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Resumen

A fines de los años ochenta, sólo unos pocos años después de la crisis de la deuda, se produjo el retorno de los flujos de capital privado a los países en desarrollo. Subyacen a este incremento en los capitales voluntarios una caída en las tasas de interés y una desaceleración de la actividad económica en los países desarrollados, así como una mejoría en las perspectivas económicas y la solvencia de los países receptores de capital. Esto último se debió, en parte, a la implementación de reformas estructurales tales como la desregulación de los mercados financieros y del trabajo, el desmantelamiento de las barreras al comercio y la reducción de las restricciones a los movimientos de capital.

Abstract

Private capital flows returned to the developing countries in the late 1980s, only a few years after the debt crisis. Underlying this surge in inflows there is a decrease in interest rates and a slowdown in economic activity in the developed countries, and an improvement in economic prospects and creditworthiness in the recipient countries. The latter is due, in part, to the implementation of structural reforms comprising the deregulation of financial and labor markets, the dismantling of barriers to trade, and the reduction of restrictions on capital movements.

The authors are grateful to Kausik Chaudhuri for his assistance on the empirical part of the paper, and to José de Gregorio, Raúl Labán, Felipe Larraín, Patricio Meller, Heinz Rudolph and Sergio Schmukler for helpful comments on a preliminary version of this paper. The views expressed in this paper are those of the authors and should not be attributed to the institutions of their affiliation.

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Abstract

Private capital flows returned to the developing countries in the late 1980s, only a few years after the debt crisis. Underlying this surge in inflows there is a decrease in interest rates and a slowdown in economic activity in the developed countries, and an improvement in economic prospects and creditworthiness in the recipient countries. The latter is due, in part, to the implementation of structural reforms comprising the deregulation of financial and labor markets, the dismantling of barriers to trade, and the reduction of restrictions on capital movements.

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1. Introduction

Private capital flows have had mayor swings during the last twenty years. After a surge in the late 1970s, they decreased substantially following the explosion of the debt crisis. Then, to the surprise of many, in the early 1990s significant flows of private capital surged into many developing countries, only to decrease again in the second half of 1997 following the initiation of the Asian crisis and its aftermath. The main purpose of this paper is to study the main factors behind the return of these inflows to the developing countries in the 1990s. The causes for the reversal that initiated in late 1997 are discussed in the conclusions.

As shown in table 1, net private capital flows to all non-industrialized countries increased from an annual average of 8.8 billion dollars in the period 1983-89, to an annual average of 144.2 billion dollars in the period 1990-96. These flows reached a peak of 214.9 billions in 1996, and then decreased to 123.5 billion dollars in 1997, and it is estimated that they will reach only 56.7 billion in 1998. It is worth noting that at the time of the Mexican crisis, the reduction in capital flows was mostly a Latin American phenomena, while the Asian crisis has set in motion a reduction in flows to all emerging regions (IMF, 1998b, p. 13).

It is worth noting that the capital flows of the early 1990s are different from those of the late 1970s, on at least two important accounts. First, while the flows of the late 1970s went mostly to the public sector to finance ambitious public expenditure programs and current account deficits, the capital flows of the 1990s have been mostly channeled towards the private sector. Second, while the flows of the late 1970s were dominated by syndicated bank lending, the new wave of capital inflows has been dominated by direct foreign investment (DFI) and portfolio flows.

Another characteristic of the flows is their regional concentration. In both episodes a substantial portion of the flows have been directed to Asia and Latin America (see table 1 below). However, the distribution of flows has been more even across developing regions in the 1990s than in the 1970s. In the 1970s about 86 percent of the flows went to Latin America, while in the period 1990-96 this region received only 32 percent of total flows.

Not surprisingly, the increase in inflows towards developing countries was accompanied by a decline in the interest rate spreads over comparable U. S.

Treasury securities, reflecting a reduction in the recipient countries' risk premia. In the case of government borrowing, the spreads declined from 346 basis points in 1991, to only 243 basis points in late 1993, and for private borrowers the spreads declined from 650 basis points in 1991, to only 315 basis points in 1993 (IMF, 1996). The spreads on government bonds went up in the first half of 1994, when political problems started to emerge in Mexico, and then went up again following the Mexican crisis. They started a downward trend in the second quarter of 1995 that lasted up to the third quarter of 1997, when spreads started to increase again when the crisis initiated in Thailand Asia started to spread.

