

CURRENT ACCOUNT AND EXTERNAL FINANCING: AN INTRODUCTION

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Economic analysts were surprised by the collapse of the Thai baht in July 1997. In the months that followed, most of the so-called East Asian Tigers faced severe balance-of-payments crises, and a year later, in August 1998, the Russian ruble was devalued. As a result of this succession of crises, the economics profession rethought many of its views on macroeconomic management. Lessons were drawn from the experience, and policy blueprints for avoiding future crises were developed. One of the key issues that emerged from the discussion is whether international capital markets are a source of stable and reliable financing, reacting optimally to changing global saving and investment patterns and conditions in emerging market economies, or whether they are a source of instability for these economies. The fact that many emerging economies with prudent macroeconomic policies have been hit by crises suggests that financing may be a source of instability. Further support of the “erratic finance” view is a historical pattern in emerging markets of current account deficits that grow when output is high—in apparent contradiction to the standard textbook model of the current account. Moreover, the question remains as to whether individual agents in emerging market economies will behave optimally in this erratic world, limiting their borrowing in anticipation of the next sudden stop, or whether they will act as if every

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crisis is the last one, assuming that their countries fundamentals or global financial markets have evolved sufficiently to avoid the next round of turbulence.

In the decade since the eruption of the East Asian crises, a number of additional developments related to the current account and external financing have taken place, many of which contradict received wisdom. First, most emerging countries have been running large current account surpluses. Second, many advanced countries have been running large deficits—the United States is the most important case, but it is certainly not the only one. The combination of these two facts implies that capital has been flowing from poor to rich countries. Whether this pattern of capital flows is sustainable, and how adjustment will take place (if it is not) are key questions for policy makers in emerging economies. Another recent development is that several emerging market economies (including Chile) have seen growing gross international asset and liability stocks. For these countries, the current account is only one aspect of international financial integration, with gross flows and valuation effects playing an increasingly important role. The effect of these growing stocks of gross assets and liabilities on external adjustment in these economies is also a pressing policy concern. Closely related issues are: what is the optimal degree of capital account opening – both for inflows and outflows? Should taxes (or subsidies) be put in place to shift the composition of gross international assets and liabilities –towards FDI for example? Should small emerging economies actively try to issue external liabilities in domestic currency?

In addition to these global trends, several important policy issues for a small open economy (like Chile) remain open to discussion. What is the optimal exchange rate regime? And more specifically, should policy makers aim at a stable and depreciated exchange rate to foster growth? The ranges of policies in place (and recent experiences) suggest that we are far from a consensus on this issue. A closely related topic is the optimal level and composition of international reserves. Is it necessary to hoard reserves as a form of insurance against sudden stops? And if this is the case, how do optimal reserve levels vary with the level of gross international assets? Another key set of policy issues is whether the current account should be a policy target, the level of such a target, and the set of policies that should be implemented to pursue it.

This volume presents a group of papers that were presented and discussed at the Tenth Annual Conference of the Central Bank of Chile, “Current Account and External Financing,” held in Santiago on

9–10 November 2006. The objectives of this conference were to further understand the causes and consequences of recent patterns in global capital flows, to further understand the determinants of external financing for emerging market economies, and to provide insight into some of the main policy issues relating to external financing mentioned above. In this introduction, we discuss the most salient issues related to current account imbalances and present a reader's guide to the volume.

1. GLOBAL IMBALANCES AND ADJUSTMENT

In the last few years, the United States and other advanced Anglo-Saxon countries (including Australia, New Zealand, and the United Kingdom) have run large current account deficits. This unprecedented situation has generated concern among analysts and policymakers. Many argue that this situation is unsustainable and that, at some point, an adjustment will have to take place. Much of the recent research on the area explores whether the U.S. external adjustment will be gradual or abrupt, and how it will affect the (real) value of the dollar.¹ Three broadly defined camps have developed among policymakers. The first group comprises those who believe that some adjustment is indeed required but that it will be gradual. Scholars such as Blanchard, Edwards, Eichengreen, Feldstein, Frankel, Mussa, Obstfeld, and Rogoff fall into this group. The second group encompasses those who think that a substantial adjustment will not be necessary and that the large U.S. deficit reflects a new reality in the international financial architecture. The most forceful representatives of this group are Dooley and Garber; other academics in this group include Caballero, Cooper, Gourinchas, Hausmann, and Sturzenegger. The final group is made up of those that believe that major, and possibly catastrophic, adjustment will have to take place in the short run. The chief representative of this view is Roubini.

