

Capital Market Liberalization and Development

José Antonio Ocampo, Shari Spiegel, and Joseph E. Stiglitz

1.1 Introduction

In the 1980s and 1990s, many countries opened their capital accounts and liberalized their domestic financial markets as part of the wave of liberalization that characterized the period. In 1997, the IMF even proposed changing its charter to include a mandate to promote capital market liberalization. At the time, many other economists warned that open capital accounts would lead to volatility and increased risk without contributing to growth or stability. Yet there was virtually no body of material or survey of the literature that could provide the background for the debate on this issue. This book, along with *Stability with Growth: Macroeconomics, Liberalization, and Development* (Stiglitz et al. 2006) attempts to fill that gap—and go a step further, by providing an analysis of both the risks associated with capital market liberalization and the alternative policy options available to enhance macroeconomic management.

Today, the central intellectual battle over the effects of capital market liberalization (CML) has for the most part ended. In 2003, an IMF paper (Prasad et al. 2003) publicly acknowledged the risks inherent in CML. It has become clear that pro-cyclical capital flows—particularly (but not only) short-term speculative flows—have been at the heart of many of the crises in the developing world since the 1980s. Even when capital flows were not the direct cause of the crises, they played a central role in their propagation. These volatile flows have also made it difficult for policymakers to respond to the crises with traditional economic tools aimed at smoothing business cycles.

It is equally recognized that these flows may result in higher volatility of consumption, implying that there may be direct welfare losses from capital account liberalization, and that the recessions that accompany sharp

contractions of external financing have high social costs. In addition, the uncertainties associated with volatile financing and growth may reduce investment and economic growth.

But critical policy debates continue, such as how much government should intervene, and when it does intervene, the best way to do so. Although capital market liberalization might not produce the promised benefits, many economists and policymakers still worry about the costs of intervention. Do these costs exceed the benefits? If so, how can policymakers use capital market interventions? What are the best kinds of interventions, under what circumstances? To answer these questions, we have to understand first why capital market liberalization has failed to enhance growth, why it has resulted in greater instability, why the poor appear to have borne the greatest burden, and why the advocates of capital market liberalization were so wrong.

There is another reason for this book's detailed analysis of capital market liberalization: while a new understanding of the consequences of CML is reshaping many policy discussions among academics and international institutions, ideological and vested interests remain. Principles of capital market liberalization have been included in bilateral trade agreements signed by the US, even with countries such as Chile, Colombia, and Singapore that, as we will see in this book, have made productive use of capital account regulations. Developing countries should be aware of all the consequences when they consider signing such agreements.

In recent years, there have even been some renewed calls for giving the IMF a mandate for capital account convertibility. The authors of the original 2003 IMF paper published another article in 2006 (Kose et al. 2006), asserting that financial globalization has 'collateral benefits' that might be difficult to uncover in econometric analysis. These benefits include financial market and institutional development, better governance, and macroeconomic discipline. However, as we point out in this chapter and elsewhere in this volume, the pro-cyclical nature of capital flows and the volatility associated with CML (which are evident in econometric analysis) have often had the opposite effect on both financial market and institutional development. Similarly, the market discipline imposed by short-term capital flows is not necessarily a positive force for long-term sustainable growth.

In this volume, the Initiative for Policy Dialogue (IPD) has brought together some of the leading researchers and practitioners from around the world to address these questions and examine the alternative forms of intervention. Although all the authors in this volume recognize the risks of capital market liberalization, they do not provide a simple or single answer to the questions posed above. It is clear to the authors of this Introductory chapter, as well as to some others in this volume, that the ability to manage (which means, many times, restrict) capital flows is critical to counter-cyclical macroeconomic management. But others (see, in particular, the contributions of Schmukler

and Rojas-Suarez) argue against direct controls, and have an inclination towards more indirect forms of intervention.

This first chapter introduces the arguments and provides a framework for the issues. It is divided into four sections, aside from this introduction. Section 1.2 addresses an important set of market failures—imperfections in markets that are likely to be particularly significant in developing countries. Many of the arguments for capital market liberalization are predicated on the assumption that, but for government intervention, markets would efficiently allocate resources. These market failures, however, provide a rationale for interventions in capital markets; whereas capital market liberalization may exacerbate the consequences of these market failures. Section 1.3 analyzes the effects of capital market liberalization on developing countries. Section 1.4 introduces alternative policy options for interventions in capital markets. The last section provides brief conclusions.

The rest of the chapters in this volume are organized around three major themes. The first part of the volume examines the effects of CML on developing countries. The second part analyzes experiences with different types of capital account management. The third part considers different forms of national and global financial regulations that may be used to manage the risks that capital flows generate on domestic financial systems.

1.2 Implications of Market Failures in Financial Markets

Advocates of capital market liberalization believed that CML would increase economic growth and efficiency and reduce risk. In their view, CML would stabilize consumption and investment. The two main arguments put forward were: (a) that capital would flow from industrial countries, where capital has low marginal returns, to developing countries, where its relative scarcity implies high marginal returns; and (b) that CML would enhance stability by allowing countries to tap into diversified sources of funds.

Today, even the IMF recognizes that capital market liberalization has not led to growth and efficiency, and has not enhanced stability as they had hoped—and predicted. In the well known 2003 study cited earlier (Prasad et al. 2003), they repeatedly emphasize that 'theory' predicts that CML *should* enhance stability. Their 2006 study (Kose et al. 2006) repeats this conclusion but offers alternative interpretations to what seems to them the anomalous finding that CML does not bring the benefits promised. But the basic problem, as Stiglitz argues in his contribution to this volume, is that their 'theory' (i.e., orthodox neoclassical theory) is predicated on *perfect capital markets* (e.g., no credit rationing, no information imperfections, and perfect forecast of future events) and *perfect inter-temporal smoothing* (with individuals living infinitely long or fully integrating their children's welfare with their own).

Yet it has long been recognized that such assumptions are also entirely unrealistic. It should have been obvious to even a casual observer that something was wrong with the standard theory, at least as applied to developing countries. The standard theory predicted that capital flows would be counter-cyclical; yet the underlying concern of critics of capital market liberalization is that the facts suggest otherwise. It is precisely because capital often flows out of a country in times of crisis and during booms that some restrictions are needed. Had the IMF study shown that consumption volatility was lower in liberalized economies, they would have faced a daunting challenge: to explain how, in spite of pro-cyclical capital flows, CML contributed to stability. To our knowledge, no advocate of CML has ever even attempted this task.

As we suggested earlier, underlying many of the arguments for capital market liberalization is a simple theory: free and unfettered markets lead to economic efficiency. But economic science has provided several important caveats to such free market doctrines. For more than seventy five years, economists have realized that, without government intervention, market economies may operate significantly below their potential. Certain types of shocks can lead to unemployment, and this unemployment can, without government intervention, persist. Government policies are required to: (a) change the nature of the shocks the economy confronts; (b) reduce the underperformance of the economy that results when the economy experiences a shock, both with automatic stabilizers and discretionary actions; and (c) create social protection systems to help individuals and firms cope with the consequences of these shocks.

Capital market liberalization is an example of a structural policy that affects both the nature of the shocks the economy experiences and the way the economy responds to these shocks. Hence, an analysis of CML within a model in which the economy is always at full employment ignores what fundamentally is at issue.¹

Theoretical and empirical research over the past quarter century have helped explain why the market economy often does not function as well as free market advocates had hoped. Many of the problems are related to problems in capital markets.² There are several types of market failures: general macroeconomic failures, which together with the information problems inherent to the functioning of capital markets imply that financial markets face waves of euphoria and pessimism; problems with externalities; and problems associated with coordination failures. In addition, risk (or insurance)

¹ But, as Stiglitz (this volume) points out, even in a full employment model, their conclusions are flawed.

² Most of these market failures are related to problems of information asymmetries. See, e.g., Stiglitz (2002b).

markets are imperfect even in developed countries, but such markets are particularly weak, or absent, in most developing countries.

As a result of these problems, market economies are not self-regulating, and government interventions are necessary to provide regulations that reduce exposure to risks, reduce the extent to which markets amplify the shocks to which they are exposed, and enhance the capacity to quickly restore the economy to health.

1.2.1 *Imperfect Information and General Macroeconomic Failures*

All countries—both developed and developing—confront problems of capital market instability, but, as we shall see, the consequences of CML are greater in developing countries. Even the United States suffered an ‘attack’ on the dollar in 1971. It intervened in the free flow of capital and was forced to go off the fixed exchange rate system. In the mid-1990s, the United States worried about the fall of the dollar relative to the yen despite no apparent changes in the real economic positions of the two countries, and in 2003–04, Europe worried about the rise of the euro relative to the dollar. This high volatility was not related to sudden changes in trade; rather, capital movements were largely responsible for the exchange rate fluctuations.

IRRATIONAL AND RATIONAL EXUBERANCE AND PESSIMISM

Traditionally, economists argued that rational speculation helps stabilize markets. But, often, markets do not exhibit rationality. Since the late 1990s, economists have noted markets’ ‘irrational exuberance’.³ There are macroeconomic consequences of this irrationality. Investor ‘herding’ is one of the key reasons for the booms and busts that characterize financial markets. When investors flee a country—as they did in Thailand, Korea, and Indonesia in 1997 and in the myriad of other financial panics around the world—innocent bystanders get hurt.

Interestingly, recent research shows that herd behavior is consistent with rational expectations when information is imperfect, though the extent of the herd behavior may well be greater than can be explained by these models.⁴ The essential reason for volatility in financial markets, as emphasized by Keynes, is that market players respond to *expectations*. The value of any asset today depends on what others are *expected* to be willing to pay for it tomorrow, and that depends in turn (in a never ending chain) on what others

³ The phrase was made famous by Alan Greenspan. See Greenspan (1996). See the classic study by Kindleberger (2000, first published 1978); and the more recent work of Shiller (2000).

⁴ See Banerjee (1992); Bikhchandani et al. (1992). For an application to portfolio allocations on international stock markets, see Calvo and Mendoza (2000); for other applications see Chamley (2004); Caplin and Leahy (1994).

are expected to be willing to pay the day after.⁵ These expectations are based on information about current conditions. Such information is inherently incomplete and costly to process. This makes it rational for everyone to glean information about the desirability of investing from the opinions and actions of others. In addition, the major market players—investment banks, rating agencies, international financial institutions—use the same sources of information and tend to reinforce each other's interpretations. Since these market players have better access to relevant information and are better able to process it, others are likely to follow their lead, resulting in herd behavior (See Ocampo 2002b).

These characteristics of financial markets give rise to risks of 'correlated mistakes': unexpected news that simultaneously contradicts the general opinion is reported, and all market players realize that they were wrong and pull their funds out of certain asset classes. This type of correlated mistake has triggered numerous panics and crises. For example, the realization that Thailand's reserves were close to zero was one of the culminating factors that triggered the Asian crisis in 1997.⁶

This 'contagion' of opinions and expectations can lead to euphoria or panic, as has been reflected through history in successive waves of irrational exuberance and unwarranted pessimism—or, to use the terminology of financial markets, of phases of 'appetite for risk' (underestimation of risks) followed by phases of 'flight to quality' (risk aversion). Herding behavior by investors takes place even in normal times but can be particularly devastating in periods of high uncertainty when 'information' becomes unreliable and expectations become highly volatile. Indeed, when views converge, the information that underlies panics and crises may be factually imprecise or incorrect, but it may still prevail in the functioning of the market, generating what the literature has come to call 'self-fulfilling prophecies'.⁷

⁵ These expectations may, of course, be related to expectations of underlying variables, like dividends, interest rates, etc. The only way that prices today would not depend on expectations would be if there were futures markets extending infinitely out into the future, i.e. one could buy and sell securities at any date no matter how far away. Arrow and Debreu, in their classic studies of the idealized market economy, assumed that such markets existed. See, e.g., Arrow and Debreu (1954).

⁶ While the discovery of the foreign exchange position of the Thai central bank triggered the crisis, even if the Thai central bank had not been taking the positions it had, it is likely that there would eventually have been a crisis. The puzzle is why the market did not seem to recognize this. The stock and real estate markets had boomed in the mid-1990s, the exchange rate had appreciated, and imports had surged, generating an increase in the external deficit, and financing—as recognized only *ex post* by the IMF and financial markets—was dangerously short-term.

⁷ That is, if everyone hears a rumor that the stock is going to crash, they all sell, and the stock does in fact fall in price, as expected. There is a somewhat more difficult question: whether there are multiple rational expectations that are precisely correct (rather than *roughly* correct, in the sense that the stock is going down). Forty years ago, Hahn (1966), Shell and Stiglitz (1967), and Stiglitz (1973) provided the affirmative answer—see footnote 8 below.

Standard compensation packages for investment managers, which often measure performance relative to a benchmark index, may exacerbate the problem of herding. Latin America, for instance, is heavily weighted in the major emerging market indices. The investment manager that stays close to the index (and/or follows the herd) will not underperform the index (and/or their competitors) when Latin America has disappointing returns, but if they do underweight Latin America and Latin America performs exceptionally well, they will underperform and their pay will most likely be adjusted accordingly (see Nalebuff and Stiglitz 1983).

