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# CURRENT ACCOUNT DEFICITS AND CAPITAL FLOWS IN EAST ASIA AND LATIN AMERICA: ARE THE NINETIES DIFFERENT FROM THE EARLY EIGHTIES?

by

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# I. INTRODUCTION

A number of East Asian and Latin American countries have been the recipients of a large portion of total international capital flows to developing countries, both in the late seventies/early eighties and in the early nineties. These inflows have financed persistent current account imbalances, as well as the accumulation of foreign exchange reserves. The recent Mexican crisis has shown, however, that abrupt reversals in international capital flows can cause severe problems for economies with large external imbalances, and has spurred renewed interest in the question of current account sustainability. A number of recent studies have focused on potential early warning indicators in predicting exchange rate, financial and balance-of-payments crises.[1] This chapter contributes to this literature by examining the sustainability of current account deficits in three East Asian countries, Korea, Malaysia and Thailand, and three Latin American countries, Chile, Colombia and Mexico, in the early 1980s and in the 1990s. The methodology builds on Milesi-Ferretti and Razin (1996); this study emphasizes in particular regional aspects and stresses the differences between the experiences of the early eighties and those of the early nineties.

A remarkable feature of the experience of highly indebted East Asian countries in the early eighties has been that (with the exception of the Philippines) they avoided the debt crisis, which instead affected a large number of Latin American countries. Sachs (1985) argued that differences in external conditions could not account for the differences in outcomes across the two regions, and emphasized instead the importance of differences in exchange rate policy and trade openness. A decade later, some of the countries that experienced severe external imbalances in the early eighties have been running large current account deficits again. Given the differences in the macroeconomic policy stance and in the type of financing of these deficits, it is interesting to compare these more recent episodes with those of the early eighties, in order to draw some lessons on what factors determine the ability of a country to sustain persistent external imbalances without experiencing a crisis.

Given the "track record" of the East Asian countries we consider over the last 25 years, a natural question to ask is whether macroeconomic and structural features make them less likely to experience a reversal in international capital flows and/or less vulnerable to such a reversal. In our sample, East Asian countries are

characterized by a higher degree of openness and by higher levels of savings and investment than Latin American ones. In our analysis we provide arguments as to why these macroeconomic structural features can enhance the ability of an economy to sustain protracted current account imbalances.

Another important question that we address in this chapter is whether the composition of capital inflows plays an important role in determining the sustainability of external imbalances. There is a significant difference in the composition of capital flows between the late 1970s/early 1980s and the 1990s. In the earlier period, during which most of the countries we consider had a relatively closed capital account, capital flows to developing countries took mainly the form of official lending and commercial bank loans, while in the later period, characterized by increased capital account openness, portfolio flows and foreign direct investment played a major role (see, for example, Calvo, Leiderman and Reinhart (1994) and Corbo and Hernandez (1996) for an overview and a comparison between East Asia and Latin America).

Finally, we examine the implications of differences across decades in the domestic macroeconomic policy stance and the external environment (in particular, terms of trade and world interest rates) for the sustainability of current account deficits. There is an ongoing debate on whether the resumption of large capital flows to several developing countries (among which those in our sample) in the early nineties has been mainly driven by "pull" factors, such structural reforms and improved macroeconomic policy management, or by "push" factors, such as the low level of real interest rates and weak economic activity in OECD countries in the early 1990s (see, for example, Calvo, Leiderman and Reinhart (1993), Chuhan, Claessens and Mamingi (1993), Fernandez-Arias (1996)).

The rest of the chapter is organized as follows. Section II discusses solvency and sustainability of current account deficits in the context of standard intertemporal models of current account determination, in which the supply of foreign funds is infinitely elastic at the world interest rate. Section III examines key determinants of the supply of foreign funds in the presence of various capital market imperfections, in particular asymmetric information. Section IV describes the country episodes. Section V presents a cross-country comparison of

potential sustainability indicators, related to macroeconomic and structural features of the countries, as well as to the composition of external liabilities and the magnitude of external shocks. Section VI concludes.

## II. INTERTEMPORAL SOLVENCY[2]

The current account balance, $CA$, is the change in the net foreign liabilities of a country. In an accounting framework, it is defined as follows:

$$\begin{aligned} CA_t \equiv F_t - F_{t-1} &= Y_t + rF_{t-1} - C_t - I_t - G_t \\ &= S_{pt} + S_{gt} - I_t \end{aligned} \tag{1}$$

where $F$ is the stock of net foreign assets, $Y$ is GDP, $r$ is the world interest rate (assumed for simplicity to be constant), $C$ is private consumption, $G$ is government current expenditure, $I$ is total investment (private and public), $S_p$ is private savings and $S_g$ is public savings. As the second equality in (1) shows, the current account balance is also equal to the difference between the economy's total savings and total investment. Current account imbalances are a vehicle for the intertemporal allocation of resources.

We assume in this section that capital mobility is perfect, so that the net supply of foreign funds is infinitely elastic at the world interest rate level, postponing the discussion of imperfections in international capital markets to the next section. We define intertemporal solvency as a situation in which the country as a whole, and each economic unit within the country, including the government, obey their respective intertemporal budget constraints. The basic solvency requirement can be expressed by iterating forward the difference equation (1) and imposing the standard transversality condition that the present value of net indebtedness in the indefinite future has to tend to zero:

$$-(1+r)F_{t-1} = \sum_t^{\infty} \frac{1}{(1+r)^{s-t}} (Y_s - C_s - I_s - G_s) \tag{2}$$

The RHS of equation (2) is simply the present discounted value of future trade surpluses (deficits), that must be

equal to the present level of foreign debt (assets) in order for the country to be solvent.

Solvency , a long-run concept, clearly depends on the evolution of the macroeconomic aggregates on the RHS of equation (2). This equation, while valid in an accounting sense, has limited operational use, because it does not incorporate any behavioral assumption and thus does not impose any structure on future events/policy decisions. Indeed, if future trade surpluses are sufficiently large, solvency is always ensured. Therefore researchers have attempted to define a baseline for private agents' behavior and for future policy actions. With regard to private agents' behavior, it is typically assumed that they aim at smoothing their consumption stream, consistently with maximization of a concave utility function. With regard to future policy actions, in the case of public sector solvency the baseline has typically been established by postulating a continuation into the indefinite future of the current policy stance and no change in the relevant features of the macroeconomic environment.[3] This gives rise to the notion of "sustainability" -- the current policy stance is sustainable if its continuation in the indefinite future does not violate solvency (budget) constraints. The definition of sustainability based on solvency considerations is simpler for fiscal imbalances, given that these can be associated (at least to some degree) with direct policy decisions on taxation and government expenditure. Defining sustainability is more complex in the case of current account imbalances, given that these reflect the interaction between savings and investment decisions of the government and domestic private agents, as well as the lending decisions of foreign investors. While government decisions can, to a first approximation, be taken as given, private sector decisions are going to depend on their expectations of future government actions. Furthermore, a key relative price--the exchange rate--is a forward-looking variable that by definition depends on the future evolution of policy variables.

The question of whether current account imbalances are sustainable can be reformulated as follows. Is a continuation of the current policy stance and/or of the present private sector behavior going to entail the need for a "drastic" policy shift (such as, for example, a sudden policy tightening causing a large recession), or to lead to a "crisis" (such as, for example, an exchange rate collapse leading to an inability to service external obligations)? If the answer is yes, we have a case of unsustainability. This drastic change in policy or crisis

situation can be triggered by a domestic or an external shock, that causes a shift in domestic and foreign investors' confidence and a reversal of international capital flows.[4] Note that the shift in foreign investors' confidence may relate to their perception of a country's inability or unwillingness to meet its external obligations.

What are the implications of the solvency condition for the long-run level of income and absorption? It is possible to impose some more "structure" on the condition for solvency by considering the fact that, for an economy to remain solvent, the ratio of external indebtedness to output cannot grow without bound. Assume that the domestic economy grows at a given rate $\gamma < r$[5] and let lower-case letters indicate ratios of variables to GDP. Abstracting from changes in the real exchange rate, equation (1) can then be expressed as follows:

$$f_{t+1} - f_t = \frac{1}{1+\gamma_t}[tb_t + f_t(r^* - \gamma_t)] \qquad (3)$$

where *tb* is the trade balance. This expression simply says that changes in the ratio of foreign assets to GDP are driven by trade imbalances and by a "debt dynamics" term proportional to $f(r^* - \gamma)$. This latter term rises with the world rate of interest and falls with the rate of growth of the domestic economy. Consider now an economy in steady state, in which consumption, investment, and public expenditure are constant as a fraction of GDP. The long-run net resource transfer (trade surplus) that an indebted country must undertake in order to keep the debt to output ratio constant is determined by:

$$tb = 1 - i - c - g = -f(r^* - \gamma) \qquad (4)$$

In the presence of economic growth a country can sustain permanent current account deficits while remaining solvent even when the growth rate is below the world interest rate, provided these deficits are accompanied by sufficiently large trade surpluses. Clearly, if the long-run growth rate of the economy is zero, the current account must be balanced in order for the foreign debt (assets) to GDP ratio to be constant. In this case, a country that is a debtor in the long run will have to run a trade surplus, equal to - *rf*, to pay the interest on its external liabilities. The size of the net resource transfer implied by condition (4) has been used as a simple measure of

solvency in a number of studies. For example, Cohen (1995) considers the Mexican resource transfers (as a fraction of GDP) after the 1982 debt crisis as an "upper bound" on the feasible resource transfers for heavily indebted countries, and he compares this magnitude with each high debt country's resource transfer as defined by (4), in order to assess its solvency prospects (see also Cohen (1992)).

Two main approaches to the empirical implementation of intertemporal models of the current account have been used. The first approach emphasizes the consumption-smoothing role of the current account. Consider a small open economy under perfect capital mobility, that takes the world interest rate as given. In the absence of adjustment costs, investment will be undertaken so as to equate the marginal product of capital to the world interest rate in every period, regardless of the consumption profile. The latter will be determined by utility maximization considerations, subject to an intertemporal budget constraint. Assume for simplicity that the consumption function takes a quadratic form, and that the discount rate equals the real interest rate.[6] In this case, it is easy to show that even in the presence of uncertainty the expected level of consumption will be fixed along the optimal path and will be a function of the expected present discounted value of future net output. It can thus be shown that current account deficits will reflect expected increases in future net output, $Y - I - G$ (see, for example, Ghosh and Ostry (1995)).

This relation between the current account and expected changes in net future output has been used as the basis for tests of current account behavior by Sheffrin and Woo (1990), Otto (1992) and Ghosh (1995) for a sample of industrial countries and by Ghosh and Ostry (1995) for developing countries. The basic idea is an application of Campbell's (1987) methodology for testing the permanent income theory of consumption, and consists in the estimation of a VAR model linking the (detrended) current account and changes in net output to past values of the same variables. The current account needs to be detrended in order to control for the presence of long-run trends in foreign savings (footnote 6). The model's implication is that the current account should incorporate all available information for predicting future changes in net output, and therefore the coefficient on past net output changes in the equation determining current net output changes should be zero. The simple model

sketched above allows one to construct a predicted current account path, that can be compared with the actual one in order to gauge whether, according to the model, actual current account balances have been "excessive".

An alternative method of estimating an intertemporal model of current account determination has been used by Glick and Rogoff (1995) and Leiderman and Razin (1991). The methodology consists in the determination from an intertemporal model with investment adjustment costs and perfect capital mobility of the predicted responses of the investment and the current account to productivity shocks (global and country-specific, temporary and permanent), as well as to other shocks, and in the subsequent estimation of the model. While the presence of investment adjustment costs and stochastic productivity lends more realism to the model, the data requirements for this type of estimation have so far limited its application to industrial countries only.

What is the relation between external solvency, current account sustainability and "excessive" current account deficits? The concepts of solvency and sustainability discussed earlier in this section are binary -- a country is either solvent or insolvent, and a current account deficit either sustainable or unsustainable -- and imply an increasing order of restrictiveness. The first concept, based on the intertemporal budget constraint, can accommodate a variety of future behavior patterns. The second is based on a continuation of the current policy stance, and therefore imposes more structure on future behavior.[7] The notion of excessive current account deficits provides instead a quantitative metric based on deviations from an optimal benchmark (structurally derived from a model under the assumption of perfect capital mobility and efficient financial markets). One problem in using this metric as a basis for evaluating how close to unsustainability is a given path of current account imbalances is that its benchmark relies on the absence of capital market imperfections; consequently, deviations from the benchmark can simply reflect the existence of liquidity constraints or other financial market imperfections. We discuss how these imperfections can affect the supply of external funds in the next section; we do not, however, attempt to incorporate imperfect capital markets in an encompassing intertemporal model. Instead, we rely on the insights of the theoretical discussion to examine the issue of sustainability of protracted current account imbalances following a non-structural approach. We can thus incorporate a broader set of theoretical

considerations than those that can be accommodated in a structural approach using the state-of-the-art equilibrium models, at the cost of lacking the ability to provide a quantitative analysis of sustainability.

## III. SUPPLY OF EXTERNAL FUNDS AND DEBT FLOWS

So far we have considered a world in which market imperfections such as asymmetric information, moral hazard, and absence of bankruptcy arrangements do not play a role in shaping international borrowing and lending. These problems, however, are relevant, in particular for developing countries, typically characterized by shallower financial markets and higher vulnerability to external shocks, such as changes in the terms of trade. A vast literature, mostly spawned by the debt crisis experiences of 1982,[8] has used imperfect capital market models to study how the equilibrium level of international lending depends on the form of creditor sanctions (including loss of reputation), the ability of the borrower to make credible commitments (for example, through investment), the relative bargaining power in debt renegotiations etc. (see Eaton and Fernández (1996) for a recent theoretical survey on sovereign debt, and Cline (1995) for a retrospective on the debt crisis).

In this section we first present a simple illustrative framework that emphasizes the factors that determine international investors' willingness to lend to a given country, and their interaction with factors affecting the country's willingness to meet its external obligations. We turn next to the issue of asymmetric information between borrowers and lenders and its relation to the composition of capital flows.

### III.1 Willingness to lend: portfolio diversification

Consider a simple (static) model of international portfolio diversification. An international investor has to decide its optimal portfolio allocation by choosing investment projects across $J$+1 countries, indexed by $j$. The rate of return in the home country ($j = H$) expressed in foreign currency follows an i.i.d. process with mean $\rho_H$ and variance $\sigma_H^2$. The remaining $J$ countries (the rest of the world) are symmetric and have rates of return $r^j$, which follow a random i.i.d. process with mean $\rho$ and variance $\sigma^2$.