Most analyses of global imbalances focus on the behavior of large deficit countries, such as the United States. However, a full discussion on the topic—or at least a discussion that takes into account general equilibrium aspects—has to address the other side

1. See, for example, recent papers published in the 2005(1) issue of the *Brookings Papers on Economic Activity*; see also the articles in the September 2006 issue of the *Journal of Policy Modeling*.

of deficits: namely, surplus countries. Ben Bernanke made this point forcefully in a March 2005 speech (before he became Chairman of the Federal Reserve Board), in which he argued that the main cause of the U.S. external deficit was a major savings glut in the rest of the world. Bernanke's words generated significant controversy, and many newspaper pages and blogs were filled with commentary on the future Chairman's views.²

A number of scholars involved in the current debate argue that regional growth differentials are at the heart of global imbalances. The argument can be summarized as follows. Rapid growth in the United States has been associated with an increase in domestic investment (over savings), while slower growth in Europe and Japan has been associated with higher savings (relative to investment).³ Global imbalances, the argument goes, are a reflection of regional growth differentials. An implication of this view is that, far from reflecting a serious problem, the large current account deficits in the United States are a sign of strength; they reflect the fact that the United States has been the engine of global growth over the last few years. According to this view, a realignment of growth—with an increase in growth in Europe and Japan and a slowdown in the United States—would play an important role in correcting global imbalances. In a recent interview, U.S. Secretary of the Treasury Hank Paulson “acknowledged to reporters that... he saw the problem of [U.S.] deficits as... part of the problem of other imbalances in other countries.” The secretary went on to say that the United States “has for a good number of years now been growing much faster than the major developed trading partners, Europe and Japan.” He then added that for the imbalances to be corrected, Japan and Europe had “to get the kind of growth on the consumption side that is going to make the difference.”⁴

2. See Bernanke (2005). Some recent theoretical papers investigate this issue, inquiring under what conditions the large U.S. deficit could be maintained over time. See, for example, Dooley, Folkerts-Landau, and Garber (2004). See also Caballero, Fahri, and Gourinchas (2006), Loayza, Schmidt-Hebbel, and Servén (2000), and De Gregorio (2005). On the global savings glut, see Clarida (2005a, 2005b) and Hubbard (2005). One of the few empirical papers on the savings glut is Chinn and Ito (2005). See Chinn and Lee (2005) for a vector autoregression (VAR) analysis of two surplus countries; see also Gruber and Kamin (2005). Two important volumes with papers on the U.S. deficit and global adjustment are Bergsten and Williamson (2004).

3. This argument is very general and refers to the relationship between investment, saving, and growth; no causality is implied in the above statement.

4. Steven R. Weisman, “Paulson Shows Talent for Reflecting Criticism,” *International Herald Tribune*, 27 September 2006; emphasis added.

In his paper in the current volume, Sebastián Edwards addresses the issue of the relationship between growth differentials and global imbalances. He uses historical data to investigate whether large surpluses are persistent, and he analyses the process and speed through which large surplus countries have reduced their imbalances in the past. A particularly important question within the current debate is whether current account surpluses have historically led to large and abrupt declines. This issue is relevant given that such abrupt surplus adjustments would be required if, as some fear, the United States and other Anglo-Saxon countries experienced a sudden stop of capital inflows and a rapid current account reversal. Edwards also investigates the connection between large surpluses and the business cycle, and he asks whether acceleration in the growth rates of the non-Anglo-Saxon advanced countries is likely to result on a decline in their surpluses and, thus, in global imbalances.

The paper documents several stylized facts regarding current account adjustments. First, very few large countries have had persistently large surplus-to-GDP ratios. Surpluses are most persistent in the Middle East, which mostly reflects the role of oil-exporting countries. Second, large and abrupt reductions in surpluses—what Edwards calls surplus adjustment episodes—are rare. Their incidence fluctuates between 3.0 percent and 6.6 percent of all country years. Third, these surplus adjustment episodes have been associated with real exchange rate appreciations and with deterioration in the terms of trade. Fourth, the econometric results reported in the paper indicate that the behavior of the current account balance can be explained by parsimonious models based on economic theory. Finally, the results obtained suggest that a decline in growth relative to long-term trend of 1 percentage point results in an improvement in the current account balance (that is, a higher surplus or a lower deficit) of one quarter of a percentage point of GDP.

These results indicate that a realignment of global growth, with Japan and the Euro zone growing faster and the United States moderating its growth, would only make a modest contribution toward the resolution of current global imbalances. The world is thus likely to require significant exchange rate movements even if global growth does realign. The analysis also suggests that a reduction in China's very large surplus will be needed if global imbalances are to be resolved.