BUBBLES AND CONTAGION

These theories of herding are part of a growing literature that demonstrates how investor behavior easily leads to bubbles (see, e.g., Shiller 2000). Bubbles even appear (and burst) in developed countries with well functioning markets and the best available standards of prudential regulation and supervision. Much of this work is a development of the analysis of the instability of the *real* dynamics, for example of Hahn (1966) and Shell and Stiglitz (1967),⁸ and the even more relevant analysis by Minsky (1982) of the endogenous unstable dynamics of financial markets. Minsky showed how financial booms generate excessive risk taking by market agents, eventually leading to crises. A similar explanation has been suggested by White (2005), who underscores how the 'search for yield' characteristic of low interest rate environments generates incentives for credit creation, carry trade, and leverage that easily build up asset bubbles.⁹ In developing countries with thin or small markets, a short-term bias (as discussed below), and weaker prudential regulation and supervision, bubbles are easier to create, and their effects are more devastating.¹⁰

The problems of bubbles are exacerbated by contagion—when a bubble breaks in one economy, the downturn quickly spreads elsewhere. Contagion is clearly visible in the dynamics of international capital markets *vis-à-vis* developing countries. Indeed, some empirical studies have argued that many, perhaps most, of the shocks (both positive and negative) experienced by

⁸ Hahn (1966) and Shell and Stiglitz (1967) showed that there could be multiple paths consistent with rational behavior in the short run. Without capital markets extending infinitely far into the future, the economy will not necessarily converge to the long run equilibrium. There are paths which are dynamically consistent with rational expectations in the short run. While herding behavior is often attributed to investor myopia, these results suggest that bubbles may arise so long as investors do not look infinitely far into the future. However, even when investors look infinitely far into the future, it may not be possible for them to predict (on the basis of rational expectations alone) how the economy will evolve, if, for instance, there are multiple paths consistent with rational expectations. See Stiglitz (1973).

⁹ In the words of the BIS in reference to world financial conditions in 2005: 'the main risks to the financial sector could stem from financial excesses linked to a generalized complacency towards risk reinforced by a benign short-term outlook' (BIS 2005: 120).

¹⁰ In addition, as we will see, capital market liberalization also makes it more difficult for governments to respond to booms and busts in effective ways.

developing countries involve *contagion*—of both optimism and pessimism. During the boom in international capital markets in the 1990s, capital even flooded countries that had major macroeconomic problems, such as Moldova (which defaulted on its debt shortly thereafter) (see Spiegel forthcoming). After the 1997 East Asian crisis, external financing even dropped in countries that seemed to have good 'macroeconomic fundamentals', such as Hong Kong and Chile.

ALTERNATIVE EXPLANATIONS OF CONTAGION

Information problems are particularly important in international capital markets, where investors face not only greater information asymmetries, but also different legal systems, and much weaker (or absent) regulation. As discussed above, expectations may be largely derived from the actions of others. In a world in which prices are determined by expectations, 'contagion' of optimism and pessimism among market agents can result in a crisis in one country spreading elsewhere. (There may or may not be a 'rational' basis of such shared optimism or pessimism. There may be little reason that good news about East Asia would portend well for Latin America.) When investors see capital fleeing one country, they may well worry that something is wrong with other similar countries and pull their money out of those countries as well.

But 'contagion of expectations' is only one of several explanations of the spread of crises from one country to another.¹¹ Financial linkages that characterize a globalized financial world can spread problems from one area to another. Financial agents that incur losses in some markets are often forced to sell their assets in other markets to recover liquidity (or pay their short-term obligations, including margin calls). Similarly, in periods of euphoria, access to finance in one part of the world economy can facilitate investments in others, and gains in one country can lead to investments elsewhere, often involving greater risk.

An important aspect of behavior in financial markets—which can exacerbate fluctuations—is their short-term focus. Market-sensitive risk management practices (Persaud 2000), evaluation of investment funds (and managers' bonuses) by short-term criteria, benchmarking against indices, bank regulations requiring less capital for purposes of capital adequacy standards for short-term debt,¹² the behavior of credit-rating agencies, and investment rules for certain categories of fiduciaries,¹³ and, more recently, the practice

¹¹ The IMF often seemed to emphasize this source of contagion in the East Asia crisis.

¹² While such rules might make sense for any single bank, when all banks are subjected to such rules, typically they all cannot easily pull out their short-term money quickly. Moreover, bank regulators tend to ignore the systemic consequences of these rules.

¹³ These are restricted to put their money in investment grade securities. In the East Asia crisis, credit-rating agencies, who failed to anticipate the crisis, quickly downgraded the bonds of the affected countries to below investment grade, forcing quick sales, which further depressed bond prices. See Ferri et al. (1999).

of requiring firms, even in advanced financial markets, to announce short-term profit forecasts (which are inherently uncertain) all contribute to the short-term bias that characterizes the behavior of financial agents. Standard operating procedures of financial markets also contribute to this volatility. Countries (as well as firms) tend to be clustered in certain risk categories by analysts; this clustering leads to contagion. While these practices contribute to herding behavior and market volatility in all markets, their consequences are especially serious in the thin markets that characterize developing countries.

Finally, trade linkages can play an important role in contagion—as a downturn in one country reduces the demand for the products produced by countries that export to it.¹⁴ Standard analyses of East Asia before the crisis underestimated the importance of these linkages and the role that they might play in spreading the downturn in one country to its trading partners.

1.2.2 Externalities and Coordination Failures

The presence of contagion implies the existence of an externality—what goes on in one country has effects on others. Herding behavior itself reflects an externality: the actions of one individual convey information to others. Whenever there are externalities, markets are not likely to work well. This section traces through the nature and consequences of these externalities.

The bail-outs of the mid- and late 1990s recognized the presence of this externality: 'contagion' justified the interventions. Discussions on the need for more information about the quantity of capital flows also implicitly recognize externalities—in well functioning markets, prices convey all the relevant information; such quantitative information would be irrelevant. Yet if there are externalities, and it is desirable to intervene in markets to deal with the *consequences* of capital flows, it should be desirable to intervene in markets before the problems arise; if government has a role in treating a disease, it also has a role in preventing the disease.

These externalities take on a variety of forms. *Price externalities* arise both during periods of capital inflows and outflows. During waves of inflows, the exchange rate often appreciates, harming exporters and those attempting to compete with imports.¹⁵ During outflows the exchange rate often weakens,

¹⁴ These trade interdependencies played a large role in the 'contagion' in the East Asia crisis. By contrast, the contagion of the Russia crisis to Brazil had little to do either with trade or information but with specific institutional features of the market. Such trade linkages are, of course, standard fare in Keynesian style macroeconomic models, where output is limited by aggregate demand. Keynes' concern about these trade linkages provided part of the underlying motivation for the creation of the IMF. It was thus ironic that these linkages seem to have been underestimated in that crisis.

¹⁵ Classical microeconomic theory suggested that pecuniary externalities did not matter—at least for the standard welfare theorems—but when there are market imperfections, including imperfections of information, they do. See Greenwald and Stiglitz (1986).

and the domestic value of foreign-denominated debt (in terms of domestic currency) rises. Central banks often raise interest rates to limit the extent of currency depreciation. The exchange rate depreciation and interest rate increases can force firms into bankruptcy, destroying jobs. As we will explain below, the magnitude of the volatility depends on the amount and form of borrowing. Since the volatility itself exerts an externality, the borrowing that can give rise to it generates an externality as well.¹⁶

Quantity externalities are particularly acute when capital outflows lead to credit rationing: when capital leaves the country, banks may be forced to reduce credit availability. Another quantity externality arises when a country's creditors look at the total short-term debt of the country and the ratio of outstanding short-term debt to reserves and, believing that that higher ratio indicates a higher probability of a crisis, cut commercial credit lines. More generally, the greater the amount of outstanding debt (relative to a country's reserves) the higher the likelihood of a crisis.¹⁷ The IMF implicitly recognized the importance of this externality during the East Asia crisis, when it urged greater information about the total supply of outstanding short-term debt (see Rodrik and Velasco 2000). In a standard competitive equilibrium model, such quantitative information would be of no relevance.¹⁸

There are then two related externalities: if a country does not increase reserves when its domestic firms increase short-term foreign currency borrowing, it faces a greater risk of a crisis. But several countries (even those with flexible exchange rates) chose not only to keep significant international reserves, but also to increase their reserves as foreign-denominated short-term liabilities increase. This is a basic reason why, after the costly crises that took place between 1997 and 2002, many developing countries have opted to accumulate large volumes of international reserves as 'self-insurance' against future capital account crises.

¹⁶ All of this assumes that individuals or firms do not fully insure themselves against these risks. In many cases, such insurance is not available. Individuals who borrow in foreign currency (with incomes denominated in local currencies) will see their wealth plummet as the exchange rates fall. But as their wealth plummets, they may retrench investment and consumption. The resulting fall in GDP may simultaneously reduce confidence in the country and its currency, leading to further falls in the exchange rate. These are another set of external costs which individuals do not take into account in making their borrowing decisions. See Korinek (2007) for a fuller discussion of these externalities.

¹⁷ Whether this is inherently so is a question of some debate; but if market participants believe that is the case, their actions may lead to self-fulfilling behavior, as they pull their money out of the country when foreign denominated indebtedness rises above a critical level. See Furman and Stiglitz (1998).

¹⁸ Standard economic theory argues that all relevant information is contained in prices. Modern information economics has helped explain what is wrong with this standard result of competitive equilibrium analysis. (For a discussion in the context of insurance markets, see, for instance, Arno and Stiglitz 1990, 1991.)

But there are high opportunity costs of these reserves. Reserves are usually held in US Treasury bills or bonds or other liquid assets denominated in 'hard currencies', which have relatively low rates of return. These social costs (the difference between the return on the US Treasury bills and what the funds could have yielded if invested elsewhere as well as the increased likelihood of a crisis) are not incorporated in the decisions of private domestic firms to borrow short-term funds abroad. (These costs might be mitigated if there were adequate 'collective insurance' against financial crises.)

An interrelated set of market failures involves creditor or investor coordination problems. This is especially relevant during periods of capital flight. It pays investors to remain in a country as long as other investors also remain. But if some investors start to believe that the country will face a crisis and begin to remove their money, it will be in the interest of others to do the same. Investors and creditors can get caught in the rush to pull out their funds, causing the markets to collapse. The currency, interest rate, and stock market weaken and tend to overshoot substantially.¹⁹ The economy enters into recession, weakening the tax base and making it more difficult for the government to repay its loans. Since the markets usually rebound afterwards, investors would have been better off collectively if they had left their funds in the country. This is true even though it was in each individual investor's interest—given their expectations about what others would do—to exit at the time.

The behavior of short-term capital during the Asian crisis provides an example of these types of coordination problems. If all lenders had agreed to roll over their loans to Korea, Korea would have been able to meet its debt obligations relatively easily (as the country clearly demonstrated over the next few years). But none of the lenders wanted to take the risk. When each refused to roll over outstanding loans, the country faced a crisis.²⁰ Capital flight in Russia during the 1990s provides another example. Arguably, it was in most people's interest to reinvest in the country and build a stronger legal and regulatory environment.²¹ But if each believed that others were going to

¹⁹ When a currency weakens excessively, by say 30%, and then strengthens so that the total devaluation is only around 20%, the currency is said to overshoot. For example, according to a poll of the Citibank trading floor in 1989, traders believed that interest rate and currency markets react to bad news by overshooting by an average of 50%. Sometimes, overshooting is part of a dynamically consistent path with rational expectations, but typically, it reflects an overreaction of market expectations.

²⁰ In the end, in 1998, some months after the massive bail-out that failed to stabilize the exchange rate, the US Treasury helped coordinate a rollover of Korean loans.

²¹ There were probably some oligarchs—those who were much better at asset stripping than at wealth creation—who benefited from the lack of the rule of law and open capital markets. Conceivably, had there not been open capital markets, even though GDP might have been higher, there might have been a greater demand for the rule of law; and if a rule of law had been quickly instituted, they would not have been able to 'steal' as much as they did. These policies had both adverse efficiency and distributive consequences.

take their money out of the country and that the country would plummet into a recession, it would pay each to pull their capital out. Russia's open capital markets provided an opportunity for investors to remove substantial amounts of money from the country. Open capital markets also increased the incentive of Russian entrepreneurs to 'asset strip', that is, to engage in transactions that allowed them to convert their assets into dollars that could be deposited in foreign banks.²² Russia's plight worsened as they did so. Because of the capital flight, those who stripped assets did in fact do better than those who attempted to create wealth inside the country by investing more. But the country as a whole was worse off.

The essential rationale for restrictions on capital outflows in the face of externalities and coordination failures is that they can eliminate a 'bad equilibrium' and ensure that an economy coordinates on the 'good equilibrium', where the costs of externalities are taken into account. The interesting aspect of this intervention is that there are no additional costs (e.g., of enforcement) of bringing about the 'good equilibrium'. When all players invest in the country, it pays each individual investor to do just that.²³

1.2.3 The Effect of Incomplete Domestic Financial Markets in Developing Countries

One of the reasons that CML has such a large negative effect on developing countries is because capital markets are thin²⁴ and financial instruments are generally short-term or non-existent.²⁵ Higher risks are, in turn, a characteristic of thin markets. Market resource allocations are typically inefficient, *even taking into account the absence of the risk market*, and are clearly so when the markets for insuring against risks are absent (i.e., the market is not constrained Pareto efficient).²⁶ There are, therefore, government interventions which would constitute a welfare improvement. In these circumstances,

²² The problem was exacerbated by the political illegitimacy of the privatization, which meant that there might be long-run pressures to renationalize. Only by taking money out of the country could the oligarchs truly protect their ill-gotten wealth.

²³ There are many examples of this kind of multiple equilibria, and such models have played an increasing role in explaining crisis. Among the early examples was that of Diamond and Dybvig (1983), explaining bank runs.

²⁴ Later, we shall discuss another effect of thin markets—the possibility of manipulation.

²⁵ Standard economic theory (Arrow-Debreu) requires that there be a complete set of risk and futures markets if the competitive market equilibrium is to be (Pareto) efficient. The absence of these markets is a *market failure*. Modern economic theories (based on imperfect and asymmetric information) have helped to explain why, for instance, risk markets are often absent.

²⁶ There are externality like effects. Actions by individuals can affect the probability distribution (e.g., of exchange rates), in ways which can increase risk and lower welfare. See Stiglitz (1982) and Greenwald and Stiglitz (1986).

capital market liberalization can lead to a *worsening* of market efficiency, and appropriately designed capital market interventions can increase welfare.

