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Liberalization of the Capital Account: Experiences and Issues

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Abstract

This paper reviews the experience with capital controls in industrial and developing countries, considers the policy issues raised when the effectiveness of capital controls diminishes, examines the medium-term benefits and costs of an open capital account, and analyzes the policy measures that could help sustain capital account convertibility. As the effectiveness of capital controls eroded more rapidly in the 1980s than in earlier periods, new constraints were placed on the formulation of stabilization and structural reform programs. However, experience suggests that certain macroeconomic, financial, and risk management policies would allow countries to attain the benefits of capital account convertibility and reduce the financial risks created by an open capital account.

JEL Classification Numbers:
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Summary

This paper reviews the experience with capital controls in industrial and developing countries, considers the policy issues raised when the effectiveness of capital controls diminishes, examines the medium-term benefits and costs of an open capital account, and analyzes the policy measures that could help sustain capital account convertibility. Since World War II, many countries have maintained restrictions on capital account transactions in an attempt to limit capital flows that could lead to sharp changes in foreign exchange reserves; to ensure that domestic savings are used to finance domestic investment; to maintain revenues from taxes on financial activities and wealth; and to prevent capital flows that would disrupt a stabilization and structural reform program. Empirical studies suggest, however, that capital controls have often been ineffective in both industrial and developing countries when incentives for moving funds abroad have been substantial. In addition, the effectiveness of capital controls appears to have eroded more rapidly in the 1980s than in earlier periods. As the effectiveness of capital controls has eroded, new constraints have been placed on the formulation of monetary and fiscal policies. Moreover, capital flight during the 1970s and 1980s created large holdings of external assets by the residents of many developing countries. The initial phase of recent stabilization and structural reform programs has often been characterized by partial repatriation of these external assets. Sterilization of these inflows has often proven difficult, and tightening capital controls to limit these inflows has at times interfered with normal trade financing.

Experience suggests that countries can attain the benefits of capital account convertibility and reduce the financial risks created by an open capital account if they adopt macroeconomic and financial policies that minimize the differences between domestic and external financial market conditions; avoid imposing taxes that create strong incentives to move funds abroad; strengthen the safety and soundness of their domestic financial system; take measures to increase price and wage flexibility; allow residents to hold internationally diversified portfolios; and employ modern hedging and risk-management practices.

I. Introduction

A fundamental structural change in the world economy during the past two decades has been the growing integration of financial markets located in the industrial countries and major offshore centers. This increased integration has reflected the relaxation of capital controls and broader financial liberalization in the industrial countries, as well as new telecommunications and computer technologies that have facilitated the cross-border transfer of funds. This liberalization of restrictions on external and domestic financial transactions was motivated in part by the desire (1) to improve financial efficiency by increasing competition in domestic financial systems and (2) to reduce financial risks by allowing domestic residents to hold internationally diversified portfolios.

While such efficiency and risk-diversification gains could accrue to any country with capital account convertibility, such convertibility has been established only in the industrial countries and in relatively few developing countries. Indeed, most analyses of the sequencing of structural reforms and stabilization policies for developing economies have traditionally argued that capital controls or dual exchange rates are necessary to prevent capital flows that would undermine the reform program. These policy recommendations, however, stand in sharp contrast with a growing body of empirical evidence that suggests that capital controls have often been evaded and that their effectiveness has been lower in the 1980s than in the 1960s or 1970s. This paper reviews the experience with capital controls in both industrial and developing countries, considers some of the key policy issues raised by the diminished effectiveness of capital controls, examines the potential medium-term benefits and costs of an open capital account, and analyzes the policy measures that could help sustain capital account convertibility. Since the liberalizations of capital account restrictions have typically taken place in the context of broader economic programs, which included extensive stabilization efforts and structural reforms, the implications of opening the capital accounts need to be analyzed against the background of these other policy changes.

Section II examines both the types of capital controls employed by countries and the rationales put forth to justify their use. Most restrictions on capital account convertibility have been motivated by four principal considerations. First, quantitative capital controls and transaction taxes have been seen as a means of limiting volatile, short-term capital flows that induce exchange rate volatility or sharp changes in foreign exchange reserves and thereby force the authorities to abandon their medium-term macroeconomic policy objectives. A second rationale has emphasized maintaining capital controls both to ensure that the domestic savings of developing countries are used to finance domestic investment rather than the acquisition of foreign assets and to limit foreign ownership of domestic factors of productions. Restrictions on capital movements have also been seen as strengthening the authorities' ability to tax financial activities, income, and wealth. Finally, it has been argued that opening the capital account should occur late in any stabilization and structural

reform program to prevent capital flows from destabilizing efforts to control inflation or to sustain a trade reform.

Section III examines the effectiveness of capital controls in industrial and developing countries in terms of their ability to insulate domestic financial conditions from external financial developments and to prevent cross-border movement of funds by residents and nonresidents. Empirical studies point to four key conclusions. First, capital controls were typically most effective when they were combined with exchange and trade controls to restrict both current and capital account convertibility. However, the introduction of current account convertibility created a variety of channels for disguised capital flows. Second, while capital controls in the industrial countries effectively limited their residents' net foreign asset or liability positions during much of the 1950s and 1960s, the collapse of the Bretton Woods system in the early 1970s created the expectation of large exchange rate adjustments and was accompanied by large scale (often illegal) capital flows that overwhelmed even the most comprehensive capital control systems. Third, when macroeconomic and financial conditions created substantial incentives for moving funds abroad, capital controls in many developing countries were often of limited effectiveness in stemming capital flight during the 1970s and 1980s. Fourth, recent studies suggest that the effectiveness of capital controls eroded at a more rapid pace during the 1980s than in the 1960s and 1970s.

Section IV considers some of the implications of the reduced effectiveness of capital controls. Structural changes in the international financial system and other factors that reduced the effectiveness of capital controls may also have raised the explicit and implicit costs of using such costs. In part, this has reflected higher costs of enforcing the controls and the resources utilized in the rent seeking activities involved in obtaining licenses for restricted capital flows and the evasion of capital controls. New constraints can be placed on the formulation of stabilization policies and structural reforms when the effectiveness of capital controls diminishes. Unsustainable monetary and financial policies will have greater adverse effects on the domestic financial system and on the tax base as capital flight and a growing "dollarization" of the economy take place. The fiscal authorities will also face greater difficulties in taxing financial incomes, transactions, and wealth, and the revenues that can be obtained from an inflation tax will be diminished.

During the early stages of stabilization and structural reform programs, residents often have strong incentives to repatriate external assets even when the sustainability of the program is uncertain. The resulting capital inflows can appreciate the real exchange rate. While sterilization has been used to limit the inflationary impact of these inflows, such operations increase the outstanding stock of government debt and can drive up government borrowing costs. Some countries have therefore tightened capital controls to limit capital inflows, but historical experience suggests that whenever there are large incentives for capital

flows, residents often find channels for evading the new controls. Moreover, a severe tightening of capital controls could interfere with normal trade financing and thereby vitiate any trade reform just as much as a real exchange rate appreciation. The potentially adverse effects of a tightening of capital controls raise the issues of what are the potential benefits of a more open capital account and whether there are fiscal, financial, and structural policies that would allow a country to initially "live with" the capital inflows and eventually to help achieve and sustain an open capital account.

When accompanied by appropriate macroeconomic and financial policies, there are four efficiency gains that can potentially be associated with a more open capital account: (1) unrestricted capital flows allow the international economy to attain the efficiency gains created by specialization in the production of financial services; (2) capital account convertibility creates dynamic efficiency by introducing competition in the financial industry from abroad and stimulating innovation; and (3), if international financial markets appropriately price the risks and returns inherent in financial claims, then global savings can be allocated to the most productive investments; and (4), for countries with limited access to private external finance, freedom of capital inflows and outflow may facilitate renewed access to international financial markets.

Section V examines the experiences of industrial and developing countries with capital account liberalization in order to identify both the asset price movements and capital flows that have been associated with removing capital controls and the macroeconomic, financial, and risk management policies that can help sustain an open capital account. A common pattern of asset price movements and capital flows has often characterized the opening of the capital account in both industrial and developing countries. Since the opening of the capital account has historically occurred in conjunction with extensive stabilization and structural reform programs, the accompanying asset price changes and capital flows have reflected both the removal of capital controls and perceptions about the likely outcomes of the reforms. The resulting portfolios adjustments have typically led to a large private sector gross capital inflows and outflows, often a net capital inflow, and a real exchange rate appreciation. In some developing countries, moreover, high ex-post real domestic interest rates and an initially large spread between ex-post domestic interest rates (adjusted for exchange rate changes) and international interest rates have also occurred.

In view of these asset price movements and capital flows, experience suggests that the implementation of certain policies can help to sustain capital account convertibility and reduce the financial risks created by an open capital account. These include macroeconomic and financial policies that minimize the differences between domestic and external financial market conditions prior to liberalization; the avoidance of taxes on financial income, wealth and transactions that create strong incentives to move funds

abroad; the implementation of steps to strengthen the safety and soundness of the domestic financial system; and the removal or reduction of restrictions that inhibit the flexibility of wages and the prices of goods and assets. Moreover, the financial risks created by an open capital account can be managed by allowing residents to hold internationally diversified portfolios, the use of markets for trading risks (particularly the markets for commodity and financial futures, options and swaps), and the better design of external contracts and debts. The speed with which a country can move to full capital account convertibility appears to depend both how far it has proceeded in implementing the policies that are preconditions for such convertibility and its willingness to take further policy measures that credibly establish that it will carry through with the implementation of the remaining policy steps.

II. Restrictions on Capital Account Transactions

The Fund's Articles of Agreement permit the use of capital controls, 1/ and most Fund members have imposed some restrictions on capital account transactions throughout the post-World War II period. At the end of 1989, 123 out of the 153 territories and member countries analyzed in the Fund's 1990 Annual Report of Exchange Arrangements and Exchange Restrictions were reported as using restrictions on payments for capital transactions and/or separate exchange rates for some or all capital account transactions (Table 1). Moreover, while the number of industrial countries with capital account convertibility rose from 3 in 1975 to 9 in 1990, only one additional developing country achieved this kind of convertibility.

1. Types of capital controls

The most common restrictions on capital account convertibility have encompassed exchange controls or quantitative restrictions on capital movements, dual or multiple exchange arrangements, and taxes on external financial transactions. Quantitative restrictions have typically involved limitations on the external asset and liability positions of domestic financial institutions (especially banks), on the domestic operations of foreign financial institutions, and on the external portfolio, real estate, and direct investments of nonbank residents. In many cases, foreign direct

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1/ Article IV, Section 3 states that

> "Members may exercise such controls as are necessary to regulate international capital movements, but no member may exercise these controls in a manner which restrict payments for current transactions or which will unduly delay transfers of funds in settlement of commitments, except as provided in Article VII, Section 3(b) and in Article XIV, Section 2."

Table 1. Restrictions on Capital Account Transactions, 1975, 1980, 1985, and 1990 1/

	1975	1980	1985	1990
Number of countries 2/	128	140	148	153
Separate exchange rate(s) for some capital transactions and/or some or all invisibles and restrictions on payments for capital transactions	22	26	32	32
Industrial countries 3/	2	2	--	--
Developing countries	20	24	32	32
Restrictions on payments for capital transactions only 4/5/	102	107 6/	116	120
Industrial countries	17	14	11	11
Developing countries	85	91	105	109
Separate exchange rate(s) for some capital transactions and/or some or all invisibles only	25	31	34	35
Industrial countries	3	3	1	1
Developing countries	22	28	33	34
Neither separate exchange rate(s) for some capital transactions and/or some or all invisibles nor restrictions on payments for capital transactions	23	28	30	30
Industrial countries	3	6	9	9
Developing countries	20	22	21	21

Sources: IMF, 1975. Twenty-Sixth Annual Report on Exchange Restrictions, pp. 544-548 (for 1975); IMF, 1980. Annual Report on Exchange Arrangements and Exchange Restrictions, pp. 456-460 (for 1980); IMF, 1985. Exchange Arrangements and Exchange Restrictions, Annual Report, pp. 552-557 (for 1985); and IMF, 1990. Exchange Arrangements and Exchange Restrictions, Annual Report, pp. 576-581 (for 1990).

1/ The years indicate the publication year of the Reports from which data are collected.

2/ Belgium and Luxembourg have been treated as one country--Belgium-Luxembourg.

3/ Grouping definition is based on the existing grouping presented in the latest issue of the International Financial Statistics and the World Economic Outlook.

4/ Restrictions (i.e., official actions directly affecting the availability or cost of exchange, or involving undue delay) on payment to member countries, other than restrictions imposed for security reasons under Executive Board Decision No. 144-(52/51) adopted August 14, 1952.

5/ Resident-owned funds.

6/ Numbers for industrial and developing countries do not sum up to the total because the position of two developing countries--Botswana and Haiti--is undetermined.

investments coming into a country are scrutinized on a case-by-case basis by a government review board.

