the projection period. Fourth, in spite of this, the index remains below its 1990 value throughout the projection period. Essentially, this reflects the fact that growth in T offsets projected increases in interest rates. We interpret this evidence as indicating that, if traded goods output grows at its estimated historic rate and market interest rates move as projected, the sustainability of the existing level of external liabilities will not be impaired by creditworthiness considerations, in the sense that the creditworthiness index does not surpass values that were previously compatible with substantial capital inflows. This suggests that creditworthiness considerations associated with rising market interest rates need not imply pressures for a reversal of capital flows and crisis.²⁷

But can the inflow continue under such circumstances at rates comparable to those recently observed? To answer this question, Chart 3b reports an alternative measure of the index that incorporates growth in the stock of external liabilities S at the average rate observed during the recent "surge" episode. These indexes thus assess whether creditworthiness would be impaired if inflow levels were to be sustained at levels on the order of those observed in recent years.

Under these circumstances, the index deteriorates over the projection period, but remains below its 1990 level by the year 2000. The implication is that considerations of country creditworthiness are unlikely to be driven by external events in a way that will constrain inflows in the near term.²⁸ This analysis suggests that, for most countries, the risk of an extreme form of hard landing lies in domestic shocks rather than in systemic factors.

C. Stocks and flows

Even if, as these results indicate, rising market interest rates do not necessarily portend a deterioration in C to critical levels, they do imply an increase in R in equation (1), which itself has implications for the vector of flows F . These implications depend in an important way on how

²⁷ Note that we are assuming that the growth rate of T is unaffected by changes in interest rates. This is a strong assumption, and to the extent that it fails to hold the conclusions may be excessively optimistic.

²⁸ This does not imply, however, that portfolio considerations operating through the opportunity cost term W_s in equation (1) will not restrain such flows.

Graph 3a
Creditworthiness Indexes

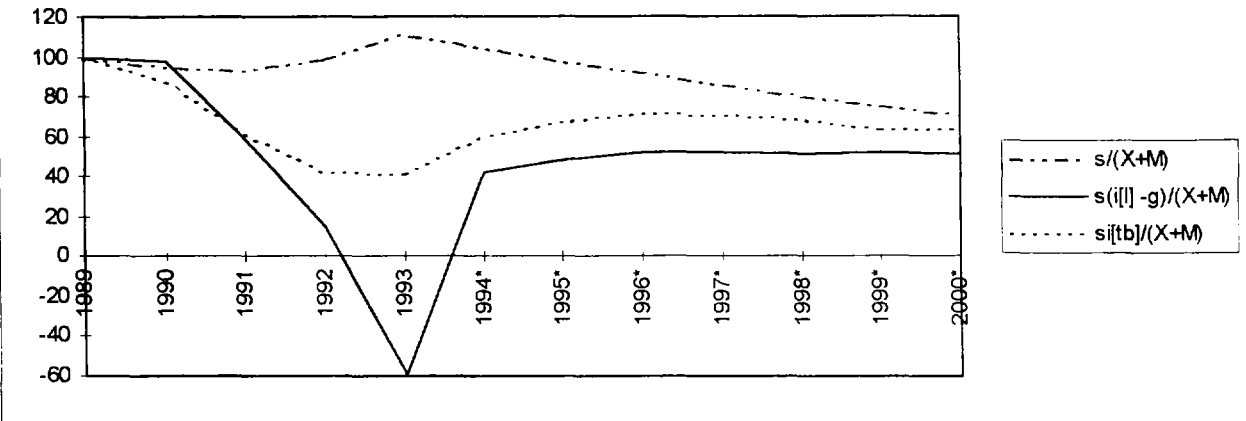
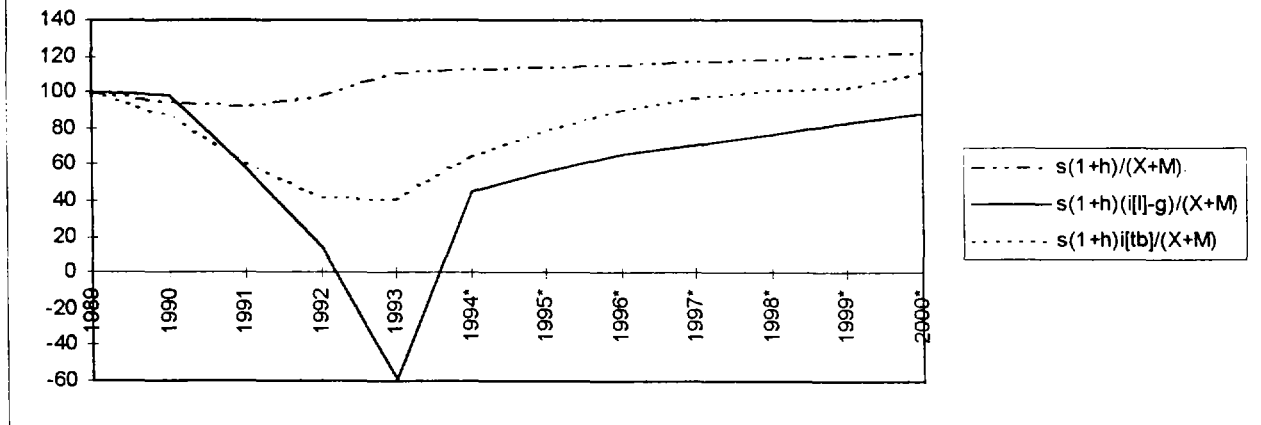