Assume that the international investor has a portfolio of size $W$, and denote by $\theta$ the share of the investor's portfolio allocated to the home country. Her/his portfolio's expected return is given by:

$$W[\theta\rho_H + (1-\theta)\rho]$$
$$\rho_H = i_H - \frac{\dot{s}}{s} \tag{5}$$

and the variance is given by

$$W^2(\theta^2\sigma_H^2 + \frac{(1-\theta)^2}{J}\sigma^2) \tag{6}$$

where $i_H$ is the rate of return in the home country's currency, s is the exchange rate between the home country and the rest of the world and a dot indicates a time derivative. The variance on the rate of return $\sigma_H^2$ represents the combined effect of exchange rate risk and domestic interest rate risk. Clearly, both $\rho_H$ and $\sigma_H^2$ are endogenous, since they depend on the government's policy choices, but this is not made explicit here. The international investor is assumed to have constant absolute risk aversion, with a coefficient $\gamma$. Thus, expected utility $U$ is given by:

$$U = W[\theta\rho_H + (1-\theta)\rho] - \frac{\gamma W^2}{2}[\theta^2\sigma_H^2 + \frac{(1-\theta)^2}{J}\sigma^2] \tag{7}$$

Maximizing expected utility with respect to $\theta$ and denoting the foreign currency value of home country's indebtedness $\theta W$ by $B_H$ we obtain:

$$B_H = (\sigma_H^2 + \frac{\sigma^2}{J})^{-1}[\frac{i_H - \dot{s}/s - \rho}{\gamma} + W\frac{\sigma^2}{J}] \tag{8}$$

Figure 1 depicts the supply of external finance $B_H$ as a function of the mean rate of return in the home country $\rho_H$, which will be identified as the cost of foreign borrowing. From equation (9) and (12) one can verify that the supply schedule is upward-sloping; that is, the country has to raise the rate of interest (adjusted for expected exchange rate changes) in order to elicit more capital from abroad. Furthermore, the supply schedule shifts upwards as: i) the opportunities for international diversification ($J$) rise (as in the case of "emerging markets"); ii) the country's credit and exchange rate risk ($\sigma_H^2$) increases; iii) the rate of interest in the rest of the world ($\rho$) increases. It shifts downwards as iv) the riskiness of the rest of the world's investment projects ($\sigma$) rises and v)

the size of the world's portfolio ($W$) increases.

[FIGURE 1 ABOUT HERE]

As highlighted in Figure 1, at the given level of external liabilities $B_{H}$, in order to elicit external funding a country must pay the rate of interest $\rho_{H}$ which is determined as the intersection between the supply-of-external-funds schedule and the vertical line originating at $B_{H}$. If a negative shock that shifts the supply schedule upwards occurs, there will be an increase in the country's cost of external borrowing $\rho_{H}$. This increase may force the country to change its policy stance in order to generate the additional flow of resources necessary to service external liabilities.[9] For example, Calvo (1995) shows how small "news" about the mean return of the investment project in the home country can have a large effect on the share of world portfolio allocated to the home country when the portfolio is well diversified ($J$ is large). In a similar setup, Calvo and Mendoza (1996b) find that in the presence of costly learning about country-specific information, multiple portfolio allocation equilibria characterized by investors' herding behavior can occur. Furthermore, the range of possible allocations widens when $J$ increases

How would structural and policy factors impinge on the variables that determine willingness to lend in the stylized portfolio model presented above? The domestic rate of return can be linked with the economy's productivity growth prospects and with fiscal policy (directly in the form of current tax rates, and indirectly through expected future taxation needed to repay the public debt). It will also be affected by the efficiency with which domestic financial markets intermediate foreign funds. The variance of domestic returns is linked for example to the overall degree of macroeconomic stability and to particular to the vulnerability of the domestic economy to shocks such as fluctuations in the terms of trade. In that context, the variance is reduced when the diversification of the production and export structure increases.

III 2 Asymmetric Information and Composition of External Flows

In addition to risk-aversion considerations, asymmetric information and enforcement problems can

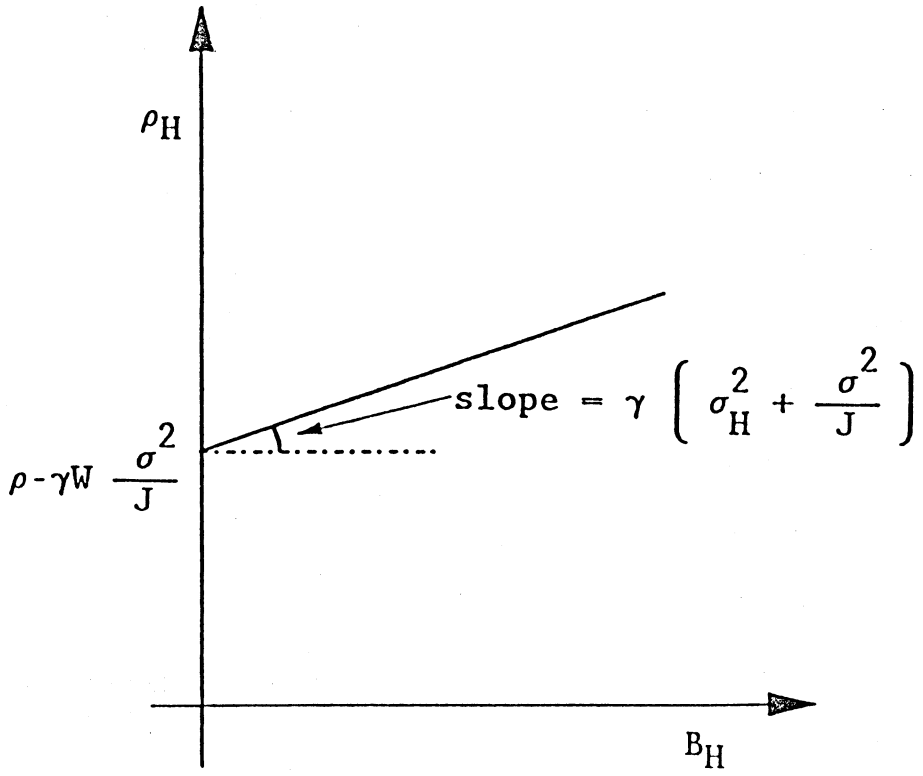


Figure 1. Supply of External Funds

however, play a pervasive role in international borrowing and lending, in particular for countries with less developed capital markets. The composition of the supply of external funds can have important implications for the intensity of asymmetric information problems in the context of international capital flows. Foreign investors can lack the same kind of information with respect to domestic agents, and would thus require a positive spread between domestic and international rates of return. Razin, Sadka and Yuen (1996) formalize the idea that these problems can be more severe in the case of portfolio debt and equity than in the case of FDI, insofar as the latter is a "tie-in" activity, involving an inflow of both capital and managerial inputs. This combination of inputs can give foreign investors the same kind of "home-court" advantage (with respect to, say, business information) that domestic investors have, but foreign portfolio (debt and equity) investors lack. [10]

One general aspect of asymmetric information is that the rate of interest a bank charges may itself affect the riskiness of loans by affecting either i) the action of borrowers (moral hazard or incentive effect) or ii) their characteristics (sorting or adverse selection effect). As shown in Stiglitz and Weiss (1981) this type of asymmetric information problems can lead to credit rationing (see also Folkerts-Landau (1985) for an open-economy application). The existence of implicit or explicit bailout clauses can worsen moral hazard problems, in an analogous fashion to a decline in collateral. In practice, the international financial community may be unwilling to let a country default on its debt obligations, because of the trade and capital markets disruptions this could induce or for protection of foreign investors.[11] Moral hazard problems may also be exacerbated by the implicit or explicit bailout clauses <u>within</u> a debtor country: for example, excessive borrowing by the banking sector can be induced by expectations of a government bailout should the sector run into financial difficulties.

In international borrowing and lending, problems of moral hazard can arise whenever the borrower can take "hidden actions" that affect output and hence its ability/willingness to meet external obligations. Gertler and Rogoff (1990) emphasize this point in a model in which the borrower cannot commit to using funds for investment, rather than for "disguised consumption" or capital flight. This argument links the intensity of moral hazard problems -- and hence the level of lending -- with the level of investment or (inversely) with capital flight;

it also underscores how foreign direct investment may be a way for foreign investors to ensure that the final use of their funds is "appropriate".

What other macroeconomic and structural features of a borrower can affect the willingness to pay and willingness to lend variables? In principle, variables that increase the cost of default on foreign obligations (by raising, for example, the impact on the domestic economy of sanctions or isolation from international capital markets) strengthen willingness to pay and therefore make a sudden reversal in capital flows less likely. If default is associated with trade disruptions, its cost will be higher for more open economies. If the "punishment" for default consists in the inability to borrow and lend on international capital markets (at least for some time), its cost would be higher for countries with higher output variability, because of the inability to smooth consumption.

In sum, informational asymmetries, enforcement problems and other forms of capital market imperfections can cause the supply of external funds to be less than perfectly elastic, and to be subject to shifts for a number of domestic and external shocks. Structural factors as well as the macroeconomic policy stance determine the vulnerability of the economy to shocks, as the theoretical discussion has highlighted.

## IV COUNTRY EPISODES

We now turn to a description of the experience of a selected group of countries with persistent current account imbalances. We attempt to characterize these different experiences in terms of macroeconomic policy stance, structural characteristics of the economy, composition of external liabilities and balance of payments shocks A series of Figures illustrates the behavior of the current account balance, the level of savings and investment, the real exchange rate, the degree of openness and the level of external liabilities. We do not discuss developments in Chile and Korea during the 1990s, because in the period under examination (until 1995) they did not experience sustained current account imbalances.

### IV.1 The Latin American countries in the 1980s

#### IV.1.1 Chile: 1977-82

The first half of the seventies was a turbulent period for Chile, both politically and economically. The

coup in 1973 ousted Allende's socialist government and installed a military regime, with radically different economic policies. In particular, after a period during which the role of government in the economy had steadily increased, the new regime strived for balancing the budget, privatization, financial and trade liberalization. During this period, the economy endured a severe recession (1974-75), resulting from a combination of external shocks (fall in the price of copper and increase in the price of oil) and domestic policy tightening.

By 1978, yearly inflation was reduced from over 400 percent in 1973 to 30 percent, the public sector budget was in surplus (1.5 percent of GDP), and the economy was growing at 8 percent. However, the pick-up in investment and the low level of private savings implied a large current account deficit (5 percent of GDP). Furthermore, the unemployment rate stood above 14 percent. After having adopted a schedule of preannounced devaluations of the nominal exchange rate (the *tablita*) for a year and a half, the government decided to use the exchange rate as a full-fledged nominal anchor in the disinflation process, and fixed the rate vis-à-vis the dollar in June 1979. The following years were characterized by a continuation of strong recovery. Inflation, however, declined slowly, with full backward-looking indexation providing inertial momentum (Edwards and Cox-Edwards (1987)). This inflationary process was sustained by monetary growth due to large capital inflows, reflecting private sector external borrowing to finance investment in the wake of financial liberalization.[12] Consequently, the real exchange rate appreciated rapidly and the current account balance deteriorated, with the ratio of the deficit to GDP reaching double digits in 1981.

By late 1981 wholesale prices were falling, but the magnitude of the cumulative real appreciation caused expectations of a devaluation and therefore a widening of interest rate spreads between peso- and dollar-denominated assets. Output began to decline and unemployment increased. In 1982 a sequence of external events -- a sharp decline in the terms of trade, the large increase in world interest rates, and a drying up of external sources of financing following the Mexican debt crisis -- forced the government to abandon its exchange rate peg. In June 1982, the exchange rate was devalued by 18 percent and the wage indexation scheme was abandoned. This, however, was not sufficient. As in Mexico in 1994, speculation against the peso increased and reserves

declined rapidly. Towards the end of 1982, in the wake of an impending financial crisis the government imposed capital controls and import surcharges. By June of 1983, the peso had been devalued in nominal terms by close to 100 percent with respect to its June 1982 level.

The crisis caused widespread bankruptcies in the private sector, and the government was forced to liquidate banks but also to bail out several other financial and non-financial institutions. In particular, the central bank intervened in support of the banking system, giving rise to a large quasi-fiscal deficit. The absence of government guarantees on private foreign borrowing notwithstanding, the government assumed responsibility for a large fraction of the private sector's foreign liabilities. The crisis was extremely severe: output fell by 14 percent in 1983 alone and unemployment rose dramatically to close to 20 percent (Corbo and Fischer (1994)). Inflation rebounded to its "historical" level of 27 percent, and the management of the crisis caused an initial policy reversal with respect to exchange rate policy, wage indexation, current and capital account openness, and privatization. Starting in 1984, however, the government resumed its policy of trade liberalization, privatization and deregulation, and the adjustment of the Chilean economy, although painful, was relatively rapid. Growth resumed in 1984, and has averaged over 6 percent over the last ten years.

It should be noted that not all indicators pointed to a likely crisis. The economy was experiencing fast economic growth. The fiscal balance was in surplus throughout this period; indeed, the government had been reducing its external liabilities. Investment was growing rapidly, albeit from a low base, and so were exports (until 1981). Which factors can then explain the Chilean 1982 crisis? Those most commonly mentioned are:

i) The size of external debt. External indebtedness was close to 50 percent of GDP in 1981, with interest payments totaling 5.5 percent of GDP.

ii) an overvalued real exchange rate. Inflation failed to converge rapidly to world levels due to the effects of lagged wage indexation, as well as to increased demand for nontradables fueled by foreign borrowing. Investment was stimulated by the reduced the price of imported capital goods, as well as by the possibility to get financing on world markets at the world rate of interest, given the pegged exchange rate.

iii) Low level of savings. National savings averaged only 10 percent of GDP during the period 1978-81. Their decline was particularly significant in 1981, possibly reflecting intertemporal substitution effects.

iv) Weak financial system/overborrowing. "Overborrowing" by the private sector was fueled by the availability of foreign credit (following the recycling of oil exporters' surpluses) and facilitated by weak supervision of the banking sector, which encouraged risk-taking behavior (see Diaz-Alejandro (1985) and Velasco (1991)). In this context, de la Cuadra and Valdes-Prieto (1992) stress the negative role played by the government's extension to the private sector of exchange rate and interest rate risk guarantees.

v) severe external shocks: the large increase in world interest rates, the drying up of foreign financing, and a decline in the terms of trade, the intensity of which was compounded by the narrow commodity specialization of exports, dominated by copper, all contributed to precipitating the external crisis.

IV.1.2 Colombia (1980-88)

Colombia is one of the few Latin American economies that did not experience an external debt crisis during the early 1980s, notwithstanding severe external shocks. The success of Colombia has been attributed to a conservative macroeconomic policy stance, that avoided large fiscal imbalances and swings in the real exchange rate (see, for example, Ocampo (1988), Cline (1995) and Clavijo (1995) ). After a period of rapid economic growth during the second half of the seventies, characterized by a "coffee boom", the economic situation deteriorated in the period 1981-84. Economic growth slowed considerably , the current account turned to a large deficit (close to 8 percent of GDP in 1982 and 1983) and net capital inflows fell, causing foreign exchange reserves losses. The deterioration in the current account reflected both weaker export performance because of the world recession and fast growth in imports. Fiscal accounts deteriorated, both because of the impact of slower growth on revenues and because of an increase in current expenditure. Investment expenditure was reduced after 1982 because of difficulties in obtaining external financing. During 1981 and 1982 the real exchange rate appreciated, leading the authorities to increase the monthly rate of depreciation. This succeeded in reversing the appreciation. Notwithstanding an improvement in the trade balance, the current account was

negatively affected by higher interest payments and all external debt indicators worsened.