At a minimum, dual or multiple exchange rate systems involve separate exchange rates for commercial and financial transactions. In most dual exchange rate systems, the commercial exchange rate is stabilized by the authorities but the financial exchange rate floats. A key element determining the effectiveness of these systems is the degree to which current and capital account transactions can be kept separate. In order to achieve this separation, there are often complex sets of rules that both define what constitutes current and capital account transactions, and that attempt to establish control over the foreign exchange transactions of residents and the domestic currency transactions of nonresidents. Enforcement of these rules implies that dual (or multiple) exchange rate systems share much, if not most, of the costs of administering a system of quantitative restrictions on capital flows.

Explicit and implicit taxes on external financial transactions and income have also been used to discourage or control capital flows. Interest equalization taxes are designed to eliminate the higher yield that domestic (foreign) residents might see on holding foreign (domestic) financial instruments. High transaction taxes have also been used to discourage short-term capital movements.

2. Rationales for capital controls

The use of capital controls has often been justified on four grounds: (1) to help manage balance of payments crises or unstable exchange rates generated by excessively volatile short-run capital flows, (2) to ensure that domestic savings are used to finance domestic investment and to limit foreign ownership of domestic factors of production, (3) to maintain the authorities' ability to tax domestic financial activities, income and wealth, and (4) to prevent capital flows from disrupting stabilization and structural reform programs.

a. Limiting volatile short-term capital flows

Transaction taxes on short-term financial transactions have often been viewed as a means of limiting short-term capital flows that can lead to a sharp change in a country's foreign exchange reserves or contribute to excess exchange rate volatility. These flows have been viewed as driven by investors who ignore fundamentals and transact on the basis of rumor, trading strategies, or uncertainties about the sustainability of macroeconomic or exchange rate policies. It has therefore been argued that the authorities should limit speculative capital flows rather than alter financial and macroeconomic policies designed to achieve medium-term objectives.

There have been concerns, for example, that asset prices on international financial markets have experienced speculative "bubbles," especially for exchange rates, in which asset prices depart systematically from underlying fundamentals and that this has distorted capital flows. Nonetheless, since economists have yet to successfully model the behavior of exchange rates, it has proven difficult to identify both the fundamentals driving exchange rates and the extent to which exchange rates have departed from these fundamentals. 1/ Moreover, even if such bubbles were to occur periodically, it is not clear that permanent capital controls or taxes would be preferable to occasional central bank foreign exchange market intervention.

Doubts about the sustainability of a country's policy stance can potentially lead investors to alter their holdings of domestic and external assets in order to protect the value of their portfolios. While capital controls could be used to prevent these adjustments from occurring, this may not address the fundamental problem of building credibility for authorities' policies. 2/ Moreover, conflicting macroeconomic policies in different major countries can generate capital flows as well as exchange rate changes; and adjustments in macroeconomic policies rather than the imposition of capital controls would then be the appropriate policy response.

b. Retention of domestic savings

A second rationale for the use of capital controls has emphasized the need of developing countries both to ensure that scarce domestic savings are used to finance domestic investment rather than the acquisition of foreign assets and to limit foreign ownership of domestic factors of production. The uncertainties created by an unstable macroeconomic and political environment in many developing countries can reduce the expected private returns from holding domestic financial instruments (and thereby the return on saving) far below the social marginal product of additional capital. In this uncertain environment, risk-averse savers may prefer to hold a significant portion of their wealth in foreign assets that are perceived to yield higher or more certain real returns. It has been argued that capital controls can be used to help retain domestic savings by reducing the return on foreign assets (e.g., through an interest equalization tax or by raising

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1/ While Massey (1986) concluded that the exchange rates between the United States and some other major industrial countries followed a pattern in the early 1980s consistent with the existence of such bubbles, Flood, Rose and Mathieson (1991) used daily exchange rate data from the 1980s and found little evidence that such bubbles existed.

2/ Another argument for capital controls is that implicit or explicit government guarantees might distort capital flows. For example, the perception that the government would assist private borrowers with servicing external debts during a crisis period can induce unwarranted external borrowing.

the implicit cost of moving funds abroad) and by limiting access to foreign assets.

Even if capital controls limit the acquisition of foreign assets, however, they still might do little to increase or sustain the availability of savings for domestic capital formation. If domestic financial instruments carry relatively uncertain and low real rates of return and residents cannot acquire foreign assets, they often respond either by reducing their overall level of savings or by holding their savings in inflation hedges such as real estate or inventories.

A related rationale for capital controls is to establish limits on foreign ownership of domestic factors of production, industries, natural resources, and real estate. In part, these controls are seen as preventing either an unwarranted depletion of a country's natural resources or the emergence of a monopoly in a particular industry. Equity and income distribution considerations are also cited as justifications for limitations on ownership of domestic factors of production and real estate.

While views differ on the benefits and costs of foreign ownership of domestic institutions and factors of production, highly restrictive controls can play an important role in discouraging foreign direct investments. In an era in which many countries face limited access to international financial markets, foreign direct investment may be an important source of external finance and the acquisition of new technologies.

c. Maintenance of the domestic tax base

Another rationale is that capital controls are needed to maintain the authorities' ability to tax financial activities, income and wealth. Stamp duties and taxes on securities transactions have often been important sources of government revenues in countries with large securities markets (e.g., Switzerland), and income taxes on interest and dividend income are key components of most tax systems. In addition to such explicit taxes, effective capital controls can allow the authorities to adopt monetary policies that impose an "inflation tax" on holding domestic monetary instruments. 1/

Since domestic residents naturally have an incentive to shift some portion of their financial activities and portfolio holdings abroad to avoid these taxes, capital controls have been viewed as a means of either limiting holdings of foreign assets or to gaining information on the scale of residents' external asset holdings so that these holdings can be taxed.

1/ For a simple model of the relationship between the inflation tax and capital controls, see McKinnon and Mathieson (1981).

d. Capital controls and stabilization and structural reform programs

It has often been recommended that the opening of the capital account should occur late in the sequencing of stabilization and structural reform programs in developing countries in order to avoid capital flows that would make the reform unsustainable. 1/ The nature of such destabilizing capital flows would depend on both the credibility of the reform program and the extent of the differences in the speeds of adjustment in goods, factor and financial markets. For example, if a stabilization program lacks credibility, the liberalization of the capital account could lead to currency substitution and capital flight, which could trigger a balance of payments crisis, devaluation, and inflation. 2/ Conversely, if it is anticipated that the reform program will be sustained, then there could be a capital inflow (due to the higher perceived return on domestic assets) that would lead to a real exchange rate appreciation that could offset the effects of the trade reform on domestic traded goods prices. Moreover, even if there was some uncertainty about the likely success of the reform program, a capital inflow could occur if residents temporarily repatriate funds from abroad to take advantage of the high real interest rates.

However, these discussions implicitly assume that capital controls can "effectively" restrict capital flows even if current account convertibility is established. An effective set of capital controls has been defined alternatively as one that: either (1) completely segments the domestic financial market from international markets and makes domestic interest rates independent of international interest rates or (2) limits capital inflows so as to create a wedge (possibly variable) between domestic interest rates and foreign interest rates (adjusted exchange for expected exchange rate movements). While type (1) controls amount to "closing the road" between domestic and international financial markets, type (2) controls attempt to set a safe "speed limit" for the scale of capital flows. 3/ However, as discussed in the next section, there is empirical evidence that (1) residents often find ways around capital controls whenever there are large differentials between the yields on domestic and foreign instruments, and (2) that the effectiveness of capital controls may have eroded at a faster pace in the 1980s than in the 1960s and 1970s.

1/ For example, see Frenkel (1982 and 1983), Edwards (1989), and McKinnon (1991).

2/ Similarly, as Calvo (1983 and 1987) and Stockman (1982) have emphasized, it may be difficult to sustain a trade reform that is expected to be reversed, since residents will use foreign borrowing to import large amounts of goods, especially consumer durables.

3/ Jacob Frenkel has often used this distinction in his discussion of capital controls.

III. The Effectiveness of Capital Controls

The ability of quantitative capital controls or a dual exchange rate system to insulate domestic financial conditions from those in international financial markets is naturally influenced by the expected gains from and costs associated with evading the controls. The incentives to evade capital controls will reflect not only nominal yield differentials (including expected exchange rate changes) but also differences in the availability of credit, the types of financial products and services that are provided, and the perceived stability and soundness of the financial institutions in domestic and offshore markets. In addition, the risks of expropriation and taxation of domestically held assets can also be important incentives to evade controls. The transaction, communication and other (including bribery) costs of evading the capital controls may be significantly lower for those individuals and institutions that regularly engage in (legal) international trade and financial transactions than for others. When such costs are significant, they make small scale illegal capital transfers unprofitable. The scale of disguised capital flows is also sensitive to the penalties applied for trying to evade the capital controls. Just how effective these penalties are inhibiting illegal capital transactions will depend on the effort put into the enforcement of the capital controls and the prosecution of those found violating the controls. A large and technically sophisticated bureaucracy may be required to enforce a system of complex and comprehensive capital controls.

1. Channels for evading capital controls

These incentives and costs also play a key role in determining the channels that have been used to evade capital controls and arbitrage between the official and financial exchange markets under dual exchange rate systems. One of the most frequently used channels has been under--and overinvoicing of export and import contracts. To shift funds abroad, for example, an exporter (importer) would underinvoice (overinvoice) a foreign customer and then use these funds to invest in external assets. For many firms engaged in international trade, over- and underinvoicing is often an efficient means of shifting funds across national borders since it exploits one of the fundamental tensions in most capital control and/or dual exchange rate systems, namely the need to control unauthorized capital flows while at the same time not interfering unduly with either normal trade financing for

imports and exports or with the typical transfer operations between a parent firm and its subsidiary for permitted foreign direct investment. 1/

Giddy (1979) also argued that the transfer pricing policies of multinational companies provide a similar means of evading capital controls. Prior to an anticipated exchange rate adjustment, changes in transfer prices and the leading and lagging of intracompany transfers provide a means of shifting funds in and out of a country.

Another trade related channel for unrecorded capital flows has been the leads and lags in the settlement of commercial transactions or variations in the terms offered on short-term trade credits. During the collapse of the Bretton Woods system in the early 1970s, for example, some industrial countries with extensive capital controls nonetheless experienced significant capital inflows as a result of the prepayment of exports by foreign entities (often the foreign subsidiaries of domestic corporations). This experience suggest that, prior to a major devaluation, imposing drastic restrictions on trade financing cannot only be difficult to enforce but, if effectively enforced, can also eliminate a perceived advantage of capital controls or separate foreign exchange markets--namely, shielding current account transactions from erratic exchange rate fluctuations.

The balances in nonresidents "commercial" accounts in the domestic financial system, especially in countries with dual exchange rate arrangements, have often been drawn down sharply prior to a devaluations and then rebuilt relatively quickly in the period following the devaluation. Remittances of savings by foreign workers in the domestic economy and by domestic nationals working abroad, family remittances, and tourist

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1/ As noted by Kamin (1988), such over- and underinvoicing can lead to a distorted view of what happens to the trade balance in the periods just prior to and after a devaluation. In a study of more than 60 devaluations, Kamin found that, prior to the typical devaluation, there were sharp declines in the rates of growth of exports and imports, while the current account balance and reserve holdings deteriorated markedly. Immediately following the devaluation, the current account balance would recover as exports rebound strongly, while imports would continue to decline, albeit at less rapid rate, until they bounced back sharply in the second year after the devaluation. His empirical analysis suggested that the period prior to the devaluation was preceded by both a real appreciation of the exchange rate and a sharp rise in the black market premium on foreign exchange which led to underinvoicing of exports and reductions in officially reported exports. These shortfalls in export receipts increased the authorities reserve losses and led to declines in imports as the authorities tightened restrictions in access to foreign exchange. Following the devaluation, the black market premium dropped, which reduced the incentives for underinvoicing exports, and officially measured exports rose sharply. Improved reserve inflows also allowed the central bank to loosen restrictions on access to foreign exchange and imports recovered.

expenditures, while traditionally regarded as current account transactions, have also been used as vehicles for the acquisition or remission of foreign assets.

During the 1960s and 1970s, forward foreign exchange operations in industrial countries with capital controls and/or dual exchange rates provided residents with another channel for moving capital. When a major exchange rate depreciation was anticipated, the forward net foreign asset position of domestic residents often changed dramatically as many exporters responded by hedging a much smaller (or zero) proportion of their anticipated foreign exchange receipts; whereas importers would try to obtain more cover.

2. Experiences with capital controls

While there are clearly a variety of channels for evading capital controls, there are still the empirical questions of just how important these channels have been and under what conditions they may be instrumental in undermining the effectiveness of capital controls. To examine these questions, this section first reviews the experiences of industrial countries with capital controls in the post-World War II period and then presents an empirical analysis of the effectiveness of capital controls in developing countries.

a. Industrial countries

During the immediate post-World War II period, most industrial countries used exchange, trade and capital controls to limit both current and capital account convertibility and their residents' net foreign asset and liability positions. 1/ However, since current account controls created a variety of distortions, current account convertibility was formally restored (by acceptance of the obligations of the IMF's Article of Agreement VIII) by the industrial countries in Western Europe by 1961 and in Japan in 1964. Nonetheless, many major industrial countries continued to maintain capital controls (including dual exchange rates) throughout the 1960s and 1970s with some (such as France and Italy) abolishing the last of their major capital controls only during the late 1980s. While there have been many studies of the experiences of industrial countries with capital controls in the post-World War II period, 2/ the conclusions that have typically emerged from these studies can be illustrated by first considering

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1/ See Greene and Isard (1991) for a discussion of this experience.