Chart 3b
Creditworthiness Indexes



existing stocks S enter equation (1). We refer to a situation in which S enters (1) through the function C or W as one of stock adjustment, and refer to the alternative, in which all adjustment occurs through flows, as flow adjustment.

To the extent that S enters C or W , even if the new inflows were purely a function of permanently improved domestic policies, it is unlikely that the **magnitude** of the initial flows would be sustained. The reason is that initial inflows would cause cumulative changes in stocks that would diminish the incentives for new inflows (by reducing C and/or increasing W), thus leaving the inflows as a one-time event to some extent.²⁹ For example, in the extreme case where stocks are important for portfolio balancing reasons and country-risk adjusted domestic returns are constant (F enters equation (1) only on the right-hand side), after the initial stock adjustment of foreign investors' portfolios is completed, subsequent inflows would represent only the share of new saving devoted to the acquisition of developing-country assets -- i.e., their magnitude would be limited by the rate of growth of foreign investors' overall portfolios.

If stocks are important, the question of sustainability becomes not one of whether inflows will continue at their current magnitudes, but rather how they can be expected to decrease under plausible scenarios. The answer depends both on the permanence of the changes in the variables driving the inflows as well as on how much of the observed inflow in each country reflects an initial stock adjustment. Given the projected increase in international interest rates, *ceteris paribus* capital inflow levels can be expected to decrease for developing countries as a group, continuing their estimated reduction during 1994. Nonetheless, in countries where inflows have primarily resulted from an improved domestic economic environment that is expected to be maintained, there is no reason for the bulk of the stock adjustment to be reversed, even when external conditions change. Thus, while flows may taper off in such a case, reflecting both the completion of the initial stock adjustment as well as the change in external circumstances, a crisis is not likely. If instead the country in question is one for which the contribution of domestic factors has been relatively minor, or even negative, and inflows have thus primarily reflected lower foreign interest rates, the stock adjustment can be expected to be reversed if and when foreign assets become more attractive.

So far, the only evidence on the empirical role of stock adjustment in the current inflow episode has been provided by Fernandez-Arias (1994), who found no evidence that flows responded to accumulated stocks. The importance of this issue for the prospective magnitude of post-surge inflows and the likelihood of crisis warrants more research on the topic.