2. EXTERNAL ADJUSTMENT IN EMERGING MARKET ECONOMIES: REVERSALS AND CRISES

One of the characteristics of emerging market economies that access voluntary international capital markets is the occurrence of large reversals of the current and capital accounts—events that Rudi Dornbusch termed sudden stops.⁵ Until the mid-1990s, conventional economic wisdom placed the blame for these reversals on the domestic policies of the emerging economies, whether deficit fiscal spending (as in Krugman, 1979) or noncredible macroeconomic policies (as in Obstfeld, 1994). Many of the third-generation crisis models developed to explain the Asian and Russian crisis, however, allowed for imperfections in international capital markets that, when combined with domestic vulnerabilities, can lead to large capital account reversals.⁶

The chapter by Guillermo Calvo on the causes and consequences of sudden stops takes this view, arguing that events in international financial markets shift the supply of net saving available for emerging market economies. The surge in inflows to emerging markets in the 1990s is thus due partly to developments in U.S. corporate bond markets and partly to the Brady plan, which converted defaulted bank debt into tradable bonds. Likewise, according to Calvo, the sharp collapse in net capital flows to emerging market economies in the late 1990s largely resulted from the impact of margin calls on leveraged investors and changes in investor perceptions regarding International Monetary Fund (IMF) bailouts after the Russian crisis in 1998. The immediate implication is that emerging economies will be exposed to capital account volatility no matter how prudent their macroeconomic policies were, simply because they fall into a specific asset class.

This does not mean, however, that domestic policies do not matter. Calvo argues that several features of the domestic economy affect the extent to which this capital account turbulence translates into a full-fledged sudden stop, with the associated output and investment costs. Key among these features are the size of the current

5. See Milesi-Ferretti and Razin (1998) and Edwards (2005) for a discussion of the causes and consequences of current account reversals. On the causes and consequences of sudden stops, see Calvo, Izquierdo, and Mejía (2004) and Guidotti, Sturzenegger, and Villar (2004).

6. See Aghion, Bacchetta, and Banerjee (2001); Céspedes, Chang, and Velasco (2000); Corsetti, Pesenti, and Roubini (1999); Krugman (1998, 1999a, 1999b); McKinnon and Pill (1996); Schneider and Tornell (2004); Radelet and Sachs (1998).

account deficit and the size of the tradables sector. Combined, these two variables determine the exchange rate depreciation required to adjust the current account once capital markets close for emerging market economies. Domestic liability dollarization, in turn, affects the extent to which the resulting depreciation will lead to domestic financial distress.⁷

Emerging market economies can thus potentially avoid the dangers of capital market turbulence, but changing the level of openness and liability dollarization is likely to be a gradual process. In the meantime, Calvo proposes moving forward with reforms to international financial markets, perhaps by creating a fund that stabilizes the price of emerging market debt. A closely related issue is the capacity of countries to self-insure against sudden stops, an issue discussed by Aizenman (in this volume), Caballero and Panageas (2004), García and Soto (2005), and Jeanne and Rancièrè (2006).

Whereas Calvo's chapter focuses on the levels and changes of capital and current accounts (net flows), chapters 4 to 7 extend this analysis to include additional aspects of international capital flows and reversals. All four contributions are motivated by the fact that gross capital flows have grown rapidly in recent years, in both developed countries and emerging market economies. The chapter by Fostel and Kaminsky and the chapter by Cowan, De Gregorio, Micco, and Neilson focus on gross capital flows—that is, the changes in international liabilities and assets. The chapters by Pistelli, Selaive, and Valdés and by Gourinchas, on the other hand, discuss the impact of stocks of international assets and liabilities and their valuation on international adjustment. The paper by Fostel and Kaminsky focuses on one component of gross capital inflows: namely, primary issuance by Latin American economies in international markets⁸. The paper builds a data set that assembles information on the issuance of bonded debt, equity, and syndicated loans from 1980 to the present. Using this data set, the authors characterize the access of emerging market economies in Latin America and the Caribbean to international financial markets. In some aspects, the pattern that emerges is very similar to that of

7. Several recent papers address the risks of liability dollarization. For a survey of the macroeconomic evidence, see Levy-Yeyati (2006); for a survey of the microeconomic evidence, see Bleakley and Cowan (2007).

8 Net capital flows are made up of inflows (changes in the liabilities of residents) and outflows (changes in the international assets of residents). Inflows, in turn, equal the primary issuance of liabilities minus the repayment of existing liabilities. For example, a bond issued by PEMEX will increase inflows. Repayment of this bond will reduce inflows.

net capital flows: a boom in the early 1980s, followed by a closure of markets in the wake of the debt crisis, followed by a new boom in the early 1990s. The patterns diverge in the late 1990s, however. Whereas net flows indicate a complete closure of capital markets, gross primary issuance shows that the private and public sectors were accessing markets even in the midst of the crisis in 1998 and 1999. Issuance did fall, but this was not a full closure of markets. This view stands in contrast to Caballero and Krishnamurthy (2002), who suggest that sudden stops are the result of a full closure in capital accounts.

More generally, Fostel and Kaminsky seek to identify the extent to which primary issuance for the largest Latin American countries is driven by domestic or global factors. The answer is mixed. Although domestic macroeconomic variables are uncorrelated with issuance, domestic political variables do matter. At the same time, global factors measuring global liquidity or risk appetite (namely, the term structure of U.S. rates and the high-yield spread) and crisis events in other emerging market economies are correlated with gross issuance, with higher liquidity and less risk appetite leading to higher gross issuance. Indeed, the authors find that the boom-bust cycle that started in the early 1990s was largely driven by global events.