A fiscal adjustment plan was adopted at the end of 1984, and resulted in a rapid reduction of the fiscal deficit in the following two years (by around 7 percentage points). The fiscal adjustment plan was accompanied by a large depreciation in the real effective exchange rate, and opened the door to a series of large loans from commercial banks, which allowed a refinancing of principal coming due without the need for rescheduling. Favorable terms of trade developments (an increase in the price of coffee) as well as coal and oil discoveries, led to a current account surplus and an acceleration of economic growth to 5 percent in 1986. The reduction in current account imbalances, reflecting an increase in both public and private sector savings, together with the increase in growth allowed Colombia to reverse the increasing trend of the external debt to GDP ratio.

FIGURES 2 AND 3 ABOUT HERE

IV.1.3 Mexico I (1977-82)

After a short period of fiscal adjustment following a balance-of-payments crisis in 1976, the policy stance was relaxed as a result of the increase in the amount of proven oil reserves from 6.4 billion barrels in 1975 to 16 billion barrels in 1977. The constraints on foreign borrowing were lifted as foreign banks started to compete to lend to Mexico on very attractive terms. On the domestic policy front, public expenditure increased substantially from 29 percent of GDP in 1977 to 41 percent in 1981, with state-owned enterprises taking an important role in public investment. During 1978-81 public and private investment rose rapidly, and growth was above 8 percent. While private savings increased, public sector savings experienced a significant decline; this, together with the investment boom, was reflected in large current account deficits (over 6 percent of GDP in 1981). As a result, external debt almost doubled in dollar terms between 1979 and 1981.

Although domestic inflation exceeded 20 percent, the nominal exchange rate was being devalued at a slower rate, resulting in a large real appreciation. During 1981 it became clear that the earlier assumptions regarding the rate of increase of oil export revenues were unrealistic. This fueled speculation that the peso would be devalued, causing massive capital flight. To stem the drain of foreign exchange reserves, the government

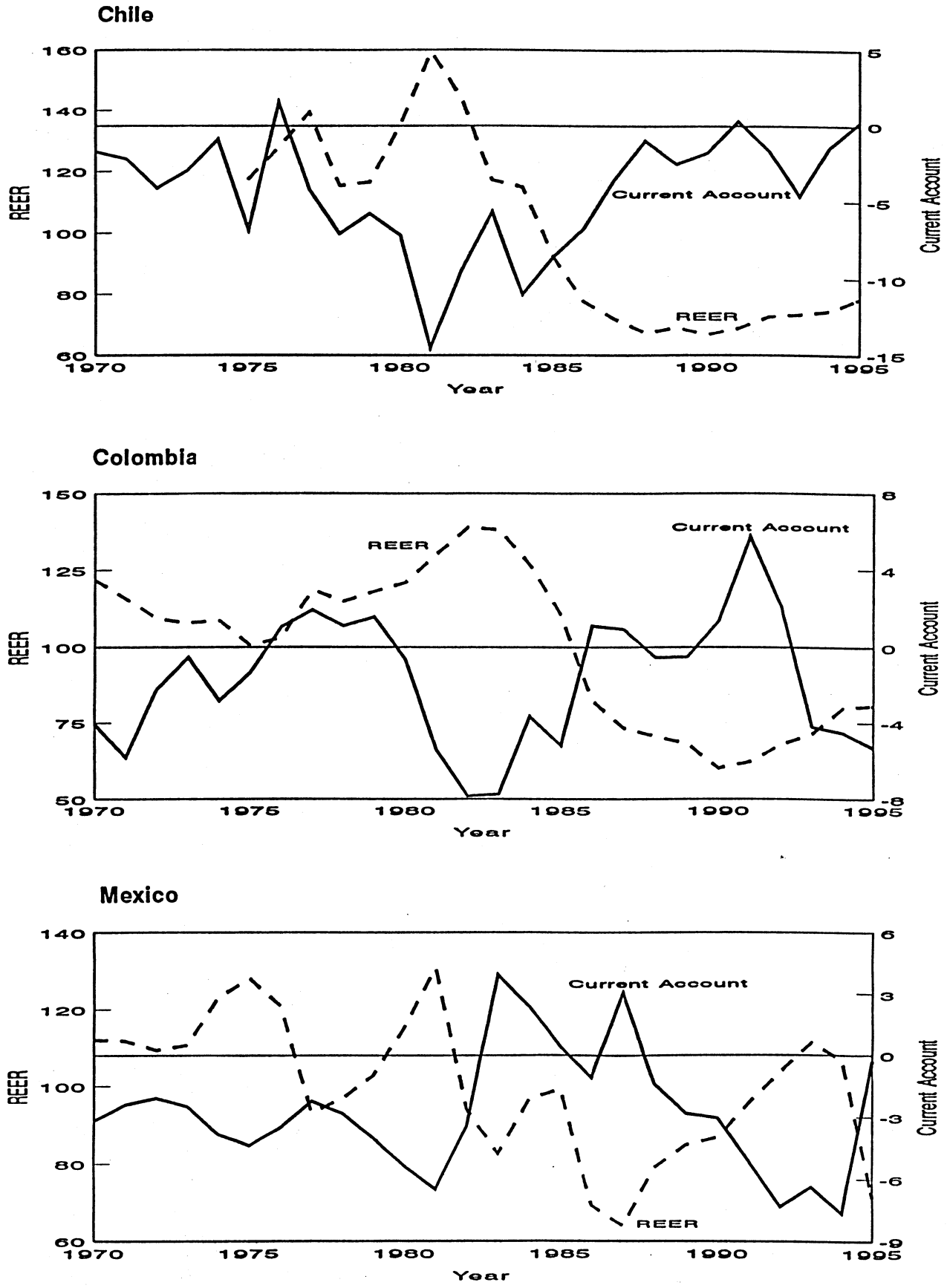


**Fig. 2. Current account and real effective exchange rate, 1970-95**

*Source: International Monetary Fund, International Financial Statistics and World Economic Outlook.*

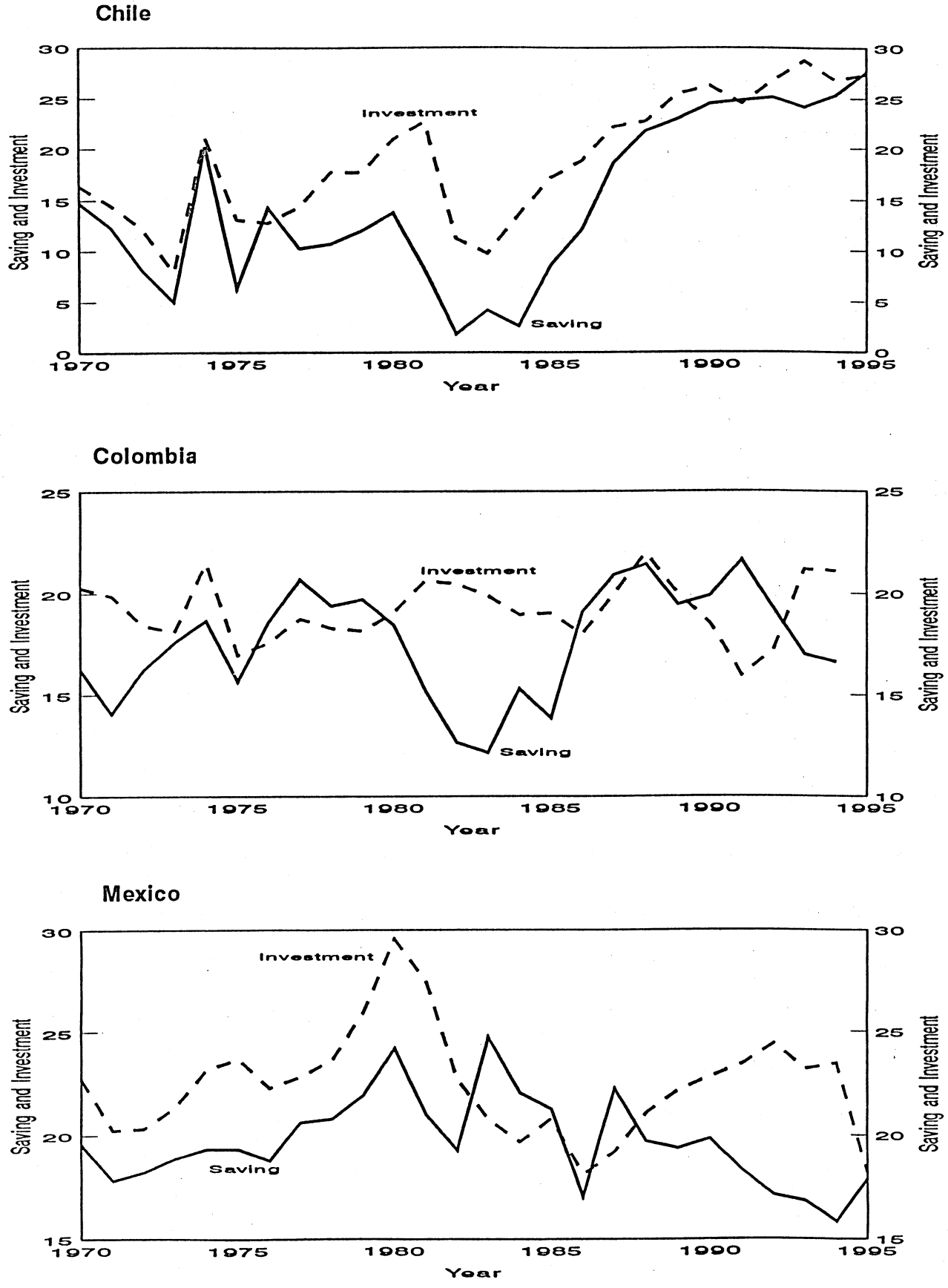


**Fig. 3. Saving and investment, 1970-95**

*Source: International Monetary Fund, International Financial Statistics and World Economic Outlook.*

increased its external borrowing by over 20 billion dollars; the terms of the debt, however, began to worsen with an increase in the spreads over LIBOR (at a time when the LIBOR was increasing) and a shortening of maturity.

The crisis worsened in 1982, as a result of external shocks (such as the increase in world real interest rates and the world recession) and increasing fiscal imbalances. A 40 percent devaluation of the peso in February stemmed capital flight only briefly, and the government had to borrow an additional 5.7 billion dollars in medium-term, syndicated loans. In August a dual exchange rate system was established. Shortly thereafter, dollar deposits at Mexican commercial banks were converted into pesos at an unfavorable exchange rate, and on September 1 the banking system was nationalized. During the last four months of the year, there was a de facto moratorium on foreign debt service, until a December agreement with foreign commercial banks to reschedule $23 billion of debt amortization was reached. In 1983, the new De la Madrid administration implemented a drastic adjustment plan, characterized by a fiscal contraction, a lifting of previously adopted trade restrictions, and a reduction in real wages. The turnaround in the current account was immediate -- it registered a surplus, although this came at a heavy price. Output contracted by over 5 percent in 1983, with public and private investment falling drastically.

Aside from external shocks and the high level of external indebtedness, what were the key aspects of the 1982 Mexican crisis? Four factors are often mentioned in the literature:[13]

i) real exchange rate appreciation: between 1977 and 1981, Mexico's exchange rate appreciated by over 30 percent in real terms vis-à-vis the dollar (Buffie (1989)). This appreciation stimulated a boom in imports, that increased much faster than oil exports. The perceived unsustainability of the exchange rate led to large capital flight during the years preceding the crisis, as well as in the following years.

ii) large fiscal imbalances; Unlike in Chile, in Mexico most of the debt accumulation reflected public sector external borrowing. The increase in public expenditure during the late seventies and early eighties was extremely large, and it came on top of another large increase in the early seventies. Furthermore, it financed not only increased public investment, but also growing public consumption. Notwithstanding the large revenue increase

coming from oil, total revenues failed to keep up with expenditures, causing large fiscal deficits to emerge. The government's external position was worsened by the fact that public sector external borrowing went to finance not only fiscal imbalances, but also private capital flight, as foreign exchange reserves were rapidly depleted.

iii) misperceptions regarding oil wealth: policy design in Mexico was based on an over optimistic assessment of future oil prices; when the expected price increases failed to materialize, the government did not introduce alternative measures to limit fiscal imbalances.

iv) Weakness of the financial system. The Mexican system was characterized by financial repression, with high reserve requirements that had the main purpose of facilitating the financing of public sector deficits. The sharp deterioration in macroeconomic conditions in 1982 worsened banks' and firms' balance sheets, which were further hit by the effects of the exchange rate depreciation on their dollar exposure.

IV.2 The early 1980s in East Asia

IV.2.1 Korea (1978-86)[14]

Korea experienced fast growth rates during the 1960s and the 1970s, driven by investment and exports. Foreign indebtedness, after rising sharply at the time of the first oil crisis, remained stable as a fraction of GDP at around 32 percent in the latter part of the seventies, notwithstanding persistent current account deficits, thanks to the high growth rate and low or negative real interest rates. The second oil shock, however, hit the Korean economy at a particularly delicate juncture. It was preceded by a period of real exchange rate appreciation, due to high domestic inflation coupled with a fixed nominal exchange rate vis-à-vis the US dollar, and coincided with a period of political instability, following the assassination of President Park in October 1979, and with a bad harvest. As a result, the economy experienced a deep recession in 1980; the current account deficit rose to over 8 percent of GDP as savings declined sharply, and the ratio of foreign debt to GDP increased to 44 percent.

The policy response to the recession consisted of a devaluation of the exchange rate, a tightening of macroeconomic policy and the adoption of structural reforms, such as trade and financial liberalization. Economic growth resumed in 1981, and the fiscal stance was relaxed. During this adjustment period, Korea was

able to continue to borrow on international markets and finance large current account deficits: the foreign debt to GDP ratio reached 52 percent in 1982. With strong growth underway and a recovery in external demand, Korea turned to the objective of reducing the foreign debt to GDP ratio: it tightened monetary and fiscal policy in 1983-84, let the exchange rate depreciate in real terms, and accelerated the pace of structural reform. By 1984, the objectives of inflation reduction and fiscal stabilization were met, and the current account deficit was reduced to less than 2 percent of GDP. During this period, investment and economic growth remained strong, unlike in other highly indebted countries after the debt crisis, and savings increased, thanks to a rebound in household saving.

The second half of the eighties was characterized by more favorable external developments, such as the fall in the price of oil and the depreciation of the dollar, and by a more flexible exchange rate policy, characterized by a large real depreciation until 1986. The current account turned to large surpluses, allowing the government to pre-pay a large portion of the external debt. By 1988, the foreign debt to GDP ratio was only 20 percent.