D. Speed of adjustment

The third and final component of the sustainability issue concerns the speed with which a desired stock reversal can be effected by external creditors. In equation (1) adjustments are

²⁹ See Fernandez-Arias (1994) for a formal analysis of the relative importance of flow-stock adjustment and the dynamics involved under expansion and contraction.

assumed to be costless and therefore instantaneous, but in practice the speed of adjustment depends on the ease with which such creditors can liquidate their positions. In this regard, the current inflow episode differs from the previous one. On the one hand, the bonds and equities acquired by external creditors in the current episode are more easily liquidated than syndicated bank loans. Even FDI can effectively be liquidated by borrowing domestically and transferring the funds abroad, particularly in a context where outflows have been liberalized, as has been common in debtor countries during recent years. On the other hand, the assets acquired by external creditors in the present instance are in many cases denominated in domestic currency. This characteristic enhances liquidity while rendering the foreign-currency value of such assets susceptible to capital taxation through their exposure to devaluation. With assets that are relatively liquid and denominated in domestic currency, portfolio adjustments are likely to be effected rapidly in response to new information.

VI. Policy Responses

Up to this point, we have considered possible grounds for policy intervention in response to the receipt of capital flows, but not the nature of the policy response itself. In this section we review the policy options, and link suggested policy responses to the grounds for policy intervention.

The question of appropriate policy response has received substantial attention, and the menu of policies considered in this regard has thus been extensive. The desire to counteract the pressures for exchange rate appreciation in the face of substantial net capital inflows has typically led to very active Central Bank intervention and rapid increases in international reserves. Policies motivated by the desire to ameliorate this impact of capital inflows on the external component of high-powered money include:

- a. Direct intervention to reduce gross inflows, in the form of the imposition of controls or taxes on capital imports.
- b. The removal of restrictions on capital *outflows*, to reduce net inflows.
- c. Trade liberalization, intended to switch expenditure from domestic to foreign goods and thus increase the trade deficit.
- d. Increased exchange-rate flexibility. In this case, the central bank fails to satisfy all of the demand for high-powered money created by capital inflows, allowing some of that demand to be reflected in an appreciation of the domestic currency.

An alternative approach is to accept some increase in the external component of the monetary base, but to counteract the potential effects of such an increase on domestic aggregate demand by using the conventional tools of macroeconomic policy. These include:

e. Restrictive monetary policy, in the form of sterilized intervention, or increases in marginal reserve requirements.³⁰

f. Tight fiscal policy.³¹

Policies (a)-(c) are aimed to reducing net inflows and therefore, to the extent that they are successful, if inflows have an external cause they can be seen as general-purpose policies that attempt to reduce the size of the shock disturbing the economy. It is worth noting that, in practice, the rest of the policies are likely to have feedback effects on the level of net inflows. Increased exchange-rate flexibility would reduce outflows in the form of additional reserves, thus reducing inflows. Likewise, tight fiscal policy would tend to reduce inflows by easing pressures on domestic interest rates and the trade deficit. On the other hand, restrictive monetary policy would tend to increase inflows. Similarly, while only policy (a) is specifically targeted to affecting the level of gross capital inflows themselves, in practice all of the remaining policies are likely to have feedback effects on the level of gross inflows. Both capital-outflow and trade liberalizations may induce additional inflows, as would restrictive monetary policy. On the other hand, increased exchange-rate flexibility and tight fiscal policy may induce less inflows.

No consensus has emerged in the literature concerning the nature of the appropriate policy response. CLR evaluated a subset of these policies. They questioned (a) on the grounds that the private sector can probably circumvent taxes on capital inflows, and rejected sterilized monetary intervention (d) because it creates quasi-fiscal problems, while possibly perpetuating the inflow. They were not disposed to advocate tight fiscal policy (h), on the argument that such policy should depend on medium-term considerations. Their analysis led them to advocate giving more flexibility to exchange rates (f), and imposing higher reserve requirements (e).³² The policies advocated in Schadler et. al. (1993) only partially coincide with this prescription. The latter study advocated the avoidance of capital controls (perceived to be ineffectual) as well as of sterilization (perceived as prolonging the conditions that foster the inflows in the first place and to have fiscal costs), together with the acceptance of some real exchange appreciation, preferably by adjusting

³⁰ Unsterilized intervention is not included here as a policy response option, because it represents the status quo, and thus reflects a passive policy stance.

