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# International Capital Flows: Sustainability, Sudden Reversals, and Market Failures

Assaf Razin\*

The Mexican peso debacle and, most recently, the balance-of-payments crises in Thailand, Malaysia, the Philippines, and Indonesia show how changes in the direction of capital flows after a period of large current account deficits can force the adoption of drastic adjustment measures designed to reduce external imbalances and meet external obligations. Much of my recent research has focused on the issue of balance of payments dynamics with potential capital flow reversals. I have also investigated the related topic of market failures associated with international capital flows and their implications for capital accumulation and capital income tax policies. This summary briefly reviews my work in these two areas. First I describe my research on external sustainability [1993] and my joint work with Gian-Maria Milesi-Ferretti [1996a,b and 1997]. Then I summarize my research on the composition of international capital flows between portfolio debt investment, portfolio equity investment, and foreign direct investment (FDI) under asymmetric information between the owners-managers of the corporation and other portfolio stakeholders, and between the domestic and portfolio stakeholders [Razin, Sadka, and Yuen, 1996 and 1997]. The information-based framework, which gives rise to inadequate domestic savings and foreign underinvestment, has important implications for the domestic accumu-

lation of capital and for international taxation.

## Capital Flows Reversals

Three related questions often are asked about an economy's external balances: Is a debtor country solvent? Is the current account deficit excessive? Are current account imbalances sustainable?

An economy is solvent if the present value of present and future trade surpluses is equal to the country's external indebtedness. The question of whether particular current account deficits are excessive could be answered in the context of the consumption smoothing model of the current account, which yields predictions for the intertemporal equilibrium path of external balances, based on the assumption of perfect capital mobility. This has been demonstrated by Reuven Glick and Kenneth Rogoff<sup>1</sup> as well as myself, working independently<sup>2</sup> and with Leonardo Liederman.<sup>3</sup> When foreign investors are uncertain about a country's willingness to meet its debt obligations, or about its ability to do so in the face of external or domestic shocks, there are constraints on the sustainability of current account imbalances in addition to those imposed by pure intertemporal solvency.

In the context of a cross-country episodic analysis, Milesi-Ferretti and I [1996a,b] consider potential indicators of sustainability and examine their performance in signaling external crises.<sup>4,5</sup> The episodes fall into three broad categories of outcomes: 1) those in which sustained current account imbalances did not trigger sharp policy reversals; 2) those in which external and/or domestic factors caused a sharp policy reversal, but without external crises; and 3) those in which persistent current

account imbalances were followed by an external crisis, resulting in debt rescheduling, renegotiations or a massive bailout. We characterize these different experiences in terms of such factors as the macroeconomic policy stance, the economy's structural characteristics, and external shocks. Our aim was to determine whether (and identify which of) the sustainability indicators help to discriminate among the three groups of country episodes, in particular, between countries that did or did not experience external crises. In order to interpret the contribution of these indicators to explaining sustainability, it was important to ascertain whether differences in the intensity of external shocks were not the predominant reason for the range of country experiences. We find that various indicators of sustainability help us to discriminate among the three possible outcomes, including: the ratio of exports to GDP (a measure of trade openness), the degree of real exchange rate misalignment, and the level of national savings.

Milesi-Ferretti and I interpret the role of trade openness as follows: In order to service and reduce external indebtedness, a country needs to rely on the production of exports as a source of foreign exchange. Clearly, a country with a large exports sector can service external debts more easily, because debt service will absorb a smaller fraction of its total export proceeds. In order to generate the foreign exchange required 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 domestic industries that rely on

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imported inputs. This import compression may be more costly in a relatively closed economy, because it is more likely to entail cuts of "essential" imported inputs. Although the evidence from the sample of episodes does not suggest that large fiscal imbalances *ex ante* imply that current account deficits are unsustainable, in most of the episodes an *ex post* improvement in the current account balance, after a prolonged period of deficits, was associated with a fiscal consolidation.