Developing country financial markets are, for instance, often characterized by maturity mismatches, with long-term investments partly, or largely, financed by short-term loans. During a crisis, there is a risk that creditors might not roll over short-term liabilities, generating a liquidity crunch as borrowers are unable to repay their loans. Even when short-term debts are rolled over, domestic borrowers still bear the cost of interest rate fluctuations.²⁷

To overcome the short-term bias of domestic financial markets, agents that have access to foreign credit often borrow from abroad. Those firms that do not sell in external markets, and thus have no revenues in foreign currencies, then incur currency mismatches. (The fact that the opportunity to borrow abroad is available only to the larger economic agents also generates distributive issues, as it implies that smaller firms have no way of covering their maturity mismatch.)²⁸ When domestic banks use foreign funds to finance domestic currency loans, they incur a currency mismatch between their assets and liabilities that can lead to a financial meltdown if and when the currency depreciates. (If banks lend those funds domestically in foreign currencies to avoid currency mismatches in their portfolio, they merely transfer the risk to those firms that do not have foreign exchange revenues. This can lead to capital losses for those non-financial firms during crises, generating credit risks for the banks that lend to them.)

Until quite recently, the external debt of most developing countries was issued in foreign currencies, a phenomenon that has come to be called the 'original sin'. Indeed, international creditors often have been unwilling to take local market risks (or they have demanded such high compensation to bear that risk that local borrowers would prefer to bear it themselves), so they lend to developing countries in hard currencies, with the domestic borrowers assuming the currency risk. Even domestic financial assets and liabilities are sometimes denominated in such currencies. This domestic financial dollar/euroization generates great risks for developing countries. Furthermore, what matters is not the average or total exposure, but the exposure of each market participant. The net worth of every participant that has a currency mismatch between assets and liabilities is exposed to the risks of exchange rate volatility.

²⁷ Historically, long-term finance was slow to develop. In several countries, direct government intervention was required. Asymmetries of information (and especially monitoring costs) explain the prevalence of short-term contracts. See, e.g., Rey and Stiglitz (1993).

²⁸ These distributive issues came to the fore during the East Asia crisis, where the IMF put rescuing foreign lenders above the interests of local borrowers.

Mismatches would cause less concern if the corporations or banks involved purchased insurance ('cover'). In developing countries, however, the insurance premia for currency risk are excessive and, when available,²⁹ insurance typically provides only short-term coverage.³⁰ The result is that developing countries bear the brunt of the currency risk, even though lenders in developed countries are better placed to take on this risk since they have the ability to diversify their portfolios.³¹ Furthermore the major instruments to cover risks, derivatives, may become an additional source of instability: those purportedly providing 'cover' default precisely in those times (i.e., crises) when the insurance is most needed.

The problems just discussed are a manifestation of a fundamental market failure: in international capital markets, developing countries bear the brunt of exchange rate and interest rate risk even when the source of the fluctuations lies outside the country.³² This bears no resemblance to an optimal international arrangement, as the developed countries are better able to bear these risks.

One of the reasons that financial market volatility takes such a toll on developing countries is because equity markets are weak, so firms have to rely more on debt. When firms make decisions about how much to borrow, they need to take into account the size of fluctuations in output, prices, and interest rates. The greater volatility of these variables under CML means that firms make less use of debt financing. But the alternative—raising new capital by issuing equity—is difficult in developing countries. (This is also true in developed countries because information asymmetries make raising funds by

²⁹ The economics of information has provided explanations for the absence of insurance markets, associated particularly with the existence of information asymmetries.

³⁰ The problem is related perhaps to the 'irrationality' of market participants. They consider the implicit insurance premium excessive, given their view of the low probability of a devaluation of the currency. But why borrowers should believe that their estimate of the probability is more accurate than the market's is not clear. There is a further difficulty: even when cover is obtained, there is a risk that the insurer will not be able to honor his commitment. The cost of ascertaining whether an insurance firm will honor its commitment to provide insurance is another explanation of the absence of insurance.

³¹ See Dodd and Spiegel (2005) for an analysis of risk diversification in developing country currency markets.

³² That is, if the source of the instability was in the behavior of the country itself, one might worry that more complete 'insurance' would alter incentives to engage in risk-reducing activities. If, for instance, the reason for the risk associated with domestic debt is volatile monetary policies, giving rise to instability in the inflation rate, providing insurance against this volatility would reduce incentives to have more responsible monetary policies. When there is 'moral hazard' (with insurances affecting behavior), there will only be partial insurance.

issuing new equity costly.)³³ In effect, CML has forced firms to rely more on self-financing. The result is that capital is allocated less efficiently. This failure is particularly ironic because the major argument in favor of capital market liberalization has been that it increases efficiency in the allocation of capital.³⁴

Moreover, with CML, the scope for countercyclical monetary policy is restricted. (This is an example of the broader problem of reduced policy autonomy.) To avoid a rush of capital out of the country in a crisis, governments usually raise interest rates, depressing the economy further. Even firms with moderate levels of debt equity ratios flounder and are sometimes forced into bankruptcy. There is an enormous economic cost to bankruptcy in these cases. It is not just inefficient firms that are forced out of business; even well managed firms that borrowed too much, because conditions prevailing before the crisis seemed to justify more investment, are forced into bankruptcy. The destruction of organizational and informational capital can set back growth for years.³⁵

1.2.4 *The Effect of Institutional Weaknesses*

The supporters of the 1997 effort to change the IMF charter to institute an agenda of capital account liberalization did, appropriately, add several caveats. They recognized that liberalization requires sufficiently strong and stable financial institutions, which in turn means that a strong regulatory framework needs to be in place before liberalization takes place (a recommendation that, in any case, reflects that CML was initiated in countries without strong regulatory frameworks in the previous quarter century, when much of the liberalization processes took place). Still, it was clear that they thought most developing countries should liberalize their capital markets.

Today, recognition of the importance of those caveats has grown, as the contributions of Schmukler and Rojas-Suarez to this volume indicate. But

³³ See Greenwald and Stiglitz (2003) and the references cited there; or Majluf and Myers (1984). In developing countries, there are additional reasons for the lack of use of equity markets, such as the absence of a legal framework to ensure the rights of shareholders, including minority shareholders.

³⁴ See, e.g., Shapiro and Stiglitz (1984).

³⁵ Typically, it is argued, bankruptcy does not result in the destruction of physical capital, but only its reorganization in more productive ways. But when there is systemic bankruptcy associated with high interest rates and/or a major economic slowdown, the prospects for efficient reorganization are diminished, and the chances of a delayed reorganization are enhanced. Without adequate oversight, there is a real risk of asset stripping during the extended period of reorganization.

even economically advanced countries have found it difficult to establish sufficiently effective regulatory structures to avoid crises, as the financial crises in Scandinavia in the early 1990s and the savings and loan scandals in the United States in the 1980s demonstrate. These examples show that crises can easily occur in countries with relatively strong regulation, high degree of transparency, and limited crony capitalism. The financial crisis of Japan from the early 1990s to the mid-2000s also indicates that crises (or significant slowdowns) can be long-lasting, even in industrial countries.

The institutional framework in which financial institutions operate in developing countries is generally weaker, and thus less able to withstand shocks—despite the fact that these countries face more frequent and larger shocks. The issues that the institutional framework must address are also different, due to shallower financial markets and widespread presence of maturity and currency mismatches. Therefore, the induced volatility arising from capital market liberalization can easily lead to systemic problems that may persist for years, and which may far outweigh any benefits that capital market liberalization may have brought in the pre-crisis years.

The growing use of derivatives has made the formulation of appropriate regulations more complex, as Dodd argues in his contribution to this volume. Indeed, this demonstrates that the caveats about the need for stronger financial regulation generally leave aside this important (and the most dynamic) segment of financial markets, which is under-regulated even in industrial countries. The US government-engineered, privately financed bail-out of Long Term Capital Management (LTCM) in October 1998 and recent debates on the need to regulate hedge funds in advanced countries demonstrate this. Even proponents of CML argued that the collapse of this single hedge fund, with an estimated exposure of a trillion dollars, could have global repercussions so great that government intervention was required.³⁶ If this is true, the argument that speculative activity associated with capital market liberalization in developing countries could have devastating effects is all the more compelling. Moreover, much of the money put at risk by LTCM came from supposedly well regulated banks, so improving regulation by itself will not suffice.

1.2.5 Productivity Shocks

We have seen how, regardless of the source of a disturbance to the economy, capital market liberalization may amplify the effects and reduce

³⁶ Those who defended the role of the government in the bail-out (and who resisted allegations that underlying the publicly orchestrated, privately financed bail-out was crony capitalism and corporate mis-governance, American, rather than East Asian, style) did so because they believed LTCM posed a global threat. For a discussion of the LTCM bail-out see Edwards (1999); Jorion (2000); Stiglitz (2002a, 2003).

the scope of government stabilization. Capital market liberalization short-circuits some of the mechanisms that would naturally (and over time) smooth out the impact of disturbances (see Stiglitz 2004).³⁷ For instance, with capital market regulations in place, higher incomes during a positive productivity shock lead to more savings as earnings are re-invested in the local economy. This drives down interest rates and boosts wages in subsequent periods. Some of the benefits of the productivity shock are saved for the future. With full capital market liberalization, this does not occur because the (temporarily) higher earnings are often invested abroad.

Consider an economy with an open capital market. An economy experiencing a period of unusually high productivity (a productivity shock) has an increased ability and desire to borrow (as the United States did in the 1990s). Capital flows into the country, and workers' incomes rise during the boom, both because of the productivity shock *and* because of the capital inflow. When productivity returns to more normal levels, incomes shrink as capital flows out of the country. The open capital market amplifies the effects of productivity fluctuations at home.

1.3 Effects of Capital Market Liberalization on Developing Countries

The previous section explained, in general, why markets often fail to lead to efficient resource allocations, providing a rationale for government interventions in markets. We focused our attention on market failures in financial markets and showed that capital market liberalization might exacerbate the market inefficiencies, increasing volatility and reducing the efficiency with which resources are allocated.

In this section, we focus more directly on the problems of developing countries. As the contribution of Schmukler to this volume indicates, there is now a fairly general recognition that capital market liberalization has generated risks and has made it more difficult for developing countries to achieve real macroeconomic stability. There is also relatively broad recognition that it has also failed to help these countries achieve faster rates of economic growth.

Higher risks mean, first, that the marginal returns to capital adjusted for risk are often less in these countries than in developed countries.³⁸ So, capital does not necessarily flow in the direction expected by defenders of CML in many cases, it flows in the opposite direction ('water flowing uphill'). More

³⁷ One should contrast this analysis with that of the IMF study by Prasad et al. (2003).

³⁸ For an elaboration of this point, see Stiglitz (1989); and Lucas (1990).

generally, higher risks imply that integration of developing countries into international financial markets is necessarily a *segmented integration*, and that the persistence of high risk premia (at least for long periods of time) is a structural effect of financial globalization, as Frenkel argues in his contribution to this volume.

In the paragraphs below, we trace the evidence on the relationship between capital market liberalization and capital account instability, between capital account instability—and, more broadly CML—and macroeconomic instability, and between CML and growth.

1.3.1 Capital Account Volatility and Developing Countries

The worst crises in developing countries have been characterized by the shrinking availability of capital—foreign lenders cut new lending sharply and refuse to roll over loans. As we have already noted, banks' unwillingness to roll over trade and other short-term credit lines played a central role in the Asian crisis and other episodes. But domestic investors are also important. Domestic capital flight (based on speculation that the currency was going to depreciate) played a central role in several crises, such as the 1994 Mexican crisis.

While short-term speculative flows are particularly unstable, the volatility of other capital flows is also important. Instability is, for instance, also a feature of longer term portfolio investments. Even though most bond issues are medium to long-term, bond financing is strongly pro-cyclical. This may reflect the short-term bias of many institutional investors who are active in the emerging bond market. The same is true of investments (also by institutional investors) in developing country equities. When stock markets are doing well, additional funds flow in, reinforcing the boom; but when stock markets crash, the opposite occurs. Since exchange rate fluctuations are pro-cyclical, investors in bonds and stocks denominated in developing country currencies buy when there are expectations of appreciation and sell when there are expectations of depreciation.

More broadly, capital flows to developing countries are subject not only to short-term volatility but also to *medium* term fluctuations, which reflect the successive waves of optimism and pessimism that characterize financial markets (see Figure 1.1 in relation to the evolution of spreads since 1994). These fluctuations are reflected in the pro-cyclical pattern of spreads (narrowing during booms and widening during crises), variations in the availability of financing (absence or presence of credit rationing), and in maturities (shorter maturity of financing during crises, or the use of options that have a similar effect).

Interestingly, as Figure 1.1 indicates, the large fluctuations in risk premia for emerging markets tend to correlate with spreads of US high-yield bonds.

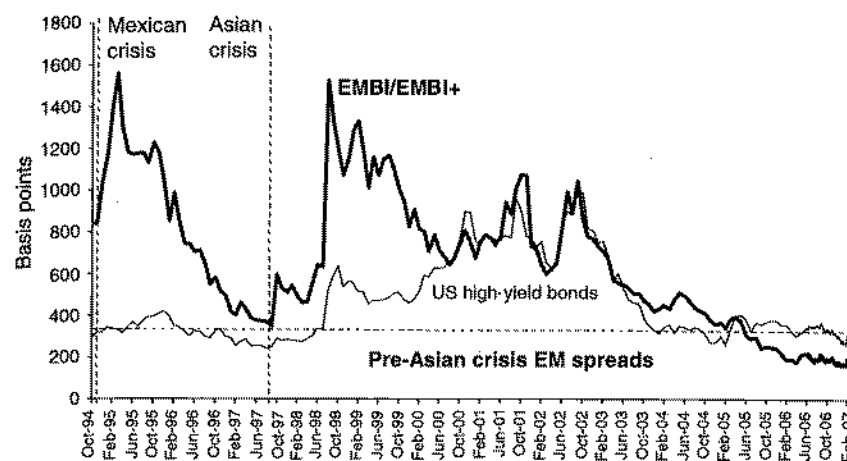


Figure 1.1 Spreads on JP Morgan EMBI+ and US high-yield bonds (October 1994 to 2007 YTD)

Source: ECLAC, on the basis of data from Merrill Lynch's US High-Yield Master II Index (HOAO), and JP Morgan's EMBI (until February 1996), and EMBI+ (from March 1996 to 2007 YTD).