2/ For example, Yeager (1976) provides an overview of the experience of the major industrial countries in the 1950 and 1960s and provides an extensive bibliography. Baumgartner (1977) analyzes the experience of a number of European countries (including Germany) with capital controls in the 1970s, and Argy (1987) compares the Australian and Japanese experience with capital controls in the 1960s and 1970s. Dooley and Isard (1980) provide a general framework for analyzing the effects of capital controls.

the experience of Japan in the period 1945-1980 and then that of Ireland in the early 1980s. Since it has been argued that Japan had the most effective and efficiently administered system of capital controls in the period up to the late 1970s, 1/ Japan's experience can be used to identify some of the factors that contributed to the effectiveness as well as the breakdown of capital controls. Ireland's experience in turn illustrates the difficulties encountered by countries attempting to reimpose capital controls on previously integrated financial markets.

The legal basis for Japan's post-World War II capital controls was initially provided by the Foreign Exchange and Foreign Trade Control law, passed in 1949, under which foreign exchange transactions were prohibited in principle and permitted only in exceptional cases according to the directives and notifications from government ministries. Initially, private holdings of foreign exchange were restricted and export receipts had to be sold to authorized foreign exchange banks. The authorities also specified a standard settlement period and required approval of prepayments or acceptance of advance receipts. Holdings of yen by nonresidents were subject to controls, and private capital movements were in effect prohibited. As noted by Fukao (1990), one indication of the effectiveness of these controls was that there was an almost one-to-one relationship between the level of Japan's foreign exchange reserves and its cumulative current account balance between 1945 and 1962. 2/

In 1960, the authorities announced a trade and exchange liberalization plan which had as one of its goals achieving Article VIII status. This program included abolition of foreign exchange controls on current account transactions, creation of "free" yen accounts for nonresidents, liberalized use of foreign exchange for tourist travel and some relaxation of the controls on capital account transactions related to exports and imports. With this partial liberalization, the scale of capital flows in the 1960s expanded relative to those in the 1950s, and periods of monetary tightening in the summers of 1961 and 1967 were accompanied by capital inflows which required the imposition or tightening of capital controls.

Following the floating of the deutschemark in May 1971, Japan initially attempted to maintain a fixed U.S. dollar/yen exchange rate and, as a result, experienced large capital inflows. 3/ The foreign subsidiaries of Japanese firms were an important source of inflows as they used U.S. dollar denominated loans to make prepayments on exports from the parent company or

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1/ For example, Argy (1987) argued that such controls were much more effectively and efficiently administered in Japan than in other industrial and developing countries.

2/ Supplement A in Fukao's article provides a detailed listing of the various controls that were used between 1945 and 1990.

3/ Official foreign exchange reserves rose from $4.4 billion at the end of 1970 to $7.9 billion at the end of July 1971. Moreover, capital inflows in the 11 days between August 16-27, 1971 amounted to $4 billion.

to purchase yen-denominated securities. The authorities responded initially with a severe tightening of capital controls, which disrupted trade financing, and eventually a floating of the exchange rate. Thus, a system of capital controls, which had been highly effective when the exchange rate was viewed as stable and interest rate differentials were limited, 1/ was unable to stem a large scale inflow once the expectation of a large exchange rate adjustment took hold.

Japan shifted from a fixed to a floating exchange rate in the spring of 1973, and Fukao argued that the degree of short-term capital mobility declined because of both strict capital controls and the elimination of the prospect of a near certain capital gain when a large discrete exchange rate adjustment took place. Moreover, the differentials between domestic and offshore money market interest rates in the period since 1974 were much smaller, even during the first and second oil price shocks, than in the period surrounding the collapse of the Bretton Woods system. 2/

Japan's policies toward capital controls underwent a fundamental change at the end of 1980 when a new foreign exchange law (the Law Revising Partially the Foreign Exchange and Foreign Trade Control Law) was implemented. While under the old law, all foreign exchange transactions were prohibited in principle except under exemption by the authorities; the new law allowed any foreign exchange transactions unless specifically restricted. This change in policy was motivated by a number of factors including the recognition both that Japanese financial institutions were continuing to expand their operations in other major domestic and offshore markets and that "the maintenance of a legal framework that prohibited overseas transactions in principle raised difficulties such as giving the impression to foreign countries that Japan was implementing regulations that were not transparent." 3/

Ireland's experience in the late 1970s provides an example of the effects of introducing capital controls between previously integrated financial markets. While there were relatively few official restrictions limiting transactions between financial markets in Ireland and the United Kingdom prior to December 1978, the Irish authorities then imposed a set of exchange controls that included: (1) limitations on the accounts of United Kingdom residents in Irish bank and nonbank financial institutions, (2) prohibition of Irish residents holding accounts with financial institutions

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1/ Horiuchi (1984) showed that officially controlled interest real interest rates in Japan were relatively high by international standards, which may have played a key role in limiting incentives for residents to shift funds abroad.

2/ Fukao (1990) shows that the differentials (in absolute value) between the three month gensaki (repo) interest rate and the three month Euro-yen interest rate were at most 6 per cent per annum in the period 1974-87 but reached 20-40 per cent per annum during the period 1971-74.

3/ Fukao (1990) p. 43.

in the United Kingdom, (3) prior approval for all foreign borrowing, (4) prior approval for portfolio investment inflows and outflows and (5) limitations on provision of forward cover by authorized banks to nonbank residents except for trade related transactions.

Browne and McNelis (1990) (denoted BM) have recently examined the effectiveness of the Irish capital controls in terms of their ability to restore the authorities' control over domestic interest rates. Their analysis was based on a empirical model which related quarterly changes in various domestic Irish interest rates to (1) the differential between the sum of the comparable world interest rate, the expected rate of depreciation of the Irish pound and a risk premium and the previous quarter's domestic interest rate and (2) the current and lagged values of the domestic excess demand for money. To see if economic agents learnt how to evade capital controls over time, BM allowed the influence of external financial market conditions on domestic interest rates to grow over time relative to that of domestic money market conditions.

BM's empirical analysis employed data on interest rates on financial instruments of various expected degrees of international tradability. 1/ One empirical result was that the interbank market continued to be highly integrated with external market; 2/ and the degree of integration in the mortgage market, which initially declined with the imposition of capital controls, eventually recovered and exceeded its initial level. Exchange controls drove a permanent wedge in the interest rate parity relationship only in the markets for small deposits in clearing banks and share accounts in the building societies.

The authors' empirical results suggest that, even when capital controls drive a wedge between the levels of domestic and external interest rates, they may only temporarily break the correlation between movements in domestic and international interest rates over time. BM argued that significant interest rate differentials between domestic and external markets made it profitable for some firms and individuals to incur the costs

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1/ These interest rates included (in order of expected international tradability): (1) the three-month Dublin interbank market rate, (2) the 90-day exchequer bill rate, (3) the five-year-to-maturity government security yield, (4) the clearing banks' rate on deposits in the 5,000-25,000 Irish pound range, (5) the clearing banks' prime lending rate, (6) the building societies' share account rate, and (7) the building societies' mortgage rate. Their data covered the period from the first quarter of 1971 to the fourth quarter of 1986.

2/ The close relationship between the interbank rate and international rates could have reflected the fact the Authorized Dealers (selected banks) were not prohibited from acquiring foreign exchange deposits and incurring foreign currency debts as long as their total spot against forward position did not exceed the long and short limits set by the Central Bank.

of establishing new channels for moving funds abroad; and, over time, the controls became increasingly less effective. 1/

Moreover, since quantitative capital controls which restrict capital outflows are in many respects equivalent to a tax on the ownership of foreign assets, the incidence of this tax depends crucially on the ability of different groups of residents to evade the controls. BM's results imply that such a tax falls most heavily on those residents which have the least market power in domestic financial markets and have the weakest links or access to international markets (often due to high transactions costs). In a public finance sense, capital controls are thus likely to be a regressive tax.

b. Developing countries

As already noted, most developing countries have employed capital controls throughout the post-World War II period. Two important traditional objectives of these control systems have been to limit the acquisition of foreign assets by domestic residents (to keep domestic savings available to finance domestic investment) and to moderate or eliminate short-term speculative capital flows during and after a balance of payments crisis. In order to gauge how effective capital controls have been in helping to achieve these objectives, this section presents an empirical analysis of the effectiveness of capital controls in preventing capital flight and reviews some evidence on the linkages between external and domestic financial conditions in developing countries.

Since the emergence of the debt servicing difficulties for many heavily indebted developing countries in the early 1980s, capital flight has been of particular concern because of the implied loss of resources for domestic investment. This section associates capital flight with the fraction of a country's stock of external claims that does not generate recorded

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1/ Gros (1988) reached a similar conclusion regarding the Belgium dual exchange rate system.

income. 1/ The estimated stock of flight capital 2/ for a group of heavily indebted developing countries 3/ increased from $45 billion at the end of 1978 to $184 billion by the end of 1988, before declined to $176 billion at the end of 1990 (Table 2). However, the pace of capital flight varied throughout the period. For example, expansionary fiscal and monetary policies, as well as increasing overvaluation of the exchange rates, resulted in rapid increases in the stock of flight capital during the period 1978-83, with a 25 percent increase occurring in 1983. In contrast, the stock of capital declined during 1989-90 as a number of countries in our sample initiated successful stabilization programs. 4/ Although several empirical studies 5/ found a significant relationship between capital flight and domestic macroeconomic variables, there is little evidence concerning whether such linkages depend on the extent of a country's capital controls.

To examine the effectiveness of capital controls in stemming capital flight, a two-step methodology was employed. First, for the developing countries represented in Table 2, episodes of high and/or accelerating rates of inflation and large balance of payment disequilibria were identified during the period 1978-1990. In most cases, these episodes encompassed the two or three year periods prior to the implementation of Fund-supported

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1/ This approach is known as the "derived" measure of capital flight and was first suggested by Dooley (1986).

2/ The methodology for estimating capital flight in Table 2 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, from balance of payments data (which consist 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 component was estimated 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.

3/ The countries included in Table 1 are: Argentina, Bolivia, Chile, Colombia, Ecuador, Gabon, Jamaica, Mexico, Morocco, Nigeria, Peru, the Philippines, Venezuela and Yugoslavia. The selection of these countries reflects availability of data during the entire period under study.

4/ A more comprehensive analysis of capital flight during the period 1978-88 is contained in Rojas-Suarez (1991). A similar pattern of capital flight is evident if such capital flows are measured by the so-called "residual" approach which estimates capital flight by adding the increase in a country's recorded external debt to the capital inflow from direct investment and substracting the current account deficit plus the increase in official reserves. See Morgan Guarantee (1988).

5/ For example, see Cuddington (1986), Meyer and Bastos-Marques (1989).

Table 2. Flight Capital and Total External Debt for a Group of Highly Indebted Developing Countries

(In billions of U.S. dollars)

	Flight Capital 1/ (1)	External Debt (2)	Ratio of Flight Capital to Total External Debt (1)/(2)
1976	13.72	59.73	23.0
1977	29.24	86.08	34.0
1978	45.48	117.81	38.6
1979	62.17	147.52	42.1
1980	73.56	186.57	39.4
1981	82.53	233.15	35.4
1982	96.83	271.88	35.6
1983	121.49	297.98	40.8
1984	134.69	314.41	42.8
1985	145.67	326.65	44.6
1986	152.06	343.06	44.3
1987	181.31	368.03	49.3
1988	183.88	378.74	48.6
1989	182.39	371.49	49.1
1990	175.81	375.41	46.8

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

1/ Data refer to net flight capital, that is, the unrecorded stock of capital outflows less the unrecorded stock of capital inflows.

adjustment programs (Table 3). 1/ During each of these episodes, a country was further characterized as having either relatively modest capital controls (which in a few cases were relaxed) or extensive controls (that were sometimes increased during the crisis period). 2/ If capital controls were effective, then macroeconomic fundamentals should be less important in explaining capital flight in the group of countries with stringent capital controls than in those countries with either much less stringent or loosened capital controls.

Following Rojas-Suarez (1991), the fundamentals influencing capital flight are taken as those that affect residents' perceptions regarding the risks associated with holding domestic assets. There are two major sources of such risks: (1) the prospect that large, unexpected devaluations and/or high rates of inflation will erode the real value of assets denominated in the domestic currency, and (2) the possibility that private or official borrowers will default on their debt-service obligations or that domestically owned assets will be expropriated. Since a large fiscal deficit financed through central bank credits to the government typically leads to high inflation and/or a large exchange rate depreciation, the fiscal deficit as a proportion of GDP is taken as a proxy for the risks of such macroeconomic instability. 3/

If economic agents do not perceive a difference in the default risk as between domestic and external debts, then a measure of default risk based on either domestic or external debt markets could be used. For a country with access to international capital markets, the spread between its borrowing costs and the London Interbank Offer Rate (LIBOR) is traditionally used to

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1/ This includes programs involving either stand-by or extended arrangements. Table 2 also includes the stabilization programs initiated by the Government of Brazil in February 1986 and March 1990, which were not supported by IMF arrangements.