My 1997 work with Milesi-Ferretti more systematically looks at the determinants and consequences of reversals in current account imbalances. Using a sample of 86 developing countries over the period 1971–92, we ask: What triggers sharp reductions in current account deficits? And what factors explain the costliness of such reductions?<sup>6</sup> A sharp reversal in external imbalances can originate in a change in macroeconomic policy stance undertaken by the country in question—for example, the implementation of a stabilization plan—or it can be forced upon the country by external developments, such as a sudden reversal in international capital flows that forces the country to reduce its external imbalances.

In our sample of low- and middle-income countries, reversal events have to satisfy two requirements: First, an average reduction in the current account deficit of at least 3 percentage points of GDP over a three-year period. This requirement captures the idea that a reversal is characterized by a large and sustained reduction in current account imbalances. Second, the maximum current account deficit after the reversal must be no larger than the minimum deficit in the three years preceding the reversal. This requirement should insure that we capture only reductions of sustained current account deficits, rather than reversals

of a temporary nature.

Our probit analysis identifies a number of "robust" predictors of reversals in current account imbalances: 1) Current Account Deficit. Not surprisingly, reversals are more likely in countries with large current account deficits. This result is consistent with solvency and willingness to lend arguments; 2) Openness. Reversals are less likely in more open economies. This result is consistent with our previous work<sup>7</sup> and with theories of current account sustainability that emphasize how more open economies have fewer difficulties in servicing external liabilities, and less incentive to renege on external debt, thereby making a turnaround in capital flows less likely; 3) Reserves. Countries with lower reserves (as a fraction of imports) are more likely to experience a reversal. This result is consistent with a "reserves adequacy" approach and, on the capital account side, with a willingness-to-lend argument. The ratio of reserves to M2, which Calvo and others have identified as a key predictor of recent balance-of-payments crises, does not appear to signal reversals ahead of time in our sample. It is negatively correlated with our event measure, but is "dominated," in terms of statistical significance, by the reserves-to-imports ratio; 4) Investment. For a given size of the current account deficit, a high share of savings and investment increases the likelihood of a reversal. High investment and savings can increase future exports and output growth, thereby contributing to narrowing current account imbalances; 5) Concessional Debt. As expected, the higher the share of concessional debt in total debt, the less likely is a current account reversal. There can be two reasons for this: concessional debt flows are less likely to be reversed; and, they are likely to be higher in countries that have more difficulty reducing their external imbalances

and servicing their external obligations; 6) Terms of Trade Before the Reversal. Reversals are more likely in countries with diminished terms of trade. One interpretation is that countries that have suffered terms-of-trade deterioration are more likely to experience a reversal of capital flows, and therefore may be forced to adjust. We also find that reversals are more likely in years in which the terms of trade improve; 7) Public Deficit. The lower the public sector deficit, the higher is the probability of a reversal. This result, somewhat difficult to interpret, can be caused by the effects of fiscal consolidation on the current account.

## Pecking Order of International Capital Flows

Even though financial markets today show a high degree of integration, with large amounts of capital flowing across international borders to take advantage of rates of return and the benefits of risk diversification, the world capital market is still far from the textbook story of perfect capital mobility. International capital immobility has been explained not only by capital controls, but also by informational problems associated with international investments. Because of adverse selection and moral hazard problems, real rates of return across countries are not equal. Applying capital market regulations and better rules of disclosure to information about domestic firm profitability alleviates some of these problems of asymmetric information, but such rules and regulations are not adequate in most developing countries. Adverse selection problems give rise to a pecking order among types of international capital flows: foreign portfolio debt investment (FPDI); foreign portfolio equity investment (FPEI); and FDI. This ranking originates from the "home

court advantage" that domestic savers have over their foreign counterparts, and is somewhat similar to the pecking order hypothesis of corporate finance.

In corporate finance, the hypothesis maintains that firms prefer internal finance (retained earnings) to external finance. In the international capital market, FDI comes first, FFDI second, and FPEI third. My 1997 analysis with Sadka and Yuen considers three tax instruments, which together can level the playing field and restore efficiency: a tax on the capital income of nonresidents, a tax on capital income of residents; and a corporate income tax.<sup>8</sup>

Typically, though, there is also significant asymmetry in information between the managing stockholders (owner-managers) and other portfolio equity- and debt-holders. This asymmetry of information causes severe market failures, which can be devastating in the case of equity-financed capital investment. We show

that the equity market may collapse to a "lemon" market, as in Akerlof,<sup>9</sup> and that little financing is provided for capital investment. We show that in this case, FDI has an essential role in restoring the function of the capital market and the financing of capital investment. However, such financing is still not fully efficient, because it leads to foreign overinvestment and domestic undersavings. A corrective tax package, with a tax on the capital income of nonresidents and a subsidy to corporate income, will restore efficiency. Non-uniform taxation of capital income from various sources is crucial for the efficiency of the international capital market in the presence of information-based market failures.