Thus, pro-cyclicality of financial markets is a characteristic that affects all types of assets considered risky by market agents. (Correlations between spreads of different assets are, of course, imperfect, reflecting the specific factors associated with the different asset classes.)

Not all forms of capital flows contribute, or at least contribute equally, to instability. In this regard, it is important to distinguish between foreign direct investment (FDI) and financial flows. Foreign direct investors to a larger extent place their funds in fixed illiquid assets and are thus interested in the stability and the long-term performance of the domestic economy. FDI is also often accompanied by access to foreign markets, new technology, and training. The new investments in plant and equipment associated with FDI generate jobs and real growth; by contrast, long-term investment can hardly be financed by volatile capital, which is more likely to be used to finance consumption (see below).

As the policies of several countries illustrate, a country can restrict flows of volatile capital and still invite significant amounts of foreign direct investment, undermining the claim that capital market liberalization is necessary for countries to attract FDI. China retained capital controls and still attracted more FDI than any other developing country. In other countries that imposed capital controls, such as Malaysia, Chile, and Colombia, FDI continued to flow when controls were in place.³⁹ Similarly, in the early to mid-1990s,

³⁹ The issue of whether the imposition of capital controls discourages FDI remains mired in econometric and statistical difficulties. The literature is accordingly inconclusive. See, e.g.,

Hungary attracted the greatest amount of FDI in Eastern Europe, even though it retained restrictions on short-term capital.

However, it is worth noting that FDI also moves pro-cyclically (although not to the same extent as more volatile capital flows) (see World Bank 1999). There are four primary reasons for this. First, FDI will be correlated with global fluctuations. The global financial crisis of 1998 led to a reduction of FDI everywhere. Second, much of what is classified as FDI is sometimes really 'finance'. For instance, privatizations and mergers and acquisitions are categorized as FDI, even though they often represent an ownership transfer rather than new investment. It is therefore important to distinguish between new 'greenfield' investments and mergers and acquisitions. Third, to the extent that FDI is geared toward the domestic market, it responds to economic booms and downturn in much the same way domestic investment does. Fourth, foreign direct investors know that it might be difficult to sell their assets during a crisis, so they often use derivative products, such as currency forwards and options, to sell the local currency short as a hedge of their investment, adding to a run on the currency during a crisis.

The increasing use of derivative products is, in fact, an additional source of instability, as the contribution of Dodd to this volume indicates.⁴⁰ Although the accelerated growth of derivative markets has helped to reduce 'micro-instability' by creating new hedging techniques that allow individual agents to cover their microeconomic risks, it might have increased 'macro-instability'. In the words of Dodd, if short-term capital flows are 'hot' money, under critical conditions derivatives can turn into 'microwave' money, speeding up market responses to sudden changes in opinion and expectations. Derivatives have also reduced transparency by allowing large off-balance-sheet positions that are difficult to regulate.

Some critics of capital market liberalization go further: they argue that the thinness of markets in developing countries exposes them to market manipulation. The Central Bank of Malaysia has contended that international hedge funds manipulated the Malaysian financial markets in the 1990s. Similarly, Hong Kong's market came under attack by speculators in August 1998.⁴¹

1.3.2 *Macroeconomic Instability and Management*

There are three distinct but related reasons why CML has increased macroeconomic stability.

Montiel and Reinhart (1999); Hernandez et al. (2001); Carlson and Hernandez (2002); Mody and Murshid (2002).

⁴⁰ Some economists and practitioners argue that derivatives will further decrease the effectiveness of capital controls.

⁴¹ For more information, see Stiglitz et al. (2006).

First, as we have just shown, there is ample evidence that macroeconomic policies in developing countries, especially those that have liberalized, are pro-cyclical and thus exacerbate rather than dampen both economic booms and recessions. Indeed, they have become one of the major—and for many countries the major—source of business cycles. The basic reason is that capital inflows and outflows have mostly pro-cyclical effects on major macroeconomic variables: they directly affect exchange rates, interest rates, domestic credit, and stock market values—and these variables, in turn, impact investment, savings, and consumption decisions.

Second, CML restricts the ability of economic actors to respond to booms and busts. There is ample evidence that macroeconomic policies in developing countries are pro-cyclical (see Kaminsky et al. 2001) and that pro-cyclical macroeconomic policies often reflect pro-cyclical capital flows.

Third, as we have seen, both the private and public sector are often dependent on short-term finance due to incomplete domestic financial markets. This means that the refinancing needs of domestic debtors tend to be high. We have also seen that balance sheets in developing countries are characterized by maturity mismatches (See Furman and Stiglitz 1998; Krugman 2000; Aghion et al. 2001; Eichengreen et al. 2003), so that public and private sector debts are more susceptible to short-term fluctuations in interest rates. This can be avoided by borrowing abroad at longer maturities, but when there is a resulting currency mismatch, the borrower is exposed to exchange rate fluctuations. This can be critical during recessions in sectors, such as real estate, where these risks become evident at the same time asset values are strongly depressed.

A major implication of the exchange rate fluctuations generated by capital account fluctuations (appreciation during capital account booms, depreciation during crises) is that they generate major pro-cyclical wealth effects in countries that have net liabilities denominated in foreign currencies. These pro-cyclical wealth effects reinforce those generated directly by fluctuations in the cost and availability of financing. They have impacts on consumption and investment and can even result in bankruptcy and financial disruption, which have brutal effects that are not quickly self-correcting. Also, pro-cyclical fluctuations in domestic interest and exchange rates imply that evaluation of debt ratios is subject to significant uncertainties. Debt that looks—and in fact, is—sustainable at given interest and exchange rates, may become entirely unsustainable when external financing conditions change and domestic interest and exchange rates adjust abruptly.

Standard recipes for dealing with a crisis call for central banks to reduce interest rates and for governments to stimulate the economy by increasing expenditures and/or cutting taxes. But countries that have opened their capital market often find it difficult to do either. Rather than lowering interest rates in a downturn, countries with open capital markets are typically forced to raise interest rates to stop capital outflows. The high interest rates have

adverse effects on fiscal policy, particularly in countries where the government has high levels of short-term debt or, more generally, high levels of debt that matures and needs to be refinanced during a crisis. Even when the country can borrow larger amounts in the short term, it might be feeding unsustainable debt dynamics (Frenkel 2005).

Even worse, as we have noted, countries dependent on borrowing face the problem that foreign creditors may demand repayment of their loans: even at a higher interest rate, creditors may refuse to make credit available.⁴² Credit rationing will exist when creditors perceive that debt dynamics are unsustainable. If governments cannot fully finance the increased interest costs, they will be forced to increase primary *surpluses*.⁴³ Their actual level of spending on goods and services contracts, making the economic downturn more severe.

When the exchange rate has become overvalued due to capital inflows during booms, markets press for exchange rate devaluation during the succeeding crises. This is a positive feature from the point of view of the adjustment of the current account but, as we have noted, it generates negative wealth effects that feed the downturn in economies with net external liabilities. It could also generate inflationary pressures. If monetary authorities respond with a narrow 'inflation targeting' view of their mandate, they would feed into the downturn by increasing interest rates.

What is true of crises is, in a converse way, valid for booms. During periods of financial euphoria, economic authorities have limited room to undertake policies to cool down the economy. This is particularly true of monetary policy, as booming capital inflows tend to reduce interest rates and increase credit and the money supply, restricting the capacity of monetary authorities to adopt contractionary monetary policies. Alternatively, if they try to dampen the economy in the standard way by increasing interest rates, there will be a further inflow of capital, exacerbating the underlying problems. With flexible exchange rates, some argue that authorities still have the capacity to raise interest rates but that the exchange rate would appreciate, generating expansionary wealth effects. Appreciation may also have long-run costs on tradable sectors in open economies (Dutch disease effects).

Fiscal policy can always be used under these conditions to help taper the boom, but it faces two sources of problems. First, it is not as flexible an instrument as monetary or exchange rate policy. Second, it faces strong political economy pressures, particularly when markets and international institutions

⁴² The problem could, of course, occur even if governments borrow domestically, but governments typically have far more control over domestic financial markets. In general, they may be forced to borrow at high market rates during crises, which lead to an unsustainable debt dynamic.

⁴³ The primary balance (which can be either in deficit or surplus) is defined as the fiscal balance (total income minus expenditures), other than interest payments.

forced authorities to adopt austerity policies during the preceding crisis. Under these conditions, the public's perception of austerity policies is so negative that it can be very hard for governments to justify them during the boom.

As this discussion indicates, in the face of pro-cyclical capital flows, the capacity of authorities to maintain policy autonomy to undertake counter-cyclical macroeconomic policies is limited (Ocampo 2002a, 2005). The exchange rate policy is perhaps the most critical issue in this regard, as the exchange rate plays the central role of linking the external and the domestic macroeconomic dynamics. As Frenkel argues in his contribution to this volume, avoiding exchange rate overvaluation during booms is critical to avoiding a destabilizing trajectory of the external debt and the traumatic balance sheet effects associated with sharp devaluations during crises. But the capacity to manage the real exchange rate is tied to the broader capacity to maintain certain degrees of policy autonomy, which generally implies choosing a form of integration into international financial markets that avoids full deregulation—that is, limiting capital market liberalization.

1.3.3 Growth

Proponents of capital market liberalization maintained that open capital markets would stimulate growth because of improvements in economic efficiency and increased investment, including investment in technology.⁴⁴ The expansion of aggregate income would then further increase domestic savings and investment, thereby creating a virtuous circle of sustained economic expansion. This 'virtuous circle' (Devlin et al. 1995) would contribute to converging levels of economic development among countries.

An examination of the data, both over time and across countries, shows that CML is not associated with faster economic growth or higher levels of investment (see, e.g., Rodrik 1998).⁴⁵ After the Second World War, global GDP growth per capita was high, although, except for the US, capital markets were not liberalized. More recently, as CML has become more widespread, the pace of world growth has been falling: GDP per capita rose 1.8 percent in the 1970s, 1.4 percent in the 1980s, and only 1.1 percent between 1990 and 2003 (Maddison 2001). It is only in the mid-2000s that we have seen performance comparable to the post-war boom. These global trends are reflected in growth trends in Europe where liberalization occurred some three decades ago and in Latin America where it occurred more recently.

⁴⁴ In the standard growth models, the long-term rate of growth in income per capita is determined solely by the rate of technological progress; growth in the short term is also affected by the rate of savings/investment.

⁴⁵ Two surveys of the contrasting results in the literature are Eichengreen (2001); and Edison et al. (2002). For a discussion on identification problems focused on Latin American countries, see French-Davis and Reisen (1998) and Frenkel (1998). Ocampo and Taylor (1998) give a theoretical perspective on the effects of liberalizing both trade and capital markets.

When analyzing the effects of CML on growth it is important to recognize that capital inflows can have a positive effect in the short run during periods of booming capital inflows, but a negative effect in the long run. On the positive side, when capital flows into an economy that has unutilized productive factors, the added capital and aggregate demand can stimulate a recovery. It is important, however, not to confuse rising output and productivity based on the utilization of previously idle labor and capital with a structural increase in the speed of productivity improvements or with enhancing the long run strength of the economy.

In order for CML to promote long-term growth, capital inflows need to go into investment and not be diverted into consumption. In the 1970s and, even more in 1990–97, capital did move to developing countries, but the basic conditions linking additional funds and growth were not met.⁴⁶ The capital inflows led mostly to increased consumption rather than investment. Moreover, much of the additional investment that did take place occurred in domestic non-tradable sectors that did not generate foreign exchange. With greater foreign debts unmatched by a greater ability to meet debt obligations, it is not surprising that balance of payment crises eventually developed.

The case for why capital market liberalization may be bad for growth is even broader. As we have seen, CML increases real macroeconomic instability, and instability is associated with a large average gap between potential GDP (full capacity) and actual GDP. Because the economy is more frequently operating below its full potential, productivity, profits, and incentives for investors are lower. Furthermore, higher risk increases the return investors require, limiting long-term investment. In turn, crises are characterized by an enormous destruction of organizational and informational capital, as firms and financial institutions are forced into bankruptcy. Policies that lead to more instability or lower income today are likely to inhibit growth and output in the future.

As a result, crises are often followed by an extended period of slow economic growth. A severe crisis always implies a significant loss of production and income that can last for several years, even if the recovery after the initial recession is strong. This is depicted in Figure 1.2 for the cases of Korea and Malaysia. But the crisis can also shift the growth trajectory, putting a country onto a lower GDP growth path even after recovery. Latin America after the debt crisis of the 1980s and Indonesia after the Asian crisis illustrate this.

The instability and periodic crises associated with capital market liberalization have other costs: they force governments intermittently to cut back

⁴⁶ Large inflows during boom periods often lead to an overvalued currency, making imported goods cheaper, and encouraging consumption. See Ffrench-Davis and Reisen (1998), particularly the 'Introduction' by the two editors and the chapter by A. Uthoff and D. Titelman, 'The Relationship Between Foreign and National Savings Under Financial Liberalization'.