Cowan, De Gregorio, Micco, and Neilson emphasize that sudden stops may be less frequent than many authors argue. The authors categorize large capital account reversals according to the importance of changes in gross inflows in the net change.⁹ At one extreme—and closest to the view that international markets are the source of vulnerability—are sudden stops driven fully by reversals in inflows. At the other are sudden stops triggered by domestic agents running for the door, as was the case in Chile in 1998.

The results presented by Cowan, De Gregorio, Micco, and Neilson do not imply that international financial imperfections do not play a role. Most sudden stop episodes are indeed driven by inflow reversals. The authors suggest, however, that the role of these external shocks may be overstated, and that closer attention needs to be paid to domestic variables that lead to large outflows by residents. The authors further argue that the key difference between developed and emerging economies is not the fickleness of international capital inflows, but the response of outflows to these changes. In developed economies, inflows and outflows covary closely, so that inflow stops are usually matched with a reduction in foreign assets (and vice versa). This result

9. Faucette, Rothenberg, and Warnock (2005) pursue a similar line of research.

has interesting policy implications. It suggests that countries have several lines of defense against international financial shocks. The first involves assets and liabilities themselves. A highly integrated country can accommodate an inflow shock by running down foreign assets. Reserve accumulation is one (centralized) way of doing this. Lacking reserves or other foreign assets, a country must move to its second line of defense—that is, its ability to generate foreign liquidity from its productive assets. This point is emphasized by Calvo (in this volume), when he argues that the ratio of the current account deficit to the size of the tradables sector is key in explaining resilience to international financial shocks.

The growing gross flows that motivate chapters 4 and 5 go hand in hand with the growing stock of international assets and liabilities that motivates the contribution by Pistelli, Selaive, and Valdés. The sum of gross international assets and liabilities over GDP in developed economies increased from 0.45 to 3.0 between 1970 and 2005. For emerging markets, the ratio rose from 0.15 to 1.20 in the same period. The chapter explores the impact of these stocks of international assets and liabilities on several aspects of international adjustment. It analyzes how current account deficits (flows), gross international asset and liability positions (stocks), and valuation effects (prices) influence the likelihood of current and capital account reversals, movements in the exchange rate, and country risk ratings. The key finding by Pistelli, Selaive, and Valdés is that both flows and gross stocks matter for the likelihood of current account reversals and sudden stops. They also find that a larger current account deficit in the previous period increases the likelihood of both forms of reversals, which is line with the findings of Milesi-Ferretti and Razin (1998) and Edwards (2002, 2004). More interestingly, however, they report that the composition of gross assets and liabilities (but not their level) matters for the likelihood of reversals: larger shares of portfolio equity in gross assets and larger share of foreign direct investment (FDI) in gross liabilities reduce the likelihood of these crises. These findings support the work of Levchenko and Mauro (2006) on FDI liabilities. Moreover, taken together with the results from Cowan, De Gregorio, Micco, and Neilson (in this volume), they paint a broad picture in which stocks of (liquid) international assets play an important role in reducing the probabilities of current account or financial account closures.

The chapter by Pistelli, Selaive, and Valdés also provides evidence on the effect of changes in the prices of assets and liabilities in country portfolios on external adjustment. Although the impact on

crisis probabilities is smaller than the effect of the current account deficit, positive valuation effects (that is, rising prices in gross assets vis-à-vis liabilities) make current account reversals and exchange rate crisis less likely.

Because of the rising stocks of gross assets and liabilities, changes in the value of these assets and liabilities (stemming from individual asset price or exchange rate fluctuations) are playing a growing role in the international adjustment process. These valuation effects are often larger than current account deficits. The chapter by Pierre-Olivier Gourinchas summarizes recent research on the implications of these valuation effects for international adjustment in developed and emerging economies.

The bottom line of this chapter is that the simple intertemporal approach to the current account is incomplete, because current accounts do not include the unrealized capital gains that arise from valuation effects. The most recent example of this is the U.S. current account deficit. The United States earns systematically different returns on its foreign assets and liabilities, which allows for sustainable current account deficits. Possible explanations for these persistent return differences include the use of the U.S. dollar as a reserve currency, the maturity differences in U.S. assets and liabilities, and the premium on the high liquidity of U.S. asset markets.¹⁰ Hence, no adjustment may be needed to the current deficit. The flip side is that emerging market economies need to generate long-run current account surpluses in order to pay the United States for the liquidity of their assets and other services of the dollar and U.S. financial markets.