2/ The evaluation of the degree of capital control was based on the information contained in IMF, Annual Report on Exchange Agreements and Payments Restrictions (various issues). Information on payments restrictions on current transactions and the restrictions on capital transactions are provided under the headings of "payments for invisible," "proceeds from invisible" and "capital." Since any classification of countries according to the degree of capital controls involves an element of judgement, only two categories were used. A country was classified as having modest restrictions during a particular period if its controls did not eliminate capital transactions but only restricted them through the requirement of government approvals. Alternatively, a country was classified as having high restrictions during a given period if, in addition to the requirement of government approval, strict limits (or a prohibition) on the inward or outward movements of capital were imposed.

3/ In order to have comparable data across all of the countries in our sample, we used the central government deficit. A more comprehensive measure would be the nonfinancial public sector deficit.

Table 3. Stabilization Programs in Selected Developing Countries

Country	Initiation Date of the Program and Type of Program	Period Included in the Regressions
I. Countries with mild or decreasing capital controls:		
Argentina	Nov. 10, 1989 (stand-by)	1987-88
Bolivia	Feb. 01, 1980 (stand-by)	1978-79
Bolivia	Jun. 19, 1986 (stand-by)	1985
Chile	Jan. 10, 1983 (stand-by)	1981-82
Ecuador	Jan. 04, 1989 (stand-by)	1987-88
Gabon	Sep. 15, 1989 (stand-by)	1988-89
Honduras	Jul. 27, 1990 (stand-by)	1988-89
Mexico	May 26, 1989 (extended arrangement)	1987-88
Morocco	Sep. 12, 1985 (stand-by)	1983-84
Morocco	Jul. 20, 1990 (stand-by)	1988-89
Nigeria	Jan. 30, 1987 (stand-by)	1985-86
Nigeria	Apr. 30, 1990 (stand-by)	1988-89
Uruguay	Dec. 12, 1990 (stand-by)	1989
II. Countries with strong or increasing capital controls:		
Argentina	Dec. 28, 1984 (stand-by)	1982-84
Brazil	Mar. 01, 1983 (stand-by)	1981-82
Brazil	Feb. 1986 (no IMF disbursement)	1984-85
Brazil	Mar. 1990 (no IMF program)	1987-89
Ecuador	Jul. 25, 1983 (stand-by)	1981-82
Mexico	Jan. 01, 1983 (extended arrangement)	1981-82
Mexico	Nov. 19, 1986 (stand-by)	1984-85
Morocco	Apr. 26, 1982 (stand-by)	1980-81
Philippines	Jun. 11, 1979 (stand-by)	1978
Philippines	Dec. 14, 1984 (stand-by)	1983
Philippines	May 23, 1989 (extended arrangement)	1987-88
Poland	Feb. 05, 1990 (stand-by)	1988-89
Yugoslavia	May 23, 1979 (stand-by)	1978
Yugoslavia	Jan. 30, 1981 (stand-by)	1979-80
Yugoslavia	Mar. 16, 1990 (stand-by)	1988-89

Source: IMF, Annual Report on Exchange Agreements and Payments Restrictions (various issues).

provide a measure of default risk. However, since the emergence of the debt crisis, the countries in Table 3 have had very limited access to international financial markets and, therefore, no representative interest rate exists. An alternative measure of the default risk can nonetheless be obtained from the secondary market price of external debt by subtracting the LIBOR rate from the implicit yield evident in the secondary market price for that debt. 1/ This latter measure is denoted rk.

In examining the relationship between capital flight and fundamentals in the two subgroups of countries, it is assumed that capital flight reflects the portfolio decisions of domestic residents regarding the proportions of their wealth that they hold in domestic (DA) or foreign (CF) assets. The desired proportions of wealth held in these assets are taken as depending on the expected real returns and risks associated with holding each type of asset.

Letting w_t equal stock of wealth at time t, then the desired holdings of the two types of assets will be given by:

$$(CF/W)_t^d = f_1 (v_t) \quad (1)$$

$$(DA/W)_t^d = f_2 (v_t) \quad (2)$$

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 at 100 since the discount quoted in the secondary markets applies to $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 on signature of the contract; and n is the average maturity of the contract.

The risk of default on external obligations during 1985-90 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 1982-84 was approximated by using data on spreads between the loan rates charged to 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.

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

where a d denotes the desired proportion and v is the vector of expected returns and risks associated with domestic and external asset.

In the presence of capital controls, it may take time for domestic residents to shift from domestic to external assets when, for example, the risks associated with holding domestic assets increase. A simple stock adjustment model can allow for this possibility. Thus

$$\frac{(CF/W)_t}{(DA/W)_t} - \frac{(CF/W)_{t-1}}{(DA/W)_{t-1}} = \lambda \left[\frac{f_1}{f_2} - \frac{(CF/W)_{t-1}}{(DA/W)_{t-1}} \right] \qquad (3)$$

where t denotes the time period.

In estimating this relationship, we have used the stock of broad money (M2) as a proxy for the stock of domestic assets. To the extent that there are other domestic assets which can escape the inflation tax or expropriation risk, then using M2 could bias our results. 1/ However, the limited domestic financial markets of the countries in our sample do not typically offer a broad range of financial instruments that offer good inflation hedges or are free from expropriation risk. As a result, a rise in expropriation risk, for example, would therefore likely entail a portfolio substitution away from all domestic financial instruments toward external assets. In this situation, the ratio CF/M2 will be representative of the general flight to external assets.

Equation (3) was estimated in levels with the lagged ratio $(CF/M2)_{t-1}$ on the right hand side (with coefficient $1-\lambda$). In addition, different future (time t+1), current, and lagged values of the government deficit and risk variables were employed in order to guage the factors influencing expectations regarding fundamentals. In all cases, the estimated λ's were not statistically different from one, implying adjustment of portfolios occurred within the year. Since the coefficients on most of the future and lagged values of the fundamentals proved statistically insignificant, equations (4) and (5) report only the most significant current and lagged values of the fundamentals for the two groups.

$$(CF/M2)_t = \text{constants} + \underset{(8.160)}{5.3\ rk_t} + \underset{(2.000)}{17.2\ (Def/GDP)_t} \qquad (4)$$

$R^2 = 0.96$

1/ In particular, if domestic residents were to substitute from M2 assets to other domestic assets that were insulated from the inflation tax or free from expropriation risk, the ratio CF/M2 would rise even if no foreign assets were accumulated.

$$(CF/M2)_t = \text{constants} + \underset{(2.092)}{1.7\ rk_t} + \underset{(2.677)}{10.8\ (Def/GDP)_{t-1}} \qquad (5)$$

$R^2 = 0.96$

where the values in parenthesis represent t-statistics. 1/ Equation (4) corresponds to the set of countries with modest or significantly reduced capital controls, and equation (5) corresponds to the set of countries with high or tightened capital controls. Using the sample means for each group's variables, the elasticities of the capital flight variable with respect to the risk and deficit variables are .44 and .36, respectively, for the countries with less restrictive capital controls and .13 and .51, respectively, for the countries with highly restrictive capital controls.

These regressions imply that, while highly restrictive capital controls did not break the linkages between macroeconomic fundamentals and the scale of capital flight, they did have the effect of delaying the response of economic agents to perceived increases in fiscal imbalances. 2/ Although the coefficient associated with the default risk variable was larger for the countries with less restrictive capital controls than for those with highly restrictive controls, it was also significant for both groups of countries. Thus, although capital controls were effective in reducing the response of capital flight to increases in default risk, economic agents still managed to react in the same period to the increased probability of default. 3/

The experience with capital flight has raised the issue of the extent of the linkages between external and domestic financial markets in developing countries during the 1970s and 1980s. While the lack of access of the residents of many developing countries to credits from international financial markets has often been cited as implying low interdependence between domestic and external financial market conditions, there are a growing number of studies which suggest that the influence of external financial conditions has been increasing over time.

Haque and Montiel (1990a and 1990b) and Haque, Lahiri and Montiel (1990), for example, have recently provided empirical estimates which imply a high degree of capital mobility for a large set of developing countries, most of which have extensive capital controls. Haque and Montiel (1990b) examined the factors influencing domestic interest rates during the period 1969-87 for a group of 15 developing countries including six from Asia, four

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1/ The constant terms consist of a general intercept term and country dummy variable for all but one of the countries.

2/ This is reflected by the presence of the lagged value of Def/GDP in equation (5).

3/ Kamin's (1988 and 1991) recent work provides an indication that under- and overinvoicing of trade transactions and changes in the terms and conditions under which trade financing is extended are often key vehicles for large scale capital flows in developing countries with extensive capital controls.

from Africa, three from Latin America and two from Europe. Their analysis was based on the assumption that any domestic market clearing interest rate (i_t) could be expressed as a weighted average of the uncovered interest parity interest rate (i_t^*) 1/ and the domestic market-clearing interest rate that would be observed if the private capital account were completely closed (i'). 2/ Hence:

$$i_t = g i_t^* + (1 - g)\, i_t^{'};\ 0 \leq g \leq 1. \qquad (6)$$

If g = 1, the domestic market-clearing interest rate would equal its uncovered parity value; whereas, if g = 0, external factors would play no role in the determination of the domestic interest rate. Since most of the countries in the data sample had "repressed" financial systems with legal ceilings on interest rates, Haque and Montiel (HM) first considered the determinants of the unobserved interest rate ($i_t^{'}$) that would have cleared the domestic money market if the capital account were completely closed 3/ and then estimated (with a nonlinear instrumental variables technique) the parameters of the demand for money and the capital-mobility parameter (g). In ten out of fifteen of the countries, g was statistically significantly different from zero and insignificantly different from one, suggesting a relatively high degree of capital mobility. Only one country (India) had a value of g that was significantly different from one and insignificantly different from zero, which would be consistent with capital immobility. As a result, HM concluded that on average, domestic market determined interest rates for this diverse group of countries tended to move quite closely with uncovered parity interest rates. However, they did not test how the degree of capital mobility evolved over time.

Recently, Faruqee (1991) has examined the issue of the evolution of the degree of capital mobility in several developing countries in Asia during the 1980s. Faruqee focused on the differentials between money market interest rates in Korea, Malaysia, Singapore and Thailand and the three-month London Interbank Offer Rate (LIBOR) on Japanese yen deposits. For the period from September 1978 to December 1990, the mean (in absolute value) and variances of the interest rate differentials were uniformly smaller in the second half of the sample period than in the first half. To examine the behavior of these differentials over time, Faruqee employed an Autoregressive Conditional Heteroschedasticity (ARCH) framework which tested for greater capital mobility by considering whether the conditional variance

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1/ This was defined as the sum of the foreign interest rate and the expected rate of depreciation of the exchange rate.

2/ Edwards and Khan (1985) provided the initial framework for this type of analysis.

3/ Given a conventional demand for money, they argued that $i_t^{'}$, would be a function of income, lagged money, and the closed economy money supply (i.e., the money supply net of the monetary effects of capital flows).

of the interest rate differentials had declined over time. The results implied a uniform decline in the conditional variance for Singapore, and a similar decline for Malaysia, apart from an upswing in 1984-86. In contrast, Korea showed a sharp decline in its conditional variance between 1980 and 1988 but then an upswing in the following years (although the value in the period 1989-90 remained below that in 1980). Thailand showed alternating periods of increasing and decreasing openness without a clear tendency toward either direction.

Using these results, Faruqee also considered how the interest rate differentials would respond to a "typical" monetary disturbance in 1980 and in 1990. A monetary expansion in Singapore would have created a interest rate differential of about one-half percentage point in 1990 versus nearly a 2 percentage point disparity in 1980. Moreover, the deviation from interest rate parity would have lasted between 3 and 4 quarters in 1990 and between 4 and 5 quarters in 1980. In the case of Malaysia, the initial interest rate differentials would have been 50 basis points in 1990 and more than 200 basis points in 1980. However, the elimination of these differentials would have much more gradual than in the case of Singapore in both cases. For Korea, the initial interest rate differential was found to be smaller in 1990 (a little more than 100 basis point) than in 1980 (nearly 200 basis points), and the differential decayed at a more rapid rate in the 1990 period. In contrast, Thailand did not exhibit a more rapid dampening of interest rate differentials in 1990 than 1980. These results led Faruqee to conclude that there was strong support for the notion that financial market liberalization in the Asian countries in his sample had raised the level of integration between domestic and international financial markets. Moreover, this increased integration occurred even in countries (e.g., Korea) which has not significantly relaxed their capital controls.