Table 1.
NET PRIVATE CAPITAL FLOWS TO NON-INDUSTRIALIZED COUNTRIES
(US$ billion)

	1977-82*	1983-89*	1990-96*	1994	1995	1996	1997	1998
Total	30.5	8.8	144.2	155.7	195.3	214.9	123.5	56.7
Net FDI	11.2	13.3	64.8	85.3	99.6	120.4	147.2	127.5
Net portfolio	-10.5	6.5	64.0	104.4	40.7	80.2	69.9	35.3
Other Flows	29.8	-11.0	15.4	-34.0	55.1	14.2	-93.5	-106.1
Asia	15.8	16.7	55.8	64.7	91.8	99.0	28.8	-44.3
Latin America	26.3	-16.6	46.4	46.5	38.2	81.8	87.5	75.2
Other	-11.6	8.7	42.0	44.5	65.3	34.1	7.2	25.8

Source: IMF (1995) for figures up to 1989 and IMF (1998a) for other years. Non-industrialized countries include developing countries, countries in transition and the newly industrialized Asian economies as classified by the IMF. (*) annual averages.

The standard literature on the determinants of private capital flows toward emerging market economies has distinguished between two categories of factors: *pull* factors--those related to better opportunities in the recipient countries--and *push* factors--those related to lower interest rates and a slowdown in economic activity in industrial countries (Calvo et. al. 1993; Chuhan et. al. 1993; Edwards 1991; Hernández and Rudolph 1995; and Fernández-Arias 1995).

In a very influential paper, Calvo et. al. (1993) found that *push* (external) factors were more important than *pull* (domestic) factors in explaining the surge in capital flows towards developing countries (in particular, towards Latin America and the Caribbean) during the early 1990's. One key implication of this finding is that capital recipient countries should stand ready to adjust to a sudden reversal of capital that could result from an increase in interest rates or an expansionary cycle in industrial countries. In contrast, Chuhan et. al. (1993), controlling for recipient country creditworthiness, found that for the case of US portfolio investment in emerging markets, *pull* and *push* factors account each for about one half of the variance in the flow of capital towards emerging market

economies. In two more recent papers, Taylor (1996) and Hernández and Rudolph (1995), using a time series and a panel framework respectively, arrive to similar conclusions. However, Fernández-Arias (1995) extended the work of Chuhan et. al. by making creditworthiness an endogenous variable that depends also on foreign interest rates, and found that again external factors explain about 80 percent of the variance of the capital inflow. However, his results are based on a small sample.[1]

Understanding better the factors behind the recent surge in capital inflows toward developing countries (or toward the more restricted set of major recipients) has an interest that is much more than just academic. If external (*push*) factors are the most important determinants of capital inflows, then developing countries need to be aware that these inflows will have a cyclical pattern, and, therefore, domestic policy should be designed having this effect in mind. In particular, the financial system should be prepared to adjust to a sudden reduction in capital inflows (or a capital outflow), and domestic prices should be flexible enough in order to smoothly accommodate the associated adjustment in the real exchange rate; that is, without causing major discruptions in output and employment.

In contrast, if capital inflows are mostly the result of better policies in the recipient countries (*pull* factors), then their sustainability would depend on the capacity of the recipient country to maintain the appropriate policies in place and to respond to shocks. As the recent Asian crisis vividly illustrates, it is usually weaknesses in financial regulation and supervision that trigger a halt and eventual reversal in inflows and an economic crisis.

Among the *pull* factors, economic reforms that improve the policy framework in the host country would create synergies by attracting capital inflows leading to higher investment and growth setting a motion a virtuous circle. Most important, in a country with a good policy environment the inflows, will be more resilient to changes in interest rates and cyclical fluctuations in the industrial countries. The recent experience during 1995 in the aftermath of the Mexican crisis supports this second hypothesis. Indeed, following the Mexican crisis, after a short period of increased uncertainty in international capital

[1] For a more detailed discussion of the recent literature on the determinants of private capital inflows see Hernández and Rudolph (1995).

markets, private flows resumed towards the most creditworthy recipient countries, spreads were reduced and stock market prices recovered to their pre-crisis levels quickly in countries like Chile, Colombia and Malaysia. Moreover, the increase in interest rates in the US during 1994-95, affected negatively only a few recipient countries, Mexico being the most notorious one. Also, in the initial stages of the Asian crisis, the flows to Latin America decreased mostly in countries with weak fundamentals or that, as a result of the crisis, received a severe external shock. However, private capital flows—specially FDI—continued towards countries that had good fundamentals and that adjusted their policies quickly as a response to the shock (however, following the Russian crisis and the collapse in the global demand for risk, the crisis took an international dimension that changed this trend).