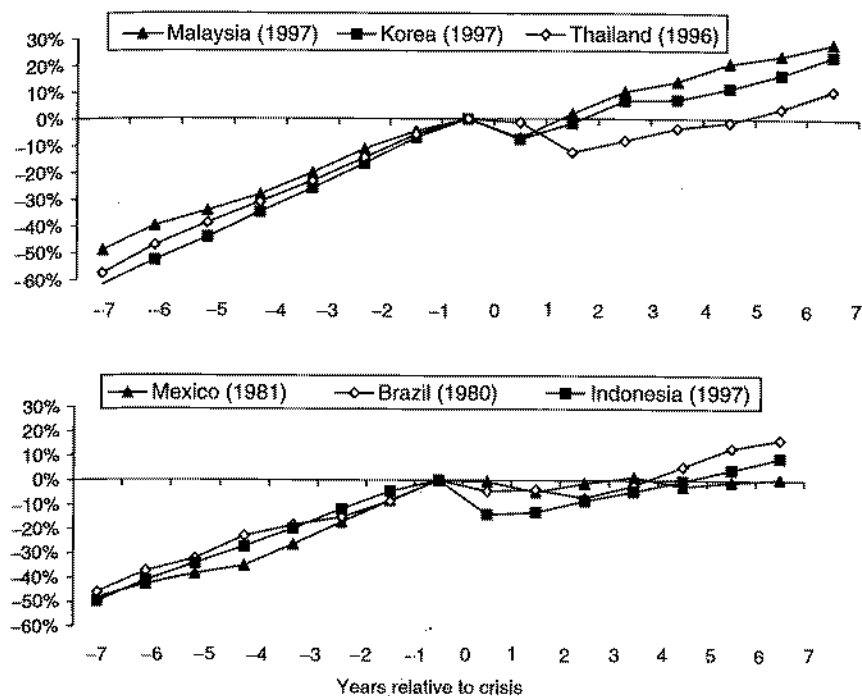


Figure 1.2. Growth trajectories before and after a major crisis (debt crisis of the 1980s, for Latin America, Asian crisis for Asian countries; log of GDP: percentage deviation from peak year before crisis)

on investments in infrastructure and human capital. This stop-and-go public sector investment pattern has long-term costs (Ocampo 2002a). The losses of foregone nutrition, education, or healthcare may never be undone for those who did not have access to the associated government programs and services during a crisis, and the services themselves may lose human and organizational capital, as spending may not be replenished for a long time. Public sector fixed capital investments (roads, energy projects) might be left unfinished, at least for several years, reducing the productivity of public sector investment.

1.3.4 Recent Controversies

The foregoing discussion indicates why CML has not brought the benefits of faster growth that were promised by its advocates and why it has often been associated with the increased volatility that its critics predicted. Even though the IMF and other economists have conceded this, they now contend that CML still has indirect benefits such as efficiency gains, faster development

of the financial sector, and greater macroeconomic discipline. However, as we discuss, there is limited to no evidence that short-term capital inflows (as opposed to FDI) leads to efficiency gains or to sustained development of the financial system. In fact, CML leads to greater volatility, which has the opposite effect. And, as we discuss in greater detail below, the greater macroeconomic discipline imposed by CML is not appropriate for many developing countries.

Stiglitz, in his contribution to this volume, tries to explain what was wrong with the IMF 'model', why its predictions were so badly off the mark—and why the 'new' explanations are little better than the old. Indeed, our analysis suggests that the collateral consequences of CML are, in fact, negative, not positive. The 2006 IMF paper (Kose et al. 2006) simply ignores, for instance, the argument presented earlier that CML leads to more volatility, which has the consequence of slowing down the deepening of capital markets and contributing to capital market inefficiency. In addition, the paper misreads Stiglitz (2000), which, after considering the argument that CML helps bring discipline, argues that it is the *wrong* discipline, since short-term capital focuses on short-term returns—just the opposite of what is needed for long-term growth. The IMF paper argues that CML leads to better macroeconomic policies, ignoring the constraints that CML imposes on monetary policy, and it seems to measure success in macroeconomic policy in terms of inflation, not in terms of the more fundamental variables of *real* growth, *real* stability, and unemployment.

Most strikingly, their argument that while CML *appears* not to have had any growth effects, it really does because of hard-to-detect ancillary benefits that reveal the ideological basis of their stance: the regressions linking CML with growth are reduced form regressions. Hence if there were any significant effect, either through the direct channels they had originally argued for, or the new channels that form the basis of their current arguments, it would have shown up as a significant coefficient on the CML. Indeed, as Stiglitz points out, the failure to take adequate account of econometric problems like policy endogeneity may mean that the observed coefficient on the CML measure is biased upwards; that is, an observed small *positive* coefficient may mean that the effect of CML is actually negative. (In other words, countries that choose to liberalize may be those for whom liberalization has the most positive benefits—or least negative effects. If, given this 'selection' bias, there is still an insignificant effect on growth, it means that had a country that chose not to liberalize decided to do so, the likely effects would be negative.)⁴⁷

⁴⁷ Some of the studies cited in the 2006 IMF paper (Kose et al. 2006) attempt to control for reverse causality, i.e., the biases that arise if higher growth leads to more liberalization. The issue just discussed is, however, quite different.

1.3.5 Social Effects of Financial Volatility

As the previous discussion indicates, capital market liberalization exacerbates real macroeconomic instability and the incidence of financial crises and is not clearly associated with faster economic growth. As Charlton argues in his contribution to this volume, these economic effects have social implications, because new opportunities accrue disproportionately to the rich, whereas adverse effects of volatility may disproportionately impact the poor. There is indeed, according to his review of the literature, an empirical relationship between capital account openness and income inequality, which is associated with the fact that inequality frequently increases following capital account liberalization.

He provides evidence of five channels through which capital account liberalization may affect the distribution of income and poverty. The first is that the poor are most vulnerable to macroeconomic volatility because they have the least ability to cope with risk. This is reflected in the greater volatility of consumption that has characterized countries with stronger integration into international financial markets. It is also reflected in the asymmetric behavior of poverty during the business cycle: crises generally increase poverty more than similarly sized recoveries reduce it. Second, orthodox management of crises is particularly harsh on the poor. Third, the increasing mobility of capital weakens the bargaining position of labor. Fourth, international financial integration may constrain governments' redistributive policies, affecting human capital investments in nutrition, schooling and health, and restricting the scope for progressive taxation, increasing the burden of taxation of labor. (The evidence presented by the author on this issue is somewhat mixed, however.) Finally, financial liberalization may increase the availability of credit for medium and large firms, but delivers few benefits in terms of increased credit availability and other financial services for the poor. This is evident in terms of direct access to international financial markets, which are only available for the largest firms, but it is also evident in the supply of financial services in most developing countries, which tend to be concentrated on a small sector of the population.

1.3.6 Political Processes, Democracy, and Market Discipline

Another debate about capital market liberalization concerns its impact on democracy and democratic political processes. Capital market liberalization can undermine the democratic process by giving a large 'vote' (influence) to capital market participants abroad and to the wealthiest strata at home. Indeed, it can put pressure on politicians so they are afraid to propose policies that might be interpreted as not 'market friendly'. During the Brazilian presidential campaign of 2002, for example, every time presidential candidate

Luiz Inácio Lula da Silva made a remark that the markets 'didn't like', market participants sold off Brazil's currency, causing the exchange rate to fall, risk margins and interest rates to rise, and voters to become increasingly nervous.

Supporters of capital market liberalization argue, on the contrary, that this intervention in the economy is beneficial: short-term foreign investors exert 'discipline', which, it is contended, is especially lacking in developing countries. Indeed, without the discipline provided by capital market liberalization, developing country democracies would be prone to listen to populists.

The critics of this market discipline theory worry, however, about the political consequences. While it is true that governments need to take into account how their actions affect the attractiveness of investment, they should balance this with a concern about how the structure of their economic system affects the democratic political process and true national sovereignty. The critics of CML reject the underlying premise of 'market discipline'—that democratic processes cannot provide an adequate check on economic policymakers and that countries should delegate economic policymaking to financial interests.

But the critics go further and argue that the discipline provided by the market is the wrong discipline. Even setting aside the increased volatility associated with CML, the policies demanded by capital markets are not those that maximize long-term growth. Who acts as economic 'disciplinarian' determines which policies get rewarded or punished, and this affects what a country does or does not do. Markets evaluate a country's performance against a benchmark reform agenda that, at the minimum, reflects the perspectives of particular interest groups and political players. Even worse, capital markets are myopic, and hence countries that are forced to listen to capital markets are forced to act more myopically. Capital market investors sometimes invest even when long-term fundamentals appear to be worsening, because the short term looks profitable. What matters from their point of view is that the crucial indicators (exchange rates and the prices of real estate, bonds, and stocks) continue to provide them with profits in the near term and that liquid markets allow them to reverse decisions rapidly.

Because CML forces countries to act myopically, economic performance over the long run might actually be worse—even ignoring the increased instability which is associated with CML. Market discipline can make it difficult for governments to engage in policies that are appropriate for long-term sustainable growth. For example, market analysts often do not differentiate clearly between increases in indebtedness that result from expenditures on productive investments and those due to increased consumption. Similarly, market sentiment generally approves of reductions in indebtedness, even if the country becomes poorer as a result—as, for example, happens when

public assets are privatized cheaply. The markets focus on the reduced budget deficit and ignore the decline in government assets. This short-term focus also means that they often overlook or underestimate the consequences of factors such as deterioration in a country's infrastructure, inadequate investment in education and technology, and growing inequality.

There is one final objection to 'capital markets as disciplinarians': they are erratic. A good disciplinarian imposes discipline when one does the wrong thing but not when one does the right thing. But many countries learned that under CML they can be punished even if they do precisely what the disciplinarians—capital markets, international financial institutions, and risk-rating agencies—considered correct. With open capital markets, even these countries can face crises when international market sentiment changes.

1.4 Policy Options: Interventions in Capital Markets

Capital market interventions can serve multiple purposes. First, they can be used to stabilize short-term volatile capital flows, so that countries are exposed to less volatility. Second, they can give policymakers additional policy instruments that allow them more effective and less costly macroeconomic stabilization measures. Third, effective capital account regulations can promote growth and increase economic efficiency by reducing the volatility of financing and the volatility of real macroeconomic performance. Finally, they can also discourage long-term capital outflows. Of all the objectives of intervention listed, discouraging long-term capital outflows is perhaps the most difficult.

1.4.1 *Capital Market Regulations in Practice*

With the growing consensus that market interventions are desirable in theory, the critical question has become whether, in practice, policymakers can design interventions that work and for which the benefits to an economy outweigh any ancillary costs. There exist, of course, many alternative forms of intervention, each with its own strengths and limitations. While no regulatory system is perfect, they differ in their effectiveness and the extent that they can be circumvented. Still, it is important to realize that interventions, especially those designed to prevent crises, can be effective even if controls are partially circumvented. This idea is captured by two metaphors that were used during the critical debates in the late 1990s. Paul Volcker, former Chairman of the Federal Reserve Board, suggested that a leaky umbrella is better than no umbrella at all. Stiglitz pointed out that dams can prevent floods, even if they are leaky, and even if water finds alternative ways of going from the top

of the mountain to the bottom. Given the importance that capital account interventions can play in macroeconomic policymaking, we devote several chapters in this book to analyzing alternative modes of regulations.

Capital controls include quantity and price-based regulations, both of which can be administered on either inflows or outflows. Some countries also use indirect regulations, such as prudential regulations on financial institutions or regulations on investments of pension funds, which have implications for capital flows. Thus, a broader concept of capital account restrictions is useful to understand the complementary use and even overlap among different forms of regulation. In their contribution to this volume, Epstein, Grabel and Jomo suggest the term *capital management techniques* to encompass financial policies that govern international private capital flows (capital account regulations) and that enforce prudential management of domestic financial institutions.

Traditional quantity-based capital restrictions (administrative restrictions and controls) continue to be widely used by developing countries, including key countries such as China and India, despite the gradual liberalization of their capital accounts. These regulations are used to target either inflows or outflows on either domestic or foreign residents. Regulations that affect domestic residents include restrictions on currency mismatches (only companies with foreign exchange revenues can borrow abroad), end-use limitations (borrowing abroad is allowed only for investment and foreign trade), minimum maturities for borrowing abroad, limitations on the type of agents that can raise funds abroad through ADRs and similar instruments, prohibition on borrowing in foreign currencies by non-corporate residents, and, in some countries, overall quantitative ceilings. Limitations on non-residents include restrictions on their capacity to borrow in the domestic markets, direct regulations of portfolio flows (including explicit approval and limitations on the assets in which they can invest), sectoral restrictions on FDI, and minimum stay periods.

Other countries, such as Chile and Colombia, have implemented price-based interventions on inflows (an unremunerated reserve requirement, which is equivalent to a tax on inflows). Argentina introduced a similar mechanism in 2005, and, under strong pressure from financial markets, Thailand limited restrictions on debt but not to portfolio flows in 2006. Malaysia introduced a tax on outflows during the Asian crisis after a short period in which it used quantitative controls. Such measures aim to discourage inflows or outflows by raising associated costs. Price-based interventions are usually mixed with some quantity based interventions. Thus, as Khor argues in his contribution to this volume, when Malaysia implemented its price-based restrictions, it still maintained quantity restrictions on currency mismatches by not allowing domestic agents without foreign exchange revenues to borrow abroad. Similarly, Chile maintained a one-year minimum maturity on most

capital inflows, and Colombia directly regulated the inflows and investments of foreign investment funds throughout the 1990s.

Economists have a strong proclivity for price-based as opposed to quantity-based interventions. Price-based interventions are flexible, non-discretionary (thus less susceptible to bureaucratic manipulation), and are in line with market incentives. But the case for price-based interventions is far from clear. Theoretical work in economics has shown that sometimes quantity-based restrictions can reduce risk more effectively than price interventions.⁴⁸

Most economists also prefer regulating inflows to outflows. There are several reasons for this. First, regulating inflows helps prevent crises, which is one of the principal goals of policymaking. Second, regulating inflows involves less uncertainty and more transparency: creditors know the regulations before they invest. But, again, the arguments against regulating outflows are not clear-cut, especially when market imperfections exist. For example, restrictions on outflows may be the only way to solve the collective action or coordination market failure discussed in the previous section. When markets exhibit herding behavior (and creditors and investors pull their funds out of a country during a crisis because they are afraid that others will pull their funds out first), restrictions on outflows may be the only instrument available to avoid a downward recessionary spiral. As we discussed earlier, markets generally overshoot in these circumstances, so the restrictions are welfare enhancing.