<sup>1</sup> G. Akerlof, "The Market for 'Lemons': Qualitative Uncertainty and the Market Mechanism," *Quarterly Journal of Economics*, 89, (1970) pp. 488-500.

<sup>2</sup> R. Glick and K. Rogoff, "Global versus Country-Specific Productivity Shocks and the Current Account," *Journal of Monetary Economics*, 35 (February 1995), pp. 159-92.

<sup>3</sup> L. Leiderman and A. Razin, "Determinants of External Imbalances: The Role of Taxes, Government Spending, and Productivity," *Journal of the Japanese and International Economics*, 5 (December 1991), pp. 421-50.

<sup>4</sup> G. Milesi-Feretti, and A. Razin, "Sustainability of Persistent Current Account Deficits," *NBER Reprint No. 2100, December 1996. [1996a]*

<sup>5</sup> "Current Account Sustainability: Selected East Asian and Latin American Experiences," *NBER Reprint No. 2111, March 1997. [1996b]*

<sup>6</sup> "Sharp Reductions in Current Account Deficits: An Empirical Analysis," *NBER Working Paper No. 6310, December 1997.*

<sup>7</sup> A. Razin, "The Dynamic-Optimizing Approach to the Current Account: Theory and Evidence," *NBER Reprint No. 1984, July 1995. [1993]*

<sup>8</sup> A. Razin, E. Sadka, and C. Yuen, "Tax Principles and Capital Inflows: Is it Efficient to Tax Nonresident Income?" *NBER Reprint No. 5513, March 1996. [1996]*

<sup>9</sup> "An Information-Based Model of FDI and Capital Flows," *forthcoming as an NBER Working Paper. [1997]*

## Institutions for Managing Risks to Living Standards

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Do our existing institutions for investment, hedging, and insurance

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allow individuals to manage risks to their living standards effectively? How effectively can people manage risks to the various components of U.S. household wealth? Figure 1 shows a breakdown of U.S. national wealth in 1996 (\$114 trillion), which here includes human capital, or the present value of labor income, which

usually is ignored in wealth computations. Human capital accounts for 73.7 percent of estimated national wealth; financial assets account for 16.2 percent; real estate accounts for 7.9 percent; and consumer durables account for 2.2 percent.<sup>1</sup>

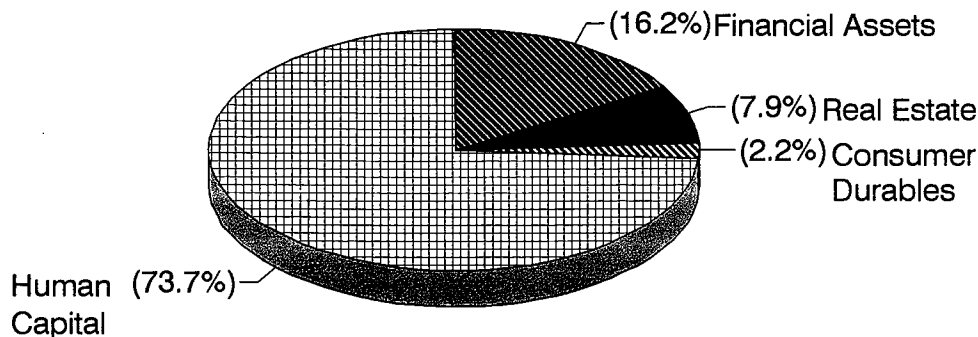


Figure 1. Breakdown of estimated \$114 trillion U.S. national wealth into components. Source: Author's calculations using national income, stock market, and Board of Governors of the Federal Reserve System *Balance Sheets for the U.S. Economy*.