³¹ Notice that all of the above can be interpreted as policy responses to an external financial shock. In response to a capital inflow induced by an "incredible" stabilization (a domestic shock), CLR (1992) consider the adoption of trade policy specifically geared to stemming capital inflows (a temporary export subsidy-cum-import tariff).

³² The feasibility of the trade policy package alluded to in the previous footnote as a response to inflows caused by an "incredible" stabilization was questioned by CLR because it relies for success on the credibility of its temporariness, something that cannot typically be assumed.

the nominal exchange rate, rather than the domestic price level. However, the adoption of tighter fiscal policy was also recommended.

Our own evaluation of the nature of the appropriate policy response ties that response to the grounds for policy intervention as well as to country characteristics. We take up separately the issues of micro distortions and macro instability, and in the case of the former, distinguish between situations in which the effects of distortions are aggravated by inflows and those in which changes in distortions themselves prompt the inflows.

A. Microeconomic distortions worsened by exogenous changes in capital inflows

Consider first the case in which new capital inflows triggered by exogenous events aggravate the negative welfare consequences of a pre-existing domestic distortion. That is the case of microeconomic factors (a)-(c) considered in Section III. In this case, a first-best policy response is, of course, to remove the distortion and absorb the capital inflow. Consider, for example, the case of improperly-priced government deposit insurance (microeconomic factor (b) in Section III). One way to remove this distortion, of course, is to eliminate such insurance. However, it may be impossible for the government to do so credibly. In that case, the indicated solution is to price it properly, in order to avoid subsidizing excessive risk-taking (financed by both foreign and domestic deposits) on the part of depository institutions. The prescription to remove the distortion would have been the indicated policy even without the inflow, so the receipt of a capital inflow does not affect the policy prescription. However, if the first-best policy is precluded, then direct intervention in the form of capital controls or taxation to reduce the inflow -- if feasible -- emerges as a possible second-best policy (policy response (a)). In this case, there is no hope that such a policy will deliver a first-best outcome, because it would not be directly acting at the source of the distortion.

Another important distortion mentioned previously emanates from the imperfect enforceability of cross-border contracts underlying country risk (microeconomic factor (a) above). An increase in foreign liabilities makes capital rationing and debt crises more likely. The increase in the probability of such events associated with an incremental addition to foreign borrowing represents a cost which is external to individual domestic private agents undertaking the borrowing. Such an agent would thus have an incentive to attract too much foreign capital.³³ In this case the distortion cannot be removed to any substantial extent, which again leads to a second-best approach to the problem. If an excessive level of foreign indebtedness is directly caused by this distortion, a Pigouvian tax on capital inflows or equivalent capital control, if feasible, may yield the required lower level of capital inflows and

³³ This situation appears more relevant in countries which are close to their foreign capital carrying capacity. However, on the other hand, to the extent that private agents do not fully benefit from country default, increasing country risk discourages borrowing abroad.

achieve the first best outcome, since in this case the policy acts directly on the source of the distortion (policy response (a)).

B. Inflows induced by changes in microeconomic distortions

In the preceding analysis, the welfare consequence of previously existing distortions were aggravated by capital inflows arising from unrelated causes. As suggested previously, however, excessive capital inflows can be induced by changes in microeconomic distortions, either in the form of the introduction of new distortions or the removal of old ones. Examples of the former were listed above. The latter may take the form, for example, of the removal of constraints on inflows. When inflows are triggered by the introduction of new distortions, the obvious first-best policy response is to remove the distortions.³⁴ The domestic distortions most frequently mentioned in the role of attracting capital inflows are "incredible" trade liberalizations and price stabilizations (microeconomic factor (d) in Section III). The solution to this type of distortion depends on the source of the absence of credibility. If it arises from the failure to set policy fundamentals (typically the fiscal deficit) on a sustainable path, the solution is, of course, to carry out the adjustments in the fundamentals required to attain credibility. If, on the other hand, such adjustments have been completed and credibility remains elusive, then direct intervention in the form of capital controls may again represent a second-best alternative.³⁵

On the other hand, capital inflows can also be caused by the removal of distortions or constraints. Potential microeconomic examples are the lifting of capital controls and the removal of barriers to direct foreign investment in developing countries, as well as measures to enhance access to creditor-country financial markets. It is also possible to think of the adoption of a comprehensive package of credible stabilization policies accompanied by liberalizing policy reforms as the comprehensive removal of widespread distortions. To the extent that such policies restore a country's creditworthiness, for example, they have the effect of removing a prospective tax on its creditors.