The empirical evidence shows that all types of instruments—i.e., both quantitative and price-based, on both inflows and outflows and, as we will see below, indirect interventions—can have positive effects, depending on the circumstances under which each mechanism is applied. In their contribution (Chapter 6), Epstein, Grabel, and Jomo argue that policymakers in China, India, and Malaysia were able to use quantitative capital account regulations to achieve critical macroeconomic objectives, including prevention of maturity mismatches, attraction of favored forms of foreign investment, reduction in overall financial fragility, and insulation from speculative pressures and contagion effects of financial crises—leading to greater economic policy autonomy.

Chapter 7 by Ocampo and Palma use the cases of Chile, Colombia, and Malaysia to analyze the effectiveness of price vs. quantity controls on inflows. They conclude that regulations on capital inflows in the three countries proved useful in inducing better debt profiles, restraining asset bubbles, and improving the macroeconomic trade-offs faced by authorities. The regulations succeeded in reducing overall inflows during boom periods, thus generating a higher domestic interest rate spread that allowed a more restrictive monetary policy to work. However, the macroeconomic effects depended on the

⁴⁸ See Weitzman (1974) for a general discussion. In the context of trade interventions, see Dasgupta and Stiglitz (1977).

strength of the regulations. In the case of the unremunerated reserve requirements used by Chile and Colombia, the macroeconomic effects tended to be temporary; the regulations operated more as 'speed bumps'. In contrast, the draconian quantity-based controls on inflows adopted by Malaysia in 1994 proved to be much stronger; they succeeded in stopping the massive capital inflows that the country had experienced in the early 1990s. Therefore, when immediate and drastic action is needed, quantitative controls may be more effective.

The experience of Malaysia during the Asian crisis is further illustrated in the contribution of Khor. In the face of contagion from Thailand in 1997, the country first followed an orthodox macroeconomic package that led to a strong domestic recession. A year later, though, it shifted its policy radically towards an expansionary monetary and fiscal package supported by quantitative restrictions on capital outflows, some of which were soon replaced by an exit tax. Two additional features of these capital account regulations were, as already noted, the persistent policy of avoiding currency mismatches in the balance sheets of residents and the decision to stop altogether the Singapore trading of the domestic currency (the ringgit) and securities denominated in that currency. The exchange rate was fixed after having depreciated strongly during the period of orthodox policies. These measures were accompanied by a set of policies aimed at restructuring the financial system and the corporate sector. The expansionary macro package soon led to recovery, and because capital regulations were so effective, it was possible to ease them when the storm passed, and they were dismantled after two and a half years in place.

Malaysia illustrates the fallacy of another argument often put forward: that controls on outflows 'deter future inflows of all kinds' (*Economist* 2003). This argument was used to criticize Malaysia's controls when they were established in 1998. But even before the tax was lifted in 2001, Malaysia started attracting additional flows. Investors are forward-looking, and Malaysia's positive fundamentals (its current account surplus, high savings ratio, moderate external liabilities with a low share of short-term debts, and large international reserves—all of which capital controls had helped create or sustain) and strengthening stock market drew these additional funds into the country.⁴⁹

⁴⁹ After softening the controls in September 1999, Malaysia suffered immediate outflows of 5.2 billion ringgit, with an additional 3.1 billion ringgit flowing out of the country during the rest of the year. The net inflow of funds in the first quarter of 2000 was 8.5 billion ringgit, roughly equal to the total amount of funds lost after the lifting of the controls (Bank Negara Malaysia 2001b). Throughout 2000, private long-term capital inflows increased, and foreign direct investments remained stable (Bank Negara Malaysia 2001a). Changes in levels of inflows may be more attributable to changes in the overall magnitude of capital flows from developed to developing countries than to changes in the relative attractiveness of investments among developing countries.

1.4.2 Market Segmentation: Regulations as Second-Best

The history of interventions suggests that *capital market regulations are effective in large part because they segment the domestic capital market from international markets and capital flows*. Segmentation aims to protect the domestic economy from the volatility produced by capital market liberalization. In the best-case scenario, this would be done without affecting current account flows.⁵⁰

Segmentation is most evident with traditional quantity-based controls, but also plays a role in price-based regulations. In addition, segmentation covers parallel regulations on the use of the domestic and foreign currencies in different markets, which are in fact more common than capital account regulations, such as forbidding the use of dollars for domestic transactions or for denominating (all or certain) domestic debts, and limiting or forbidding the 'internationalization' of the domestic currency (as Malaysia explicitly did in 1998).

In a previous section, we saw that a market failure prevalent in many developing countries is the lack of well developed capital markets. A first best solution might be to create long-term domestic markets for assets denominated in the domestic currency and develop good insurance markets as protection against exchange rate and interest rate fluctuations. Such a first best solution would also involve creating a stable external demand for assets denominated in the domestic currency. As these optimal solutions are not likely to be in place in the near term, a second best response is to segment the domestic market from international flows. This is, in fact, a special case of application of the theory of the second best.⁵¹

Since most developing countries do not have a stable source of foreign demand for the local currency and for local currency securities, their domestic capital markets are already in some sense segmented. Regulations can be used to help segment the markets more effectively, by restricting pro-cyclical—particularly short-term—inflows during boom periods and equally pro-cyclical outflows during crises. Reducing these fluctuations would ease the task of macroeconomic authorities in stabilizing the economy. On the other hand, it certainly does not make sense to design regulations as if segmentation does not exist.

Segmentation can have positive macroeconomic effects for at least four reasons: (1) it leads to a more stable demand for locally denominated assets; (2) it reduces risks associated with foreign borrowing; (3) it helps insulate the economy from pro-cyclical foreign borrowing; and (4) it enhances the ability of government to control the macroeconomy.

⁵⁰ Ironically, while many have worried that capital market restrictions might have adverse spillovers on the current account, the *absence* of capital market restrictions may lead to exchange rate volatility, which may have much stronger effects on the current account.

⁵¹ Earlier, Newberry and Stiglitz (1984) showed how trade restrictions could reduce the risks faced by investors and, in the absence of insurance markets, make everyone better off.

It might make sense in the long run to develop an authentic stable international demand for these securities (among, for example, institutional investors). But until such demand exists, most domestic holdings by foreigners will tend to be short-term and speculative. The primary risk for these holdings is the exchange rate of the local currency, so foreign demand for domestic assets is largely determined by exchange rate expectations. Any shift in international sentiment can destabilize the foreign exchange market. It may thus make sense not to allow non-residents to hold domestic local currency denominated securities and to prevent the development of a premature offshore market for the domestic currency. One might develop anyway, but additional regulations could reduce its attractiveness.⁵²

We should note that domestic residents also shift their investments between domestic and foreign assets based on currency expectations (and interest rate differentials). But unlike foreigners, domestic agents *do* have a clear long-term demand for the domestic currency and its associated assets. In any case, capital market interventions can be used to segment the market and reduce the capacity of domestic residents to substitute foreign assets for domestic assets. This will stabilize domestic demand for assets denominated in the local currency. The growth or 'thickening' of the market itself will contribute to stability.

The second reason why market segmentation can have a positive macroeconomic effect is based on the pro-cyclical nature of domestic demand for and the supply of foreign currency loans. The transactions, revenues, and assets of many domestic residents are denominated entirely in the domestic currency. But there is a temptation for domestic entities to borrow in foreign currency when external loans are available because these loans often carry a lower interest rate.⁵³ As we have noted, this currency mismatch between assets and liabilities creates considerable risk: any devaluation of the local currency will cause the value of foreign debt to rise. If the devaluation is large enough, local borrowers might be unable to repay their loans.⁵⁴

Segmentation helps insulate the economy from pro-cyclical availability of external financing and foreign borrowing and their destabilizing dynamics. This point, too, depends on the pro-cyclical nature of domestic demand for foreign currency loans. External financing is most likely to be available during a boom, and lenders are likely to demand their money back in a downturn. Thus, the supply of funds intensifies economic fluctuations. The demand for loans in foreign currencies also appears to be pro-cyclical. But when domestic agents borrow abroad during booms, they often use much of those funds to buy local currency and assets. This increases the demand

for the domestic currency and fuels the currency appreciation. In the opposite phase of the business cycle, domestic agents need to buy foreign currency to pay back their foreign debts. This means they will sell the local currency and assets, causing a large devaluation. So when domestic residents borrow in foreign currency, they can increase currency fluctuations, multiplying the destabilizing effects of cycles in the availability of external financing.

Forbidding domestic agents who do not have foreign currency revenues to borrow in those currencies would also have a major positive macroeconomic effect through another channel: it would reduce fluctuations in the *availability* of external financing. Since foreign lenders often demand repayment when borrowers are least able to comply, the overall adverse effects on individual borrowers over the course of an entire cycle would probably be limited; the systemic effects may even be positive—with less (uncovered) debt outstanding, lenders may be less inclined to demand repayment.

Segmentation can lead to reduced pro-cyclical exchange rate fluctuations (avoiding overvaluation in booms and undervaluation in downturns); in doing so, it reduces the magnitude of pro-cyclical wealth effects that characterize economies with large dollar- or euro-denominated debts. (As noted earlier, these wealth effects can offset the positive effects of these exchange rate adjustments on the trade balance.)

Finally, segmentation also enhances the ability of government to control the macroeconomy. The ability of policymakers to use restrictive monetary policies during times of euphoria and to avoid excessively contractionary policies during crises (in other words, the level of a government's monetary autonomy) depends on limited capital mobility which, in turn, depends on the extent of market segmentation. Similar arguments apply to the use of exchange rate policy. Segmentation increases the ability to use the exchange rate as a macroeconomic policy tool and improves the effectiveness of exchange rate management.

The problems of exchange rate adjustment become even clearer in economies with widespread use of a foreign currency in the domestic financial market. Given the significant effect that devaluation has on the ability to repay dollar- or euro-denominated debts and, consequently on the stability of the domestic financial system, there is a strong incentive for governments to avoid currency fluctuations. The experience of Argentina in 2001–2 serves as an example. The massive reduction in deposits throughout 2001, when the convertibility system was still in place, generated an illiquidity crisis that forced the government to restrict withdrawals of deposits from the financial system. This was in fact a first recognition that convertibility of the domestic deposits for dollars was not in place. After the devaluation, debtors with dollar-denominated debts were unable to pay their debts, while agents with net dollar assets were unwilling to give up their capital gains to subsidize

⁵² Malaysia, for example, was able to completely shut down the offshore market in ringgits.

⁵³ Newberry and Stiglitz (1984) showed how there is, admittedly, often a certain degree of irrationality.

⁵⁴ The problem is exacerbated when there are prospects of, say, a government bail-out of a bank: the public bears some of the downside risk of the foreign exchange exposure.

the debtors. The domestic financial system became paralyzed while legal and legislative controversies undermined the economy.

This is why the most basic of all segmentations makes sense: avoiding dollar/euroization of the domestic financial system and, even more, of the domestic payments system. Of course, when dollar/euroization is in place, it is not easy to reverse, as it is generally the legacy of a period of high domestic price instability. But it can be induced by price incentives (e.g., taxing transactions denominated in the foreign currency but not in the domestic currency, higher reserve requirements for dollar- and euro-denominated deposits, higher prudential requirements for loans denominated in foreign currency), government debt strategies (not to issue debts in the domestic markets denominated in foreign currencies), and administrative or legal decisions (certain transactions cannot be denominated in foreign currencies and, if so, would not be legally protected). The history of dollarization in Latin America shows this: some countries avoided it altogether (Brazil and Colombia), others made a sharp change away from it after a crisis (Chile in the early 1980s, Argentina after 2002), and still others have been very gradually moving away from it (Bolivia, Peru, and Uruguay in the 2000s). Ecuador and El Salvador stand as opposite examples of countries that decided to entirely dollarize their economies (as Panama had done since independence a century ago).

1.4.3 *Soft Controls: Encouraging Market Segmentation*

The capital account interventions discussed above all serve the purpose of segmenting domestic markets from international markets. There is another category of restrictions called 'soft controls' that aim to segment the market directly. For example, soft controls can require domestic funds, such as social security or pension funds, to invest their assets in domestic markets and can prohibit them from investing abroad or limit the amount of funds that can be so invested. These restrictions limit the funds' potential to generate pro-cyclical disturbances.

But soft controls have additional positive effects on the economy. They create a local demand for domestic securities, help to develop the local capital markets, and build a domestic capital base. In this way, soft controls can help remedy one of the market failures discussed earlier: that of under- and undeveloped capital markets.

This kind of control might become particularly relevant in the near future because of the growth of privately managed pension funds in many developing countries, especially in Latin America. In Chile (the pioneer in this area), such funds are equivalent to 70 percent of annual GDP. Most countries place limits on the extent to which domestic funds can invest abroad and have experienced new sustained growth in domestic markets in large part

because of the increased demand for local securities from domestic pension funds. Once again, the Chilean experience demonstrates the stimulating role of pension funds on the development of domestic capital markets. But it also demonstrates how pension funds can generate macro-instability when the markets are not segmented and funds are allowed to invest abroad (Zahler 2003).

Some economists oppose these types of soft controls because they limit the ability of domestic funds to diversify their assets. This is true, but all economic policies involve trade-offs. Building a local capital market and domestic capital base is essential, and its benefits far outweigh the costs of controls—in fact, as we argued above, it is one of the 'first best' options to manage segmentation of domestic and external capital markets.⁵⁵ On the other hand, to the extent that domestic institutional investors add to the pro-cyclical nature of open capital markets, they impose an externality on the entire population. Soft controls can help turn this negative process into a positive one for long-term growth.⁵⁶

1.4.4 *Indirect Interventions in Capital Account Transactions through Prudential Regulations*

In addition to direct quantity-based and priced-based regulations, governments can use a variety of indirect measures to control (or at least influence) capital account inflows and outflows. One of the most critical use of regulations is to avoid currency mismatches in the balance sheets of financial and non-financial agents.