In the presence of capital inflows, an important factor to consider when designing economic policies is their effect on macroeconomic management. Thus, in the increasingly integrated capital markets of the 1990s, macroeconomic policies have to be designed taking into account their implications for, and feedback from, the capital account. Otherwise unexpected outcomes could result. For example, with a fixed exchange rate system, the introduction of a tight monetary policy to dampen aggregate demand would be ineffective as it will lead to larger capital inflows. This area of inquiry will not be pursued here as by now there is a vast literature on macroeconomic management with an open capital account.[2]

The main purpose of this paper is to analyze the importance of economic fundamentals in the allocation of private capital flows among different developing countries, prior to the Asian crisis. Thus, important issues related to the cause of the sudden reversal of flows to emerging Asia, mainly related to financial weaknesses, are not addressed in this paper.

In this paper we choose a medium- to long-term approach, that is, we are not interested in explaining short-term or cyclical variations in flows across countries, but rather more permanent movements in flows. The rest of this paper is divided into three sections. Section 2 reviews the different hypothesis that could explain these flows as these have been presented in the literature. Section 3

[2] For macroeconomic management in the presence of large capital inflows see, among others, IMF (1995), Corbo and Hernández (1996), Montiel (1996), and Schadler et. al. (1993).

presents our empirical analysis and results, and section 4 summarizes our main conclusions.

2. Factors Behind the pre-Asian Crisis Surge in Capital Flows: Some Preliminaries

In recent years many developing countries carried out radical changes in their economic policies and institutions, aiming at raising their long-term growth rate and to reduce poverty. One area where the change in policy has been more pronounced is in the treatment of foreign direct investment, FDI. The increasing awareness of the potential contribution of foreign direct investment to growth--through the introduction of new technologies, better management, better quality design, and improved access to market channels--has led to a substantial reduction or even outright elimination of restrictions on capital and dividend repatriation.

This change has been assisted by an emerging consensus, both in academic and policy-maker circles, with respect to the type of policies that promote growth with equity. These policies should be aimed at achieving macroeconomic stability, greater integration with the world economy (outward orientation), and establishing competitive market structures. In this process the government is held responsible for putting in place the institutions that are necessary for a well functioning market economy, together with the provision of public goods and improving the access to basic social services (education, health, nutrition and housing) for the poorest groups in the population.[3]

In the new consensus, to achieve macroeconomic stability public finances have to be put in order, and the monetary and exchange rate policies have to be designed with the main objective of achieving a credible and sustainable reduction in inflation, and a sustainable level of the current account deficit. In this regard, in many countries the creation of an independent Central Bank is considered a critical part of the effort to facilitate macroeconomic stability, while

[3] For as assessment of the consensus on policy reforms see Williamson (1990), and Corbo and Fischer (1992 and 1995).

the role of the public sector has changed drastically.[4] In contrast to the development strategy followed by most developing countries during the 1950's and 1960's, now the government is entrusted with the responsibility of delivering macroeconomic stability —in the form of a low and predictable rate of inflation, and a sustainable current account deficit— and of creating the conditions for the development of an open and competitive private market economy. For the latter purpose the state is supposed to gradually dismantle trade protection, deregulate labor and financial markets, get out of the production and distribution of private goods, and putting in place a regulatory framework to promote sound competition in public utilities. Furthermore, the state has to create an appropriate regulatory framework to promote competition and the development of a safe and sound financial system. But this is not all as the state also has to concentrate its efforts on the development of a system where the poorest groups in the population have proper access to basic social services.

Some of these policy actions were part of the so called "Washington Consensus" of Williamson (1990), but as the recent experiences of Argentina, Peru, Poland, and the Czech Republic illustrate, some of the new reformers have gone much beyond the Washington Consensus in carrying out a complete overhaul of their policies and institutions, and the reform process was mostly made at home rather than being the result of recommendations made by the international financial institutions. [5, 6]

In the literature three groups of factors have been identified as affecting the flow of capital towards developing countries. First, the improved policy

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[4] In many countries the creation of an independent Central Bank, and the upgrading of the institutionality and accountability on budgetary matters, have been an integral part of the institution building effort to facilitate achieving and maintaining macroeconomic stability.

[5] On the evaluation of the results of reforms see Corbo and Fischer (1995).