In the absence of additional distortions, such removal of distortions constraining capital inflows would move the economy to a non-distorted Pareto optimum and would therefore improve welfare. In general, of course, a capital inflow associated with the welfare-enhancing removal of distortions, whether in specific markets or as part of a generalized package of policy reforms, does not call for countervailing policies on microeconomic grounds. If other distortions are present, however, the ambiguity of second-best theory applies. A preexisting

³⁴ This point is made by Corbo and Hernandez (1993).

³⁵ There is an obvious analogy here with the use of wage and price controls in heterodox stabilization programs, when adjustment in the fundamentals is complete but lack of credibility or inherent wage-price inertia threatens to derail the stabilization program.

distortion may be part of a second-best policy package, and removing it may actually result in a reduction in welfare when capital flows in. For example, as noted above capital controls or taxes on external borrowing may be optimal in the presence of borrowing externalities arising from country risk considerations. In this case, removing the policy "distortion" would induce capital inflows associated with overborrowing and thus produce an inferior welfare outcome. In such cases the correct policy stance is to retain controls.

In summary, then, if capital inflows are induced by changes in distortions, from a microeconomic perspective the change should be reversed if it is welfare-reducing, and sustained if it is welfare-enhancing. The association of a capital inflow with the change is not relevant to the optimality issue. If the inflow creates a macroeconomic problem, on the other hand, then the policy tools of choice are macroeconomic in nature.

C. Capital inflows and macroeconomic equilibrium

This leaves the issue of macroeconomic instability -- i.e., the question of how to use policy to preserve the macroeconomic equilibrium in the face of a foreign real interest rate shock. The first point to make in this regard is that, from the standpoint of macroeconomic policy goals, it may prove optimal to leave policy unchanged. The effect of the shock will typically be expansionary.³⁶ To the extent that the domestic economy requires aggregate demand stimulus, the expansionary shock may be welcome. The difficulty arises in the case of an economy operating at full capacity and which seeks to preserve price stability. What are the policy options in this case?

First it is worth noting that, in the absence of any policy response, the magnitude of the effect of a given fall in foreign real interest rates on domestic aggregate demand is likely to depend on whether the reduction is widely perceived to be temporary or permanent -- i.e., whether a decrease in short-term rates is matched by one in long-term rates. The reason is that the capitalization of future income streams will depend primarily on whether long-term rates fall. A temporary reduction in foreign short-term rates may be associated with a capital inflow, but such an inflow is likely to be short-lived and perceived as such, with little effect on domestic demand conditions and thus no need for stabilizing policy response.

If the change is perceived as permanent, the full panoply of policy options (a) through (f) described at the beginning of this section is potentially relevant. The most direct option is to attempt to limit the size of net inflows arising from portfolio reallocations. To this end, controls on gross inflows could be introduced, in the form of ceilings or taxes, explicit or implicit, on foreign borrowing and/or on foreign direct investment (a). As already mentioned,

³⁶ This may not be true when the recipient country operates a freely flexible exchange-rate regime, as discussed below, but few of the countries that have been the destinations of the recent surge in capital inflows fit this description.

it has been argued that this is not a feasible policy because these limitations are always circumvented. While it can be argued that even then the policy may be effective as long as tax avoidance is costly, its social cost resulting from inefficient financial intermediation may disqualify this policy.

More importantly, however, while capital controls could conceivably be a first-best solution if they respond to a microeconomic distortion directly inducing the capital inflows, or a second-best policy in circumstances such as those described previously, capital controls are hard to justify in other cases. If the problem is macroeconomic in nature, the imposition of effective capital controls implies introducing a microeconomic distortion. Macroeconomic stability may be preserved, but the costs of the distortion would remain. It would clearly be preferable to maintain stability without introducing a distortion by relying on more traditional tools of stabilization policy. As in the case of microeconomic distortions described previously, justification for capital controls in this case would require a second-best argument based on the ineffectiveness of such tools (and relative effectiveness of controls), or on high costs of employing them, relative to the costs of the distortions introduced by controls.