Valuation effects also have important implications when adjustment is needed (for example, in response to adverse terms-of-trade shocks). Here the key variable is the currency composition of gross assets and liabilities. Consider the case of the United States, with liabilities in U.S. dollars and assets in foreign currency. In the face of a negative terms-of-trade shock, the required adjustment of the real exchange rate for the United States will be reduced by its liability and asset structure. A currency depreciation has two effects. On the one hand, it increases exports and decreases imports. On the other, it increases the dollar value of foreign assets (and the gross factor payment for these assets). The picture is different for most emerging market economies.

10. These persistent differences have variously been termed the exorbitant privilege (Gourinchas and Rey, 2005) and dark matter (Hausmann and Sturzenegger, 2006). See also Caballero, Farhi, and Gourinchas (2006).

Emerging markets often only have international liabilities, which are denominated in dollars (or other international currencies). In this case, valuation effects hinder adjustment, as the trade effects of an exchange rate depreciation are offset by a higher local currency value of foreign liabilities. The empirical relevance of this channel in emerging market economies remains untested, however, given the lack of data and, especially, good measurements of the currency composition of assets and liabilities. Hence, a first implication is the urgent need to expand the available information on the currency composition of gross assets and liabilities in emerging economies.

3. EXTERNAL ADJUSTMENT IN EMERGING MARKET ECONOMIES: CURRENT ACCOUNT AND EXCHANGE RATE DYNAMICS

In addition to being subject to large reversals, current accounts are more pro-cyclical in emerging markets than in developed economies (rising with positive output or terms-of-trade shocks). Many observers interpret this as additional evidence of international financial imperfections. The next two chapters of the volume explore this aspect of international adjustment using dynamic stochastic general equilibrium (DSGE) models. One advantage of this approach is that it allows the analyst to evaluate not only whether certain frictions can generate changes in the direction observed in the data, but also whether they can match the size of the changes.

DSGE models have become the workhorse of macroeconomic analysis in the last few years. They have proved particularly useful for understanding how advanced economies react to a number of shocks. A limitation of this approach, however, is that most models are not particularly well suited for analyzing the behavior of emerging economies. They tend to predict too much consumption smoothing, counter cyclicity of key variables, and relatively low volatility. A number of authors have recently modified some of the key assumptions of the standard DSGE in an effort to better capture the peculiarities of middle-income and emerging economies. Although these efforts represent important contributions toward a better understanding of the dynamic behavior of emerging markets, they do not fully capture the specificities of nations with strong commodity export bases, such as Chile.

In his contribution to this volume, Jaime C. Guajardo develops a DSGE model for the Chilean economy. He makes a number of

adjustments to the standard model in order to capture the most important features of the actual economy. First, he considers the existence of capital market imperfections; in particular, he assumes that the country in question has limited access to the international capital market, identified as an external borrowing constraint. Second, he assumes that domestic firms have differing abilities (capacity) to tap capital markets, with firms producing tradable goods having an advantage over firms producing nontradables. These types of asymmetry have been considered by scholars such as Caballero, Tornell, and Westermann. Guajardo's main result is that both financial constraints and sector-specific financing wedges are needed for the model to replicate the Chilean data. This sector-specific component is one possible explanation for the apparently contradictory results obtained in the second DGSE model in the volume, in the contribution by Aguiar and Gopinath.

After discussing the most salient features of emerging market business cycles, Aguiar and Gopinath develop a model in which middle-income countries may default on their debts. Their formulation is based on early work by Eaton and Gersovitz (1981) on sovereign borrowing. Shocks to interest rates are introduced in the Euler equations.¹¹ An important characteristic of this model is that interest rate shocks are related to productivity shocks. This allows for a richer response of both consumption and investment.

The authors then use the model to analyze the case of Mexico. They consider two cases. In the base case, they only allow for productivity shocks, and they find that the random walk component of the Solow residual is twice as high as that of Canada. This is in line with previous work by the authors, in which they argue that the main difference between emerging and developed economies is not their access to financial markets, but the persistence of their productivity shocks. In the second exercise, the authors incorporate interest rate shocks, and they find that the random walk component of total factor productivity (TFP) growth remains almost at the same level as before. This leads the authors to conclude that the addition of interest rate shocks at the level of the Euler equations “add[s] little to matching the facts in the data for emerging markets.” Finally, Aguiar and Gopinath analyze Chile's macroeconomic data and find a pattern of behavior similar to that of other emerging economies.

11. Other authors introduce stochastic disturbances directly into interest rates (Neumeyer and Perri, 2005).

Taken together, two lessons emerge from the chapters by Guajardo and by Aguiar and Gopinath. The first is that it is a mistake to focus exclusively on international financial imperfections (or restrictions) in explaining macroeconomic patterns in emerging market economies. The second is that simple (symmetric) financing constraints do a poor job in replicating emerging market dynamics. The immediate implication is that the profession needs to start thinking beyond models of aggregate external financing restrictions. How international saving is intermediated in the domestic financial system (and among domestic agents) therefore becomes an important research question (an issue raised in Caballero and Krishnamurthy, 2002).