[6] The consensus on policies that promote growth with equity has been feed by at least four separate forces: (1) a better understanding of the factors that have contributed to the favorable record of the East Asian economies (achieving and maintaining macroeconomic stability, a high level of human capital accumulation, and the promotion of export-led growth); (2) the favorable record of some recent adjusters like Chile, Poland, and the Philippines; (3) the collapse of the central planning model in the former Soviet Union and the former socialist countries in Central and Eastern Europe; and (4) the findings of recent work on growth theory (the new 'endogenous growth theory') that has accounted for differences in long term growth among countries by differences in physical and human capital, the initial productivity gap with respect to a leading country, and economic policies. Among the latter, two factors have been found to be important: the macroeconomic policy stance and the degree of opening to trade (Fischer 1993, Edwards 1993).

environment in the recipient countries, together with specific reforms that have directly facilitated the flow of capital towards developing countries. The latter comprise the substantial movement towards current account convertibility, the reduced discrimination against foreign direct investment, and the improvements in the enforcement of property rights. An additional factor in some countries has been the debt reduction agreements reached in recent years between some indebted countries and their creditors (World Bank 1996).

A second factor is the movement in industrial countries' short term interest rates and the state of the economic cycle in these countries (Calvo, Leiderman, and Reinhart, 1993). In particular, lower interest rates in industrial countries will "push" capital towards developing countries in search for better rates of return. Also, a slowdown in economic activity in industrial countries reduces companies' profits and make more attractive for them to look for investment opportunities in other countries.

A third factor that has been identified in the literature as affecting the flow of capital towards developing countries is of an institutional character, namely, the emergence of institutional investors in industrial countries with their need for international diversification of their portfolios (IMF, 1995; World Bank, 1997).

The main hypothesis of this paper is that changes in policies in the recipient countries, as opposed to push factors, have played an important role in attracting capital inflows. They have worked through improving the countries' creditworthiness and creating better investment opportunities for foreign investors.

3. Model Specification and Main Results

Following the recent empirical literature on the determinants of capital flows (Calvo et. al. 1993, Chuhan et. al. 1993, Fernández-Arias 1995, Hernández and Rudolph 1995, and Taylor 1996), we use a model where capital inflows are related to country specific ('pull') factors and common worldwide ('push') factors. The work by Calvo et. al., Chuhan et. al., and Fernández Arias, identified the interest rate and economic activity (measured by industrial production) in industrial countries as the relevant "push" factor variables.

The recent work on sustainability of the current account deficit has identified country specific ('pull') factors that affect the level and the variability of capital inflows, the solvency of the country, and the willingness to lend to a country (Milesi-Ferreti and Razin 1995, Hernández and Rudolph 1995, and Frankel and Rose 1996). In particular, Milesi-Ferreti and Razin, in a reduced form specification, include the following factors as affecting the sustainability of the current account deficit: debt-ratios, the interest burden of external debt, the ratio of exports to GDP, the evolution of the real exchange rate, the national saving and investment rates, and the size of the fiscal balance.

We are interested in explaining medium- and long-term movements in capital flows as opposed to short term fluctuations (changes in monthly or yearly flows). Following the standard literature the model that we use in our empirical work is given by equation (1) below:

$$(1) \qquad f_{it} = C_i + \sum \alpha_j X_{jit-1} + \sum \beta_k Z_{kit} + \varepsilon_{it}$$

where

f_{it} = flow of capital to country i in period t

X_{jit-1} = domestic variable j at time t-1 in country i

Z_{kit} = external variable k at time t in country i

and where C_i, α_j's and β_k's are all parameters to be estimated.

In this model the variables in X are indicators related to the strength and economic prospects of the recipient country, from the point of view of the sustainability of the capital flows in terms of the solvency of the country, and the willingness to lend to the host country by the rest of the world—*economic fundamentals*—, or indirect measures of the country's prospects as perceived by market participants (e.g. country risk-premium), while the variables in Z are related to the external environment.

In order to capture the medium- and long-term variations in flows, all time dependent variables—f, Xs, and Zs—are non-overlapping averages over a two-year period; that is, the basic time unit used in this model is a two-year period. Thus, f_{it} is the average flow of capital received by country i in years q

and q-1, while X_{jit-1} is the average of variable X_j for country i in years q-1 and q-2. The list of variables that we use and their interpretation appears in table 2.

A potential shortcoming of our study is that we use only 5 data points for each country, limiting the time period to 1985-94 (see below). However, although in principle the sample could be extended to include the 1970's, we claim that the different use and type of flows during the previous episode of capital inflows (see above), as well as the different international environment during the 1970's, would limit the applicability of the model used in this paper to the early 1970s.