Alternatively, gross outflows could be promoted by pursuing capital outflow liberalization (b). Assuming no other distortions, however, the latter would be desirable even in the absence of a foreign financial shock. Moreover, the argument that it is not feasible to impose controls applies to this case too, and implies that outflows are already *de facto* liberalized. But if effective, outflow liberalization may be actually counterproductive. The reason is that since limitations to capital repatriation are a concern to foreign investors, their removal is equivalent to the removal of a tax on foreign investment. Consequently, it will lead to increased gross inflows, which may more than offset the direct effect on increased gross outflows. Current account liberalization (g), on the other hand, may not cause the balance of payments to deteriorate (see Ostry (198_)), and consequently may not be effective in relieving the upward pressure on the monetary base emanating from capital inflows.

If the net inflow is not prevented from materializing through means such as these, a case can be made for undertaking a stabilizing macroeconomic policy response. However, both the form of the transmission of the foreign financial shock to domestic aggregate demand -- and thus the nature of the macroeconomic problem created by the shock -- as well as the set of feasible macroeconomic policy responses, are likely to differ from country to country.

A key factor is the exchange rate regime. Under fixed exchange rates, an autonomous capital inflow resulting from a reduction in foreign interest rates leads to inflation and lower real domestic interest rates under a passive monetary policy limited to unsterilized intervention. To avoid this outcome, the authorities could switch to sterilized intervention (d). This has the appeal of supplying foreigners with the domestic interest-bearing assets that they

demand while adhering to a domestic money supply target for stabilization purposes.³⁷ Contrary to what is sometimes asserted, sterilization does not necessarily imply the perpetuation of the inflow, since the inflow will end once portfolio composition has adjusted to accommodate rate-of-return differentials.³⁸

Sterilization, however, is not a panacea. Though it may not imply the perpetuation of the inflows forever, it will tend to magnify the size of the cumulative inflow. Moreover, it may not succeed in insulating the domestic economy. If domestic financial assets are regarded as imperfect substitutes by foreign investors, and if the instrument used to sterilize is not that which foreign investors seek to acquire, then domestic portfolio equilibrium will require an adjustment in relative rates of return among domestic assets. Even if it insulates successfully, sterilization cannot be a permanent solution, since as long as the inflow persists the central bank will be exchanging high-yielding domestic assets for low-yielding foreign ones, and this policy may have important fiscal implications.³⁹ Finally, sterilization may turn out to be impossible even in the short run if capital mobility is sufficiently high.

Alternatively, a tighter monetary policy could be pursued through increasing minimum reserve requirements or imposing special requirements on foreign deposits (e).⁴⁰ These amount to a tax on foreign borrowing by the banking system, which like other taxes to capital inflows may be difficult to implement. A specific problem with this approach is that it is likely to simply have the effect of redirecting the capital inflow to domestic borrowers through other channels than the domestic banking system -- e.g., through markets for equity and real estate. If this disintermediation is effective, the macroeconomic stabilization problem would remain. The scope for circumventing the domestic banking system depends on the menu of domestic assets available to foreigners, and thus on the degree of sophistication of the domestic financial system.

Thus, if the fixed exchange rate regime is maintained, sterilized intervention and/or increases in reserve requirements may provide a temporary solution to the macro stabilization problem created by the foreign interest rate shock. However, because it depends on the degree

³⁷ Reisen (1993) has been a forceful advocate of this policy.

³⁸ This is an implication of simple portfolio models.

³⁹ To finance the quasi-fiscal deficit that arises from such asset swaps would require a permanent transfer to the central bank from the government, which is passed on to foreigners in the form of returns that are elevated relative to what they could earn at home. Even if fiscally feasible, such a policy is unlikely to prove palatable for very long.