What lessons can be drawn from the Korean experience? Although most of its economic fundamentals were sound (rapid growth driven by investment and exports, relatively stable real exchange rate) the situation in 1979-80 was difficult. The policies pursued in the wake of the first oil shock had led to a loosening of monetary policy and to an overvalued real exchange rate, and the second oil price shock and a bout of political turmoil posed a threat to macroeconomic stability. However, Korea was able to implement a timely policy adjustment and, following the recession of 1980, recovery was rapid. This was facilitated by the continuation of capital inflows, that allowed Korea to continue borrowing on international capital markets until growth was solidly underway again; indeed, the debt-to-GDP ratio continued to rise until 1982. With inflation under control and a more stable macroeconomic environment, a second stage of the adjustment process was undertaken, characterized by monetary and fiscal tightening and a gradual real depreciation of the exchange rate. This was very successful: external imbalances were rapidly reduced and economic growth remained strong.

IV.2.2 Malaysia I (1979-86)[15]

At the end of the 1970s, Malaysia's macroeconomic situation was stable. The country had grown at an

average rate of over 6 percent during the 1970s; it had low inflation, fast export growth, low external debt and hefty current account surpluses. The country had diversified substantially its production and export structure away from primary commodities towards manufactured goods and textiles. Nevertheless, primary commodities still accounted for over 70 percent of Malaysia's total exports in 1980.

The oil shock of 1979-1980 implied a sharp terms-of-trade improvement. Around the same time, there was a shift in the government's macroeconomic policy stance. Namely, the government pushed forward a heavy industry drive, similar to the one pursued by the Korean authorities a few years earlier. This drive was pursued through large investment projects undertaken both directly and through state-owned enterprises, which led to a rapid increase in the share of public investment in GDP and a widening of the federal budget deficit to over 17 percent of GDP in 1982. Around 40 percent of the deficit was financed through external borrowing. The deterioration in the fiscal accounts was mirrored in external developments: the deficit on the current account reached 13 percent of GDP in 1982, resulting in a sharp increase in external debt. This deficit also reflected unfavorable external conditions--the slowdown in the world economy, the increase in world real interest rates and a progressive deterioration in the terms of trade, as well as a real exchange rate appreciation.

Worries about the rapid rise in domestic and external imbalances prompted the Malaysian government to undertake a fiscal consolidation program, characterized by a curtailment of public sector investment -- "development expenditure" was reduced in nominal terms by 30 percent in the period 1983-84. The federal deficit was reduced to 7 percent of GDP and the current account deficit to 6 percent of GDP by 1984. The macroeconomic effects of fiscal adjustment were in part cushioned by a temporary reversal in the terms of trade deterioration in 1984, a recovery in world demand and by a sustained expansion in the manufacturing and construction sectors; as a result, the economy continued to grow at a rapid pace.

However, economic activity experienced a sharp downturn in 1985 and 1986, reflecting a marked deterioration of external conditions (a substantial worsening in the terms of trade and weak external demand), further fiscal tightening and a drastic slowdown in construction activity. Public investment was scaled back

further; at the same time, monetary policy was loosened, interest rates were allowed to decline and the exchange rate depreciated substantially. The slowdown was accompanied by severe problems in the financial system, triggered by the collapse in the real estate market. The combined effect of the large real exchange rate depreciation and of fiscal contraction led to a reduction in absorption and expenditure switching; imports declined substantially and export growth picked up. Although weak economic activity limited the size of the deficit adjustment, a sharp fall in private consumption and private investment implied a virtual balancing of the current account in 1986. Starting in 1987, economic activity recovered, and for the rest of the decade the current account balance recorded large surpluses, reflecting a large increase in the savings rate. This allowed Malaysia to substantially reduce its external debt.

What are the salient features of the Malaysian experience? The rapid buildup in domestic and external debt of the early eighties required a drastic policy shift to ensure fiscal and external sustainability. This shift involved not only fiscal consolidation, but also structural measures to encourage private sector investment. The prolonged period of fiscal adjustment took its toll on economic activity in 1985-86, as domestic and external conditions deteriorated. Nevertheless, the downturn was reversed rapidly, as the sharp real exchange rate depreciation and the more favorable environment for private sector investment allowed for a resumption in growth, driven by exports and private investment.

FIGURES 4 AND 5 ABOUT HERE

IV.2.3 Thailand (1979-90)

After a period of rapid growth and persistent current account deficits in the late seventies, the second oil shock hit the economy at the same time of a decline in services' receipts due to the closure of American bases. As had been the case after the first oil shock, savings declined and the current account deficit widened to over 7 percent of GDP in 1979. The following period was characterized by repeated standby arrangements with the IMF and Structural Adjustment Loans from the World Bank; while progress was made in the area of structural reform and in reducing the inflation rate, external imbalances and budget deficits persisted in the following years, in part

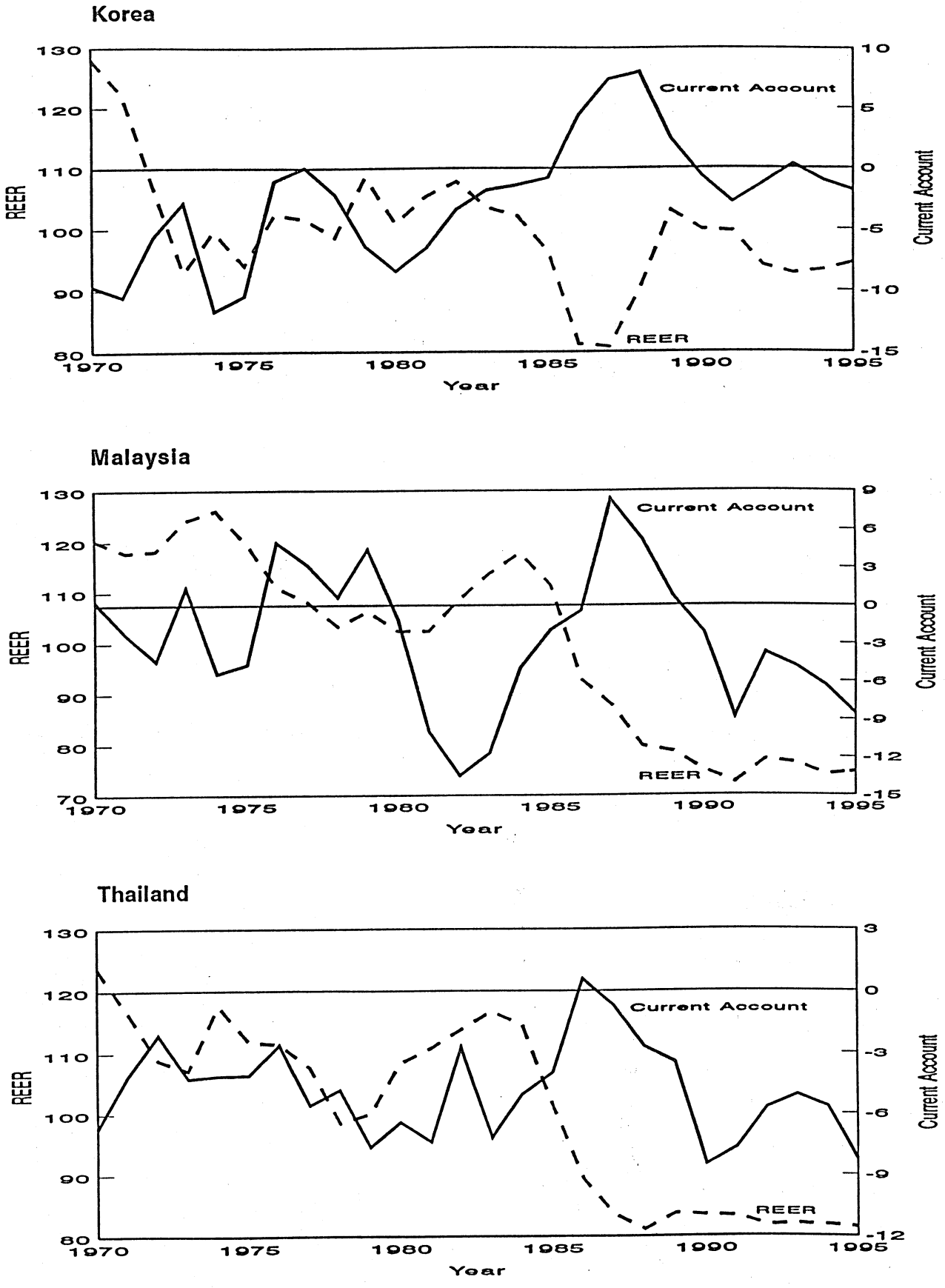


**Fig. 4. Current account and real effective exchange rate, 1970-95**

*Source: International Monetary Fund, International Financial Statistics and World Economic Outlook.*

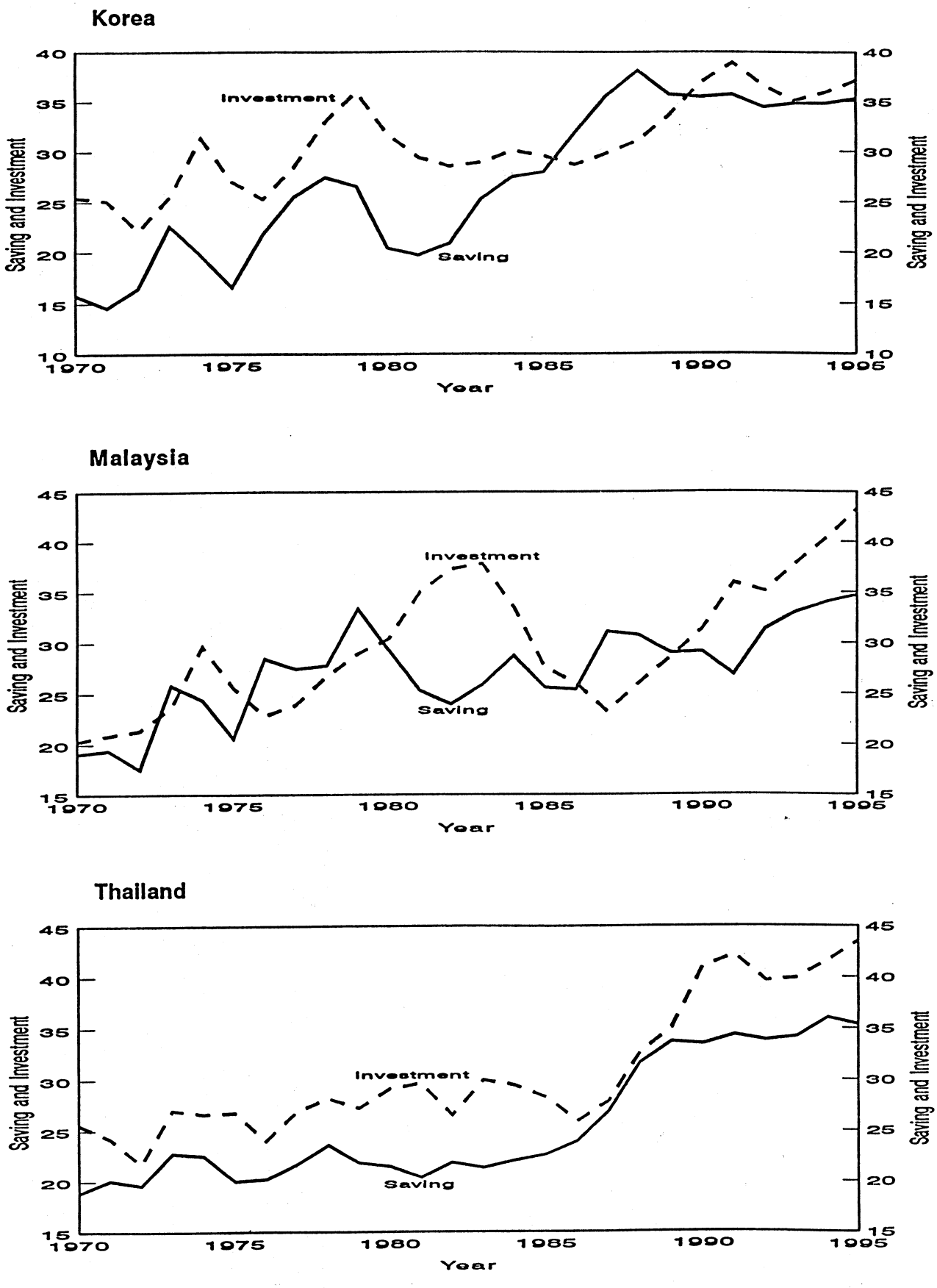


**Fig. 5. Saving and investment, 1970-95**

*Source: International Monetary Fund, International Financial Statistics and World Economic Outlook.*

because of unfavorable external developments (the worldwide recession, the increase in real interest rates and a further decline in the terms of trade), as well as because of a consistent pattern of revenue overestimation (see Robinson, Byeon and Teja (1991)). As a result, the ratio of external debt to GDP continued to increase.[16] The exchange rate was devalued by 9 percent at the end of 1981, but continued to appreciate in real effective terms thereafter, being pegged to the dollar in a period of dollar appreciation. The slowdown in economic activity exacerbated weaknesses in the financial system, and a crisis occurred in 1983, when the authorities had to intervene in several finance and security companies, as well as five commercial banks (Johnston (1991)).

A policy shift occurred at the end of 1984. It consisted of a 15 percent nominal exchange rate depreciation, accompanied by a drastic tightening in the fiscal policy stance. This time the baht depreciated significantly in real effective terms, as domestic inflation did not erode the competitiveness gains and the dollar (that the baht continued to shadow) started to depreciate. The combined effect of the fiscal adjustment, real depreciation and the more favorable external environment were impressive: the current account deficit was eliminated in 1986, as manufacturing exports increased rapidly, the budget was balanced in 1987, and the external debt to GDP ratio, after peaking in 1985 at 45 percent, began to decline. Growth accelerated to over 11 percent in 1987-1990, driven by exports and by a boom in private investment, while fiscal policy generated increasing budget surpluses. Export growth resulted in an increase in the share of exports to GDP to 35 percent by 1989 (against 22 percent in 1985); the share of private investment to GDP more than doubled between 1986 and 1990, with the investment boom sustained by inflows of foreign direct investment from Japan and other Asian NIEs. The increase in private investment more than compensated the decline in public investment caused by the fiscal retrenchment, and the large increase in public savings was not accompanied by a decline in private savings. As a result, during this period both investment and savings continued to rise as a fraction of GDP.

### IV.3 Latin America in the 1990s

#### IV.3.1 Colombia (1992-1995)

At the beginning of the decade, Colombia was characterized by a depreciated level of the real exchange

rate, that reflected in part unfavorable terms of trade developments in the period 1987-89. Tight fiscal policy and the competitiveness of the exchange rate resulted in a small current account surplus. The Colombian economy experienced a surge in capital inflows starting in 1991. These inflows were initially attracted by high domestic interest rates, reflecting the monetary authorities' tight policy stance, by the trade and financial liberalization undertaken in 1990, and by a tax amnesty to holders of domestic assets abroad granted at the end of 1990. The inflows were initially met with an aggressive sterilization policy on the part of the central bank, both directly through open market operations and indirectly through increases in reserve requirements. Capital controls, taxes on capital inflows and a liberalization of capital outflows were also used to reduce net inflows (see Schadler et al. (1993)). By the end of the year, the exchange rate had appreciated by 11 percent in real effective terms and foreign exchange reserves had risen considerably, reflecting also a large current account surplus.[17] However, quasi-fiscal losses were substantial (0.8 of GDP in 1991), because of the large interest differentials between domestic and foreign assets.