Taken together, these studies suggest both that there were typically significant linkages between domestic and external financial market conditions even in many developing countries with extensive capital controls and that capital controls may have been less effective in the 1980s than in earlier periods. A number of factors may have helped either to increase the incentives for or reduced the costs of moving fund across borders. One factor was the large differentials in the real rates of return that the residents of many developing countries saw on holding domestic and external assets during the 1980s. 1/ In addition, the upsurge in capital flight during the later 1970s may have created a "learning-by-doing" effect that may have helped reduce the cost of evading capital controls. Moreover, holding assets in offshore or industrial countries markets may have become more attractive as the extensive financial liberalizations undertaken in the major industrial countries stimulated the development of a variety of new

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1/ For example see Figure 4.2 of the World Bank, World Developments Report 1989 for an indication of the extent of these interest rate differentials.

financial products and services. 1/ Deposits in the banking systems of the major industrial countries may also have been viewed as entailing less risk of financial loss than were deposits in the domestic banking systems in many developing countries, especially those experiencing financial crises and restructurings. A final factor may have been associated with the financing of the growing illicit trade in drugs and other goods. There is some evidence that money laundering techniques became increasingly sophisticated as the 1980s progressed. Naturally, channels which were developed to move funds derived from illicit activities could just as readily be used to move funds derived from other activities.

IV. The Implications of the Reduced Effectiveness of Capital Controls

As structural changes in the international financial system and other factors have reduced the ability of capital controls to insulate domestic financial market conditions from those in external markets, they may also have increased some of the explicit and implicit costs of using such controls, imposed new constraints on the formulation of stabilization and structural reform policies, and raised the issue of whether countries should respond to the reduced effectiveness of capital controls by attempting to tighten capital controls or adapting to a more open capital account.

1. The cost of maintaining capital controls

Even if the effectiveness of capital controls erodes over time, they can still inhibit or heavily "tax" certain classes of external financial transactions, limit the access of some individuals or institutions to international financial markets, restrict the degree of competition in domestic financial markets, and discourage the repatriation of flight capital. Capital controls can thereby create inefficiencies in the domestic financial system and inhibit risk diversification, which can in turn weaken the competitive position of domestic producers in international trade and increase the vulnerability of domestic spending and wealth to domestic financial shocks.

As new channels have developed for moving funds abroad, the costs of enforcing the capital controls, investigating suspected violations of the controls, and prosecuting violators of the capital controls code have risen. Kamin (1991) has also argued that capital controls can add to an economy's adjustment costs if they create the illusion that the authorities can target nominal variables (such as the exchange rate) without addressing the fundamental causes of inflation and balance of payments problems. As the effectiveness of capital controls erodes, moreover, such inappropriate

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1/ In some industrial countries, the reduction or elimination of withholding taxes on nonresidents' financial income may have also increased the attractiveness of capital flight.

macroeconomic policies can be sustained only if capital controls are further tightened thereby increasing the distortions they can potentially create.

Capital controls also create an implicit market value for the licenses for approved but restricted capital account transactions. However, these licenses are seldom sold at public auctions 1/ but are usually allocated to individuals and institutions according to a set of rules administered by the capital controls bureaucracy. These arrangements therefore often provide a strong incentive for individuals to attempt to capture the "rent" inherent in these licenses through bribery, corruption, and political influence. Although such "rent seeking" activities may be viewed as highly profitable from an individual's perspective, they have been identified by Bhagwati and Brecher (1984) as an important source of economic inefficiency in many economies with extensive controls on external trade and financial transactions. As macroeconomic instability in many developing countries in the 1980s increased the attractiveness of holding external assets, the implicit rents associated with these licenses rose.

A more subtle cost may have been associated with the spillover effects of the efforts to evade capital controls into other areas. The techniques used to evade capital controls and move funds to a parallel exchange market or abroad could often also be used to evade taxes and restrictions on other types of activities. More generally, exchange controls in some countries reportedly provided an impetus for the expansion of the underground economy.

2. Constraints on the formulation of macroeconomic and structural policies

When the effectiveness of capital controls erodes, this may impose new constraints on the formulation of macroeconomic and structural policies. Even when external financial market conditions are unchanged, for example, an increasing willingness and ability of domestic residents to evade capital controls implies that unstable domestic monetary and financial policies which create a large differential between the expected real returns on domestic and external assets typically lead to increased capital flight, a growing "dollarization" of an economy, and thereby smaller real sizes of the domestic monetary system and the domestic tax base. As the real size of the domestic financial system declines, the revenues that the authorities can obtain from an inflation tax (at a given rate of inflation) will also be reduced.

The reduced effectiveness of capital controls can also affect fiscal policy by making it increasingly difficult for the authorities to tax

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1/ A dual exchange rate system can in some respects be regard as one in which the rights to engage in external financial transactions are auctioned to the highest bidder. However, to the extent that certain types of approved (and licensed) capital transactions are allowed to take place at the official exchange rate, then a market value will also be created for these licenses.

financial incomes, transactions, and wealth. For example, high taxes on financial incomes and wealth can create a strong incentive for domestic residents to hold a significant proportion of their wealth as external assets which are often not subject to any or much lower taxation. As a result, new taxes and/or cuts in government spending will be needed as the effectiveness of capital controls erodes and leads to a decline of real tax revenues.

Even if capital controls are not relaxed, there can be strong incentives for the repatriation of external assets held by residents during the initial phase of stabilization and structural reform programs. Moreover, the capital flight that occurred during the 1970s and 1980s resulted in holdings of external assets by the residents of many developing countries whose estimated value (as measured in terms of U.S. dollars) at either official or parallel market exchange rate appears large relative to the size of the domestic financial systems (Table 4). 1/ Thus, even if residents repatriated only a modest proportion of their external assets, there could be relatively large capital inflows that could produce an appreciation of the real exchange rate and potentially undermine a trade reform.

While there have been many analyzes of how best to deal with these capital flows, policy recommendations have generally focused on three alternatives: (1) sterilization of capital inflows, (2) tightening capital controls, and (3) implementing measures which allow the country to live with the capital inflow and limit the potentially adverse effects of any real exchange rate appreciation. Open market sales of government debt by the central bank or the issuance of new government debt by the fiscal authorities have been viewed as one means of offsetting the effects of any capital inflow on the domestic monetary base when the exchange rate is fixed or less than perfectly flexible. While such operations would increase the stock of government debt in private portfolios, they would do little to satisfy a generalized demand for increased holdings of a broad range of domestic assets at the initial configuration of yields on domestic securities (including equities and private debt instruments). Indeed, in order for the private sector to be satisfied with placing all of its repatriated funds into government securities, it would very likely have to see a high real return on such securities, which could drive up government borrowing costs substantially.

If these capital inflows cannot be effectively sterilized, another policy alternative would be to tighten capital controls at the beginning of the stabilization and reform program. The effectiveness of tighter capital controls is likely to depend on whether the capital inflows are motivated primarily by short-run speculative considerations reflecting attempts to temporarily take advantage of high domestic real interest rates or represent

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1/ See footnote 3/ of page 17 for a listing of the countries included in Table 4.

Table 4. Stocks of Flight Capital and Broad Money: Selected Developing Countries, 1976-1990

	Flight Capital 1/ (1)	Broad Money 2/ (Official Exchange) 3/ Rate (2)	Broad Money (Parallel Market Exchange Rate) 4/ (3)	Ratio of Column (1) to (2) (4)	Ratio of Column (1) to (3) (5)
	(In billions of U.S. dollars)			(In percent)	
1976	13.7	94.0	86.4	14.6	15.9
1977	29.2	113.9	104.7	25.7	27.9
1978	45.5	143.1	131.6	31.8	34.6
1979	62.2	184.3	171.2	33.7	36.3
1980	73.6	235.1	215.7	31.3	34.1
1981	82.5	238.0	211.4	34.7	39.0
1982	96.8	175.2	135.8	55.3	71.3
1983	121.5	171.5	103.7	70.8	117.1
1984	134.7	160.3	112.5	84.0	119.7
1985	145.7	150.5	100.1	96.8	145.5
1986	152.1	127.2	99.5	119.6	152.9
1987	181.3	125.0	91.6	145.0	197.8
1988	183.9	145.7	104.8	126.2	175.5
1989	182.4	121.3	101.8	150.4	179.2
1990	175.8	146.9	116.5	119.6	150.9

1/ See footnote 2/ on page 37 for the definition of flight capital.

2/ Broad money is taken as the money plus quasi-money (lines 34 and 35 of the International Financial Statistics) summed across all countries in the sample.

3/ The official exchange rate is line--of the International Financial Statistics.

4/ The parallel market exchange rate is taken from various issues of the International Currency Analysis, World Currency Yearbook.

a desire to repatriate a portion of the residents' external assets over the medium term because of a credible reform program. A tightening of capital controls could give the authorities some additional short-term control over capital inflows and thereby some influence on the real exchange rate. As has been discussed, however, the effectiveness of such additional control would be of uncertain duration; and, if residents are motivated primarily by medium-term considerations, historical experience suggests that they would eventually find channels for evading the new controls. Moreover, if the authorities objective was to limit capital inflows over the entire period during which the structural reforms (especially the trade reform) were being phased in, then capital controls might have to tighten repeatedly in order to maintain the same level of control, which could interfere with the financing of normal trade transactions and thereby undermine a trade reform just as seriously as a real exchange rate appreciation.

The potentially adverse effects of a severe tightening of capital controls raise the issues of what are the potential benefits of a more open capital account and whether there are fiscal, financial and structural policies that would allow a country to initially "live with" the capital inflows and limit the potentially adverse effects of any real exchange rate appreciation and eventually help achieve and sustain an open capital account. The remainder of this section considers some of the potential benefits of an open capital account, and the next section examines policy preconditions for establishing capital account convertibility.

3. The potential benefits of a more open capital account

While much of the discussion of the use of capital controls has focused on the difficulties that can be created by capital flows (Section II.2), the recent discussions of removal of capital controls in European Community have pointed to the potential benefits of an open capital account. Although capital account convertibility is likely to be sustainable only if supported by appropriate macroeconomic, financial and structural policies 1/, the potential benefits of an open account, as well as the costs of maintaining capital controls, will influence whether countries will respond to the growing ineffectiveness of capital controls by moving toward more restrictive controls or more open capital accounts. Crockett (1991) has identified several efficiency and welfare gains associated with the removal of capital controls. First, freedom of capital flows allows the international economy to attain the efficiency gains created by specialization in the production of financial services. 2/ Just as with trade in goods, countries will find it more efficient to import rather than produce some financial services. Many wholesale financial services, whose

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1/ These preconditions for establishing capital account convertibility are discussed in Section V.

2/ These efficiency gains can be reduced if assets prices are distorted by such factors as tax differentials.

production entails economies of scope, scale, or risk pooling (e.g., marine insurance) may often be obtained most efficiently through importation.

Second, capital account convertibility can also promote dynamic efficiency in the financial sector. Increased competition from abroad will force domestic producers to become more efficient and can stimulate innovation and productivity improvement.

Removing capital controls can also improve the global intermediation of resources from savers to investors if international financial markets appropriately price the risks and returns inherent in financial claims. Under such conditions, global savings can be allocated to the most productive investments. In addition, enterprises will be able to more easily diversify their activities abroad and to adopt new technologies and managerial techniques, especially those involving the use of new financial products to manage risks and finance investments.

In addition, capital account convertibility allows residents to hold an internationally diversified portfolio of assets, which reduces the vulnerability of their income streams and wealth to domestic financial and real shocks.

A further benefit associated with the removal of capital controls is that it may facilitate access to international financial markets and reduce borrowing costs. For a lender to extend credit over the medium term, the expected yield on the loan must reflect the likelihood of any potential default on or disruption of debt-service payments. Thus, if it is anticipated that in a crisis a country might tighten controls or impose limits on debt service payments during the period of the loan, then lenders may either abstain from lending or incorporate a risk premium into their lending rate.

V. Establishing Capital Account Convertibility

In order to obtain the benefits of a more open capital account, however, a country must be able to sustain whatever degree of capital account convertibility it establishes. This raises two policy-related issues: (1) what difficulties are likely to be encountered either when capital controls are initially relaxed or subsequently removed and (2) what policies can be used to facilitate the transition to an open capital account and to sustain capital account convertibility. This section therefore reviews the experiences of selected industrial and developing countries that have opened their capital account, in order to examine the capital flows and asset price movements that have accompanied such liberalizations, and identify the policies that helped sustain capital account convertibility and to manage the financial risks created by an open capital account.