⁴⁰ Other monetary measures cited by BK are shifting government deposits from commercial banks to the central bank, raising interest rates on central bank assets and liabilities, and curtailing access to rediscount facilities.

of capital mobility, the structure of the domestic financial system, and the scope for fiscal adjustment to accommodate larger quasi-fiscal deficits, the feasibility of this strategy is likely to be country-specific.

Under flexible exchange rates (f), the foreign interest rate shock will result in an appreciation of the domestic currency, and possibly a small decrease in domestic interest rates.⁴¹ Under this regime, the external interest rate shock may well prove to be **contractionary**, as expenditure switching adversely affects the demand for home goods. Stability in this case would require a monetary expansion, resulting in a combination of domestic interest rates that are lower than they would have been without the shock, but higher than under fixed exchange rates and a passive monetary policy, as well as an exchange rate which is appreciated relative to what it would have been without the shock, but depreciated relative to what it would have been without monetary expansion.

This outcome is the basis for the policy advice proffered by both by CLR and Schadler et. al. (1993) advocating a role for exchange rate appreciation in adjusting to the external interest rate shock. Again, however, this advice may not be universally applicable. Countries that rely on the exchange rate as a nominal anchor will be reluctant to move the rate for fear of eroding the credibility of the peg. In addition, the degree of real appreciation may exceed that which would occur with a fixed peg, and thus this policy may have harmful effects for competitiveness. If these constraints are binding, the monetary policy options available are those outlined previously.

These considerations suggest that policy may need to be prepared to accommodate a reduction in domestic interest rates with an unchanged nominal peg. If so, the set of remaining policy options is narrow indeed. To preserve macroeconomic stability under such circumstances, the induced increase in private absorption would have to be offset through tighter fiscal policy (h).

VII. Summary and Conclusions

The current capital-inflow episode represents a sharp break from the experience of the debt crisis years for the developing countries currently receiving such inflows. The magnitude of flows nearly matches that which preceded the debt crisis. While this constitutes a welcome relief from the constraints of credit rationing for many countries, it also poses structural and macroeconomic policy challenges. The structural challenge is to ensure that the resource inflow is efficiently used in order to avoid a repetition of the debt crisis. While certain characteristics of the current inflows are reassuring in this regard, the potential roles of a variety of distortions implies that a *laissez-faire* stance is not necessarily warranted.

⁴¹ The latter would result, with a fixed money supply, from the price-level effects of a nominal appreciation.

Moreover, though capital inflows may represent the outcome of a favorable external shock from the perspective of indebted developing countries, their implications for macro stability may call for a policy response on these grounds as well.

After reviewing the characteristics of the new inflows, we have surveyed the perspectives of the existing literature on the causes of the new inflows, and have separately taken up the issue of sustainability and optimal policy response as well. Our conclusions can be summarized as follows:

First, regarding the forces driving the current episode:

- a. In the aggregate, the role of foreign interest rates as a "push" factor driving capital inflows and determining their magnitude appears to be well established. Casual observation of timing, the receipt of inflows by countries that had not undertaken major programs of stabilization and liberalization, as well as all the systematic empirical work support this conclusion.
- b. On the other hand, theoretical considerations suggest that country creditworthiness must undoubtedly have played an important role in determining both the timing and geographic destination of the new capital flows. The role of the Brady plan in Latin America, and the relative absence of flows to Sub-Saharan Africa both support this view.

However, we know little about the relative weights to be attached to domestic and foreign factors in attracting capital to *individual* countries, and consequently even less about the role of specific types of domestic shocks. The existing evidence also sheds little light on the roles of domestic or external structural factors. As indicated here, this type of information is crucial for the design of policies. More country-specific information is required about the possible role of domestic microeconomic distortions in motivating these inflows or in channeling them to the final borrowing sector.