Prudential regulations on the banking system are one such tool (Ocampo 2003). Numerous countries forbid, or strictly limit, banks from holding currency mismatches on their balance sheets. To avoid domestic financial dollar/euroization, many countries also forbid financial institutions from holding deposits from domestic residents in foreign currencies or limit the nature and use of such deposits. Bank regulators can also prohibit domestic banks from lending in foreign currencies to firms that do not have matching revenues in those currencies. For a more subtle approach, they can impose higher risk-adjusted capital adequacy requirements or additional liquidity and/or loan-loss provisioning (reserve) requirements on foreign currency loans made to domestic agents who lack matching revenues. In countries with deposit insurance, the government can impose higher insurance premiums on banks that have riskier practices. These softer regulations would discourage

⁵⁵ Moreover, one can 'balance' the risks, by allowing limited investment abroad.

⁵⁶ Government regulations allowing for swaps—an exchange of assets, say, between the pension funds of one country and that of another—could help diversify risk, without putting any pressure on the exchange rate, and without subjecting countries to pro-cyclical capital flows.

(although not eliminate) the indirect foreign exchange exposure of banks. To reduce the maturity mismatch of non-financial firms, regulators could similarly set higher capital, liquidity, or prudential requirements for short-term lending by domestic financial institutions.

One of the costs frequently associated with stronger prudential regulations is a higher domestic interest rate due to the higher cost of financial intermediation. But the costs of prudential regulations, higher reserve requirements, and higher deposit insurance premiums simply reflect the higher risks of certain kinds of borrowing. Since society otherwise will bear most of the costs of this borrowing (e.g., through the costs of crises), the regulations reduce the disparity between social costs and private benefits. By discouraging excessively risky borrowing, overall economic efficiency is enhanced.

Some policymakers worry that higher domestic interest rates may adversely affect small and medium-sized enterprises (SMEs).⁵⁷ However, if the government wants to promote lending to these firms, it should do so through explicit programs. Moreover, it is actually large firms that are most likely to have uncovered foreign exchange exposure. Competitive banks should pass on the costs of prudential regulations relating to foreign exposure to these large firms. This might discourage lending to these firms and, by leaving additional room for expanding domestic credit, even increase the supply of funds available to small and medium-sized enterprises.

There is obviously good reason for prudential regulations to take into account the foreign exchange exposure of firms that borrow from domestic banks. Otherwise, the risks assumed by corporations, particularly those operating in non-tradable sectors, can eventually translate into non-performing loans in domestic financial institutions. But a more systemic perspective also requires this same focus. Since banks traditionally mediate much of the capital flow in an economy, regulation of the financial sector has a significant impact on the overall economy. However, unless regulations focus adequate attention on the exposure of non-financial firms, the impact of the financial sector can be vitiated. For example, regulations that simply forbid banks from holding dollar-denominated liabilities might encourage firms to borrow directly from abroad. So banks must examine the entire asset and liability structure of the firms to which they lend (which they should do in any case). Since, for the most part, domestic firms borrow from domestic banks, if banks put restrictions on the foreign exposure of firms to whom they lend, this would act as an effective limit on foreign borrowing.

⁵⁷ We have argued, however, that there are social costs associated with these foreign exchange exposures. The increase in the risk-adjusted capital adequacy requirement (or other penalties imposed on banks with heavy exposure), if appropriately designed, would simply compensate for these external social costs.

Regulations can also be designed to target borrowing abroad by non-financial firms directly.⁵⁸ These might include rules on the types of firms that can borrow abroad (for example, only firms with revenues in foreign currencies) and the establishment of prudential ratios for such firms. Regulations might also include restrictions on the terms of corporate debt that can be contracted abroad (minimum maturities and maximum spreads, for example) and public disclosure of the short-term external liabilities of firms.

There can be problems administering these provisions because corporations will have an incentive to circumvent the rules by using derivatives. To address this, governments should require full disclosure of all derivative positions.⁵⁹ Foreign currency-denominated debt can also be subordinated to domestic currency-denominated debt in bankruptcy proceedings. An alternative (or complementary) approach is for governments to create adverse tax treatment for foreign currency-denominated borrowing, especially when it is short-term. For example, countries that have a corporate income tax with tax-deductible interest payments might exclude foreign-denominated debt from the tax deduction or make the interest payments only partially tax deductible.⁶⁰

These alternative measures rely on a combination of banking regulations and complementary policies aimed at non-bank financial firms and non-financial firms. The direct capital-account regulations we discussed earlier might be simpler to administer than such a system. They may work better because they are aimed at the actual source of the disturbance—pro-cyclical capital flows.⁶¹ For developing countries with strong administrative capabilities, a combination of direct and indirect measures can succeed in restricting flows and helping to limit circumvention through derivative products.

1.4.5 *The Broader Debate on Prudential Regulation, Norms, and Standards*

As we have noted, a broad consensus emerged after the Asian crisis on the need to strengthen financial and macroeconomic risk management in

⁵⁸ It is, of course, possible that some firms borrow exclusively from abroad. If only a few firms do so (with limited aggregate exposure), their default in the event, say, of a large change in the exchange rate would have much less of an effect than if those firms borrowed domestically. There would be no collateral damage to domestic financial institutions except through the impact of the bankruptcy on the firms' suppliers. But in the unlikely event that large numbers of firms borrow extensively from abroad (and not from domestic financial institutions), there can still be systemic effects. See Rajan and Zingales (2001); Forbes (2004).

⁵⁹ To do so, the government would need to add all the longs (investments) and shorts (borrowings) to get the net position and ascertain the actual extent of foreign-denominated borrowing.

⁶⁰ For an analysis of these issues, see World Bank (1999); and Bhattacharya and Stiglitz (2000).

⁶¹ Still, these other interventions may be desirable to enhance economic efficiency, i.e., to reduce the disparity between private and social costs. One simple means of enforcement of disclosure requirements would be to make undisclosed derivative contracts not enforceable through legal action.

developing countries through prudential regulation and supervision of domestic financial systems, as well as through macroeconomic policy, good corporate governance, and data transparency. The papers in the third part of this book discuss some of the issues involved in the design of better risk management in developing countries and the spread of international 'standards and codes' in these areas.

One set of issues, analyzed in Rojas-Suarez' Chapter 9, relates to the usefulness of different regulatory tools in developing countries. She argues that reserve (or liquidity) requirements are most useful when bank deposits account for most of the liquid assets in the economy and reserves are invested in liquid foreign-denominated assets. These conditions are not generally met in developing countries, as reflected in the lack of a clear inverse relationship between reserve requirements and the ratio of liquid assets to international reserves. Reserve or liquidity requirements also have an additional drawback: they are applied equally to weak and strong banks. Capital adequacy requirements discriminate better in this regard, but developing countries face problems associated with the 'quality' of bank capital due to inadequate accounting frameworks, the possibility of financing capital with loans from related parties, and the lack of a liquid market for bank shares that validates the value of bank capital, among other factors. For this reason, she argues that loan-loss provisions may be a better tool than capital requirements. Along the lines of the analysis presented in the previous section, one of the critical issues in designing both capital and loan-loss provisioning requirements in developing countries is the introduction of distinct charges for borrowers from tradable and non-tradable sectors. She also emphasizes the need to adequately assess the risks of banks holding government securities and lending short-term, so as to avoid creating incentives for banks to allocate excessive bank resources into government bonds or to reduce the maturity of the loans.

An additional issue that has been a focus of increasing attention in recent years is the pro-cyclical bias in the way traditional regulatory tools and risk management techniques operate. This issue is explored in Chapter 10 by Griffith-Jones and Persaud, who consider the implication of new Basel standards for lending by international banks to developing countries. The issue is also relevant to domestic regulation in all countries, but particularly in developing countries, where pro-cyclical biases in financial markets and macroeconomic policy are stronger.⁶² Because traditional prudential regulations require higher loan-loss provisions (reserves) to offset riskier positions or cover actual loan losses during phases of slowdown, they tend to restrict lending during these periods. Losses associated with loan delinquencies that have not previously been adequately provisioned also reduce the capital of

⁶² For recent analyses of these issues and policy options for managing them see BIS (2001); Borio et al. (2001); Clerc et al. (2001); Ocampo (2003); and Turner (2002).

financial institutions and thus their lending capacity during crises. This, in conjunction with a greater perceived level of risk, triggers the 'credit squeeze' that characterizes such periods and reinforces the downswing in economic activity. On the other hand, the apparently lower risks of lending may feed into the credit boom during periods of economic expansion. Thus, mandatory forward-looking provisioning systems may be an effective way to manage these pro-cyclical biases in regulation, as has been recognized in the design of bank regulation in a few countries. As Griffith-Jones and Persaud argue, the problem has been made worse by the spread of market price-sensitive risk analysis techniques, which tend to reflect the pro-cyclical swings in asset prices and may under- or over estimate the 'inherent risk' of lending during booms and crises, respectively, and increase contagion.

As we have noted, derivatives pose an additional set of risks, which has not been generally recognized in regulation, even in advanced countries. In Chapter 11, Dodd argues that although derivatives perform the useful functions of price discovery and facilitating hedging—and thus risk-shifting to those agents most able to bear it—they can also be potentially destabilizing. The reasons are associated with the potential abuse of these instruments through fraud, manipulation, tax evasion, and distortion of information, including information that regulatory and supervisory agencies use. Independent of such abuses, derivatives can also create new risks by facilitating leveraged transactions that generate greater levels of market risk for a given amount of capital in the financial system. Such risk taking can accelerate the spread of crises and contagion and can be particularly difficult to manage in the illiquid and one-sided markets that are likely to characterize developing countries during crises. Dodd argues in favor of regulating derivatives through three types of instruments: reporting and registration requirements; capital requirements for institutions operating in derivative markets and collateral requirements for derivative transactions; and orderly market provisions that would punish fraud and manipulation, establish position limits in derivatives markets, and require market dealers to act as market makers.

The chapters by Griffith-Jones and Persaud and Schneider (Chapters 10 and 12, respectively) explore some of the problems associated with international standards and codes. As mentioned earlier, the first two authors underscore three major problems in the reform of the new Basel standards for banking regulation (Basel II): whereas systemically important banks should be subject to additional regulatory costs and scrutiny, they receive favorable treatment under Basel II; the rules do not systematically treat risk diversification, as this criteria is taken into account for bank lending to SMEs but not to developing countries; and the rules favor market price-sensitive risk analysis that could spread pro-cyclicality and, more generally, underestimate the importance of the pro-cyclical bias in banking regulation.

Schneider explores the broader set of standards and codes that have spread since the Asian crisis and the new instrument created since the Asian crisis to spread them: the Reports on the Observance of Standards and Codes (ROSCs) based on the Financial Sector Assessment Programmes (FSAPs) prepared by the IMF and the World Bank. She identifies several major deficiencies in the current exercise. These include the fact that major industrial countries have lagged behind in the ROSC exercise and that many countries without capital account restrictions have no FSAPs, which implies that the degree of capital account liberalization has not figured prominently in prioritizing the codes. She also points out that there is no continuous stream of information, so that little information is effectively gained by markets and that, contrary to initial expectations, respect for standards of transparency in data dissemination standards does not seem to affect market responses. This reflects the muted response by the private sector to the standards and codes initiative. She forcefully argues for an alternative model: self-assessments combined with a peer review process, possibly coordinated by the Bretton Woods Institutions.

Both chapters underscore, finally, a major problem in current international institutions: the inadequate participation of developing countries in designing regulatory standards. This has also restricted the appropriateness of existing standards for developing countries. They argue that full participation and ownership of international standard setting by developing countries will not come without their adequate representation in standard-setting bodies.

1.5 Conclusion

This IPD project analyzing capital market liberalization is based on the premise that volatility is an inherent feature of financial markets. This financial instability implies that developing countries are likely to continue to be subject to strong pro-cyclical swings in external financing, with economic policy having at best a limited ability to manage such effects. We argue that, under these conditions, capital account liberalization has high economic and social costs, whereas its assumed benefits in terms of both economic stability and growth are unlikely to materialize.

We further argue that since financial and capital markets are not self-regulating and are highly segmented under the current globalization process, it makes sense to regulate them. This can be done directly through capital account regulations but also through more indirect norms that affect domestic financial intermediation and risk management by different economic agents. Finally, the experiences in developing countries reviewed in this book show that such regulations can work, both by reducing the sensitivity of developing countries to pro-cyclical swings of capital flows and by increasing the scope for counter-cyclical macroeconomic policy.