The sterilization policy was significantly modified in 1992; money growth accelerated and interest rates were substantially reduced. At the same time, the crawling peg exchange rate regime was replaced with a managed float within a band vis-à-vis the dollar; an immediate consequence of the increase in exchange rate flexibility was a real appreciation (see Carrasquilla (1995) for a discussion). After a slowdown in 1991, economic activity recovered and the growth rate averaged 5 percent a year over the next four years, stimulated by new oil discoveries and higher coffee prices in 1994. During this period external accounts worsened, as imports of consumption and capital goods grew rapidly, responding to the trade liberalization and the real appreciation of the peso, while private transfer receipts fell. Nontraditional exports grew rapidly as well. Capital inflows continued throughout the period, mostly in the form of foreign direct investment and long-term borrowing, and foreign exchange reserves continued to increase. To stem the inflows the Colombian authorities imposed restrictions on foreign borrowing during 1993 and 1994. The current account deficit widened in 1995 as public finances worsened, but capital inflows have continued, albeit at a slower pace than in 1994, with no significant

significant effect of the Mexican crisis.

IV.3.2 Mexico (1990-95)

The Mexican economy experienced large structural changes towards in the late 1980s and early 1990s: a change in monetary and fiscal policy stance was followed by restructuring of the external debt, privatization of public enterprises and of nationalized banks, and trade liberalization. In the aftermath of the debt restructuring agreement, Mexico regained access to international capital markets: net capital inflows increased dramatically in the period 1990-1993, totaling over $90 billion (an average of 6 percent of GDP per year), or roughly one fifth of all net inflows to developing countries. Net foreign direct investment during this period was about $17 billion, while inflows of over $60 billion occurred in the form of portfolio investment (IMF, 1995b).

Notwithstanding a large increase in government savings, national savings fell sharply, and the current account deficit reached almost 7 percent of GDP in 1992. The capital account surplus, however, was more than sufficient to finance the deficit and allow for rapid reserves' accumulation. After a slowdown in 1993, with output growth falling below 1 percent, the economy recovered the following year, with output growing at 3.5 percent, sustained by rapid export growth (over 14 percent in dollar terms). Imports, however, continued to grow even more rapidly, and the current account deficit widened to 8 percent of GDP.

Financial market developments in 1994, however, turned unfavorable. A series of domestic and external shocks (the peasant revolt in Chiapas in January, the assassination of presidential candidate Colosio in March and the increase in US interest rates in the early part of the year) as well as a change in the policy stance in the run-up to the August 1994 presidential election caused loss of confidence in international financial markets and a reversal in capital flows. The real exchange rate was allowed to depreciate within its band, and the Central Bank sterilized the impact of the loss of reserves on money supply. Subsequently, reserves remained fairly stable until October, as capital inflows resumed somewhat during the third quarter. Between March and October, the authorities reacted to an increase in the interest differential between peso- and dollar-denominated short-term public debt (Cetes and Tesobonos, respectively) by increasing the share of dollar-denominated Tesobonos in total

government debt outstanding from 6 percent at the end of February to 50 percent at the end of November.

The crisis unfolded very quickly. At the end of November tensions resurfaced on foreign exchange markets, and the Bank of Mexico lost reserves again. The fluctuation band of the peso was widened by 15 percent on December 19 in an attempt to stem foreign exchange pressures. This was, however, insufficient. The peso reached the new edge of the band within 2 days, and reserves were drained trying to maintain the exchange rate at the band's edge. On December 22, it was announced that the peso would be allowed to float against the US dollar. The Mexican currency plummeted, as doubts surfaced on the ability of Mexico to service its short-term liabilities. Notwithstanding an international rescue package put together at the end of January, 1995 was a very difficult year for the Mexican economy, with widespread bankruptcies, generalized financial distress and a sharp decline in economic activity.

There are several, to some degree complementary, explanations of the Mexican crisis (see IMF (1995a) for an early assessment). Dornbusch, Goldfajn and Valdes (1995) argue that the use of the peso as a nominal anchor in the disinflation process had led, in the presence of sticky prices, to overvaluation and large current account deficits, that were ultimately unsustainable. According to this view, an exchange rate correction was overdue (see Dornbusch and Werner (1994) for a pre-crisis analysis along these lines). The domestic political shocks and the external shocks simply exposed the vulnerability of the Mexican economy. [18]

An alternative, but possibly complementary view, stresses policy inconsistencies that emerged in 1994: in particular, the monetary policy stance and the management of the public debt, as well as a shift in investors' sentiment. Once capital inflows stopped in the second quarter of 1994, because of the increase in US interest rates and political events in Mexico, reserves started to drop because of the current account deficit. The sterilization of reserve losses by the Bank of Mexico, however, prevented interest rates from exerting an impact on the direction of capital flows and, through a dampening of economic activity, on the current account balance.[19] Furthermore, the large conversion of short term domestic currency- into short-term dollar-denominated public debt implied an increasing stock of short-term liabilities denominated in foreign exchange that could be

"redeemed" at the central bank in exchange for reserves (see, for example, Sachs, Tornell and Velasco (1996) and Calvo and Mendoza (1996a)).

How does the Mexican experience relate to the sustainability indicators discussed in the theoretical section? The foreign debt to GDP and the debt to exports ratio (34.7 percent and 184 percent, respectively) were not excessively high by historical terms and also in comparison with other heavily indebted middle income developing countries. Fiscal policy, a clear culprit of the previous two Mexican crises, had been restrained for the past four years. Exports, although still low as a fraction of GDP,[20] were going strongly in 1994. On the other side, the banking system was weak, with a large fraction of bad loans, and a mismatch between the maturity structure of assets and liabilities; the national savings rate had declined to very low levels; and the real exchange rate was overvalued, at least to some degree (although there is disagreement on what would have been the appropriate way to "unwind" the overvaluation). Finally, the impending election made it more difficult to undertake policy adjustments in response to the series of domestic and external shocks that hit the economy during 1994.

IV.4 South-East Asia in the 1990s

IV.4.1 Malaysia II (1991-1995)

The second episode of large current account deficits in the 1990s is characterized by a different macroeconomic environment with respect to the early eighties, with high growth driven by booming private investment and exports (helped by fast growth among East Asian trading partners), and large surpluses in the capital account. The share of investment in GDP reached 38 percent in 1994, with private investment accounting for two thirds of the total. A rising fraction of this investment reflected inflows in the form of foreign direct investment, in particular from Japan and Asian newly industrialized countries. Exports (82 percent of GDP by 1994) grew rapidly, in particular exports of manufactures, accounting for close to 80 percent of total exports. The private investment boom encouraged fast import growth, in particular of intermediate and capital goods, causing a narrowing of the trade surplus. The economic policy stance was different from the one adopted during

the early eighties: fiscal policy was much more restrained, with the ratio of public debt to GDP steadily declining, and monetary policy aimed at maintaining control over monetary aggregates in the face of substantial capital inflows, while resisting a sharp appreciation of the exchange rate.

Large capital inflows began in 1990, and increased significantly in the following years--in 1993 alone the capital account surplus was over 20 percent of GDP. Long-term flows remained relatively stable during 1992-1994, but the importance of short-term capital inflows (mainly changes in the net foreign asset position of financial institutions, as well as portfolio investment) increased significantly in 1992 and 1993. The monetary authorities reacted by trying to sterilize the inflows; as a result, between 1991 and 1993 their total accumulation of foreign exchange reserves was $17 billion, or 16 percent of GDP per annum. The size of the capital inflows, and in particular the large short-term component, prompted the authorities to adopt a series of measures in early 1994 directed at discouraging short-term flows. As a result, there was a large outflow of short-term capital in 1994, but long-term flows, including FDI, were basically unaffected. The real effective exchange rate depreciated slightly, after having appreciated during the period 1991-93. In 1995 a continuation of fast growth and booming investment widened current account imbalances further, to over 8 percent of GDP.

Notwithstanding its large and protracted current account deficits, Malaysia has avoided a rapid accumulation of external debt, thanks to large non-debt-creating inflows; the debt burden measured by interest payments as a ratio of GDP, has steadily declined. Relatively to the previous episode, there are no large fiscal imbalances, private investment plays a more prominent role, the real exchange rate is more competitive and the more diversified export structure reduces the vulnerability to shifts in commodity prices. The risks seem to be on the side of potential "overheating", with bottlenecks developing in labor markets.

IV.4.2 Thailand 1990-95

During the early 1990s, the Thai economy continued to grow at a rate close to 9 percent, driven by rapid export growth and growth of domestic demand. Imports grew even faster than exports, and as a result the trade balance worsened and the current account deficit widened to an average of close to 7 percent of GDP during

1990-1995. Thanks to a continuation of large capital inflows, however, the balance of payments remained in surplus (an average of close to 4 percent of GDP in 1990-95) and reserves accumulated.

The response to capital inflows changed during the period. At the beginning of the inflows episode (1988) the authorities relied on a tightening of fiscal policy and on sterilization operations. Furthermore, reserve requirements were extended to nonresident deposits. Towards the end of 1990 trade liberalization measures were undertaken, and in early 1991 restrictions on capital outflows were eased. During this period the process of financial liberalization continued. The monetary policy stance was relaxed towards 1993, and interest rates were lowered. The composition of inflows changed as well: during 1994 there was an increase in short-term inflows, in particular to the banking sector.[21] During this period, the authorities took steps to enhance prudential supervision of banks and other financial institutions (Khan and Reinhart (1995); Koenig (1996)).

After a drastic fiscal contraction in the second half of the eighties, that led to a budget surplus of over 5 percent of GDP, fiscal policy turned more expansionary during the 1990s, in order to meet infrastructural bottlenecks, but the overall budget balance remained in surplus. At the beginning of 1995, the fallout from the Mexican crisis briefly affected capital markets in Thailand; equity prices slumped in January and there was a surge in capital outflows. The episode, however, was short-lived. More recently, Thailand has been mired in a banking crisis, originating mainly from a fall in real estate prices, and export growth has slowed down. As a result, the baht has repeatedly come under pressure.

The "fundamentals" of the Thai economy appear mostly robust; economic growth is still fast, the large current account deficits reflect high levels of investment, exports are a large fraction of GDP and have grown rapidly, foreign exchange reserves are high, and the exchange rate is not appreciated relative to its historical average. Given the persistently large current account deficits, sources of concern are the level of external indebtedness, the large share of short-term debt and the weakness of the banking system, that could make the Thai economy vulnerable to shifts in foreign investors' sentiment.

## VI. A COMPARATIVE ANALYSIS

Before discussing more in detail different indicators identified in the theoretical analysis, it is useful to briefly highlight some common features of the different country experiences. We start with the 1980s. First, all the countries in our sample experienced a substantial worsening in external conditions during this period, with large terms of trade shocks, a substantial increase in world interest rates, and the demand effects of the world recession of 1981-82. Second, the countries in our sample experienced a sustained real exchange rate appreciation during the period of high current account imbalances (a partial exception being Korea). As a result, the exchange rate at the time of the crisis or policy shift was appreciated with respect to historical averages. Third, in Malaysia, Thailand, Colombia and Mexico persistent current account deficits during the late seventies and./or early eighties were associated with large fiscal imbalances. Therefore the policy adjustment (pre-emptive or forced by an external crisis) involved both a fiscal and an external dimension, and took the form of a large fiscal consolidation together with a nominal depreciation of the exchange rate. The latter resulted in a substantial real depreciation which, together with an output slowdown at the beginning of the adjustment period, temporarily raised the ratio of external debt to GDP. However, in the countries that avoided a crisis the real depreciation also spurred export growth and therefore reduced current account imbalances; as a result, the external debt to GDP ratio after the initial increase started to decline.

The experience with protracted current account deficits during the 1990s has different characteristics, both on the external side and on the macroeconomic policy side. With regard to external conditions, short-term interest rates were low and economic activity in industrial countries very weak. These conditions, together with the change in domestic conditions in a number of developing countries that implemented market-oriented reforms and undertook macroeconomic stabilization policies, played an important role in the new wave of capital inflows from industrial to developing countries, a significant fraction of which took the form of portfolio and foreign direct investment.[22] Also, the volatility of terms of trade has been less severe than in the 1980s. Macroeconomic conditions were in general more stable; none of the countries we consider experienced sustained fiscal imbalances,

and current account imbalances mainly reflected a gap between private savings and private investment. Only Mexico, that used the exchange rate as a nominal anchor in a disinflation process, experienced a sustained real exchange rate appreciation comparable to the ones of the previous decade.

A number of features distinguish the Latin American and East Asian countries in our sample. Both during the 1980s and the 1990s the East Asian countries had higher levels of savings and investment, and a higher degree of openness (as measured by the ratio of exports of goods and services to GDP). Since there was no significant difference in debt levels as a fraction of GDP during the 1980s, this implied that the debt to exports ratio was considerably lower in East Asian countries. Openness increased for every country we consider between the 1980s and the 1990s; however, the east Asian countries and Chile stand out for their large increase of national savings and domestic investment between the two decades.

We turn now to a more detailed examination of factors related to current account sustainability, based on the theoretical analysis of Sections II and III, focusing first on external variables. Table 1 shows the behavior of the average real interest rate on external debt.[23] It highlights the very large increases in the period 1979-82.

TABLE 1 ABOUT HERE

The overall impact of these interest rate increases was compounded by the dynamics of tradable goods' prices, measured in dollar terms: these implied very large increases in real interest rates, in particular for Mexico, Chile, Korea and Thailand in 1982. The overall impact of the real interest rate increase depends on the debt-to-GDP ratio: among the countries in our sample, Chile, Korea and Malaysia had a higher external debt-to-GDP ratio than Colombia, Thailand and Mexico around the time of the debt crisis (see Table 3). In the mid-eighties--at the time Colombia, Malaysia and Thailand implemented a policy shift (Colombia, Malaysia and Thailand) external conditions (in terms of interest rates) were more favorable.

Table 2 presents the evolution of the terms of trade.