Medina, Munro, and Soto, in turn, develop a stochastic general equilibrium model to analyze the dynamics of current account behavior in two commodity-producing countries: Chile and New Zealand. By considering two commodity-exporting nations at different stages of economic development and with different institutional and market structures, they are able to provide a rich discussion of the role played by different factors in current account behavior. They find that foreign financial conditions, foreign demand shocks, and commodity price shocks account for more than half of current account variations in both countries at horizons of up to four years. The most important external shock is the change in foreign financial conditions. The most important domestic shock in both countries was the domestic investment shock, whereas monetary and fiscal shocks (defined as deviations from estimated policy rules) played a minor role.

One important difference between the two countries is that commodity prices have a larger impact in New Zealand than in Chile. The authors interpret this as reflecting differences in ownership structure: while the export sector is domestically owned in New Zealand, foreign companies and the public sector are most important in the Chilean copper industry. A second difference is in the currency composition of foreign debt, an issue addressed in detail below.

4. POLICY ISSUES

Several of the papers in this volume directly address the policy issues listed at the beginning of this introduction. We summarize the main results of these chapters in this section.

An interesting recent development in emerging market economies is the growing stock of international reserves. Despite the common

trend, however, reasons given by countries for holding these reserves vary. A first set of countries hold reserves as self insurance against shocks, which ideally implies reducing the volatility of the economy (see, for example, García and Soto, 2005; Caballero and Panageas, 2004; Jeanne and Ranci ere, 2006). A second set of countries use reserve accumulation as a mechanism for fostering GDP growth by limiting real exchange rate misalignments or, more actively, by implementing a mercantilist motivation (see, for example, Aguirre and Calder on, 2006). The chapter by Joshua Aizenman addresses the benefits of reserve hoarding as a means of reducing volatility. The author revisits the empirical evidence of Aizenman and Riera-Crichton (2006) on the impact of international reserves on the real exchange rate’s sensitivity to terms-of-trade shocks. The main finding is that reserves affect the elasticity of the real exchange rate to terms of trade in emerging economies. Aizenman rationalizes this finding by presenting a theoretical model in which maintaining and using international reserves is a way of avoiding early liquidation in a world of banking intermediation (  la Diamond and Dybvig, 1983) and shocks to project returns. Terms of trade would be, in his view, an important determinant of project returns.

Aizenman also presents evidence that, for developing countries, a larger stock of international reserves is positively associated with higher persistence of the current account. Aizenman first measures the persistence of the current account ratio country by country and then seeks to explain the variation in cross-country persistence with different covariates, including international reserve holdings. He concludes that, insofar as a more persistent current account signals a lower likelihood of sudden adjustments, international reserve hoardings provide a clear benefit by lowering volatility. This finding is broadly in line with the policy prescriptions of Calvo’s chapter, where reserves play a role in self-insuring against global financial turbulence.

The insurance motive provides a powerful rationale for international reserve accumulation. However, hoarding international reserves also entails costs in terms of financial expenses and moral hazard (including the dollarization of liabilities if reserve accumulation is taken to signal low exchange rate volatility).¹² These

12. Soto and others (2004) undertake precisely that type of evaluation for the case of Chile for the early 2000s; they conclude that the country’s stock of reserves at that moment was excessive.

costs, as well as the costs arising from international coordination and competition, are behind Aizenman's conclusion that reserve accumulation is no panacea.

With regard to the role of international reserve accumulation in promoting growth (either by stabilizing the exchange rate or through an undervalued currency), the chapter by John Williamson defends the idea that central banks should include an active intervention policy to avoid exchange rate misalignments within a flexible exchange rate regime. He argues that this policy does not compete with price stability—the primary goal—but is crucial to avoiding the detrimental effect of misalignments on growth (see Aguirre and Calderón, 2006; Prasad, Rajan, and Subramanian, 2007). Drawing on evidence of imperfect exchange rate markets, he argues that central banks should not commit to being on the sideline of the market. As a concrete approach, he proposes that the monetary authority regularly publish an exchange rate zone (based on effective real exchange rate calculations) within which it would not intervene. Outside that zone, the authority would have the right (but not the obligation) to intervene. This approach is different from actual practice, even in countries that have heavy intervention policies in place, but it is an interesting idea to assess.

Williamson and Aizenman both discuss the merits of using international reserves to persistently undervalue the local currency, foster competitiveness, and thus promote export-led growth. Both conclude that the strategy is dubious. Williamson argues that even if there is a growth-maximizing real exchange rate, and that this rate is different from the one determined by economic fundamentals, the reserve-hoarding strategy poses two practical problems. First, the value of that optimal real exchange rate level is unknown, and, second, foreign exchange market intervention policies are not able to sustain a persistent undervaluation. If policymakers do engage in trying to undervalue the currency, they should adjust fiscal policy, use capital account regulations, save abroad, or impose taxes on exports. He warns, however, that all of these practices are politically complex and have important side effects.