Table 2: Variable List

Dependent Variable	Definition	Comments
FDI	Foreign Direct Investment	in percentage of GDP
POEQ	Portfolio Equity Flows	"
PRFL	Long-term private debt flows (private guaranteed plus private non-guaranteed)	"
FLOW	Sum of all private flows (FDI+POEQ+PRFL)	"
FLOW1	Sum of POEQ and PRFL	"
Domestic Explanatory Variables		
IGDP	Investment ratio measured in constant US dollars(1)	"
IGDPCU	Investment ratio measured in current US dollars	"
EXGDP	Exports ratio measured in constant US dollars (1)	"
FDGDP	Fiscal deficit in current US dollars	"
TDGDP	Total debt in current US dollars	"
DRES	Total debt, net of international reserves, in current US dollars	"
TDEX	Total debt over exports in current US dollars	in percentage of exports
AVGDPG	GDP rate of growth, 2 years average	geometric average (5)
REXPG	Rate of growth in real exports, 2 years average	geometric average (5)
External Explanatory Variables		
AVMULTI	Aggregate net lending from multilateral sources	in percent of GDP
AVCOINT	Average cost of interest (2)	in percent of total debt
DBRADY	Dummy variable for countries that have completed a Brady operation (3)	
TOT	Percentage change in terms of trade with respect to the base period (4)	change computed over a two year period

Notes: (1) All constant dollar figures are computed in 1987 US dollars; (2) The average cost of interest is computed by dividing all non-service income (debit) as registered in the current account in year t—IFS, line 77akd—by the total stock of debt at the end of period t-1; (3) DBRADY takes value 1 for all the years since a Brady operation began and zero otherwise; (4) Computed as the percentage change in export prices minus the percentage change in import prices—with both changes computed over a two year period—keeping the basket of exports and imports constant. (5) All 2 year averages are computed as simple arithmetic means except growth rates.

In the model IGDP and IGDPCU are alternative definitions of the investment rate, and because of the positive effect of investment on future economic growth, they should enter the model with a positive coefficient. Similarly, a country with a higher EXGDP (AVGDPG, and REXPG) should attract a higher level of capital inflow and therefore should enter equation (1) with a positive sign. By contrast, the three alternative measures of indebtedness--

TDGDP, DRES, and TDEX--are expected to enter equation (1) with a negative sign, because an increase in any of them should be associated with a deterioration of creditworthiness. A higher FDGDP is a sign of weakness in macroeconomic fundamentals and therefore is also expected to have a negative sign. AVMULTI and DBRADY are introduced as proxies for the country's commitment to implement economic reforms, and should enter equation (1) with a positive coefficient for the signaling effect as well as its expected effect on economic growth. Nevertheless, they are not substitutes because DBRADY also has a direct impact in creditworthiness through a (once and for all) reduction in external debt. Finally, the coefficient of TOT is ambiguous. On the one hand, an improvement in terms of trade makes the recipient country more creditworthy and thus should lead to a larger capital inflow, but on the other an improvement in the terms of trade, specially if it is unexpected, results in a higher saving rate and a lower current account deficit, reducing so the need for external financing.

The sample used comprises 73 developing countries for the period 1985-94. The list of countries is given in appendix 1. As we use two year averages, each country is represented in the sample with a maximum of 5 observations, where the first data point is the average for the years 1985-86, and the last one is the average for the years 1993-94. The first data point for the X variables is the average for the years 1983-84.

We estimated model (1) for the five different dependent variables defined in table 2 above, namely: (a) private long-term debt flows, PRFL; (b) portfolio equity flows, POEQ; (c) foreign direct investment flows, FDI; (d) all private flows, FLOW; and (e) private flows excluding foreign direct investment, FLOW1. For each type of flow we tried three alternative measures of indebtedness: total debt minus reserves over GDP (DRES), total debt over exports (TDEX), and total debt over GDP (TDGDP). The list of independent variables comprised the following: investment ratio (IGDPCU); export ratio (EXGDP); fiscal deficit (FDGDP); new lending by multilateral agencies (AVMULTI); average cost of interest (AVCOINT); average rate of growth of GDP (AVGDPG); Brady dummy (DBRADY); and the percentage change in the terms of trade (TOT).

The measure of interest rate--AVCOINT--is the cost to the recipient country of borrowing abroad, and as such is the sum of the relevant foreign

interest rate—r^*—and a spread corresponding to the country risk premium--δ.[7] This is the correct definition of the cost of borrowing as the use of only the foreign interest rate component leaves out the country risk. The coefficient associated with this variable in equation (1) measures the effect of both the foreign interest rate, the 'pull' factor of Calvo et. all. and Fernández-Arias, and the country risk premium, a 'push' factor.[8]

The equations were estimated using panel data techniques for observations generated by pulling cross-section and time series data for the countries and periods defined above. The results of the estimations appear in Tables 3 through 5. In Table 3 we use all the regressors, while in Table 4 we exclude the export-ratio, a variable that it is never statistically significant (see table 3). In the first, third, and fourth column of table 4, the coefficient of the terms of trade variable is negative and statistically significant, supporting transitory the increase in saving and lower need for financing hypothesis. In table 5, just to see how robust our findings are, we exclude the terms of trade variable.

The following general conclusions arise from interpreting the results of all the regressions:

• Among the three measures of indebtedness, DRES and TDGDP give almost identical results. On the contrary, the debt to export ratio (TDEX) gives poorer results; that is, its coefficient turns out to have the wrong sign and is statistically not significant more often than is the case for DRES or TDGDP.

• All the results remain almost the same when we add as an additional regressor the rate of growth in exports (REXPG), but the coefficient for this variable turns out to be consistently insignificant and with the wrong (negative) sign.

Therefore, in what follows we discuss the results of the regressions using either DRES or TDGDP as measures of indebtedness. We concentrate on the results reported in table 4.

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[7] One limitation of our measure is that it measures the average rather than the marginal cost of foreign borrowing, but data availability does not permit to obtain the correct (marginal) cost variable.

[8] This measure is subject to other imperfections. However, because of data availability limitations, it is the only possible measure to use.

• Portfolio equity flows and foreign direct investment seem to follow a different model than the one presented in (1); that is, the results are poorer in the case of these two types of flow than in the case of private debt (PRFL) or aggregate flows (FLOW or FLOW1).

• In the case of foreign direct investment, most of the coefficients turn out to be either insignificant or with the wrong sign, except the average interest rate, the Brady dummy, and the average GDP growth.

• In the case of portfolio equity flows a similar result occurs, except that the variables with the expected sign and statistically significant are indebtedness, the average rate of growth of GDP (marginally), and the Brady dummy.

• The 'best' results are obtained for the regressions that use as dependent variables long-term debt flows (PRFL) or long-term debt plus portfolio equity flows (FLOW1). In both cases most of the coefficients turn out to have the correct sign and are significant, and the variable associated with terms of trade shocks has a negative and significant coefficient, a result consistent with the lower need of financing hypothesis explained earlier (table 4).

With respect to individual variables and within the context of the 'pull-push' discussion the following conclusions emerge:

(1) The investment ratio, new lending from multilateral sources, and the Brady dummy are all positively associated with the flow of foreign capital to developing countries. This finding shows that variables that belong to the set of country characteristics (or "pull factors") matter, and that net lending from multilateral sources and the completion of Brady operations have both played complementary roles in facilitating private capital flows.

(2) As stressed in the work of Calvo et. al. (1993), the foreign interest rate variable, a "push factor", has a negative effect on the flow of capital to developing countries.

(3) The level of indebtedness, a "pull factor", has a negative and quite significant effect on the amount of private debt flows and private flows net of FDI going to developing countries.

(4) FDI is positively related to the growth prospects in the country and the Brady dummy, while it is negatively related to the interest rate factor.

(5) FDI is positively associated with the degree of indebtedness. This result looks strange at first reading. However, one reason for it could be that for highly indebted countries FDI (and borrowing from multilateral institutions) is (are) practically the only type of flow that they can attract and, therefore, they go out of their way to create an environment more favorable to FDI. An example of this is Cuba, a country that in recent years has established a regime favorable to foreign investment. Alternatively, FDI provides a more secure channel for investors against the risk of expropiation, and this is used more extensively by highly indebted countries. Factors that create an environment more favorable for FDI are not included in our model, and that could affect the estimation presented. In particular, the degree of indebtedness could be negatively correlated with the discrimination against FDI and, therefore positively correlated with FDI.

(6) Our findings suggest the possibility of a substitution effect among the different sources of foreign capital. This is illustrated by the fact that the equation for total private flows (table 4, column 3) has a higher R^2 than those for debt flows and private flows minus FDI (table 4, columns 1 and 4). The exception to this finding is FDI which, as already explained, most likely follows a different model.

4. Conclusions.

To the surprise of many, in the early 1990s, less than a decade after the initiation of the debt crisis, significant flows of private capital surged into many developing countries. Two main explanations have been given for this phenomena in the literature: first, “pull factors”, related to a better economic environment in the recipient countries; and second, “push factors”, related to lower interest rates and a slowdown in economic activity in industrial countries. Our results are consistent with both interpretations, but we found a very strong association between economic fundamentals and the flow of private capital toward developing countries.

The recent experience of Mexico and the short-lived and different contagion effect that the Mexican crisis had among developing countries is supportive of our findings. In particular, the post-Mexico crisis experience showed that only few countries were affected on a more prolonged basis (e.g.,

Argentina), while those that by then appeared as having strong fundamentals saw only a minor and temporary effect in the form of reduced capital inflows and a drop in stock market prices (e.g., Chile, Malaysia, Korea).

Therefore, for countries experiencing an improvement in the overall investment climate arising from the implementation of economic reforms, the capital flows that they can attract could play an important role in financing a higher investment rate when the saving rate is still low. Later on, a fiscal adjustment and the increase in the rate of growth resulting from the economic reforms and the higher rate of investment, should contribute to obtain a higher saving rate, reducing in the process the need for foreign financing.

Similarly, for countries with limited or no access to voluntary lending from international private capital markets, the evidence presented in this paper suggests that they need first to advance in implementing reforms that enhance their economic prospects. These reforms should also encourage capital inflows to finance the higher investment needs emerging from to reforms, as well as a debt reduction by international creditors in the case of highly indebted countries.

However, considering the recent Asian experience one needs to underline that in reaching our conclusions we have not considered two factors that have been central to the explanation of that crisis: the soundness of the financial system, and the quality of the investment (Krugman, 1998). If these two factors are not correlated with the explanatory variables considered in our model, as it is most likely the case, our results will still be valid, but the explanatory power of the model would be strengthened by their inclusion. A separate factor, the quality of corporate governance, has also been identified among the factors responsible for the Asian crisis; however, this factor can not be easily integrated into a linear model of the type used here.

Table 3: Capital Flows to Developing Countries: The Complete model

Dependent variable:	Private debt Flows: PRFL		Portfolio Equity Flows: POEQ		Foreign Direct Investment: FDI		Total Private Flows: FLOW		Tot. Priv. Flows minus FDI: FLOW1	
Independent variable:	Estimated Coefficient	t-statistic (1)	Estimated Coefficient	t-statistic (1)	Estimated Coefficient	t-statistic (1)	Estimated Coefficient	t-statistic (1)	Estimated Coefficient	t-statistic (1)
Investment ratio	0.099	3.070	0.003	0.776	0.019	0.823	0.116	2.928	0.097	2.953
Exports ratio	-0.029	-1.092	0.001	0.484	-0.013	-0.696	-0.042	-1.294	-0.029	-1.074
Indebtedness	-0.015	-2.497	-0.001	-1.597	0.011	2.597	-0.007	-0.886	-0.018	-2.870
Fiscal Deficit	-0.034	-1.208	-0.001	-0.196	0.040	2.011	0.012	0.357	-0.027	-0.967
Multilaterals' new lending	0.263	2.299	-0.014	-1.257	-0.037	-0.460	0.208	1.483	0.246	2.105
Average cost of interest	-0.039	-1.121	0.002	0.715	-0.083	-3.344	-0.124	-2.871	-0.041	-1.133
Average GDP growth	-0.009	-0.266	0.006	1.121	0.033	1.377	0.027	0.648	-0.006	-0.177
Brady dummy	0.005	1.090	0.004	5.206	0.007	2.124	0.016	2.673	0.008	1.742
Terms of trade	-0.040	-2.283	0.000	-0.064	-0.003	-0.280	-0.042	-1.943	-0.039	-2.145
Real exports growth	-0.010	-0.821	-0.001	-0.271	0.001	0.073	-0.010	-0.719	-0.011	-0.917
Method of estimation (2)	Fixed effects		Random effects		Fixed effects		Fixed effects		Fixed effects	
N	273		273		273		273		273	
R squared	0.466		0.249		0.758		0.635		0.473	
Adj R-squared	0.266		0.031		0.667		0.498		0.277	

Notes: (1) The critical values in absolute terms for the t statistic (using a one-tail test) are: 2.32 (1%); 1.96 (2.5%); 1.64 (5%); and 1.28 (10%). (2) The selection between random or fixed effects is made based on the Hausman test (null hypothesis is random effects) using a 5 percent significance level.

Table 4: Capital Flows to Developing Countries: Excluding Export Ratio

Dependent variable:	Private debt Flows: PRFL		Foreign Direct Investment: FDI		Total Private Flows: FLOW		Tot. Priv. Flows minus FDI: FLOW1	
Independent variable:	Estimated Coefficient	t-statistic (1)	Estimated Coefficient	t-statistic (1)	Estimated Coefficient	t-statistic (1)	Estimated Coefficient	t-statistic (1)
Investment ratio	0.100	3.086	0.019	1.111	0.117	2.944	0.098	2.969
Indebtedness	-0.014	-2.316	0.009	3.302	-0.005	-0.622	-0.016	-2.702
Fiscal Deficit	-0.038	-1.363	0.011	0.660	0.006	0.187	-0.031	-1.118
Multilaterals' new lending	0.278	2.443	-0.069	-1.114	0.229	1.643	0.260	2.245
Average cost of interest	-0.023	-0.730	-0.058	-5.016	-0.100	-2.560	-0.024	-0.751
Average GDP growth	-0.010	-0.285	0.047	2.115	0.026	0.625	-0.007	-0.195
Brady dummy	0.004	0.853	0.006	2.048	0.014	2.430	0.007	1.529
Terms of trade	-0.044	-2.541	-0.010	-0.880	-0.047	-2.233	-0.042	-2.398
Real exports growth	-0.013	-1.161	0.004	0.565	-0.016	-1.111	-0.015	-1.256
Method of estimation (2)	Fixed effects		Random effects		Fixed effects		Fixed effects	
N	273		273		273		273	
R squared	0.462		0.668		0.632		0.471	
Adj R-squared	0.265		0.547		0.497		0.277	

Notes: (1) The critical values in absolute terms for the t statistic (using a one-tail test) are: 2.32 (1%); 1.96 (2.5%); 1.64 (5%); and 1.28 (10%). (2) The selection between random or fixed effects is made based on the Hausman test (null hypothesis is random effects) using a 5 percent significance level.

Table 5: Capital Flows to Developing Countries: Excluding the Export Ratio and Terms of Trade.

Dependent variable:	**Private debt Flows: PRFL**		**Foreign Direct Investment: FDI**		**Total Private Flows: FLOW**		**Tot. Priv. Flows minus FDI: FLOW1**	
Independent variable:	Estimated Coefficient	t-statistic (1)	Estimated Coefficient	t-statistic (1)	Estimated Coefficient	t-statistic (1)	Estimated Coefficient	t-statistic (1)
Investment ratio	0.103	3.140	0.019	1.090	0.120	2.999	0.101	3.025
Indebtedness	-0.017	-2.828	0.009	3.223	-0.008	-1.067	-0.019	-3.193
Fiscal Deficit	-0.036	-1.281	0.011	0.649	0.008	0.242	-0.030	-1.045
Multilaterals' new lending	0.285	2.473	-0.066	-1.063	0.237	1.682	0.267	2.278
Average cost of interest	-0.046	-1.490	-0.057	-5.008	-0.125	-3.295	-0.047	-1.473
Average GDP growth	-0.009	-0.259	0.047	2.115	0.027	0.638	-0.006	-0.172
Brady dummy	0.003	0.722	0.006	2.017	0.013	2.302	0.007	1.398
Real exports growth	-0.014	-1.178	0.005	0.599	-0.016	-1.129	-0.015	-1.272
Method of estimation (2)	Fixed effects		Random effects		Fixed effects		Fixed effects	
N	273		273		273		273	
R squared	0.445		0.668		0.623		0.455	
Adj R-squared	0.245		0.548		0.487		0.259	

Notes: (1) The critical values in absolute terms for the t statistic (using a one-tail test) are: 2.32 (1%); 1.96 (2.5%); 1.64 (5%); and 1.28 (10%). (2) The selection between random or fixed effects is made based on the Hausman test (null hypothesis is random effects) using a 5 percent significance level.

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ANNEX 1

The list of countries used in our study and the regional distribution is the following:

East Asia : China, Fiji, Indonesia, South Korea, Malaysia, Papua New Guinea, Philippines, Thailand.

South Asia : India, Pakistan, Sri Lanka.

Latin America: Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Peru, Paraguay, Uruguay, Venezuela.

Europe: Bulgaria, Czech Republic, Greece, Hungary, Poland, Portugal, Romania, Turkey.

Sub-Saharan Africa: Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Congo, Ivory Coast, Gabon, Gambia, Ghana, Kenya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Zaire, Zambia, Zimbabwe.

North Africa : Algeria, Bahrain, Egypt, Jordan, Morocco, Tunisia.

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