References

- Aghion, P., Bacchetta, P., and Banerjee, A. (2001). 'A Corporate Balance Sheet Approach to Currency Crises'. CEPR Discussion Papers 3092.
- Arnott, R. and Stiglitz, J. E. (1990). 'The Welfare Economics of Moral Hazard', in H. Louberge (ed.), *Risk, Information and Insurance: Essays in the Memory of Karl H. Borch*. Norwell: Kluwer Academic Publishers, 91–122.
- (1991). 'Price Equilibrium, Efficiency, and Decentralizability in Insurance Markets'. NBER Working Paper 3642.
- Arrow, K. J. and Debreu, G. (1954). 'Existence of a Competitive Equilibrium for a Competitive Economy'. *Econometrica*, 22/3: 265–90.
- Banerjee, A. (1992). 'A Simple Model of Herd Behavior'. *Quarterly Journal of Economics*, 107/3: 797–817.
- Bank for International Settlements (BIS) (2001). *71st Annual Report*. Basel (June).
- (2005). *75th Annual Report*. Basel (June).
- Bank Negara Malaysia (2001a). *Annual Report 2000*. Available at: www.bnm.gov.my
- (2001b). *Economic and Financial Developments in the Malaysian Economy in the First Quarter of 2000*. Available at: www.bnm.gov.my
- Bhattacharya, A. and Stiglitz, J. E. (2000). 'The Underpinnings of a Stable and Equitable Global Financial System: From Old Debates to a New Paradigm'. *Annual World Bank Conference on Development Economics 1999*, B. Pleskovic and J. E. Stiglitz (eds.), Washington: World Bank, pp. 91–130. (Paper presented to the Annual World Bank Conference on Development Economics, April 28–30, 1999.)
- Bikhchandani, S., Hirshleifer, D., and Welch, I. (1992). 'A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades'. *Journal of Political Economy*, 100/5: 992–1026.
- Borio, C., Furfine, C., and Lowe, P. (2001). 'Procyclicality of the Financial System and Financial Stability: Issues and Policy Options', in *Marrying the Macro- and Micro-Prudential Dimensions of Financial Stability*, BIS Papers 1.
- Calvo, G. and Mendoza, E. (2000). 'Rational Contagion and the Globalization of Securities Markets'. *Journal of International Economics*, 51/1: 79–113.
- Caplin, A. S. and Leahy, J. (1994). 'Business as Usual, Market Crashes and Wisdom after the Fact'. *American Economic Review*, 84/3: 548–65.
- Carlson, M. and Hernandez, L. (2002). 'Determinants and Repercussions of the Composition of Capital Inflows'. Board of Governors of the Federal Reserve System, International Finance Discussion Paper 717.
- Chamley, C. P. (2004). *Rational Herds*. Cambridge: Cambridge University Press.
- Clerc, L., Drumetz, F., and Jaudoin, O. (2001). 'To What Extent are Prudential and Accounting Arrangements Pro- or Countercyclical with Respect to Overall Financial Conditions?', in BIS, *Marrying the Macro- and Micro-Prudential Dimensions of Financial Stability*, BIS Papers 1.
- Dasgupta, P. and Stiglitz, J. E. (1977). 'Tariffs versus Quotas as Revenue Raising Devices under Uncertainty'. *American Economic Review*, 67/5: 975–81.
- Devlin, R., Ffrench-Davis, R., and Griffith-Jones, S. (1995). 'Surges in Capital Flows and Development', in R. Ffrench-Davis and S. Griffith-Jones (eds.), *Coping with Capital Surges: The Return of Finance to Latin America*. Boulder, CO: Lynne Rienner Publishers.

- Diamond, D. W. and Dybvig, P. (1983). 'Bank Runs, Deposit Insurance and Liquidity'. *Journal of Political Economy*, 91/3: 401–19.
- Dodd, P. and Spiegel, S. (2005). 'Up From Sin: A Portfolio Approach to Salvation', in A. Buira (ed.), *The IMF and World Bank at Sixty*. London: Anthem Press.
- Edison, H. J., Klein, M., Ricci, L., and Sloek, T. (2002). 'Capital Account Liberalization and Economic Performance: Survey and Synthesis'. NBER Working Paper 9100.
- Edwards, F. R. (1999). 'Hedge Funds and the Collapse of the Long-Term Capital Term Management'. *Journal of Economic Perspectives*, 13/2: 189–219.
- Eichengreen, B. (2001). 'Capital Account Liberalization: What Do Cross-Country Studies Tell Us?'. *The World Bank Economic Review*, 15/3: 341–65.
- _____, Hausmann, R. and Panizza, U. (2003). 'Currency Mismatches, Debt Intolerance and Original Sin: Why They are not the Same and Why it Matters'. NBER Working Paper 10036.
- Economist* (2003). 'A Place for Capital Controls'. May 3, p. 16.
- Ferri, G., Liu, L.-G., and Stiglitz, J. E. (1999). 'The Procyclical Role of Rating Agencies: Evidence from the East Asian Crisis'. *Economic Notes* 28/3: 335–55.
- Ffrench-Davis, R. (2004). 'Macroeconomics-for-Growth under Financial Globalization: Four Strategic Issues'. IPD Working Paper.
- _____, and Reisen, H. (eds.) (1998). *Capital Flows and Investment Performance in Latin America*. Paris: OECD Development Centre, and Santiago: ECLAC.
- Forbes, K. (2004). 'Capital Controls: Mud in the Wheels of Market Discipline'. NBER Working Paper 10284.
- Frenkel, R. (1998). 'Capital Market Liberalization and Economic Performance in Latin America'. Center for Economic Policy Analysis Working Paper No. 1.
- _____. (2005). 'External Debt, Growth, and Sustainability', in J. A. Ocampo (ed.), *Beyond Reform: Structural Dynamics and Macroeconomic Vulnerability*. Palo Alto, CA: Stanford University Press, and Santiago: Economic Commission for Latin America and the Caribbean, 189–209.
- Furman, J., and Stiglitz, J. E. (1998). 'Economic Crises: Evidence and Insights from East Asia'. *Brookings Papers on Economic Activity*, 2: 1–114 (presented at Brookings Panel on Economic Activity, Washington, DC, September 3, 1998).
- Greenspan, A. (1996). 'The Challenge of the Central Banking System in a Democratic Society'. Remarks by Chairman Alan Greenspan at the Annual Dinner and Francis Boyer Lecture of The American Enterprise Institute for Public Policy Research, Washington, DC. Available at: www.federalreserve.gov/boarddocs/speeches/1996/19961205.htm
- Greenwald, B. (1998). 'International Adjustments in the Face of Imperfect Financial Markets.' Paper presented to the Annual World Bank Conference on Development Economics, Washington DC, April 20–21, 1998.
- _____. (2003). *Towards a New Paradigm for Monetary Policy*. London: Cambridge University Press.
- _____, and Stiglitz, J. E. (1986). 'Externalities in Economies with Imperfect Information and Incomplete Markets'. *Quarterly Journal of Economics*, 101/2: 229–64.
- Hahn, F. (1966). 'Equilibrium Dynamics with Heterogeneous Capital Goods'. *Quarterly Journal of Economics*, 80/4: 133–46.
- Hernandez, L., Mellado, P., and Valdes, R. (2001). 'Determinants of Private Capital Flows in the 1970s and 1990s: Is There Evidence of Contagion?'. IMF Working Paper 01/64.

- Jorion, P. (2000). 'Risk management lessons from Long-Term Capital Management'. *European Financial Management*, 6/3: 277–300.
- Kaminsky, G. I., Schmukler, S., Reinhart, C., and Végh, C. (2004). 'When it Rains, it Pours: Procyclical Capital Flows and Macroeconomic Policies'. NBER Working Paper 10780.
- Kindleberger, C. P. ([1978] 2000). *Manias, Panics, and Crashes: A History of Financial Crises*, 4th edn. New York: John Wiley and Sons, Inc.
- Korinek, A. (2007). 'Excessive Dollar Borrowing in Emerging Markets: Balance Sheet Effects and Macroeconomic Externalities'. Columbia University. Mimeo.
- Kose, M. A., Prasad, E., Rogoff, K., and Wei, S.-J. (2006). 'Financial Globalization: A Reappraisal'. IMF Working Paper 06/189. Washington, DC: International Monetary Fund.
- Krugman, P. (2000). 'Balance Sheets, the Transfer Problem, and Financial Crises', in P. Isard, A. Razin, and A. Rosen (eds.), *International Finance and Financial Crises—Essays in Honor of Robert P. Flood, Jr.* Boston: Kluwer Academic Publishers.
- Lucas, R. (1990). 'Why Doesn't Capital Flow from Rich to Poor Countries?'. *AER Papers and Proc.* 80: 92–6.
- Maddison, A. (2001). *The World Economy: A Millennial Perspective*. Paris: OECD.
- Majluf, N. S. and Myers, S. (1984). 'Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have'. *Journal of Financial Economics*, 13/2: 187–221.
- Mishkin, F. (2006). 'Globalization: A Force for the Good?'. Weissman Center Distinguished Lecture Series, Baruch College, New York (October 12).
- Mody, A. and Murshid, A. (2002). 'Growing Up with Capital Flow'. IMF Working Paper 02/75.
- Montiel, P. and Reinhart, C. (1999). 'Do Capital Controls and Macroeconomic Policies Influence the Volume and Composition of Capital Flows? Evidence from the 1990s'. *Journal of International Money and Finance*, 18/4: 619–35.
- Nalebuff, B. and Stiglitz, J. E. (1983). 'Information, Competition, and Markets'. *The American Economic Review*, 73/2: 278–83.
- Newbery, D., and Stiglitz, J. E. (1984). 'Pareto Inferior Trade'. *Review of Economic Studies*, 51/1: 1–12.
- Ocampo, J. A. (2002a). 'Developing Countries' Anti-Cyclical Policies in a Globalized World', in A. Dutt and J. Ros (eds.), *Development Economics and Structuralist Macroeconomics: Essays in Honour of Lance Taylor*. Aldershot: Edward Elgar, 374–405.
- _____. (2002b). 'Reforming the International Financial Architecture: Consensus and Divergence', in D. Nayyar (ed.), *Governing Globalization: Issues and Institutions*. UNU/WIDER, WIDER Studies in Development Economics. Oxford: Oxford University Press.
- _____. (2003). 'Capital Account and Counter-Cyclical Prudential Regulation in Developing Countries', in R. Ffrench-Davis and S. Griffith-Jones (eds.), *From Capital Surges to Drought: Seeking Stability for Emerging Markets*. London: Palgrave Macmillan, pp. 217–44.
- _____. (2005). 'A Broad View of Macroeconomic Stability'. DESA Working Paper No. 1 (October). Also in N. Serra and J. E. Stiglitz (eds.) (forthcoming). *From the Washington Consensus Towards a New Global Governance*. New York: Oxford University Press.

- Ocampo, J. A., and Taylor, L. (1998). 'Trade Liberalisation in Developing Economies: Modest Benefits but Problems with Productivity Growth, Macro Prices, and Income Distribution'. *Economic Journal*, 108/450: 1523-46.
- Persaud, A. (2000). *Sending the Herd off the Cliff Edge: The Disturbing Interaction between Herding and Market-Sensitive Risk Management Practices*. London: State Street Bank.
- Prasad, E., Rogoff, K., Wei, S.-J., and Kose, M. A. (2003). 'Effects of Financial Globalization on Developing Countries: Some Empirical Evidence'. IMF Occasional Paper No. 220. Washington, DC: International Monetary Fund.
- Rajan, R. G. and Zingales, L. (2001). 'The Great Reversals: The Politics of Financial Development in the 20th Century'. NBER Working Paper 8178.
- Rey, P. and Stiglitz, J. E. (1993). 'Short-Term Contracts as a Monitoring Device'. NBER Working Paper 4514.
- Rodrik, D. (1998). 'Who Needs Capital Account Convertibility?', in S. Fischer et al. (eds.), *Should the IMF Pursue Capital-Account Convertibility?*, Essays in International Finance no. 207. Princeton: Princeton University Press.
- and Velasco, A. (2000). 'Short-Term Capital Flows', in B. Pleskovic and J. E. Stiglitz (eds.), *Annual World Bank Conference on Development Economics, World Bank 1999*. Washington, DC: The World Bank.
- Shapiro, C. and Stiglitz, J. E. (1984). 'Equilibrium Unemployment as a Worker Discipline Device'. *American Economic Review*, 74/3: 433-44.
- Shell, K. and Stiglitz, J. E. (1967). 'Allocation of Investment in a Dynamic Economy'. *Quarterly Journal of Economics*, 81: 592-609.
- Shiller, R. J. (2000). *Irrational Exuberance*. Princeton: Princeton University Press.
- Spiegel, S. (2007). 'Lessons from Moldova on How Not to Borrow', in *IPD Volume on Sovereign Debt*. Oxford: Oxford University Press.
- Stiglitz, J. E. (1973). 'The Badly Behaved Economy with the Well Behaved Production Function', in J. Mirrlees (ed.), *Models of Economic Growth*. MacMillan Publishing Company, 118-37 (originally presented at the International Economic Association Conference on Growth Theory, Jerusalem, 1970).
- (1982). 'The Inefficiency of the Stock Market Equilibrium'. *Review of Economic Studies*, 49/2: 241-61.
- (1989). 'Economic Organization, Information, and Development', in H. Chenery and T. N. Srinivasan (eds.), *Handbook of Development Economics*. Amsterdam: North-Holland.
- (1998). 'Knowledge for Development: Economic Science, Economic Policy, and Economic Advice', in B. Pleskovic and J. E. Stiglitz (eds.), *Annual World Bank Conference on Development Economics*. Washington, DC: The World Bank, 9-58.
- (2000). 'Capital Market Liberalization, Economic Growth, and Instability'. *World Development*, 28/6: 1075-86.
- (2002a). *Globalization and its Discontents*. New York: W. W. Norton & Company.
- (2002b). 'Information and the Change in the Paradigm in Economics'. *American Economic Review*, 92/3: 460-501.
- (2003). *The Roaring Nineties: A New History of the World's Most Prosperous Decade*. New York: W.W. Norton & Company.
- (2004). 'Capital-Market Liberalization, Globalization, and the IMF'. *Oxford Review of Economic Policy*: 20/1: 57-71.

- , Ocampo, J. A., Spiegel, S., Ffrench-Davis, R., and Nayyar, D. (2006). *Stability with Growth: Macroeconomics, Liberalization, and Development*. New York: Oxford University Press.
- Turner, P. (2002). 'Procyclicality of Regulatory Ratios', in J. Eatwell and L. Taylor (eds.), *International Capital Markets—Systems in Transition*. New York: Oxford University Press.
- Weitzman, M. L. (1974). 'Prices vs. Quantities'. *Review of Economic Studies*, 41/4: 477-91.
- White, W. R. (2005). 'Procyclicality in the Financial System: Do We Need a New Macroeconomic Stabilization Framework?'. Kiel Economic Policy Papers. Kiel Institute for Economic Policy.
- World Bank (1999). *Global Economic Prospects and the Developing Countries, 1998-99—Beyond Financial Crisis*. Washington, DC: The World Bank.
- Zahler, R. (2003). 'Macroeconomic Stability under Pension Reform in Emerging Economies: The Case of Chile'. Proceedings of the Seminar on Management of Volatility, Financial Globalization, and Growth in Emerging Economies, ECLAC, Santiago.