Aizenman's argument runs on somewhat different grounds. First, he claims that the precautionary motive better describes current reserve policies than the mercantilist motive (Aizenman and Lee, 2005). Second, he argues that what really matters in Asia (the region where this strategy could have been played out more clearly) is not the exchange rate effect of international

reserve accumulation, but its role in financial policy more broadly, particularly as a buffer for financial distress. What Japan and Korea had in the past and China has today is financial, rather than monetary, mercantilism. Nevertheless, it is quite difficult to empirically disentangle the motives behind reserve accumulation. Standard economic fundamentals do appear as statistically significant determinants in estimates of demand for reserves (see Soto and others, 2004; Redrado and others, 2006), but they explain a very small portion of the total variance. Country fixed effects continue to be the dominant variable, by far.

Another policy issue discussed in the volume is the effect of the currency composition of financial liabilities on the economy's behavior under different shocks. In this regard, Calvo discusses the dangers of domestic liability dollarization and the merits of alternative policies that help attenuate it. Taxes to discourage dollar borrowing are difficult to implement and may be costly for growth. Exchange rate volatility, which would make exchange rate risk more obvious to the private sector and thus limit liability dollarization, has other disadvantages, such as hindering trade. In Calvo's view, issuing public debt in a country's own currency is a valuable first step to avoiding domestic liability dollarization. However one should not ignore the traditional moral hazard arguments (time inconsistency) associated with peso-denominated public debt.

Aizenman also addresses the issue of domestic liability dollarization, emphasizing the moral hazard effects of an active reserve management policy that artificially lowers the perception of exchange rate risk to the public and thus exacerbates dollarization. Moreover, one could argue that the larger the foreign exchange rate position of a central bank (that is, the mismatch between dollars and pesos), the larger must be the liability dollarization of the rest of the domestic economy if foreigners are not holding more pesos in their portfolios. Thus, the simple aggregation of the different sectors' balance sheets shows that higher reserve accumulation can yield higher liability dollarization for the private sector.

The issue of liability denomination is again taken up in the chapter by Medina, Munro, and Soto, who analyze how the Chilean economy would respond to different shocks if its external debt was denominated in pesos rather than dollars. For the exercise, they use their DSGE model estimated for both Chile and New Zealand to study the dynamics of the current account. The differences found between the parameterizations of peso-denominated debt and dollar-denominated

debt are moderate, which is not surprising given that their model does not have balance sheet effects with real effects through financial frictions, although they do consider standard valuation effects arising from currency mismatches. In general, GDP, consumption, and investment are less sensitive to external shocks if the debt is denominated in pesos instead of dollars. Monetary policy has less of an effect on the current account under peso debt than under dollar debt, mainly through higher net interest payments.

Another issue analyzed both directly and indirectly in some of the chapters of this volume has to do with the desirability and feasibility of targeting the current account. In this regard, the different countries' experiences documented throughout the volume provide a rich source of perspectives. Among the cases discussed in the volume, the policy framework in place in Chile in the 1990s (analyzed by Medina, Munro, and Soto) is at one extreme. A ceiling for the current account deficit was a declared policy target for the Central Bank (together with price stability), while an exchange rate band and active monetary policy accompanied by capital controls were the instruments used to achieve these objectives (see Massad, 1998).

At the other extreme is the case of Australia in the last decade and a half. As the chapter by Belkar, Cockerell, and Kent documents, the large and persistent current account deficit has been regarded as an equilibrium phenomenon—the Pitchford thesis—which should not be distorted by policy actions. Within a well-established inflation-targeting-cum-floating framework, Reserve Bank officials have stated that the current account deficit should not be an objective for monetary policy. Indeed, the most prominent dissenting views on the Australian policy choices have come from external institutions, particularly the IMF and the Organization for Economic Cooperation and Development (OECD), while both the government and the domestic academia hold the hands-off view. This was not always the case. In the early 1980s, for instance, fiscal policy was geared toward consolidation largely because of the external deficit, while structural reforms were also packaged as serving to close the external gap. New Zealand (which is revisited in Medina, Munro, and Soto's chapter) also has an inflation-targeting-cum-floating regime and similarly does not regard the current account as a policy objective.

The experience of the Asian countries, as analyzed in Ramon Moreno's chapter, lies in between the cases of Chile in the 1990s and Australia. Although the current account deficits in the 1990s were

considered too large in some countries and policy measures were designed to moderate them, the authorities faced severe constraints to achieving this as a target. In the first place, policymakers focused on fostering private savings rather than moderating investment, because high GDP growth was a priority. In addition, monetary policy was not used mainly because of exchange rate constraints. Hence, although the current account was a target, the lack of instruments precluded its control.