TABLE 2 ABOUT HERE

All countries experienced large shocks during the late seventies and the eighties, but with different timing. Mexico

Table 1. Real Interest Rates on External Debt*

| | Chile | Colombia | Mexico | Korea | Malaysia | Thailand |
|---|---|---|---|---|---|---|
| 1975 | -4.6 | -14.5 | -5.9 | -5.9 | -4.3 | -4.3 |
| 1976 | 3.1 | -14.3 | -8.4 | -0.1 | 3.3 | -0.3 |
| 1977 | -1.3 | -12.2 | -9.6 | -3.6 | -0.4 | 2.4 |
| 1978 | -7.1 | - 6.8 | -9.3 | -7.1 | -5.6 | -2.3 |
| 1979 | -7.9 | -0.1 | -16.4 | -6.2 | -4.0 | 0.3 |
| 1980 | 3.3 | 7.3 | -0.2 | 3.9 | 1.4 | 4.1 |
| 1981 | 17.6 | 10.2 | -0.5 | 11.6 | 8.0 | 14.3 |
| 1982 | 22.3 | 16.3 | 15.5 | 15.2 | 13.1 | 15.2 |
| 1983 | 14.8 | 12.8 | 15.0 | 12.3 | 11.0 | 14.2 |
| 1984 | 16.6 | 7.1 | 13.8 | 11.9 | 10.3 | 11.0 |
| 1985 | 10.4 | 1.3 | 14.1 | 7.9 | 9.9 | 7.5 |
| 1986 | 3.3 | -1.1 | 5.1 | 2.5 | 4.9 | 2.2 |
| 1987 | -2.9 | 0.7 | 4.4 | -2.4 | 2.9 | -2.1 |
| 1988 | -2.6 | 6.9 | 0.3 | 0.5 | 1.8 | 1.3 |
| 1989 | 3.2 | 6.2 | 4.4 | 3.4 | 4.2 | 2.9 |
| 1990 | 9.0 | 7.7 | 3.4 | 6.4 | 5.7 | 5.9 |
| 1991 | 7.5 | 8.2 | 3.7 | 6.4 | 3.5 | 6.4 |
| 1992 | 10.5 | 10.1 | 5.9 | 7.6 | 4.4 | 7.2 |
| 1993 | 5.9 | 6.4 | 3.3 | 6.4 | 2.6 | 6.0 |
| 1994 | 0.6 | 3.2 | 2.3 | 4.3 | 1.7 | 4.3 |

Source: World Bank, World Debt Tables and IMF, World Economic Outlook.

*Average dollar nominal interest rate on external debt deflated by a 3-year MA of domestic tradables' price inflation. Tradables price inflation: average of changes in domestic export unit values and of industrial countries' export prices.

Table 2. Terms of Trade (Period Avg. = 100)

| | Chile | Colombia | Mexico | Korea | Malaysia | Thailand |
|---|---|---|---|---|---|---|
| 1970 | 186.7 | 76.7 | 95.8 | 108.3 | 127.0 | 113.4 |
| 1971 | 176.2 | 73.0 | 101.7 | 105.3 | 110.1 | 108.8 |
| 1972 | 173.0 | 74.8 | 102.1 | 105.0 | 99.7 | 108.4 |
| 1973 | 188.9 | 79.4 | 95.6 | 101.1 | 111.9 | 117.7 |
| 1974 | 157.2 | 84.0 | 85.2 | 93.4 | 110.9 | 121.7 |
| 1975 | 84.6 | 77.7 | 80.7 | 86.3 | 88.5 | 114.7 |
| 1976 | 92.4 | 102.9 | 93.4 | 98.2 | 95.9 | 95.0 |
| 1977 | 85.2 | 132.1 | 110.9 | 103.4 | 105.5 | 117.0 |
| 1978 | 84.2 | 105.1 | 107.4 | 106.9 | 106.9 | 117.6 |
| 1979 | 93.8 | 96.0 | 104.8 | 104.6 | 112.6 | 107.7 |
| 1980 | 92.5 | 95.1 | 153.8 | 92.9 | 108.5 | 100.3 |
| 1981 | 83.5 | 110.1 | 166.5 | 91.9 | 103.9 | 101.6 |
| 1982 | 78.3 | 114.8 | 107.0 | 97.7 | 99.5 | 87.2 |
| 1983 | 79.7 | 117.0 | 102.8 | 93.6 | 99.2 | 91.3 |
| 1984 | 74.3 | 117.5 | 100.0 | 95.1 | 105.9 | 93.4 |
| 1985 | 69.0 | 106.9 | 94.0 | 91.5 | 97.0 | 87.9 |
| 1986 | 69.0 | 133.4 | 70.6 | 97.0 | 82.2 | 97.3 |
| 1987 | 75.8 | 109.4 | 94.9 | 100.1 | 89.3 | 95.9 |
| 1988 | 86.9 | 104.1 | 85.8 | 101.1 | 91.7 | 94.7 |
| 1989 | 85.5 | 103.4 | 86.7 | 105.5 | 92.8 | 92.5 |
| 1990 | 78.1 | 101.1 | 95.8 | 104.0 | 90.9 | 89.4 |
| 1991 | 78.4 | 99.1 | 91.1 | 103.6 | 91.2 | 90.2 |
| 1992 | 78.9 | 93.3 | 92.9 | 103.1 | 93.5 | 88.4 |
| 1993 | 73.8 | 92.5 | 94.4 | 104.0 | 93.2 | 88.1 |
| 1994 | 82.0 | 98.7 | 94.8 | 104.5 | 95.2 | 89.8 |
| 1995 | 92.1 | 102.0 | 91.4 | 101.9 | 97.0 | 89.9 |

Source: IMF, World Economic Outlook

had a dramatic terms of trade improvement in the period 1979-81, reflecting the oil price boom, but a large subsequent deterioration, that brought its terms of trade back to their level in the late seventies. Korea was hit heavily by the oil shock, with a large terms-of-trade deterioration in 1980. Chile's terms of trade worsened considerably from 1980 onwards, while Malaysia's adjustment period in 1985-86 also coincided with a large negative terms-of-trade shock. Thailand had a significant terms-of-trade deterioration between 1978 and 1982, while Colombia experienced large swings. Overall, terms-of-trade volatility was higher in the three Latin American countries during the 1980s; however, the impact of terms-of-trade shocks on the domestic economy is also a function of the degree of openness, which was much larger in East Asian countries. During the 1990s, the variability of terms of trade has been much more modest, in part because of increased export diversification towards manufactured goods.

A number of macroeconomic and structural indicators for the various country episodes are summarized in Table 3.

TABLE 3 ABOUT HERE

The first potential indicator of external sustainability is the level of external debt in relation to GDP. In our limited sample, however, this ratio does not allow to discriminate between crisis and non-crisis episodes--external debt to GDP ratios were much higher in Korea and Malaysia I than in Mexico 1981 or 1994. Overall, debt to GDP ratio tended to be higher in the 1980s than in the 1990s, reflecting among other things the increased importance of non-debt creating capital flows in recent years (see discussion below).

A second, related factor is the interest burden of external debt. This factor does not help to clearly discriminate between crisis and non-crisis episodes: it "singles out" the experiences of the eighties, and in particular Chile and Korea, while for the experiences of the 1990s, the interest burden is quite similar across countries. The "operational solvency condition" (equation (5)), augmented so as to include the effects of real exchange rate changes, implies that the perpetual resource transfer needed to prevent to external debt to GDP ratio from increasing is determined by the interest burden adjusted for growth and real exchange rate

Table 3 Macroeconomic Indicators 1/

| | Chile 1979-81 (1982-83) | Colombia I 1980-84 (1985-88) | Mexico I 1977-81 (1982-83) | Colombia II 1992-95 | Mexico II 1991-94 (1995) | Korea 1977-82 (1983-88) | Malaysia I 1979-84 (1985-86) | Thailand I 1979-84 (1985-86) | Malaysia II 1991-95 | Thailand II 1991-95 |
|---|---|---|---|---|---|---|---|---|---|---|
| CA balance | -9.1 (-7.6) | -5.1 (0.5) | -5.0 (0.3) | -3.4 | -6.7 (-0.3) | -5.4 (2.6) | -8.2 (-1.1) | -6.1 (-1.7) | -6.4 | -6.8 |
| Savings | 7.4 (5.9) | 14.6 (20.5) | 18.7 (22.0) | 16.4 | 15.7 (17.9) | 25.6 (31.6) | 26.6 (25.7) | 22.5 (26.9) | 32.1 | 33.9 |
| Investment | 17.0 (13.5) | 19.7 (20.0) | 23.7 (21.8) | 19.8 | 22.4 (18.2) | 31.0 (29.0) | 34.8 (26.8) | 28.7 (28.6) | 38.5 | 40.6 |
| Exports | 19.7 (21.3) | 12.6 (18.1) | 10.6 (17.2) | 18.3 | 12.7 (24.0) | 32.5 (36.9) | 53.2 (55.6) | 23.0 (27.8) | 85.0 | 36.6 |
| REER | 124.1 (118.5) | 135.5 (80.2) | 126.4 (103.5) | 77.6 | 113.9 (76.0) | 103.6 (92.2) | 117.9 (111.8) | 115.5 (95.0) | 83.5 | 88.5 |
| Fiscal Balance | 2.1 (-3.3) | -3.5 (-1.0) | -8.0 (-11.2) | -0.8 | 0.4 (0.0) | -2.8 (0.0) | -14.5 (-8.9) | -4.3 (-2.8) | -1.5 | 3.2 |
| Growth | 7.2 (-7.4) | 2.6 (5.1) | 7.5 (-2.4) | 5.0 | 2.6 (-6.9) | 5.8 (10.7) | 6.9 (0.0) | 5.4 (8.2) | 8.4 | 8.9 |
| Interest Payments | 5.5 (8.6) | 3.5 (3.5) | 3.9 (6.7) | 1.8 | 2.4 (4.5) | 5.6 (1.7) | 4.4 (5.4) | 2.9 (2.5) | 1.8 | 2.6 |
| Ext. Debt | 48.2 (89.5) | 40.8 (43.3) | 31.4 (62.7) | 28.9 | 35.5 (65.1) | 50.0 (19.6) | 55.2 (78.9) | 37.1 (66.3) | 39.3 | 50.8 |

1/ Current account balance, savings, investment, exports, fiscal balance are average ratios of GDP during the period. The growth rate and the real effective exchange rate are period averages (REER: average 1970-1995=100). Interest payments and gross external debt are ratios to GDP, and refer to the last year of the period. Sources: IMF, International Finance Statistics; World Bank, World Debt Tables and national sources.

appreciation/depreciation. In Chile and Mexico I all three components that had been favorable during the late 1970s turned unfavorable in the run up to the crisis: interest rates increased, high growth came to a halt and the real exchange rate started to depreciate. In Colombia, Korea, Thailand and Malaysia the adjustment period also involved a large upfront depreciation; however, the growth slowdown was short-lived. In the case of Mexico II, the crisis was preceded by a relatively modest increase in interest burden but followed by a large real depreciation and a deep recession. Based on our sample, it appears therefore that the resource transfer, while clearly a measure of the cost of external adjustment, is not an unambiguous predictor ex ante.

A third factor is the ratio of exports to GDP (see Figure 5).

FIGURE 6 ABOUT HERE

In order to service and reduce external indebtedness, a country needs to rely on traded goods' production as a source of foreign exchange. Clearly, countries with a large exports sector can service external debts more easily, because debt service will absorb a lower fraction of their total export proceeds. In order to generate the foreign exchange necessary to service external debt in case of an interruption in capital flows, a country needs to engineer a resource shift towards the exports sector. Since this shift cannot occur instantly, sharp import compression may become necessary, with adverse consequences on the domestic industries relying on imported inputs (Sachs (1985) and Sachs and Warner (1995)). This import compression may be more costly in a relatively closed economy, because it is more likely to entail cuts of "essential" imported inputs (Williamson (1985)). The size of the export sector can also be related to willingness to lend and willingness to pay considerations. Insofar as debt default is associated with trade disruptions (such as difficulties in obtaining export credits) it may be more costly for an open economy. Furthermore, the constituency against actions that would entail trade disruptions is also likely to be stronger, the larger the size of the export sector. According to the theory of international borrowing sketched in Section III, higher costs of default would reduce the likelihood of sudden reversals of capital inflows, because foreign investors will perceive the country -- ceteris paribus -- as less risky.

On the other side, a more open economy is, ceteris paribus, more vulnerable to external shocks such as

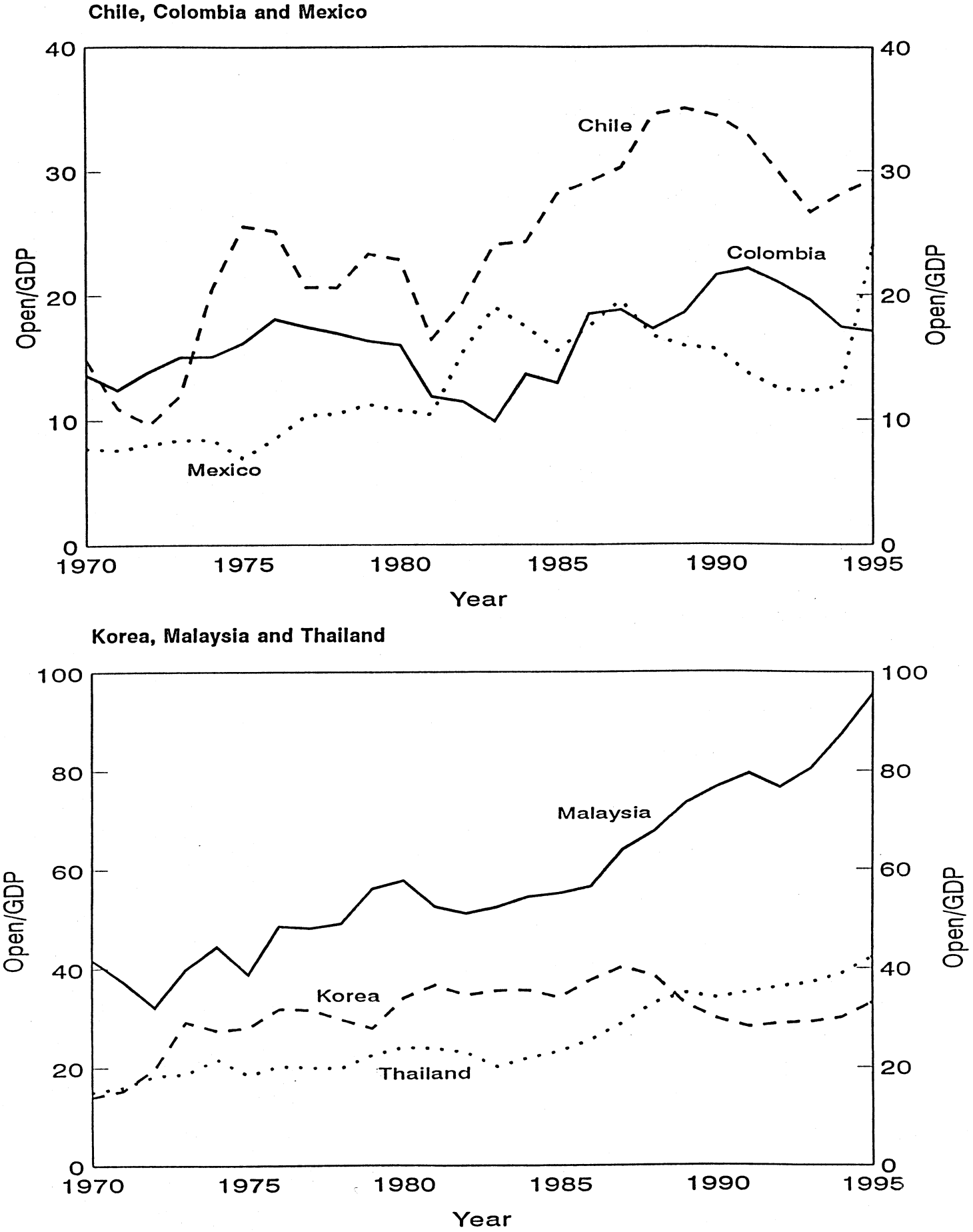


**Fig. 6. Degree of openness, 1970-95**

*Source: International Monetary Fund, International Financial Statistics and World Economic Outlook.*

fluctuations in the terms of trade or foreign demand shocks. In this regard, vulnerability is reduced by a well diversified commodity composition of trade. Fluctuations in commodity prices have a larger impact on the terms of trade for countries with a narrow export base, and those particularly dependent on raw materials for their imports, thus weakening their ability to sustain current account deficits.[24]

Among the countries in our sample, the East Asian ones that successfully adjusted after experiencing large current account imbalances (Korea, Malaysia and Thailand) had a large export share, and managed to increase exports significantly during the adjustment period. By contrast, the export to GDP ratio was lower in Mexico (especially in 1982) and in Chile, although it should be pointed out that exports were rising rapidly prior to all three crisis episodes considered (Mexico I and II; Chile). In Colombia, that had a low export share in the early eighties, both the exports share and the degree of export diversification increased substantially. These findings are in line with results presented in Sachs (1985), who compares East Asian and Latin American countries at the time of the debt crisis. The episodes we considered thus suggest that large current account imbalances are less likely to lead to external crises when the economy has a large export base. Indeed, the interest burden and the level of external debt appear to be better indicators of sustainability when expressed as ratios to exports, rather than to GDP.