1. Experiences with capital account liberalization

Countries have followed quite divergent strategies when attempting to establish capital account convertibility. While some countries (such as the United Kingdom, Argentina, and Uruguay in the 1970s) removed most of their capital controls in a short period, most countries have followed a more gradual approach of first relaxing constrains on trade-related capital flows, then restrictions on longer-term foreign direct and portfolio investment flows, and finally on short-term financial flows. Both approaches have had their share of successes and failures. The experiences of New Zealand, the United Kingdom and a number of Latin American countries can be used to illustrate both the asset price movements and capital flows that have often accompanied the removal of capital controls and the policies that have been important to sustaining capital account convertibility. In considering these experiences, it will be shown that capital account liberalization was only undertaken as one element in broader stabilization and structural reform programs. Moreover, the credibility and consistency of the other economic policies played a key role in determining the sustainability of an open capital account.

a. Industrial countries

New Zealand and the United Kingdom provide examples of countries that removed their capital controls relatively quickly and sustained current account convertibility. New Zealand's capital controls, which had been in place since 1938, encompassed surrenders requirements on the receipt of foreign exchange, limitations on holdings of foreign securities, restrictions on overseas borrowing, and limits on raising of funds on the New Zealand capital market by overseas-owned companies. In the United Kingdom, investors were required to obtain prior approval for most categories of foreign currency investments and were denied access to the "official" foreign exchange market for certain types of foreign investments. In addition, holdings of other foreign currency assets, such as bank deposits, were restricted to those needed for trade purposes, and lending of sterling to nonresidents, including trade credit, was also restricted.

In both countries, the removal of capital controls was only one element in a comprehensive stabilization and structural reform program. Although there was some relaxation of capital controls in the United Kingdom in June and July 1979, the final abolition occurred in October of that year. During that period, fiscal policy reforms were introduced in the context of the Medium Term Financial Strategy (MTFS) which encompassed changes in both spending and tax policies. In addition, the practice of announcing monetary aggregate targets was continued, with a gradual deceleration in the rate of monetary expansion envisaged. Moreover, when the actual budget deficit and the rate of monetary expansion exceeded the MTFS's first year targets, the second year budget proposed higher taxes and lower targets for the rate of monetary expansion than had been aimed at in the previous two years. Since this tightening of fiscal policy occurred when the economy was in a

recession, Maynard (1988) argued that it was crucial in establishing the credibility of the government's anti-inflation policy.

New Zealand effectively abolished exchange and capital controls in December 1984 as part of a general financial liberalization designed to improve allocative efficiency and to remove artificial barriers to competition in financial markets. These financial reforms also encompassed the removal of most interest rate controls (July 1984), withdrawal of credit expansion guidelines (August 1984), the removal of all reserve and other ratio 1/ requirements, and the adoption of a floating exchange rate (March 1985). A fiscal reform introduced a medium term perspective to the formulation of the budget and measures were announced that would remove a wide range of subsidies and tax incentives, increase energy prices progressively so as to cover supply costs, and establish tax and transfer policies designed to provide an improved safety net for low-income groups. Since the extensive financial reforms led to sharp changes in the relative rates of growth of traditional monetary aggregates, the authorities did not initially announce monetary aggregates targets but instead monitored a range of indicators to assess monetary conditions with the general objective of achieving low inflation. A more gradual, and less comprehensive, trade liberalization and labor market reforms were also initiated. The trade liberalization involved a relaxation of the import licensing system (with tariffs becoming the primary means of protection), increased reliance on public sale of import licenses for consumer goods, and a reduction in export incentive schemes.

In both countries, the removal of capital controls and the implementation of the other reforms was followed by sharp adjustments in capital flows and an initial appreciation of the real exchange rate (Table 5). In the United Kingdom, for example, the Bank of England (1981) noted that pension funds, insurance companies, and unit investment trusts sharply increased the proportion of their cash flows devoted to the purchase of external assets. In addition, the financing of overseas investment, which had previously been done in foreign currency, was increasingly financed by borrowing denominated in sterling. Foreign currency deposits held by U.K. residents also increased by £5 billion (approximately a 100 percent increase) between end-September 1979 and end-June 1981.

While these outflows by U.K. residents were partially offset by foreign private capital inflows (Table 5), net identified capital outflows (including net errors and omissions) totaled $18.8 billion in 1981, compared with $6.3 billion in 1980 and an inflow of $3.8 billion in 1979. Despite this pattern of capital flows, the real effective exchange appreciated by 16

1/ These ratio requirements included minimum holdings of cash and government securities (as a percentage of assets) for savings banks and minimum investments in government securities (as a percentage of assets) for life insurance companies, pension funds, finance companies and building societies.

Table 5. Capital Flows and Real Exchange Rates: New Zealand and the United Kingdom

(In billion of U.S. dollars)

	New Zealand Capital Flows				
	1984	1985	1986	1987	1988
Capital Account Balances	2.2	1.3	3.3	-1.6	0.7
Direct Investment Abroad	-0.2	-0.1	-0.4	-0.5	-0.2
Direct Investment in New Zealand	0.3	4.2	0.3	0.2	0.4
Portfolio Investment	-	-	-	-	-
Net Errors and Omissions	1.1	0.9	0.4	0.9	-0.1
	Real Exchange Rate (1985 = 100)				
	98.2	100.0	101.1	116.8	124.5

	United Kingdom Capital Flows				
	1978	1979	1980	1981	1982
Capital Account Balances	-8.0	1.9	-8.2	-20.6	-6.4
Direct Investment Abroad	-6.8	-12.5	-11.2	-12.2	-7.2
Direct Investment in the U.K.	3.8	6.5	10.1	5.9	5.4
Portfolio Investment	-2.3	1.5	-4.5	-8.7	-13.3
Net Errors and Omissions	3.4	1.9	1.9	1.8	-3.7
	Real Exchange Rate (1985 = 100)				
	82.5	96.1	115.4	121.9	114.5

Sources: International Monetary Fund, Balance of Payments Yearbook and International Financial Statistics.

percent in 1979, 20 percent in 1980, by 6 percent in 1981. Maynard (1988) has argued that the initial appreciation of the real exchange rate reflected the relative high level of UK interest rates in 1979 and 1980, the emergence of the UK as a net oil exporter, a series of large current account surpluses, and the growing credibility of the government's anti-inflationary program (especially following the tightening of fiscal policy implied in the 1981 budget).

In New Zealand, there was initially a historically large net capital inflow and a real appreciation of the exchange rate. Net capital inflows (including errors and omissions) reached $2.1 billion in 1985 and $3.7 billion in 1986. The real effective exchange rate also experienced uneven but substantial appreciation (by roughly 27 percent between 1984 and 1988).

Despite the real exchange rate appreciation and the sharp changes in capital flows, New Zealand and the United Kingdom sustained their commitment to capital account convertibility. In part, this reflected the fact that, the removal of capital controls was just one element in comprehensive stabilization and structural reform programs in both countries. In addition, early steps were taken to establish the credibility of the authorities commitment to reducing inflation through both fiscal reform and a tightening of monetary policy. However, the pace of other structural reforms differed, with New Zealand, for example, initially retaining a high degree of trade protection than the United Kingdom (which was already highly integrated with other members of the European Community). Those similarities and differences suggest that a credible anti-inflation policy is of special importance in sustaining capital account convertibility.

b. Developing countries

During the past two decades, a number of developing countries have also liberalized their capital accounts as part of comprehensive stabilization and structural reform programs. However, the extent of the liberalizations and the degree of their success has differed significantly. These differences can be illustrated by considering the capital account liberalizations of: (1) the Southern Cone countries of Latin America (Argentina, Chile and Uruguay) during the mid-1970's, which saw an initial period of success but were abandoned in the midst of domestic financial crises and balance of payments difficulties and (2) the sustained and gradual liberalization of Mexico's capital account in the context of a comprehensive adjustment program during the late 1980's.

(1) The failure of capital account liberalization in the Southern Cone

In the early and mid 1970s, Argentina, Chile and Uruguay undertook stabilization and structural reform programs which removed a variety restrictions on activities in domestic financial and commodities markets as well as on current and capital account transactions. 1/ However, there were important differences between the pace and sequencing of the various reforms in the three countries. For example, Argentina and Uruguay removed most of their capital controls in the early stages of their reforms. In contrast, while Chile undertook the most extensive trade liberalization, it eliminated controls on international capital movements much more gradually. 2/ Nonetheless, all three countries moved quickly to liberalize domestic financial markets, with interest rate ceiling being removed by 1974 in Uruguay and by 1976 in Chile and Argentina.

The extent of the fiscal reforms undertaken in the three countries also differed significantly. Chile relied primarily on reducing expenditures and eventually generated an overall fiscal surplus during the period 1979-81; and, during the same period, Uruguay also attained a balanced fiscal budget. In contrast, although Argentina reduced the size of its fiscal deficit as a proportion of GDP, the deficit amounted to almost 8 percent of GDP throughout the period 1976-80.

Table 6 summarizes the key asset price movements that accompanied these three reform programs. Throughout most of the reform period, all three countries experienced ex-post real interest rates that were considerably higher than those prevailing abroad (even after adjustment for the rate of depreciation of the exchange rate) and sharp real exchange rate appreciations.

The sharpest real exchange rate appreciation occurred in the period after 1978 following a fundamental change in exchange rate arrangements. From the initiation of the reforms until February 1978 in Chile and until December 1978 in Argentina and Uruguay, large initial exchange rate depreciations were followed by a "passive" crawling peg exchange rate arrangement, in which the exchange rate was adjusted to reflect differentials between domestic and external rates of inflation. During that period, the fiscal reforms, which facilitated reductions in the rates of monetary expansion, led to lower inflation in all three countries. Nonetheless, by late 1977, inflation remained high at about 50 percent in Chile and Uruguay and over 200 percent in Argentina (Table 6). At that time, all three countries began to publish schedules ("tablitas") of future

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1/ Studies of these liberalizations have been undertaken by Corbo, de Melo and Tybout (1986), Sjaastad (1983), and Hanson and de Melo (1985).

2/ In particular, while restrictions on medium-term capital flows were gradually reduced, restrictions on short-term capital inflows remained until late 1981. (See Corbo, de Melo, and Tybout (1986)).

Table 6. Argentina, Chile and Uruguay: Interest Rates, Inflation and Real Exchange Rates

	Argentina				Chile				Uruguay			
	Real Interest Rates 1/	Inflation Rate	Real Effective Exchange Rate 2/	Ex-post Peso/ Dollar Spread 3/	Real Interest Rates 1/	Inflation Rate	Real Effective Exchange Rate 2/	Ex-post Peso/ Dollar Spread 3/	Real Interest Rates 1/	Inflation Rate	Real Effective Exchange Rate 2/	Ex-post Peso/ Dollar Spread 3/
1977 = Q1	-26.2	191.3	35.4	-42.0	91.7	90.4	66.1	66.7	-1.5	64.5	55.8	...
Q2	3.7	122.0	38.5	-16.3	41.9	74.7	80.6	16.4	2.1	58.6	57.5	...
Q3	-15.9	161.8	48.7	18.5	35.2	53.5	87.6	-17.1	-3.8	68.4	61.2	...
Q4	37.9	215.2	47.7	137.5	54.8	49.9	81.1	4.2	21.4	45.5	63.1	23.0
1978 = Q1	28.8	196.3	53.0	112.8	51.3	33.1	78.7	16.9	43.1	23.7	63.7	54.8
Q2	-1.1	185.1	58.3	94.8	33.5	34.7	81.1	11.6	13.4	52.5	61.8	4.8
Q3	17.6	126.3	64.8	78.0	30.3	33.4	83.6	22.3	17.9	47.6	60.0	1.8
Q4	-9.7	166.9	67.5	38.0	49.1	27.2	82.8	38.3	15.6	49.4	60.0	12.5
1979 = Q1	-23.0	204.3	69.6	33.3	33.7	25.4	83.7	12.7	0.4	68.9	70.6	14.8
Q2	-11.5	138.4	75.7	42.3	19.2	34.6	86.3	9.6	-5.3	73.2	76.5	14.8
Q3	-4.8	169.5	82.2	73.9	5.1	51.8	86.0	3.1	-14.6	90.0	82.1	20.5
Q4	53.3	96.7	84.3	63.7	13.9	41.1	90.6	26.9	-11.1	86.9	93.4	28.6
1980 = Q1	19.5	97.1	92.8	44.3	25.0	29.5	97.8	30.9	0.4	66.7	99.9	30.0
Q2	9.2	98.2	97.2	48.3	7.7	33.3	99.0	17.5	18.6	41.8	99.0	22.1
Q3	42.6	73.2	102.8	74.5	10.1	28.1	101.0	18.4	5.4	57.4	100.7	14.5
Q4	13.9	87.6	117.2	60.8	5.7	34.4	107.9	16.1	22.6	34.6	100.1	13.3
1981 = Q1	52.8	71.6	118.6	20.0	28.6	18.4	115.3	24.4	30.9	25.1	108.6	17.1
Q2	-19.6	129.8	73.6	-1,280.6	34.9	11.7	125.8	20.7	23.1	29.7	123.5	19.6
Q3	28.9	177.2	82.0	51.0	38.1	9.3	125.5	17.3	13.0	40.4	126.8	11.4
Q4	1.0	125.0	78.2	-1,041.7	44.4	6.7	122.6	20.7	27.4	25.2	124.8	16.2
1982 = Q1	...	161.8	64.5	...	50.8	2.9	128.9	20.4	38.5	7.7	127.3	9.4
Q2	...	71.3	53.4	...	48.8	-0.8	119.0	14.8	36.1	11.4	129.5	8.2
Q3	...	324.5	46.2	...	30.2	26.1	89.4	...	32.3	22.7	133.2	7.3
Q4	...	342.6	38.5	...	20.9	55.8	83.8	...	44.0	18.8	67.4	-96.5

Sources: International Monetary Fund; International Financial Statistics Various Issues; Corbo, de Melo and Tybout (1986), Sjaasted (1983) and Fund staff estimates.

1/ Average annual lending rate during the quarter minus the inflation rate.

2/ Base 1980 = 100. Source: From 1979 = 1 to 1982 = 4. Information Notice System. The rest of the series was constructed based on data published in Corbo, de Melo and Tybout (1986).

3/ Defined as = $\frac{(1+i_t)}{(1+i_t)(1+\hat{s}_t)} - 1$

Where i_t is the average annual domestic interest rate, $\hat{s}_t$ is the devaluation rate and i_t^* = LIBOR for chile and U.S. dollar lending rate for Argentina and Uruguay. The spread for Chile is constructed from information contained in Sjaastad (1983).

exchange rates that implied daily rates of depreciation for their exchange rates that were below the existing difference between domestic and foreign inflation rates of inflation. These "tablitas" were viewed as a mechanism for conveying the government's commitment to reduce inflation and thereby influencing expectations about inflation.

However, as the rate of depreciation of the exchange rate declined with the implementation of the "tablitas," the spread between domestic interest rates (adjusted for the pre-announced rate of depreciation of the exchange rate) and external interest rates widened, which provided domestic residents with an incentive to borrow external funds to finance domestic expenditures. In all three countries, the resulting inflows of foreign capital were accompanied by relatively slow declines in inflation and real exchange rate appreciations. Indeed, by the end of 1980, the real exchange rates in Argentina, Chile, and Uruguay had appreciated by 74, 37, and 67 percent, respectively, relative to their values at the beginning of their "tablita" periods. As the real exchange rates appreciated, Corbo, de Melo, and Tybout (1986) argued that this led to a growing deterioration in the trade balances, which generated expectations that the pre-announced exchange rate regime would not be sustainable. These developments eventually undermined the credibility of the reform programs, which was reflected in capital flight, the abandonment of the "tablitas" by Argentina in early 1981, by Chile in June 1982 and by Uruguay in November 1982 and a series of financial crises in the early 1980s.

These experiences have raised the question of why the capital account liberalizations ultimately proved unsustainable. Most analyses 1/ have attributed these difficulties to inconsistencies between the "tablitas" and other macroeconomic, incomes, and financial policies. For example, in Argentina little progress was made in reducing the fiscal deficit. Since the financing of this deficit was a fundamental source of inflation pressure, the resulting real exchange rate appreciation created an unsustainable current account position. Although Chile ran a government budget surplus during its "tablita" period, the problems created for its current account position by the real exchange rate appreciation were exacerbated by a system of backward indexation of wages, which adjusted wages to reflect past rather than current rates of inflation. With inflation declining, albeit at a slow pace, the backward indexation of wages raised real wages. High real wages, the real exchange rate appreciation, and the persistence of high real interest rates contributed to the deterioration of the Chilean current account position and reduced output. In Uruguay, the sharp real exchange rate appreciation was accompanied, beginning in 1981, by a growing fiscal deficit that was financed to an important degree by increased issuance of foreign debt. As the inconsistencies between these macroeconomic policies became more apparent,

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1/ For example, see McKinnon (1991) and Corbo, de Melo, and Tybout (1986).

capital flight, a balance of payments crisis, and the abandonment of the stabilization plan followed.

(2) The Mexican experience

Following the emergence of debt-servicing difficulties in August 1982, Mexico embarked upon a series of adjustment programs during the period 1983-87 which encompassed tight fiscal and monetary policies and liberalization of exchange and trade controls. In contrast to the Southern Cone experience, where a comprehensive liberalization of domestic financial markets was undertaken early in the reform process, the Mexican financial sector remained highly regulated during the period 1983-88. 1/ In particular, ceilings on bank lending and deposit interest rates were retained until early 1989. In addition, the liberalization of the capital account was a very gradual process. While several exchange controls were relaxed, restrictions on foreign direct investment were loosened only in 1989; and some controls on other capital flows were retained. Moreover, with the exception of financial institutions located in the areas bordering the United States, bank deposits denominated in foreign currencies are not allowed in the domestic financial sector.

While the fiscal reforms during the period 1983-87 led to a surplus in the primary fiscal balance--defined as the net public sector balance excluding interest payments on the government's debt, the overall public sector deficit remained high due to substantial interest payments on both domestic and foreign debt. With limited access to external financing, the Mexican government increasingly relied on the issuance of Treasury bills (CETES) as an alternative to central bank credit.

Despite the adjustment programs, it proved difficult to achieve a sustained reduction in inflation during the period 1983-87 (Table 7). Nonetheless, the real exchange rate remained relatively stable as a major depreciation in mid-1986 was followed by a gradual depreciation of the peso relative to the U.S. dollar.

To achieve a lower rate of inflation, the Mexican authorities introduced in December 1987, a comprehensive economic program which encompassed a tightening of fiscal and monetary policies, and a wage-price-exchange rate freeze in the context of a social pact with labor and business--the Pact for Economic Solidarity (the Pacto), which had as its main objective stopping the inertial component of inflation by breaking the de-facto indexation of wages. Moreover, after a large initial devaluation in December 1987, and a smaller one in February 1988, the exchange rate was fixed during the rest of the year.

1/ For a review of the process of financial liberalization in Mexico, see Coorey (1992).

Table 7. Mexico: Interest Rates, Inflation and Exchange Rates

(Annual rates)

	Real Ex-post Interest Rate 1/	Inflation Rate	Real Effective Exchange Rate 2/	Ex-post Peso/Dollar Spread 3/
1986 = 1	17.3	111.6	63.7	-31.4
2	12.3	84.4	62.5	-8.9
3	18.8	104.7	56.8	-27.3
4	18.4	113.0	55.7	5.2
1987 = 1	13.1	139.1	52.5	4.9
2	9.4	142.7	54.6	7.2
3	-3.5	143.3	59.1	18.9
4	-18.6	169.5	57.5	-42.5
1988 = 1	35.4	272.3	64.4	56.0
2	15.3	54.3	69.9	24.8
3	20.3	19.4	74.3	23.5
4	29.5	12.9	73.9	41.1
1989 = 1	32.9	24.6	73.4	21.3
2	42.2	17.2	75.3	28.1
3	17.8	13.7	75.7	10.9
4	2.5	19.6	74.2	16.5
1990 = 1	24.5	46.0	74.8	21.7
2	15.8	23.6	76.7	15.7
3	8.8	24.3	76.8	12.4
4	8.5	25.8	78.6	13.3
1991 = 1	10.5	32.7	80.8	10.5
2	8.1	15.3	84.8	7.1
3	4.8	11.4	85.9	7.8
4	...	19.6	86.7	10.2

1/ Three month-CETES minus the inflation rate observed in the subsequent quarter (annualized).

2/ Based on relative movements in consumer prices. Trade weighted exchange rate index (1980 = 100).

3/ Defined as: $\frac{(1+i_t)}{(1+\hat{s}_t)(1+LIBOR)} - 1$

where: i_t = domestic interest rate, $\hat{s}_t$ = devaluation rate.

Although the new stabilization program reduced inflation sharply, there was both a real exchange rate appreciation 1/ and a sharp increase in the peso-U.S. dollar interest rate spread in favor of peso denominated assets. As with the Southern Cone experience, these developments led to concerns about the sustainability of the economic program and the exchange rate policy which were reflected in high nominal and real interest rates. 2/ Moreover, when the government eliminated controls on interest rates in April 1989, there was a further rise in domestic real interest rates and in the interest rate spread (Table 7).

In contrast to the Southern Cone experiences, however, the Mexican authorities reacted quickly and introduced a revised economic program in late 1988, aimed at improving the credibility of exchange rate policy and helping to reduce real interest rates. The two major features of the program were the announcement of a fixed rate of depreciation of exchange rate at 1 peso per U.S. dollar per day--from January 1989 to May 1990--and a further intensification of the fiscal adjustment. The macroeconomic, exchange rate and financial policy mix of this program thus differed in a number of respects from those employed in the Southern Cone countries in the 1970s. First, although Mexico and the Southern Cone countries pre-announced their exchange rate adjustments, the financial liberalization of domestic markets in Mexico was accompanied by an increased rate of depreciation of the Mexican peso. Second, and perhaps most important, Mexico's fiscal and monetary policies were further tightened in order to enhance the credibility of the exchange rate policy and were made consistent with a long-run rate of inflation below the observed rate. 3/

Despite these fiscal adjustments, however, domestic real interest rates remained high in 1989 and attracted a large foreign private capital inflow. 4/ Since Mexican borrowers had only limited access to international capital markets, a significant proportion of these short-term inflows represented the repatriation of the external assets of domestic residents.

These high interest rates did not seem to reflect expectations of a large unanticipated exchange rate depreciation. Indeed, the differential between the interest rates on CETES (the peso denominated treasury bill) and

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1/ Between December 1987 and December 1988, the real exchange appreciated by about 29 percent.

2/ Evidence presented in Khor and Rojas-Suarez (1991) indicated that the expected future spot exchange rate was consistently more depreciated than the actual future spot exchange rate during 1988. This would be consistent with uncertainty about the sustainability of the exchange rate policy.

3/ During 1989-90, the primary surplus reached a historically large value of 8 percent of GDP.

4/ Net flows of foreign private capital (including errors and omissions) reached US$4.7 billion in 1989 after having recorded an outflow for most of the period since 1983.

PAGAFES (the U.S. dollar denominated treasury bill) declined sharply relative to the pre-announced depreciation of the exchange rate during 1989-90. However, the announcement of a possible agreement with commercial banks aimed at reducing Mexico's external debt and debt service payments in July 1989, was accompanied by a decline in domestic interest rates, and further reductions occurred after the signature of the final agreement (in February 1990). These interest rate movements suggest that the debt-reduction agreements had an important effect on the perceived default risk associated with holding Mexican claims. 1/ Subsequently, real interest rates declined further as the fiscal reform was sustained, inflation reduced, 2/ and the rate of depreciation of the exchange rate slowed. 3/ Mexico was therefore able to manage the transition to lower real interest rates and reduced inflation without the reintroduction of controls on the domestic financial system or a tightening of capital controls. Nontheless, it did sustain a large capital inflow despite maintaining some controls on short-term capital flows.

2. Implications of capital account liberalization for asset prices and capital flows

The experiences of industrial and developing countries with establishing capital account convertibility suggest that: (1) there have been some similarities in the initial asset price movements and capital flows that have characterized the opening of the capital account; and, as a result, (2) the implementation of certain policies can make it more likely that capital account convertibility can be sustained. As illustrated in the previous section, the opening of the capital account has historically occurred in conjunction with extensive stabilization and structural reform programs and has often been accompanied by large increases in gross capital inflows and outflows and, especially in developing countries, net capital inflows that were large relative to the size of the domestic financial system. 4/ In developing countries, high ex-post real domestic interest rates and, in some cases, a significant spread between the ex-post domestic interest rates (adjusted for exchange rate changes) and comparable international interest rates emerged when the domestic financial system was

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1/ Khor and Rojas-Suarez (1991) present empirical evidence that interest rates on domestic financial markets in Mexico were linked to perceptions of the default risk associated with holding Mexico's external debt.

2/ By the end of 1991, the 12-month rate of inflation was down to 20 percent.

3/ It was only in May 1990 when the Mexican authorities reduced the depreciation of the exchange rate to 0.80 peso per U.S. dollar a day. In mid-November 1990, the depreciation was established at 0.40 peso a day, and in November 1991, the depreciation was further reduced to 0.20 peso per U.S. dollar a day.

4/ In contrast, the United Kingdom experienced a net capital outflow.

liberalized in conjunction with an opening of the capital account. 1/ In all of the cases reviewed, however, there was a real exchange rate appreciation despite differences in exchange rate arrangements, the speed with which capital controls were removed, the ultimate sustainability of the capital account liberalization, or even whether there was a net capital inflow or outflow.

An opening of the capital account should be accompanied by an expansion of gross capital flows as residents and nonresidents take advantage of the opportunity to diversify their portfolios internationally. However, there could potentially be either a net capital inflow or net outflow. To the extent that capital controls were somewhat effective prior to their removal, residents would presumably not have been able to attain their desired net foreign asset (or liability) positions nor would nonresidents have been able to acquire either their desired holdings of domestic assets or borrowing from domestic lenders. Following the removal of capital controls, the scale of net capital flows would therefore reflect the relative sizes and direction of the portfolio adjustments undertaken by residents and nonresidents.