From the perspective of desirability, one could argue that the evidence discussed in the chapters by Calvo on sudden stops and Pistelli, Selaive, and Valdés on reversals implies that a large current account deficit is a variable to which policymakers should react. In the past decade, however, the discussion in several countries has shifted away from the view that the current account deficit should be considered as a leading indicator of vulnerability to external crisis. The chapter on Australia pushes this idea, arguing that both the details behind what is driving the current account and other supplementing indicators should be analyzed. In Asia, the approach seems to be similar: according to Moreno, current account deficits were not deemed extremely dangerous in the mid-1990s because they reflected an investment boom. Today, even if that were the case, policymakers would look at other indicators such as credit growth and investment ratios as signals of excess.

What is clear is that standard macroeconomic policies that exacerbate large external deficits should be avoided. Because episodes of large current account deficits are strongly correlated with episodes of domestic boom this is likely to be the case. Interestingly, Medina, Munro, and Soto report that external variables (both real and financial) and investment-specific shocks play a key role in explaining the path of the current account over the last couple of decades in both Chile and New Zealand. Neither fiscal nor monetary policy shocks have a prominent responsibility in explaining the large deficits.¹³

An additional instrument that some countries have used to influence the current account is capital controls. In his chapter Calvo discusses one specific type—namely, a tax on dollar debt—as a tool for limiting domestic liability dollarization and, therefore, for minimizing a structural vulnerability. Williamson also argues that capital controls

13. Permanent productivity shocks do not have an important role either, which contrasts with arguments in the chapter by Aguiar and Gopinath.

on inflows could, to some extent, limit an exchange rate overvaluation and even depreciate the currency persistently. Moreno, who focuses on the experience of Southeast Asian countries, concludes that the effectiveness of controls put in place varied and that, at any rate, they did not prevent the Asian crisis. Particularly interesting is his discussion of the experience of Malaysia in the mid-1990s, whereby controls appeared to reduce some vulnerability indicators relative to peer countries, but they did not prevent the build up of current account deficits.

The previous discussion is part of a broader question: whether restricting capital mobility reduces emerging countries' vulnerability to current account reversals or other shocks. Empirical evidence reported by a number of scholars—including some authors represented in the current volume—indicate that capital controls do not significantly reduce the probability of facing an external shock, such as a current account reversal.¹⁴ In the current volume, the contribution by Cowan, De Gregorio, Micco, and Neilson suggests that financial integration has a stabilizing effect, by allowing countries to accommodate non fundamental shocks to gross inflows and outflows. Moreover, a number of papers document that restricting capital mobility results in non trivial distortions and microeconomic costs.¹⁵

Finally, Calvo argues that establishing a global fund to stabilize key international financial prices has the potential of helping stabilize emerging market economies. The basis for this claim is that foreign financial shocks, coupled with domestic vulnerabilities, are the main financial problems in these economies. The shocks would therefore be smaller if a fund was able to suppress, or at least limit, excess volatility in international financial markets, in particular key financial prices such as credit spreads. This role, according to Calvo, should go beyond providing information (or surveillance) and would require actual trading. Of course, a fund of this type would need strong international support¹⁶. Other shortcomings include the side effects that could arise in other markets not considered by the stabilization fund.

14. See De Gregorio, Edwards, and Valdés (2000).

15. See Forbes (2003) for an analysis of the Chilean case.

16. The fact that the fund would trade against private markets raises the potential for large losses that would require additional capital contributions from countries leaving the fund susceptible to strong political pressures.

REFERENCES

- Aghion, P., P. Bacchetta, and A. Banerjee. 2001. "Currency Crises and Monetary Policy in an Economy with Credit Constraints." *European Economic Review* 45(7): 1121–50.
- Aguirre, A. and C. Calderón. 2006. "The Effects of Real Exchange Rate Misalignments on Economic Growth." Santiago: Central Bank of Chile.
- Aizenman, J. and J. Lee. 2005. "International Reserves: Precautionary vs. Mercantilist Views, Theory, and Evidence." Working paper 05/198. Washington: International Monetary Fund.
- Aizenman, J. and D. Riera-Crichton. 2006. "Real Exchange Rate and International Reserves in the Era of Growing Financial and Trade Integration." Working paper 12363. Cambridge, Mass.: National Bureau of Economic Research.
- Bergsten, C.F. and J. Williamson, eds. 2004. "Dollar Adjustment: How Far? Against What?" Special report 17. Washington: Institute for International Economics.
- Bernanke, B. 2005. "The Global Saving Glut and the U.S. Current Account Deficit." Speech given at the Sandridge Lecture. Virginia Association of Economics, Richmond, Virginia, 10 March.
- Bleakley, H. and K. Cowan. 2008. "Corporate Dollar Debt and Depreciations, Much Ado About Nothing?" *Forthcoming in Review of Economics and Statistics*.
- Caballero, R.J., E. Farhi, and P. O. Gourinchas. 2006. "An Equilibrium Model of 'Global Imbalances' and Low Interest Rates." Working paper 11996. Cambridge, