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Risk and Capital Flight in Developing Countries

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Abstract

The risks of large capital losses on the domestic assets of developing countries resulting from expropriation, inflation, or devaluations are identified as the major causes of capital flight. The combination of large foreign loans and capital flight from developing countries during the 1970s and early 1980s reflected different perceptions of domestic residents and foreign lenders regarding the risks of holding domestic assets. However, the debt crisis reduced these differences in perceived risks, and resulted in a decline of foreign loans coupled with continuation of capital flight. If sound macroeconomic and structural policies can reduce those risks, they can also stem capital flight.

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Summary

Since the emergence of the debt crisis, capital flight has been an increasing source of concern for policy makers in developing countries because it implies a loss of resources that could have been used to increase domestic investment and to service debt.

In this paper, capital flight is associated with the fraction of the stock of external claims held by a country's residents that does not generate recorded investment income. Two types of risk are identified as the major causes of capital flight: the risk of expropriation of domestic assets and the risk of losses in the real value of domestic assets resulting from inflation or exchange rate devaluations.

Different perceptions by domestic residents and by foreign lenders of the risks involved in holding domestic claims are viewed as explaining the simultaneous occurrence of large inflows of foreign capital and large capital flight from development countries during the 1970s and early 1980s. However, the paper argues that the emergence of the debt crisis reduced these differences in perceived risk and resulted in a decline of foreign capital inflows coupled with a continuation of capital flight.

From the analysis in this paper, it is clear that sound macroeconomic policies complemented with appropriate structural reforms would have to be the key elements in stemming or reversing capital flight since only those policies can decrease the risks associated with holding domestic assets. Once these core policies are in place, other policies such as debt-equity swaps or foreign currency deposits, although insufficient by themselves to solve the problem of capital flight, can potentially contribute to reducing capital flight.

I. Introduction

Private capital flight from developing countries has been a source of concern for policy makers, especially since the emergence of the debt crisis and the associated drastic decline in capital inflows from industrialized countries. Capital flight has been viewed as a constraint on economic growth since it implies a loss of resources that could be used for domestic investment. Moreover, it is often argued that a reversal of these capital outflows could significantly contribute to the solution of the debt crisis, and thereby to renewed access of developing countries to international capital markets. These considerations have led the authorities to consider policies that encourage the repatriation of capital flight or at least to stop such outflows. However, identifying which policies can be most effective in achieving these objectives depends crucially on what factors initiated these capital outflows in the first place.

This paper reviews the factors that have been identified as stimulating capital flight from developing countries. In this analysis, capital flight is associated with the fraction of a country's stock of external claims that does not generate recorded investment income. Such external claims therefore do not generate a stream of income that can be used to service foreign debts or to finance domestic investment. Capital flight is thus distinguished from "normal" outflows of capital that would be undertaken to achieve portfolio diversification, and that would yield a recorded flow of income. The analysis in this paper suggests that increased risks in the domestic economic environment are likely to be key factors generating capital flight. In particular, two types of risks may have been particularly important: (1) default risk associated with the expropriation of domestic assets; and (2) the risk of large losses in the real value of domestic assets as a result of economic policies that result in rapid inflation or large exchange rate depreciations. Indeed, it is argued that the pattern of foreign capital inflows and capital flight from developing countries in the 1970s and 1980s can be associated with changing perceptions on the part of domestic residents and foreign lenders of the risks associated with holding the domestic and external debt of indebted developing countries. While different perceptions in the risk of holding domestic assets can explain the simultaneous occurrence of large inflows of foreign capital and large capital flight from developing countries during the 1970s and early 1980s, the emergence of the debt crisis and the accompanying policy responses reduced such differences and resulted in a decline of foreign capital inflows coupled with a continuation of capital flight.

The rest of this paper is organized as follows: Section II provides estimates of capital flight for a group of developing countries with recent debt-servicing problems. Section III discusses the determinants of capital flight and examines measures of the risk of default associated with holding domestic financial instruments. Section IV considers alternative policies for reducing capital flight, and Section V summarizes the main conclusions.

II. The Estimation of Capital Flight

Previous empirical studies have employed a broad range of definitions of capital flight. Some authors 1/ have adopted a "narrow" approach that identifies capital flight with short-term speculative capital outflows. Others 2/ have adopted a "broad" definition which identified capital flight with total private capital outflows. An alternative approach based on a "derived measure" identifies capital flight with the fraction of a country's stock of external claims that does not yield recorded investment income. 3/ This latter definition implies that a capital outflow should be considered as capital flight only if it limits the resources available for either servicing the country's external debt or the financing of development programs. Numerous studies have compared and critically evaluated these alternative measures, 4/ and there is no general agreement on the relative superiority of each measurement. 5/ This paper uses the "derived" measure to provide update estimates of capital flight in developing countries that have faced debt-servicing problems, since it provide the most direct estimate of the economy's loss of resources that could potentially be used for domestic investment.

Empirical estimates suggest that during the period 1977-88 the stock of flight capital increased for a group of developing countries that had faced debt-servicing problems (see the Appendix). 6/ 7/ The aggregate stock

1/ See Cuddington (1986).

2/ See for example, World Bank (1985), Morgan Guaranty Trust Company (1986), and Duwendag (1987).

3/ See Dooley (1986).

4/ See, for example Deppler and Williamson (1987), Gordon and Levine (1989), Cumby and Levich (1987), and Gajdeczka (1990).

5/ Perhaps the most severe criticism to all the proposed measurements is contained in Gordon and Levine (1989). They argue that severe statistical problems prevent the proposed measurements from adequately capturing the scale of capital flight.

6/ The methodology used to compute the estimates of capital flight involves computing the stock of external claims that would generate the income recorded in the balance of payments statistics and subtracting this stock from an estimate of total external claims (see Dooley (1986)). Total external claims are estimated by adding the cumulative capital outflows, or increases in gross claims, as estimated from balance of payments data (which consists of the cumulative outflows of capital recorded in the balance of payments plus the cumulated stock of errors and omissions) to an estimate of the unrecorded component of external claims. This last estimate is generated by subtracting the stock of external debt implied by the flows reported in the balance of payments from the stock of external debt reported by the World Bank.

7/ The countries included in this group are: Argentina, Bolivia, Chile, Colombia, Ecuador, Gabon, Jamaica, Mexico, Nigeria, Peru, Philippines, Venezuela, and Yugoslavia.

of capital flight for this group of countries, which amounted to \$47 billion at the end of 1978 increased continuously during the period and reached \$184 billion at the end of 1988 (Table 1).

Although the stock of capital flight showed a sustained increase over the period, the rate of change of capital flight did not follow a stable pattern. As will be further discussed in the next sections, expansionary fiscal and monetary policies coupled with an increasing overvaluation of the exchange rate resulted in high rates of increase in the stock of capital flight during the period 1978-83. ^{1/} The adoption of stabilization programs in some of these countries reduced somewhat the rate of increase of capital flight during the period 1984-86. In particular, comprehensive adjustment programs were undertaken in some Latin American countries in 1985 and 1986. These programs which included strong contractions of the fiscal deficits and major devaluations of the exchange rate resulted in a sharp decline in the rate of growth of capital flight, which reached only 3 percent during 1986. However, many of these programs were abandoned in 1987; fiscal deficits expanded once more and inflation accelerated. As a result, the rate of growth of capital flight increased once more reaching 18 percent during 1987. As some major countries initiated new adjustment programs, the rate of growth of capital flight decelerated in 1988.

It has been argued that given the large magnitudes of capital flight, repatriation of those capital outflows, or at least of the investment income that they generate, could significantly contribute to the solution of the external debt problems that these countries face. A better understanding of the importance of capital flight relative to the countries' external financial position can be gained by analyzing the ratios of capital flight to total external debt and total external claims (Table 1).

During the period 1978-82, the ratio of capital flight to total external debt declined from 42 percent in 1978 to 38 percent in 1982 as the large inflows of foreign capital to this group of developing countries more than offset the increase in capital flight. This trend reversed during the period 1983-88 as the ratio of capital flight to total external debt increased from 43 percent in 1983 to 51 percent in 1988. This increase was the result of both a continuous increase in the stock of capital flight and a reduction in the amount of new private foreign lending available to developing countries.

The ratio of the stock of capital flight to total external claims, increased from 66 percent in 1978 to 70 percent in 1982 consistent with the acceleration of capital flight during this period. With the exception of some temporary declines in 1985 and 1986, when comprehensive adjustment

^{1/} In fact, for this group of countries, the rate of increase in the stock of capital flight reached 24 percent in 1983.

Table 1. Capital Flight in Ratio to Total External Debt and
Total External Claims 1/ for a Group of Highly
Indebted Developing Countries 2/

(In billions of U.S. dollars)

	Capital Flight 1/	Ratio of Capital Flight to Total External Debt	Ratio of Capital Flight to Total External Claims
1978	47.30	0.42	0.66
1979	64.14	0.45	0.70
1980	75.41	0.42	0.63
1981	85.16	0.38	0.63
1982	99.95	0.38	0.70
1983	123.77	0.43	0.75
1984	136.43	0.45	0.75
1985	147.54	0.47	0.74
1986	152.67	0.47	0.73
1987	180.62	0.52	0.77
1988	184.01	0.51	0.77

Sources: World Bank, World Debt Tables (various issues); IMF, Balance of Payments Yearbook (various issues); and Fund staff estimates.

1/ The stock of external claims is defined as the net stock of recorded claims on nonresidents other than direct investment plus the net stock on unrecorded claims of residents.

2/ The countries included in this group are: Argentina, Bolivia, Chile, Colombia, Ecuador, Gabon, Jamaica, Mexico, Nigeria, Peru, Philippines, Venezuela, and Yugoslavia.

programs were successful in reducing the rate of expansion of capital flight, the ratio of capital flight to total external claims continued to increase during the period 1983-88, reaching 77 percent in 1988.

Despite the size of these estimates of the private holdings of external assets, it has been argued that this capital flight will have an highly adverse effect on an economy only if it generates a substantial transfer of real resources. 1/ For example, it has been suggested that in periods when capital flight was offset by an inflow of foreign loans, the proceeds from exports and other external inflows were still used to finance imports and, therefore, the impact of capital flight on growth was not necessarily severe. However, when access to external credit became limited, in the period after the emergence of the debt crisis in 1982, greater capital flight had to be "financed" either through a reduction in the country's stock of international reserves or an increase in net exports, which could reduce the resources available to sustain economic growth. Available data provides some support for this hypothesis. During the period 1979-82, for example, there was a large inflow of foreign private capital to the indebted developing countries, and their total external debt rose at a faster rate than the estimated stock of flight capital (Table 2). As a result, the aggregate for this group of countries showed a negative resource balance implying that at least some of the external inflows were used to finance imports. 2/ This picture changed drastically after 1982; although the total external debt of these countries continued to increase, primarily because of inflows of official funds, capital flight resulted in net transfers of resources in most of the countries. This implies that the continuation of capital flight after 1982 coupled with the deceleration of external loans resulted in a net decline in imports which imposed an important constraint on growth. 3/

III. Risk and Capital Flight

The recent literature explaining the causes of capital flight can, in general, be divided into two groups. The first group (see, for example, Cuddington (1987), Dornbusch (1985), and Duwendag (1985)) has typically based its analysis on standard portfolio models where agents are assumed to allocate their wealth so as to maximize the overall risk-adjusted return on their portfolios. In this context, capital flight has been explained in terms of the effects of domestic macroeconomic variables on the relative returns between domestic and foreign assets. Since domestic interest rates

1/ See, for example, Deppler and Williamson (1987).

2/ Important exceptions are Argentina and Venezuela. Rodriguez (1987) argued that in Venezuela the increase in external debt nearly matched the increase in the stock of flight capital.

3/ Although the resource balance for most of these countries became positive after 1982, they experienced current account deficits in part because of interest payments on their external debt.

Table 2. External Debt and Resource Transfer as Financing
Components of Capital Flights for a Group of Highly
Indebted Developing Countries, 1979-82/1986-88 1/

(In billions of U.S. dollars--annual averages)

	Change in the Stock of Capital Flight	Change in Total External Debt	Resource Balance <u>2/</u>
1979-82	13.16	36.90	-4.50
1983-85	15.86	16.77	25.50
1986-88	12.16	16.28	11.90

Sources: Appendix I, World Bank, World Debt Tables (various issues); IMF, Balance of Payments Yearbook (various issues); and Fund staff estimates.

1/ The countries included in this group are: Argentina, Bolivia, Chile, Colombia, Ecuador, Gabon, Jamaica, Mexico, Nigeria, Peru, Philippines, Venezuela, and Yugoslavia.

2/ Defined as net exports of goods and nonfactor services.

in a number of the indebted developing countries that experienced capital flight were subject to controls, 1/ an overvaluation of the exchange rate, rapid inflation, and inconsistent and unsustainable fiscal and monetary policies have been identified as the major causes of capital flight. For example, if expansionary monetary and fiscal policies created an overvalued exchange rate, domestic agents would expect that a devaluation of the exchange rate would eventually occur, which would lead them to shift out of domestic assets into foreign assets. Moreover, a large fiscal deficit financed by monetary creation would create inflation and create incentives for capital flight as agents attempt to prevent losses in the real value of their domestic asset holdings.

Econometric studies relating capital flight to the macroeconomic variables, which have been suggested by the first group as being responsible for capital flight, have yielded divergent results. 2/ For instance, Cuddington (1986) found that currency overvaluation (measured as the deviation of the actual real exchange rate from its equilibrium level) was a significant variable explaining capital flight in Argentina, Mexico, Uruguay, and Venezuela during the period 1974-84, while Meyer and Bastos-Márquez (1989) concluded that the inflation rate and the real return on domestic assets were the major determinants of capital flight in Brazil during the period 1971-88. However, one "identification" problem in these studies is that macroeconomic policies are likely to influence both "normal" capital outflows and capital flight. In addition, while this approach can basically explain the outflows of capital from developing countries, it cannot explain the simultaneous occurrence of capital flight and the increased inflow of foreign loans during the 1970s and early 1980s.

A second approach has taken the view that the residents and nonresidents of indebted developing countries have at times had differing views regarding the perceived risks of holding the domestic and external financial instruments of the indebted developing countries. In particular, such differences in perceived risks have been regarded as providing an explanation for the simultaneous decision of domestic agents to finance investment with foreign borrowing and to hold their wealth in the form of foreign assets. As pointed out by Lessard and Williamson (1987), while the portfolio-based approach concentrates on risk and return differences between domestic and foreign assets that can be held by domestic residents, the "risk differentials" approach emphasizes the differences in the perceived risks to residents and nonresidents of holding capital in a developing country. While both approaches emphasize domestic policies as a major factor influencing capital flight, the risk differential approach also

1/ In recent years, several countries, including Mexico and Bolivia, have undertaken financial liberalization.

2/ Table 3 summarizes the behavior of some of these variables during the period 1978-88.

Table 3. Capital-Importing Developing Countries
with Recent Debt-Servicing Problems: Macroeconomic
Variables Affecting Capital Flight as
Suggested in the Literature, 1978-88

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Inflation rate <u>1/</u>	28.26	31.54	35.94	41.80	46.51	64.93	80.35	83.16	61.05	85.66	163.91
Real GDP growth <u>1/</u>	3.85	5.31	3.80	-0.98	0.14	-1.79	2.59	3.32	3.48	2.39	1.71
Central government fiscal deficits <u>2/</u> (in percent of GDP)	2.03	1.14	2.25	4.94	4.43	3.90	3.06	2.50	3.86	4.50	3.89
Real effective exchange rate <u>2/</u> (1980=100)	81.80	89.25	100.00	107.87	94.20	86.78	93.66	90.76	67.48	55.26	56.14
Total of current account <u>1/</u> balances (in billions of U.S. dollars)	-29.62	-23.38	-27.93	-82.26	-83.28	-31.76	-15.50	-10.96	-33.38	-15.99	-18.28
Disbursements of foreign loans as ratio to foreign debt <u>2/</u>	26.48	28.40	21.93	23.49	17.45	11.93	8.06	7.24	7.68	6.80	6.63
Domestic real interest rate <u>2/</u>	-4.57	-7.32	-15.52	-22.97	-24.08	-15.47	21.17	26.24	-27.96	-16.00	26.53
Interest rate differential in favor of foreign assets <u>2/ 3/</u>	-3.09	0.23	13.53	32.93	27.99	12.37	8.48	2.31	20.61	5.26	8.41

Sources: International Financial Statistics, and World Economic Outlook.

1/ Countries included are those classified, for WEO purposes, as capital-importing developing countries with recent debt-servicing problems.

2/ Countries included are the same used to construct Tables 1 and 2.

3/ Defined as the six-month U.S. T-bill rate adjusted for the observed exchange rate change minus the domestic deposit rate.

emphasizes the role of rigidities in the legal and institutional framework of developing countries as a channel through which adverse shocks to the economy will result in capital flight.

Several empirical studies have found considerable support for this risk differential hypothesis. For example, Khan and Haque (1985) argued that the perceived risks associated with investments in developing countries were larger than those associated with investment in industrial countries because of the "expropriation" risk. This expropriation risk reflected institutional and legal arrangements for protecting private property that were weaker in developing countries than those in the industrial countries. Facing this expropriation risk, domestic residents find it optimal to hold their assets abroad (where they earn a more secure rate of return) and borrow external funds to finance domestic investment. With this strategy, domestic agents make their portfolios less accessible to taxation or expropriation. Eaton (1987) extended the Khan-Haque hypothesis of capital flight by linking the risk of expropriation (which in his model is identified with high taxation) of domestically-owned assets to the existence of public and publicly-guaranteed private foreign debt. As the stock of publicly-guaranteed private foreign debt increases, Eaton argued that the emergence of any factors that increases the probability that a private borrower will default would also lead other residents to expect higher future taxes as the government assumed the obligations of the insolvent borrower. Domestic residents would therefore have an incentive to place their funds abroad.

The role of fiscal rigidities in creating risks was emphasized by Ize and Ortiz (1987) who examined capital flight using a fiscal framework where domestic government debt was perceived as "junior" relative to the external debt of the government. They argued that fiscal rigidities prevent governments in developing countries from adjusting quickly to shocks that reduce their debt-servicing capacity. As a result, it was suggested that a major economic shock can increase the perceived risk that the government will not be able to fully service its obligations. Moreover, in this situation, it was argued that the risk that the authorities would not fully service their domestic debt would generally be perceived to be higher than the corresponding risk associated with the servicing of foreign obligations because the cost of a default on foreign-obligations (which could lead to a reduction in trade credits) would be higher. These differences in perceived risks stimulate capital flight by reducing the risk-adjusted return on

domestic debt, 1/ and can explain the joint occurrence of increasing external debt and capital flight in developing countries during the late 1970s and early 1980s.

As the previous section has shown, capital flight has continued to be a feature of developing countries during the rest of the 1980s, but since 1982 it has been accompanied by a drastic reduction in the inflow of new private external credit available to these countries. In what follows, this paper advances an hypothesis aiming to explain the recent joint behavior of capital flight and foreign lending.

It has been argued that the difficulties in dealing with structural fiscal deficits and rising inflation, as well as the limited access of many indebted developing countries to international capital markets, have reduced the costs associated with not fully servicing foreign obligations relative to the corresponding costs of not servicing domestic obligations. 2/ The increase in the perceived probability of default on foreign debt has been viewed as being reflected in the decline of the secondary market price for external bank debt issued by many heavily indebted developing countries. As the perceived difference of default risk as between domestic and external debt has declined, domestic debt would no longer be considered as "junior" relative to external debt. 3/ 4/

Although differences in perceived risk as between domestic and external debt declined after 1982, the total default risk associated with holding debt (either domestic or external) issued by these countries has increased as a result of the adverse developments and policies affecting the capacity of these countries to service their debt. Therefore, the continuation of

1/ In contrast, Diwan (1989) argued that there are circumstances when domestic borrowers would prefer to default on foreign debt. For example, it was argued that a sharp decline in the price of exports would reduce the cost of defaulting on foreign debt because the penalty associated with such a default (exclusion from foreign trade) would fall as export prices declined. As a result, domestic residents would prefer to finance domestic investment in the export goods sector with foreign (as opposed to domestic) loans. Moreover, given the total volume of savings, the availability of additional foreign resources would just crowd-out the domestic component of total savings, leading to capital flight.

2/ For example, see Diwan (1989).

3/ Some have even argued that domestic debt should now be considered as "senior" relatively to external debt. This argument is intended to rationalize the simultaneous decline in private external lending and the continuous increase in domestic debt.

4/ Although the differences in the perceived default risks associated with domestic and external debt have been reduced, the risks associated with a loss in the real value of domestic assets associated as a result of a discrete devaluation or an increase in the inflation would still remain a concern for holders of domestic debt.

capital flight coupled with the decline in foreign lending after 1982 can be explained by a "generalized" perception of an increase in the default risk associated with holding debt issued by these countries. To the degree that this increase in risk perception has occurred, then the lack of external creditworthiness (that prevent countries from borrowing in the international capital markets) and the continuation of capital flight are both reflections of the same fundamental phenomena. ^{1/} As a result, policies oriented to improving the attractiveness of holding domestic financial instruments of indebted developing countries would also help restore creditworthiness.

If the perceived differences in the default risk associated with holding domestic and external debt have been practically eliminated, then the default risk associated with holding external debt would be a good proxy for the corresponding risk on domestic debt. Therefore, this hypothesis suggests that the level of capital flight in the period since the emergence of the debt crisis should be positively related to increases in the probability of default on external debt. If heavily indebted developing countries still had normal access to international capital markets, the spread between their borrowing costs and the London Interbank Offered Rate (LIBOR) could potentially provide a measure of default risk. However, since the emergence of the debt crisis there has been little or no spontaneous lending to these countries and therefore no representative interest rates exist. An alternative measure of the default risk can nonetheless be

^{1/} Gajdecska and Oks (1989) attributes capital flight after 1986 to the loss of creditworthiness of these countries.

obtained from the secondary market price of external debt by subtracting the LIBOR rate from the implicit yield evident in the international secondary market price for external debt. 1/ 2/

Due to the lack of sufficient data, it is not possible to use regression analysis in order to directly test the hypothesis that capital flight has responded positively to increases in the default risk on external obligations since the emergence of the debt crisis. However, for those countries for which there was sufficient data to estimate default risk, the correlation between capital flight and default risk on external debt is positive and very high (Table 4). 3/

1/ The implicit yield to maturity for external debt (i^S) was obtained from the observed secondary market price on the country's external debt (P) and the application of the following present value formula:

$$P = \sum_{k=1}^n \frac{C}{(1+i^S)^k} + \frac{FV}{(1+i^S)^n}$$

where the Face value (FV) is set as 100 since the discounts quoted in the secondary markets applies to US\$100 worth of contractual debt; the contractual coupon payment (C) is the interest rate on six month U.S. treasury bills (as a measure of the risk free interest rate) plus the average interest rate spread agreed to by the country at the signature of the contract; and n is the average maturity of the contract.

The risk of default on external obligations during the period 1985-88 was estimated by subtracting the six-month LIBOR rate from the calculated implicit yield on external debt.

The risk of default on external obligations during the period 1982-84 was approximated by using data on spreads between the loan rates charged indebted developing countries on external bank loans and LIBOR provided by the Deutsche Bundesbank (spreads between public sector deutsche mark bonds issued by nonresidents and LIBOR) and the Bank of England.

2/ Notice, however, that the implicit yield evident in the international secondary market price for external debt cannot fully represent the cost of borrowing since it is derived under conditions of credit rationing.

3/ Notice, however, that as mentioned before, the lack of international creditworthiness and the continuation of capital flight appear to be two aspects of the same problem. Therefore, the risk of default on external debt is also an endogenous variable which should be simultaneously explained with the behavior of capital flight.

Table 4. Selected Highly Indebted Developing Countries
Facing Debt-Service Problems:
Correlation Between Capital Flight
and Default Risk ^{1/}

Country	Correlation
Argentina	0.640
Brazil ^{2/}	0.826
Chile	0.044
Colombia	0.892
Ecuador	0.718
Jamaica	0.824
Mexico	0.821
Nigeria	0.992
Peru	0.954
Philippines	0.604
Venezuela	0.067
Yugoslavia	0.960

Sources: Salomon Brothers, New York; Data Resources, Inc.; and Deutsche Bundesbank.

^{1/} Countries shown are the ones for which the default risk could be calculated during the period 1982-88.

^{2/} Data corresponds to the period 1982-87.

IV. Policies to Prevent or Reverse Capital Flight

1. Macroeconomic and structural policies

As already noted, many analyses of capital flight have emphasized the role of expansionary monetary and fiscal policies and institutional and legal key factors increasing the risks associated with holding domestic assets. Sound macroeconomic policies and appropriate structural reforms are thus likely to be important elements in the solution of the problem of capital flight. In many countries, a sustained reduction of the fiscal deficit is typically an important first step in reducing the perceived risks associated with holding domestic debt. Large fiscal deficits financed with non-indexed domestic debt are likely to generate the expectation that the government will eventually use the inflation tax and/or a devaluation of the currency to reduce the outstanding real value of the debt. ^{1/}

The consistency of exchange rate, monetary, and fiscal policies is another crucial element in stemming capital flight. While many countries have used a fixed exchange rate to provide an anchor for the domestic price level, problems have at times arisen when adverse shocks suddenly lead to a sharp fall in the stock of international reserves and thereby create the expectation of a devaluation and of possible abandonment of the adjustment program. Such expectations, which can lead to increasing capital flight and additional losses of reserves, arise because of the existence of rigidities that inhibit the government's ability to adjust quickly to adverse shocks. In particular, rigidities induced by wage indexation schemes, minimum wages, laws preventing lay-offs, controls over the prices of public goods, and inefficient tax systems often prevent a government from adjusting its fiscal deficit quickly to offset the impact of an adverse shock. This provides one reason why structural reforms, as well as sound macroeconomic policies, are needed to stem capital flight.

The role of appropriate structural and macroeconomic policies in reducing (and reversing) capital flight has been evident in the recent experience of several Latin American countries. It has been argued that the stock of flight capital in Argentina declined in 1986 (implying repatriation) following the adoption in June 1985 of a comprehensive adjustment program which was initially successful in bringing down inflation and in fostering an economic recovery. However, sustained fiscal deficits led to renewed inflation and capital flight apparently accelerated again. In Brazil, the introduction of the Cruzado plan in early 1986 was also followed by a decline in the net outflow of capital. However, inflation accelerated in 1987 and estimated capital flight increased sharply during that year. In December 1987, the Mexican authorities introduced a comprehensive economic program based on a social pact with labor and business which encompassed front-loaded fiscal and monetary corrections as well as a strong devaluation of the Mexican peso. As a result of the

^{1/} For further discussion of these issues see Calvo (1988).

successful implementation of this program, empirical estimates suggest that Mexico experienced a net repatriation of capital flight in 1988, the first in the 1980s.

In addition to sound macroeconomic policies and structural reforms, many countries have used a variety of other policies to stem or reverse capital flight. In the rest of this section, the effectiveness of these policies is examined in terms of recent country experiences with implementing these policies. 1/

2. Capital controls

It has often been argued that externalities and policy distortions imply that the social rate of return on domestic investment in developing countries is higher than the private rate of return. As a result, capital controls have been viewed as a means of insuring that domestic saving are invested domestically. As noted in Gordon and Levine (1989), however, a fundamental problem with this argument is that it assumes that capital not invested abroad would be invested domestically; it, therefore, ignores the possible substitution between savings and consumption. In particular, the announcement of capital controls might bring expectations of further government intervention which would discourage domestic investment in favor of increased consumption. In addition, savings may be held in various inflation "hedges" (such as real estate or inventories) that have little impact on productive capacity.

Although capital controls are ineffective in promoting domestic investment, the experiences of some countries suggest that such controls have had a short-run effect on capital flight. For example, it has been argued that Brazil experienced a much lower ratio of capital flight to total external debt than Mexico in spite of the fact that Brazil's average inflation rate during the late 1970s and early 1980s was higher than in Mexico. This could potentially reflect the more restrictive capital controls in Brazil. However, when capital controls are effective in stemming capital flight in the short-run, then the removal of such controls can be accompanied by large scale capital flight, especially when expansionary macroeconomic policies leads to rising inflation and exchange rate expectations of devaluation. As documented by Cuddington (1986), the Argentine case stands as a good example of sharp increases in capital flight following the removal of capital controls, which in turn increased the government's incentives to reimpose them.

On an overall basis, the experience suggests that although capital controls have, in some cases, helped in the short-run to stem capital flight, the problems associated with them might be larger than the benefits. As capital controls by themselves constitute a distortion, they may have

1/ The countries' experiences reported here are largely based on previous studies undertaken by the staff of the International Monetary Fund.

lowered domestic savings since domestic residents have been constrained to hold less diversified portfolios. Moreover, when capital controls are perceived as a policy instrument used on a discretionary basis, expectations of imposition of such controls encourage capital flight. Therefore, in the long-run, capital controls may decrease the real resources available for investment.

3. Debt-equity swaps

Debt-equity swaps can be attractive to investors because purchases of assets in the debtor countries can be made with external claims on those countries purchased at a discount in the secondary market. While this mechanism has been effective in some cases in reversing capital flight, its ability to increase net capital inflows may be limited for two reasons. First, the profitability of debt-equity swaps depends on the discount in the secondary market; and, if this market is very thin, increases in the demand for claims on debtor countries would raise the prices of those claims and reduce the profitability of debt-equity swaps. In this situation, only a limited amount of swaps could be undertaken. Moreover, even if commercial banks were willing to sell additional claims on debtor countries at a discount, the net inflow of funds to the countries would not necessarily increase significantly since foreign commercial banks would still have no incentives to engage in additional voluntary loans. Second, since some debt-equity swap schemes have involved the reselling of discounted paper for domestic currency at preannounced exchange rates, the money supply can increase as the swap occurs, thereby generating inflationary pressures. If more rapid inflation occurred, this would increase the risks associated with holding domestic assets and encourage additional capital flight which might offset the initial inflow originated by the debt-equity swap. The Mexican debt-equity swap program initiated in May 1986 was suspended in late 1987 in part because the authorities wanted to limit the monetary expansion produced by these operations. In contrast, the Chilean program, introduced in 1985, allowed domestic residents to convert external claims on Chile into tradable domestic bonds, and this effectively sterilized the monetary impact of these operations. ^{1/} These experiences suggest one of the key factors determining whether debt-equity swaps can be successful in repatriating capital flight is whether they are conducted in the context of an appropriate monetary policy.

^{1/} Even if those operations can be made noninflationary, subsidized swap arrangements, such as those in Chile in 1983-84, can generate large operating deficits in the Central Bank.

4. Foreign currency deposits

Local deposits denominated in foreign currencies have been used as a mechanism to prevent capital flight in several countries (e.g., India, Mexico, Uruguay, and Turkey). 1/ While offering depositors some potential protection from exchange risk, they will not be viewed as carrying much lower risk than other domestic deposits if the authorities have at times acted to freeze or limit withdrawals or returns on these deposits in the past. The freezing of the U.S. dollar denominated accounts in Mexico in 1982 provides an example of such risk. 2/ However, these accounts, as well as some other financial instruments indexed to the foreign exchange, may usefully contribute to stemming capital flight when the government is pursuing appropriate macroeconomic and structural policies but faces a credibility problem. 3/ If successful in eliminating exchange rate risk, indexed assets may stimulate domestic saving and contribute to lower domestic real interest rates and, thereby, lower the government's costs of financing its domestic debt. However, while foreign currency denominated deposits can potentially help stem capital flight with good policies, they can create additional difficulties when there are inadequate policies. Rising inflation can lead to a rapid shift from deposits denominated in the domestic currency to those denominated in foreign currencies thereby destabilizing domestic monetary relationships.

In Peru, for example, accelerating inflation and balance of payments deficits during the early 1980s led domestic residents to increase their holdings of bank deposits denominated in U.S. dollars, and by the end of 1984 these deposits, which amounted to US\$1.7 billion, were equivalent to more than 50 percent of broad money. Convertibility of these deposits into foreign currency was suspended in 1985.

5. Other policies

Several other policies have been suggested as means of encouraging the repatriation of flight capital. For example, tax treaties that would allow countries to tax assets held abroad by domestic residents have been viewed as one alternative. 4/ However, as noted by Gordon and Levine (1989), it

1/ As reported in previous studies undertaken by the staff of the International Monetary Fund, in Turkey the Dresden Bank collected deposits from Turkish workers in Germany and transferred these deposits to the Central Bank of Turkey where they are kept as foreign currency deposits. As a result, workers remittances rose sharply and the stock of these foreign currency deposits reached US\$5.9 billion by the end of 1988.