Given the very different approaches to establishing capital account convertibility that were followed by the countries examined in the previous section, it is perhaps somewhat surprising that all of them experienced a real exchange rate appreciation. Since there have been only a relatively limited number of attempts to establish capital account convertibility, it is still difficult to judge whether this type of real exchange rate movement will always occur. Moreover, country specific structural changes were often important factors influencing real exchange rate movements. For example, the removal of capital controls in the United Kingdom coincided with its emergence as a major oil exporter. Nonetheless, one common influence on real exchange movements was that the removal of capital controls was always a part of more comprehensive stabilization and structural reform programs. 2/ When such policies are viewed as credible and likely to be sustained, they create the prospect of improved economic conditions, raise the expected return from holding claims on the domestic economy, and thereby increase residents' and nonresidents' desired net holdings of claims on the domestic economy. This increased demand could be satisfied, in part, by an appreciation of the real exchange rate which would raise the real value of domestic claims relative to foreign claims. In addition to affecting the relative value of the existing stocks of foreign assets and domestic claims, an appreciation of the real exchange rate, which reduces the competitiveness of a country's exports and leads to a current account deficit, would also

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1/ High real interest rates have also been evident in countries that have liberalized their domestic financial systems and retained capital controls.

2/ A number of countries which have implemented stabilizations without liberalizing capital account restrictions have also experienced real exchange rate appreciations.

create a channel for increasing the net stock of external holdings of claims on the domestic economy.

Despite the difficulties involved in estimating the anticipated rate of inflation, there is some evidence that the high ex-post real interest rates that were evident when some developing countries opened their capital accounts also corresponded to high ex-ante rates. 1/ A number of factors have often been cited as contributing to the emergence of high real interest rates. Since establishing the credibility of the authorities' anti-inflation commitment typically involved implementing restrictive monetary and credit policies, it has been argued that adjustment to slower rates of monetary and credit expansion will give rise to higher real interest rates, in order to equilibrate the growing demand for money (reflecting a lower anticipated rate of inflation) and slower monetary expansion.

In some countries, inconsistent macroeconomic and exchange rate policies at times made it evident that the authorities exchange rate policy was unlikely to be sustained; and the prospect of a large exchange rate depreciation was reflected in high domestic interest rates. 2/ Moreover, in countries where private and official borrowers had experienced difficulties in meeting their debt-service payments on domestic and external debt, domestic interest rates often embodied a high implicit default risk premium. 3/ In countries where prudential supervision of the financial system was inadequate, Diaz Alejandro (1985) and McKinnon (1991) argued that high loan interest rates at times reflected high risk lending activities. Moreover, imperfections in domestic financial markets which raised the operating costs of domestic banks contributed to large spreads between lending and deposit interest rates. 4/

The spreads between domestic and foreign interest rates (adjusted for exchange rate changes) have been more pronounced in developing countries than in industrial countries. For the industrial countries, the opening of the capital account was followed quickly by the establishment of covered interest rate parity with offshore markets for shorter maturity instruments. For the developing countris that had liberalized domestic interest rates, large ex-post interest rate differentials (adjusted for exchange rate changes) often persisted. In part, the arbitrage of interest rate differentials may have been inhibited by remaining capital controls (when a gradual opening of the capital account occurred), by inefficiencies in the domestic financial system which raised the cost of arbitrage activities, and by the absence of certain institutions or markets (such as forward foreign exchange markets). In addition, the arbitrage of financial market conditions differed substantially before and after the emergence of the debt

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1/ See Rojas-Suarez (1992) for evidence on the Mexican case.
2/ For the case of Argentina, see Calvo and Rodriguez (1982).
3/ For the case of Mexico, see Khor and Rojas-Suarez (1991).
4/ In the case of Chile, Sjaastad (1983) identified several regulation in the financial sector that raised costs.

crisis in 1982. For the Southern Cone countries in the late 1970s, for example, the relatively high domestic interest rates attracted large scale lending from foreign financial institutions; whereas the inflows that were experienced by Latin American countries in connection with stabilization programs implemented after the 1982 debt crisis primarily reflected a repatriation of external assets held by domestic residents. While the prospect of earning relatively high interest rates stimulated the large inflows of foreign capital in the period before 1982, Ize and Ortiz (1987) have argued that these flows were also influenced by different views of residents and nonresidents on the perceived risks associated with holding the country's domestic and external financial instruments. In particular, they suggested that during the period before the debt crisis, the external government debt (or publicly guaranteed private foreign debt) of developing countries was viewed as having a more "senior" claim on debt-servicing resources than domestic government debt. The emergence of debt-servicing difficulties for many developing countries in the early 1980s, contributed to large interest rate spreads in developing countries by increasing the perceived default risk associated with holding claims on these countries and eliminating the perceived seniority of external debt.

3. Preconditions for establishing capital account convertibility

As discussed earlier, the capital flows and asset price movements (including the appreciation of the real exchange rate) that often accompanied the opening of the capital account made it difficult for some countries to sustain an open capital account. However, these experiences also suggest that the implementation of certain policies prior to opening the capital account can make it more likely that a country could live with these asset price movement and maintain capital account convertibility. These include macroeconomic and financial policies that help reduce the differences between domestic and external financial market conditions, as well as removing or reducing restrictions which inhibit the flexibility of wages and the prices of goods and assets. In addition, abrupt changes in capital flows can be minimized by limiting the use of taxes on financial income, wealth and transactions that create strong incentives to move funds or financial transactions abroad; and by taking steps to strengthen the safety and soundness of the domestic financial system.

One of the key macroeconomic preconditions for opening the capital account that has been evident in a number of successful liberalizations is a fiscal reform which significantly reduces any fiscal deficit and finances any remaining deficit in a noninflationary manner. Indeed, in order to establish credibility that the reform program and capital account convertibility will be sustained, it may be necessary to initially undertake a more substantial fiscal reform than would ultimately be needed for price stability and sustained growth. A large fiscal deficit financed by money creation gives domestic residents a strong incentive to move funds abroad to escape the inflation tax. As a result, sustaining an open capital account means that the inflation tax cannot be used as an important source of

revenues. Moreover, even a large fiscal deficit financed by bond issuance may not be compatible with an open capital account if a rising stock of external and internal debt leads to doubts about a country's ability to service these debts and thereby its creditworthiness.

The problems that Argentina, Chile, and Uruguay encountered in the early 1980s also suggest that maintaining capital account convertibility requires carefully formulated financial policies that establish more flexible interest rates, restructure and recapitalize domestic financial institutions, and more clearly define the scope of the protection offered by the official safety net underpinning the domestic financial system, as well as strengthening prudential supervision of financial institutions. Domestic interest rates on "traded" financial instruments must be comparable to those prevailing in international financial markets. In addition, the domestic financial system must be strengthened so that it can compete effectively with external financial institutions and withstand the effects of periods of high asset price variability. At a minimum, this will require the restructuring of any financial system with large holdings of bad debts or nonperforming loans, and eventually a rebuilding of the capital position in domestic financial institution (especially banks) to those comparable to the capital adequacy standards such as those established for international banks by the Bank for International Settlements Committee.

Opening the capital account will also require that the authorities examine the scope and coverage of any official safety net underpinning to domestic financial system. The stability of most national financial systems has historically been supported by the provision of short-term emergency liquidity assistance by central banks, some form of private or official deposit insurance, and direct short- or medium-term emergency liquidity assistance for large troubled institutions. While such policies can help contain the effects of a financial crisis, they expose the authorities to credit risks either through lending at the central bank's discount window, lending to troubled institutions, or deposit insurance obligations. Moreover, just as with other types of insurance, these safety nets can create a "moral hazard" problem if the insured behave differently just because of the existence of the insurance. If deposits are fully insured, for example, depositors may have little incentive to monitor the activities of a bank's managers and an element of market discipline will be lost. The credit risks associated with an official safety net have traditionally been limited by establishing minimum capital adequacy standards, codes of behavior in financial markets, restrictions on risk-taking, systems of prudential supervision, and institutional arrangements for managing the risks inherent in payments, clearance, and settlement systems.

Removing capital controls and establishing capital account convertibility will lead to the introduction of new financial techniques and instruments, new sources of funds, and new participants into domestic financial markets. While such changes increase competitive pressures that can lead to important efficiency gains, they can potentially introduce new

and highly complex elements of risk--some of a systemic nature--that make the pricing of financial instruments more difficult and that can contribute to abrupt changes in credit flows once previously unforseen risks become evident. In addition, more complex financial structures and ownership linkages can make the detection of fraud and other illegal activities more difficult. The potential official credit risks arising from the institutional failures that can be created by the mispricing of risk or widespread fraud provide a strong case for improving the domestic system of prudential supervision and coordinating supervisory efforts with those undertaken by the home supervisors of foreign institutions operating in the domestic market prior to the opening of the capital account.

For many heavily indebted developing countries, debt-reduction operations will be important for improving their perceived creditworthiness and facilitating renewed access to international financial markets. Provided that such operations are accompanied by credible macroeconomical structural policies, they may also reduce the borrowing cost faced by the residents of these countries.

Domestic taxes on financial income, wealth and transactions can also strongly influence residents' choices regarding the location of financial activities, the composition of their portfolios, and where financial transactions occur. The experiences of industrial countries with capital account convertibility have repeatedly demonstrated the need to harmonize domestic taxes on the financial sector with those prevailing in other countries. 1/ Such harmonization should be done prior to the complete removal of capital controls if large scale, tax motivated capital flows are to be avoided.

While establishing prudent macroeconomic, financial and fiscal policies can facilitate obtaining the greatest efficiency and risk-diversification benefits from an open capital account, it is evident from the experience of the 1980's that periods of high asset price variability have characterized international financial markets; and economies with capital account convertibility must adapt their domestic economic and financial structures to withstand the effects of such variability. Such asset price variability can have an especially adverse effects on employment, output and wealth in economies with regulations and institutional arrangements which inhibit wage, price, and interest rate adjustments. For example, wage indexation arrangements that prevent real wages from adjusting to a large financial shock (e.g., a sharp rise in international interest rates) will result in a larger adjustment in employment and output. Eliminating or reducing such regulations and institutional arrangements could play a significant role in allowing an economy to adjust more smoothly to both real and financial shocks.

1/ Razin (1991) has argued that, unless all countries can agree on a common set of taxes on financial activities and income, then the optimal domestic tax on income from capital would be zero.

An economy's exposure to such asset price variability can to some degree be offset through both the use of the emerging global markets for the trading of financial risks and by better design of external contracts and debts. During the 1970s and 1980s, the residents and governments of many developing countries often took relatively "open" positions with regard to their exposure to international asset price variability, especially with regard to interest rate movements. For example, a sizeable proportion of the external debt of the residents of most of these countries was denominated in the U.S. dollar and the interest rate was linked to the London interbank offer rate (LIBOR). As a result, sharp changes in LIBOR could lead to large changes in debt-service payments. While developing countries have attempted to limit or offset the impact of external financial shocks through self-insurance (e.g., holding larger foreign exchange reserves as an offset to larger external debt positions) and official multilateral assistance (e.g., through the IMF's compensatory and contingency financing facility), market-based hedging instruments are also available. 1/ These include the markets for both exchange traded futures and options contracts and over-the-counter forward agreements and swaps arrangements on major international interest rates, exchange rates, and commodity prices. While future contracts could be used to hedge against short-term movements in international interest rates, for example, interest rate caps could be used over a medium-term horizon to protect again highly adverse interest rate increases. Governments can often facilitate the use of market-based hedging strategies by the private sector by removing existing legal restrictions on the use of such instruments.

One limitation on the use of market based hedging strategies is that there are only a relatively limited number of interest rates and commodity prices for which there are active and liquid derivative products (e.g., futures or options) markets. Nonetheless, even where derivative products markets are absent, contractual arrangements can often be adjusted to incorporate a fixed interest rate or commodity price or to make payments contingent on future developments. For example, the debt reduction package negotiated between Mexico and its commercial creditors in February 1990, included a "value recovery" clause, which allowed banks holding discount bonds or par bonds with an interest rate below contractual rates to receive, starting in 1996, a portion of oil revenues accruing from a real oil price above US$14 a barrel. 2/

Even if countries put in place the policies needed to sustain capital account convertibility, there is still the question of how quickly to move to full convertibility. Fischer and Reisen (1992) have argued that capital account liberalization can be facilitated if there is a gradual phasing out

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1/ The use of this instruments has been explored in greater detail in Mathieson, et al. (1989).

2/ Those payments would equal 30 percent of the incremental oil revenue and would be subject of an annual limit equal to 3 percent of the banks' eligible claims at the time of the signature of the agreement.

of capital controls. In particular, they suggest that controls should first be removed on foreign direct investment and trade-related flows, and those on other flows should only be removed after extensive progress has been made on the stabilization and reform programs. While such a phased reduction has been followed by a number industrial economies, this process creates new avenues for disguised capital flows and can only work effectively if domestic and external financial market conditions do not differ markedly. Moreover, countries such as New Zealand and the United Kingdom have successfully sustained an open capital account after an abrupt removal of capital controls early in their reform process. The speed with which a country can move to full capital account convertibility appears to depend both how far it has proceeded in implementing the policies that are preconditions for such convertibility and its willingness to take further policy measures that credibly establish that it will carry through with the implementation of the remaining policy steps. Moreover, historical experience suggest that the consistency of macroeconomic, financial and exchange rate policies is more important for sustaining an open capital account than is the sequencing of the removal of capital controls.

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