A fourth factor is the level of the real exchange rate (see Figures 2 and 4). A persistent real exchange rate appreciation can be driven by "fundamental" factors such as high productivity growth in the traded goods sector, or favorable terms of trade shocks. However, in the context of a fixed or managed exchange rate system, it could also reflect a fundamental inconsistency between the monetary policy stance and exchange rate policy, or the effects of inflation inertia or imperfect credibility in the context of an exchange-rate-based inflation stabilization plan (see Calvo (1986)). An "overvaluation" would encourage a decline in savings as domestic residents intertemporally substitute present for future consumption, thus contributing to a widening of current account imbalances and loss of foreign exchange reserves, reinforced by expectations of a future devaluation.

It is difficult to make the definition of real exchange rate overvaluation operational, in the absence of a

well-established theoretical framework explaining real exchange rate behavior (see Edwards (1989)). In developing countries that have undertaken structural reforms, large capital inflows and a real exchange rate appreciation may reflect an increase in productivity and in the return to capital; if current account deficits also emerge because of the underlying increase in permanent income, this would not be an indicator of unsustainability. The difficulty lies in evaluating to what degree a real appreciation reflects improved fundamentals.

Table 3 reports the level of the real effective exchange rate (measured in terms of relative CPI indices) relative to historical averages. The three crisis episodes we consider are all characterized by a sustained real exchange rate appreciation in the period preceding the crisis, leading to an appreciated level of the real exchange rate. Colombia, Malaysia and Thailand also experienced a sustained real appreciation during the late seventies/early eighties, and an exchange rate devaluation was a key component of their adjustment process. In the crisis episodes, an exchange rate depreciation was indeed undertaken before the full onset of the crisis, but failed to prevent it. Our sample evidence thus suggests that large current account imbalances are more likely to result in a crisis when they are accompanied by a relatively appreciated level of the exchange rate.

A fifth factor is the level of national savings and investment (Figures 3 and 5). For a given current account balance, the levels of savings and investment can have implications for the sustainability of the external position. High levels of investment imply--ceteris paribus--higher future growth through the build-up of a larger productive capacity, and therefore enhance intertemporal solvency (see equation (3)). High savings and investment ratios can also act as a signal of creditworthiness to international investors, because they act as a form of commitment to higher future output and thus raise the perceived ability to service and reduce external debt.[25] Among the episodes we consider, savings were extremely low in Chile in the run-up to the crisis. At the other extreme, Korea, Malaysia and Thailand had high savings and investment rates. Savings were also low in Mexico in the early nineties. It is interesting to observe that, in both Chile and Mexico II the low savings rates were not attributable to public sector imbalances, but rather to low private savings. In summary, all three crisis episodes

are characterized by low savings, especially by middle-income developing countries' standards.[26]

A sixth factor is the fiscal balance. In a pure debt neutrality case (Barro (1974)) the current account is independent of the time profile of taxation, and therefore of the public sector deficit. Imperfect substitutability between private and public savings, caused by, for example, distortionary taxes and liquidity constraints, implies a positive correlation between budget deficits and current account deficits. The strength of this correlation may depend on the degree of development of domestic financial markets; in countries with underdeveloped or highly regulated financial markets we would expect to find stronger links between the fiscal stance and the current account balance, and therefore between government budget solvency and current account sustainability.[27]

The evidence provided by our sample suggests that the absence of large fiscal imbalances ex ante does not imply that current account deficits will prove sustainable, as exemplified by the cases of Chile and Mexico II.[28] Clearly, large fiscal imbalances, which were present in Mexico I, Malaysia I, Colombia I and Thailand I, raise fiscal sustainability issues, and did therefore require a policy shift. Indeed, the main element of the policy reversal in the latter countries consisted in a substantial reduction of the fiscal deficit; for all these countries, the increase in public savings raised the overall savings rate and contributed to the reduction of external imbalances.

Drastic changes in the composition of capital flows took place between the late seventies/early eighties and the early nineties. During the late seventies/early eighties all the countries in our sample relied heavily on commercial bank borrowing in the form of syndicated loans, as well as on borrowing from official creditors. In contrast, the experience of the 1990s is characterized by large private capital inflows , a sizable fraction of which took the form of foreign direct investment and portfolio investment. Economic theory suggests that the degree of risk-sharing, as well as the intensity of asymmetric information and enforcement problems are related to the composition of external liabilities (see the discussion in Section III). Table 4 reports some summary statistics on the level and composition of external liabilities and capital flows (see also Figures 7 and 8).

TABLE 4, FIGURES 7 AND 8 ABOUT HERE

Among these statistics, the cumulative value of current account imbalances as a fraction of GDP can be

Table 4. Financial Indicators 1/

| | Chile 1979-81 (1982-83) | Colombia I 1980-84 (1985-88) | Mexico I 1977-81 (1982-83) | Colombia II 1992-95 | Mexico II 1991-94 (1995) | Korea 1977-82 (1983-88) | Malaysia I 1979-84 (1985-86) | Thailand I 1979-84 (1985-88) | Malaysia II 1991-95 | Thailand II 1990-95 |
|---|---|---|---|---|---|---|---|---|---|---|
| Net Ext Debt 2/ | 36.2 (88.8) | 34.5 (33.9) | 29.5 (59.5) | 15.5 | 35.4 (59.5) | 44.5 (12.8) | 42.1 (53.8) | 29.5 (23.6) | 11.1 | 28.6 |
| Cumul. CA Deficits 3/ | 44.2 (83.7) | 38.0 (32.6) | 26.0 (42.3) | 23.0 | 41.5 (62.9) | 33.9 (0.5) | 31.3 (43.5) | 39.2 (31.9) | 33.3 | 43.7 |
| Short-Term Debt | 19.3 (14.5) | 21.8 (9.5) | 32.0 (11.0) | 25.4 | 28.1 (22.5) | 33.2 (30.0) | 13.5 (13.2) | 23.7 (22.1) | 21.2 | 49.5 |
| For. Exch. Reserves | 24.8 (14.6) | 15.4 (21.8) | 6.4 (5.2) | 39.5 | 4.6 (10.3) | 7.9 (34.9) | 23.7 (31.7) | 17.9 (32.8) | 71.9 | 43.7 |
| Net FDI Flows | 0.9 (1.3) | 1.2 (1.0) | 0.9 (0.7) | 2.0 | 1.8 (2.8) | 0.1 (0.3) | 4.1 (2.1) | 0.7 (0.8) | 7.5 | 1.5 |
| Net Portf. Flows | 0.0 (0.0) | -0.0 (0.1) | 0.0 (0.0) | 0.6 | 4.9 (-4.3) | 0.0 (0.1) | 0.0 (0.0) | 0.3 (0.9) | 2.2 | 1.4 |

1/ Net external debt and cumulative current account deficits: ratios to GDP, last year of the period. Short-term debt and foreign exchange reserves: ratio to total debt, last year of the period. Portfolio and FDI flows: ratios to GDP, average during the period. Sources: IMF, International Financial Statistics and World Economic Outlook, and World Bank, World Debt Tables.

2/ External debt minus nongold foreign exchange reserves.

3/ Initial net external debt plus cumulative value of current account deficits, as a ratio of last period's GDP.

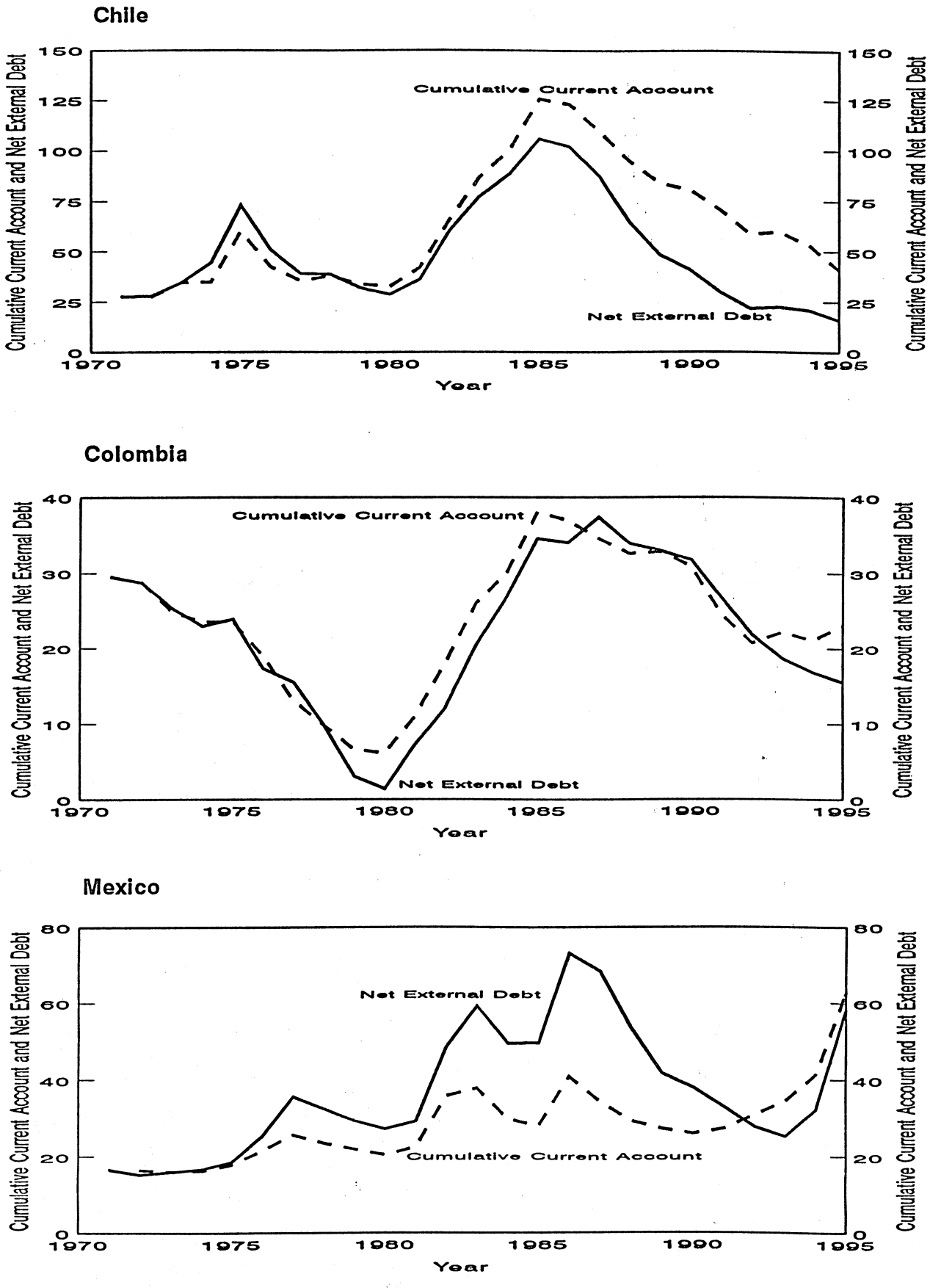


**Fig. 7. Cumulative current account and net external debt, 1970-95**

*Source: International Monetary Fund, International Financial Statistics and World Economic Outlook; World Bank, World Debt Tables.*

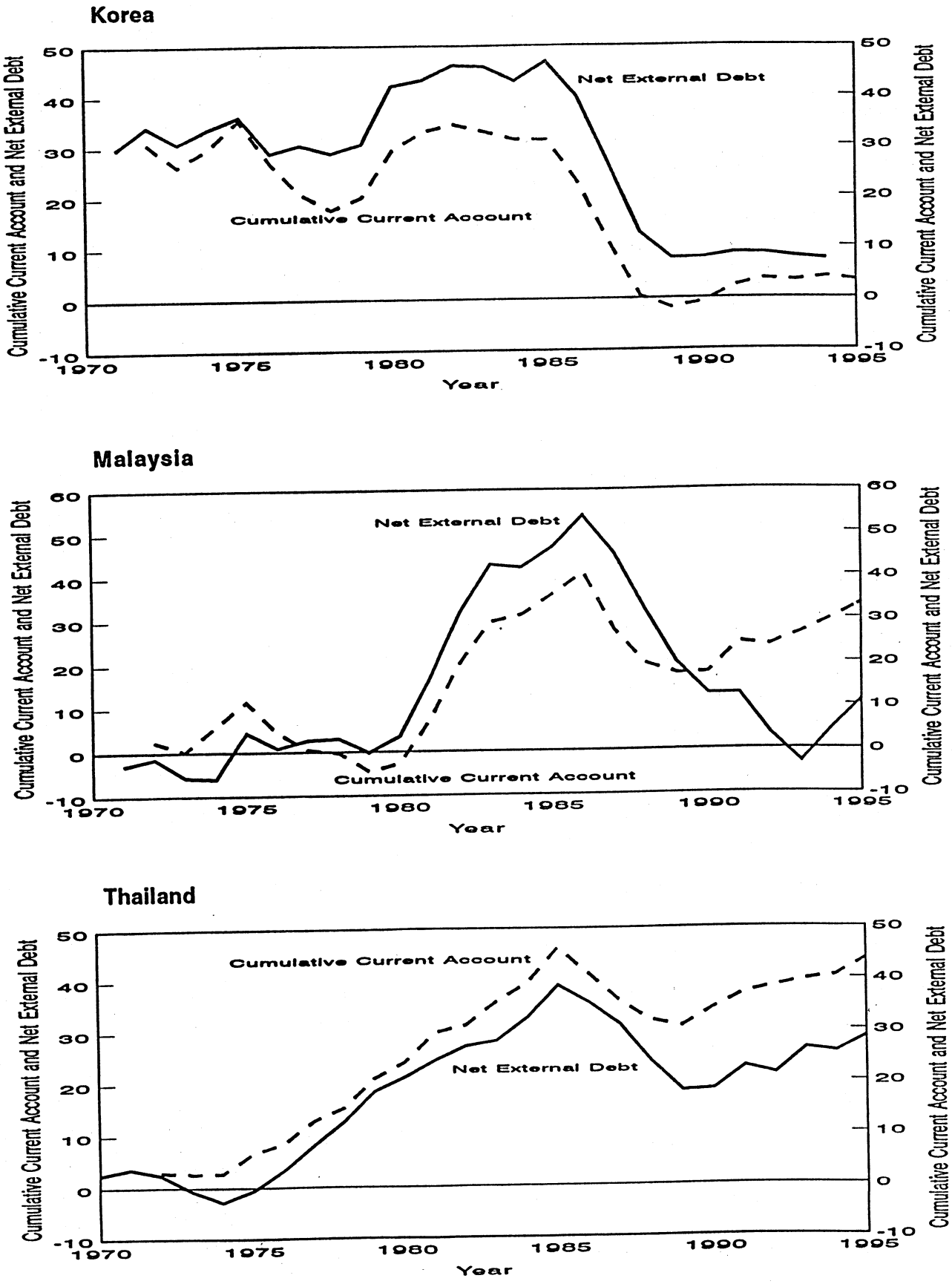


**Fig. 8. Cumulative current account and net external debt, 1970-95**

*Source: International Monetary Fund, International Financial Statistics and World Economic Outlook; World Bank, World Debt Tables.*

taken as an approximate measure of net external liabilities. This measure shows that the lower level of net external indebtedness during the 1990s with respect to the 1980s is mostly due to the relative importance of non-debt-creating capital inflows, such as FDI, in recent years. This is particularly striking in the case of Malaysia, but is also evident from the cases of Mexico, Thailand and (to a lesser degree) Colombia during the 1990s.[29] A corollary of these developments is that interest payments on external debt constitute a declining fraction of net resource transfers associated with existing external liabilities, while profit repatriation takes a more important role.