Second, concerning sustainability, what has just been said makes it clear that sustainability has an important endogenous component. The loss of creditworthiness due to a deterioration of the domestic policy stance is sufficient to stop inflows quickly, and given the nature of stock adjustment, the liquidity of the assets acquired by external creditors, and their vulnerability to exchange-rate changes, inflows are likely to be replaced by substantial outflows or an outright balance of payments crisis. Recent events in Mexico provide strong support for this assertion. Even if creditworthiness is retained, however, the early level of inflows is unlikely to be sustained. This is because the nature of stock adjustment would make the level of inflows diminish over time even with stable external financial conditions, but even more so because the favorable foreign financial shock that triggered the episode is expected by the market to be temporary. Whether the outcome is a gradual reduction in flows to countries that have been receiving them since the early nineties or an actual reversal depends on the path to be followed by foreign interest rates as well as on the role of stock adjustment. The key

gap in knowledge here is how large the temporary stock adjustment component of the recent inflows has been, relative to the "permanent" flow component.

Finally, what are the implications for policy in the recipient countries?

- a. The receipt of capital inflows may strengthen the case for the removal of certain previously existing microeconomic distortions, either because they aggravate the costs of such distortions or because they ease the perceived constraints (typically balance of payments constraints) that originally motivated their adoption.
- b. Direct intervention with capital inflows may not be feasible, because controls may be easily evaded. The feasibility of controls is likely to be country-specific. If feasible, a case for direct intervention as a first-best policy can be made only when the negative welfare consequences of a distortion that cannot be removed arise from induced external borrowing. This is likely to apply in the context of country risk externalities, and may also apply in the presence of "incredible" reforms. In both situations, however, the indicated intervention is a Pigouvian tax (or equivalent control), rather than a ban on capital inflows. Beyond this, the case for direct intervention would have to be made on the basis of second-best considerations, either on microeconomic or macroeconomic grounds.
- c. To the extent that capital inflows are permitted to materialize, the desirability of foreign exchange intervention depends on the requirements for macroeconomic stability. Either competitiveness considerations or use of the exchange rate as a nominal anchor in the context of a stabilization program may preclude nominal appreciation. If not, then permitting a (temporary) appreciation of the nominal exchange rate by restricting the scale of foreign exchange intervention will dampen and possibly reverse the expansionary effect of the foreign interest rate shock on domestic aggregate demand, by appreciating the real exchange rate and possibly raising the domestic interest rate. This outcome will be desirable if domestic macroeconomic conditions are such that policymakers seek to avoid stimulating aggregate demand.
- d. Alternatively, the authorities can seek to avoid aggregate demand stimulus with a fixed exchange rate through sterilized foreign exchange intervention. This policy is feasible, however, only if capital mobility is imperfect. The higher the degree of capital mobility, the larger will be the accumulation of reserves associated with a policy of sterilization. This policy has associated quasi-fiscal costs, since the central bank exchanges high-yielding domestic assets for low-yielding reserves, and the magnitude of these costs will be greater the higher the degree of capital mobility and the larger the gap between domestic and foreign rates of return. Moreover, even if successful, this policy may not insulate the economy from the expansionary effect of the foreign shock if substitution among domestic assets is imperfect and the asset demanded by external creditors is not that used in intervention.

e. If sterilization is incomplete, the implication of the inflow is an expansion in the monetary base. Monetary expansion can still be avoided by a commensurate reduction in the money multiplier achieved through an increase in reserve requirements. In this case, quasi-fiscal costs are avoided through implicit taxation of the banking system. The economic implications of this tax will depend on how the tax burden is ultimately shared among the banks, their depositors, and their loan customers. Whether such measures can avoid an increase in aggregate demand depends on the structure of the domestic financial system, which determines the scope for disintermediation.

f. Finally, if domestic monetary expansion is not avoided, or if an expansionary financial stimulus is transmitted outside the banking system, the stabilization of aggregate demand will require a fiscal contraction.

The key message is that choices confront macroeconomic policymakers at each step in this progression. Not only the intended effect on aggregate demand, but also the feasibility and relative desirability of alternative macroeconomic policy packages to achieve that effect, will be functions of country circumstances. Relevant considerations include the economy's level of capacity utilization, the identity of its nominal anchor, the sterilization tools available to the central bank, the degree of capital mobility, the financial health of domestic banks, the sophistication of the financial system, and the flexibility of fiscal policy, among others. In view of the multiplicity of factors that should in principle influence the response of macroeconomic policies, no single combination of policies is likely to be optimal in all cases.

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