2/ During this freezing, withdrawals from U.S. dollar denominated accounts were paid in Mexican pesos using the controlled exchange rate.

3/ For a further elaboration on these issues, see Calvo and Guidotti (1989).

4/ For a long period of time (1967-81), Brazil undertook negotiations for a treaty with the United States. No final agreement took place, however.

may be difficult to enforce such treaties unless they are implemented on a global basis. 1/ Tax amnesty programs have also been used as another instrument, 2/ but expectations of future tax amnesties may reduce the normal collection of taxes and might, paradoxically, motivate increases in capital flight at times when amnesties are not in place.

Another policy has been to tighten domestic credit in order to generate liquidity shortages sufficient to induce some liquidation of foreign asset holdings in order to finance domestic investments or firms working capital needs. However, repeated liquidity shortages might decrease the expected returns from domestic investments and might instead induce greater capital flight.

V. Conclusions

Since the emergence of the debt crisis, capital flight has been a source of concern for policy makers. Capital flight implies a loss of resources which could have been used to increase domestic investment and which could in turn have significantly increased countries' debt servicing capacity.

This paper has argued that two forms of risk have been major causes of capital flight; the risk of direct default or repudiation associated with the fear of expropriation of domestic assets and the risk of large losses in the real value of domestic assets arising from inflation or large exchange rate devaluations. Moreover, the simultaneous occurrence of large inflows of foreign capital and large capital flight from developing countries during the 1970s and early 1980s reflected different perceptions of foreign lenders and the domestic residents of developing countries regarding the risks associated with holding the domestic claims. In particular, for a variety of institutional reasons, foreign lenders perceived a lower default risk than did domestic residents. However, since the emergence of the debt crisis in 1982 the differences in perceived risks have been reduced and have resulted in a decline of foreign capital inflows coupled with continuation of capital flight.

Indeed, the adverse developments that accompanied the emergence of the debt crisis may have increased the perceived default risk associated with holding either the domestic or external debt of highly indebted developing countries. To the extent that this is true, the continuation of capital flight in the mid and late 1980s coupled with the decline in private foreign

1/ Moreover, if those treaties involved a symmetric treatment of taxes between countries, the total tax base of the domestic country may be reduced if holdings of domestic assets by foreigners are excluded from the tax base.

2/ As an example, in 1986 Colombia introduced a tax amnesty on previously undeclared income and wealth.

lending can be explained by a "generalized" perception of an increase in the default risk associated with holding debt issued by highly indebted developing countries.

If concerns about default risks have played a major role in the portfolio decisions of the domestic residents of heavily indebted developing countries, then the policies that stand the largest chance of stemming capital flight are those that decrease the risks associated with holding domestic assets. In this situation, sound macroeconomic policies complemented with appropriate structural reforms would have to be key elements in stemming or reversing capital flight.

Once these core macroeconomic and structural policies are in place, other policies such as debt-equity swaps or foreign currency deposits, although insufficient by themselves to solve the problem of capital flight, can potentially contribute to reducing capital flight. Capital controls are likely to be at best a short-run deterrent to capital flight and, by introducing additional distortions, could even accentuate the problem in the long run.

Table 5. Estimated Capital Flight, 1/ Stock of External Debt, and External Claims for a Group of Highly-Indebted Developing Countries, 1978-88 2/

(In billions of U.S. dollars)

	Capital Flight	External Debt	External Claims
1978	47.30	113.70	71.62
1979	64.14	141.76	92.17
1980	75.41	179.06	119.41
1981	85.16	224.26	134.16
1982	99.95	261.30	142.57
1983	123.77	285.70	164.13
1984	136.43	301.05	182.52
1985	147.54	311.60	199.70
1986	152.67	326.39	210.30
1987	180.62	349.75	233.73
1988	184.01	360.43	239.14

Sources: World Bank, World Debt Tables (various issues); IMF, Balance of Payments Yearbook (various issues); and Fund staff estimates.

1/ Data refer to net capital flight; that is the unrecorded stock of capital outflows less of the unrecorded stock of capital inflows. A negative number implies that the latter is greater than the former. The methodology used to compute these estimates of capital flight involves computing the stock of external claims that would generate the income recorded in the balance of payments statistics and subtracting this stock from an estimate of total external claims (see Dooley (1986)). Total external claims are estimated by adding the cumulative capital outflows, or increases in gross claims, as estimated from balance of payments data (which consists of the cumulative outflows of capital recorded in the balance of payments plus the cumulated stock of errors and omissions) to an estimate of the unrecorded component of external claims. This last estimate is generated by subtracting the stock of external debt implied by the flows reported in the balance of payments from the stock of external debt reported by the World Bank.

2/ The countries included in this group are: Argentina, Bolivia, Chile, Colombia, Ecuador, Gabon, Jamaica, Mexico, Nigeria, Peru, Philippines, Venezuela, and Yugoslavia.

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