The table also reports other debt-composition factors, such as the fraction of short-term debt in total debt and the size of portfolio flows, that can potentially play a role in determining the sustainability of external imbalances. There is a notion that vulnerability to external shocks and capital flow reversals is enhanced when portfolio investment and short-term inflows account for most of capital inflows, as these are perceived to be potentially more volatile than long-term flows or foreign direct investment.[30] The ability of a country to withstand a reversal in short-term flows is in principle linked to the size of foreign-exchange reserves. In our limited sample, reserves were low with respect to short-term debt in both of Mexico's episodes, but also in Korea in the 1980s. In the 1990s, short-term debt is particularly high in Thailand, although reserves are high as well. In a study of currency collapses, Frankel and Rose (1996) find a weak correlation between debt composition variables and the probability of exchange rate crashes, but a significant negative correlation between the proportion of external liabilities accounted for by FDI and crash incidence.

The lesson we draw from the individual country studies and from existing empirical evidence is that the composition of external liabilities may affect the vulnerability of a country to an external crisis, but that more data is needed to establish a clear link between sources of external financing and current account sustainability. For this purpose, that the composition of external liabilities should not be considered in isolation, but rather together with the other macroeconomic, structural and external factors highlighted in this section.

## VI. CONCLUSIONS AND EXTENSIONS

Our interpretation of the evidence presented for this limited sample of country episodes is that the likelihood of external crises has to be related to a composite set of macroeconomic and structural factors, rather than relying on the robustness of individual indicators (such as exchange rate overvaluation). Specifically, the degree of openness, the level and flexibility of the exchange rate and the intensity of external shocks interact with the interest rate burden of external obligations and the composition of external liabilities in determining whether protracted current account balances are likely to result in external crises. Clearly, the case study approach we adopted has obvious limitations, such as potential selectivity bias and collinearity between indicators, that formal statistical analysis on a larger sample of countries could address.

In the analysis of the previous section we have not explicitly discussed two related capital market factors that are more different to quantify: the degree of capital account openness and the health of the financial system. For all countries we have considered the capital account is more open in the 1990s than it was a decade earlier, although the degree of liberalization differs across countries. Remaining controls on international capital movements are mainly designed to limit the size of capital inflows, as opposed to controls on capital outflows that were preponderant during the seventies and eighties (see Grilli and Milesi-Ferretti (1995) for an empirical analysis of determinants and effects of capital controls during this earlier period). In part, the more limited reliance on capital controls can be explained by the increased difficulty of enforcing effective limitations to international capital mobility. Furthermore, there is increased awareness of the distortions that capital controls cause by imposing a wedge between rates of return on capital in the domestic economy and abroad.[31] An open capital account should improve resource allocation, and can also provide a disciplining device, since a policy inconsistency between, say, an expansionary monetary policy and a pegged exchange rate would result in the collapse of the peg. Furthermore, an open capital account could serve as a signal of a country's commitment to the pursuit of "sustainable" policies, and thereby raise foreign investors' perception of the country's creditworthiness (see, for example, Bartolini and Drazen (1997)). On the other side, when the capital account

is very open, *de jure* or *de facto*, a country is more vulnerable to sudden reversals in the direction of capital flows. This reversal may concern not only foreign capital, but also domestic capital.[32] Furthermore, economic research and practical experience have also highlighted the potential dangers associated with poor financial supervision and a weak banking system when the capital account is open (see, for example, Diaz-Alejandro (1985)). Indeed, considerations pertaining to the health of the financial system play an even more important role during the 1990s, because a larger fraction of external funds are intermediated by the domestic financial system with respect to the previous decade, when a large fraction of external borrowing was undertaken by the public sector.

The degree of fragility of the financial system has played an important role in all the crises we have considered.[33] Weaknesses in banking system supervision, distortions in the incentive structure of banks, the practice of directed bank lending, and lack of competition within the banking sector and from nonbank financial institutions can imply inefficiencies in the intermediation of external funds associated with large current account deficits. For a given size of current account imbalances, these inefficiencies make the economy more vulnerable to changes in foreign investors' sentiment or other shocks. As underscored by Goldstein (1996), a weak banking system is more vulnerable to a sudden reversal in capital flows when the exchange rate regime is not flexible. Under these circumstances, monetary policy is "tied to the mast" because of the need to defend the exchange rate peg, thus limiting the ability of the central bank to exercise its role as a lender of last resort. As highlighted in the country studies, an enhancement of prudential supervision and bank regulation have been a part of the policy response to the recent capital inflow episode in some of the countries we examined. The stability of the financial system remains an essential pre-requisite for ensuring an appropriate macroeconomic response to potentially volatile capital flows.

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## FOOTNOTES

1.See, for example, Eichengreen, Rose and Wyplosz (1995) on speculative attacks; Frankel and Rose (1996) on exchange rate collapses; Kaminsky and Reinhart (1996) on banking and balance-of-payments crises; Goldstein (1996) on financial crises; and Milesi-Ferretti and Razin (1996) on current account sustainability.

2. This section draws on Milesi-Ferretti and Razin (1996). For a more complete discussion of the intertemporal approach to the current account see, for example, Obstfeld and Rogoff (1995, 1996) and Razin (1995).

3. See, for example, Corsetti and Roubini (1991).

4. In the presence of uncertainty, definition of solvency and sustainability rely on expected values, implying that in some states of the world insolvency will occur. Under these circumstances, the issue becomes how likely the occurrence of a "bad" scenario is, and how vulnerable is a country to external shocks.

5. Otherwise a country could play "Ponzi games" indefinitely -- that is, borrowing to repay interest on its outstanding debt, without violating solvency conditions, as long as total indebtedness rises at a rate below the economy's growth rate. This possibility, which can arise in a Samuelson-type overlapping generations model (see Gale (1973)), implies that the economy follows a dynamically inefficient growth path.

6. The latter assumption is not innocuous: it implies the absence of a "consumption-tilting" term that would lead to an increasing or a decreasing consumption path.

7. Within the notion of sustainability, we can also include cases in which a timely reversal of the current policy stance is sufficient to prevent a "hard landing".

8. For an early analysis of sovereign borrowing in private financial markets pre-dating the debt crisis, see Eaton and Gersovitz (1981).

9. The risk premium is exogenous in this model, and the home country's share of the world portfolio adjusts so as to ensure that (11) holds. A more complete model would endogenize the domestic rate of return and its variance, the rate of depreciation and hence the risk premium. Dornbusch (1990) emphasizes the importance of the option value of waiting on the part of international investors (or domestic residents holding funds abroad) in determining the required risk premium

for investing in the country.

10. For empirical studies of the link between FDI and macroeconomic performance, see Fry (1993b) and Borensztein, De Gregorio and Lee (1994) among others.

11. On the effect of this type of moral hazard on the behavior of commercial banks lending to developing countries, see, for example, Dooley (1995).

12. As pointed out by Edwards and Cox Edwards (1987) among others, private foreign borrowing did not carry government guarantees. A large fraction of foreign borrowing was carried out by the so-called *grupos* -- large conglomerates that included industrial firms as well as banks. They had been major buyers of privatized firms, and their banks extended most of their lending to firms of the same conglomerate, circumventing lax regulations.

13.Some observers (Diaz-Alejandro (1984) attributed the debt crisis mainly to external factors, and underlined that several distinguished commentators (and the commercial banks themselves) argued that there was nothing to be worried about because the current account deficits were financing higher public and private investment. Indeed, the macroeconomic performance between 1978 and 1981 was very good, with high growth an rapid increases in public and private investment.

14. For analyses of the Korean experience, see, for example, Collins and Park (1989), SaKong (1993), Soon (1993) and Haggard et al. (1994).

15. See, for example, Demery and Demery (1992) for an account of the Malaysian experience during this period.

16. State-owned enterprises accounted for around 70 percent of total public investment and about two thirds of external debt by the mid-eighties.

17. For Colombia part of the surge in capital inflows was effectively recorded in the current account as increased transfers; therefore the capital account balance understates the amount of inflows.

18. Dornbusch et al. recognize that the current account deficit and the real exchange rate appreciation were, to some degree, the logical consequence of the productivity increases facilitated by the implementation of large market-oriented reforms, the access to NAFTA, the reduction of inflation and of the size of the public sector. In this context, the increase in permanent income would lead private agents to raise their consumption level, while the increase in output would take some more time to surface because of the lags associated with investment and the intersectoral reallocation of resources induced by trade liberalization and changes in relative prices. The issue is to what degree the real appreciation reflected a misalignment.

19. The reluctance of the monetary authorities to raise domestic interest rates was allegedly driven by the fragile situation of the banking system. However, a drastic increase in interest rates was later forced upon the authorities by the currency crisis.

20. The ratio of exports to GDP in Mexico is different depending on whether it is calculated using national income accounts or balance of payments statistics (as reported in International Financial Statistics). Using the former, the ratio of exports of goods and services to GDP was 12.4 percent in 1993. Using the latter, it was 17 percent. The number reported in Table II corresponds to the balance of payments definition.

21. There are, however, classification problems for capital inflows in Thailand. As a consequence of the establishment of an offshore banking center in 1994, an important fraction foreign direct investment flows are now channeled through the domestic banking system and are therefore registered as short-term flows. See Koenig (1996).

22. Calvo, Leiderman and Reinhart (1993) find that external factors account for a significant fraction of the variance in real exchange rates and foreign exchange reserves in a sample of Latin American countries; Chuhan, Claessens and Mamingi (1993) find that external variables "explain" around half of bond and equity flows from the US to Latin American countries; Fernandez-Arias (1996) finds that the decline in world interest rates in the early 1990s improved creditworthiness of debtor countries, and that "push" factors were dominant in the renewal of capital flows.

23. The real interest rate is defined as the average nominal interest rate on external debt, in dollar terms, deflated by a 3-year moving average index of domestic tradables' prices measured in dollars. Domestic tradables' prices are proxied by a weighted average of the country's export unit values and industrial country's export prices. The methodology draws from Sachs (1985).

24. Ghosh and Ostry (1994) found support for the view that large current account deficits are more likely to be unsustainable in countries with a less diversified export base in the context of a model based on precautionary savings. Mendoza (1997) presents evidence that the volatility of terms of trade is associated with lower economic growth in a wide sample of countries.

25. The discussion above assumes that investment is necessarily growth-enhancing and that it enhances the ability to repay external debt. Investment projects, however, may be chosen inefficiently, because of financial market distortions or because they are driven by political priorities. For example, relative price distortions may skew investment towards the nontraded goods sector, therefore failing to enhance a country's ability to generate future trade surpluses. Under these circumstances,

high levels of investment may not enhance sustainability.

26. In Colombia the level of national savings was low until 1984, but was raised considerably over the following period, thanks in particular to a large increase in public savings. In recent years savings have declined following financial liberalization, but current account imbalances are not as large as, say, in the case of Mexico. For recent cross-sectional studies of determinants of savings see Masson, Bayoumi and Samiei (1995) and Edwards (1995).

27.The degree of private sector saving offset to a given increase in public sector saving may also depend on the level of public debt (Sutherland (1995)). With low public debt the current generation could view a future debt stabilization policy (via fiscal surpluses) as remote, thus the future tax liabilities are perceived to be small and fiscal adjustments affect aggregate demand and savings. In contrast, with high public debt the future debt stabilization looks imminent and the debt neutrality is at a full force. The link between the twin deficits may therefore be stronger the lower is the level of public debt. Another implication of this line of reasoning is that the effects of fiscal stabilization on aggregate demand are weaker the higher is the public debt burden.

28. It should be noted that all the external crises we considered entailed, ex-post, a large fiscal cost for the government in the form of bailouts of banks and firms, as well as the shouldering by the budget of private external debt. Frankel and Rose (1996) find no significant correlation between fiscal imbalances and the probability of an exchange rate crisis.

29.For Mexico I the net external liabilities measure is well below external debt (especially after 1981), signaling the presence of capital flight.

30. For theoretical arguments on the effects of short-term debt on the likelihood of balance-of-payments crises, see, for example, Calvo (1995) and Cole and Kehoe (1996). With regard to capital flow volatility, however, Claessens et al. (1995) find that in a sample of industrial and developing countries the statistical labels "short-term" and "long-term" in most cases do not provide information regarding the persistence and volatility of flows.

31. The degree of de facto opening of the capital account is endogenous, and depends in particular on the strength of the incentives to export capital (risk-adjusted rate of return differentials due to domestic policy misalignments, political instability etc.).

32. This is exemplified by the experience of several Latin American countries (such as Argentina, Mexico, Peru, and Venezuela) in the run-up to the debt crisis (see, for example, Diaz Alejandro (1985) and Sachs (1985)). For those countries,

the level of "official" foreign debt at the time of the debt crisis was much higher than the cumulative value of past current account imbalances, indicating that the accumulation of debt had financed not only excess of imports over exports, but also private capital outflows.

33. For a recent attempt to relate balance-of-payments and banking crises, see Kaminsky and Reinhart (1996). Goldstein (1996) provides a discussion of potential indicators of financial crises which shares many features with ours.

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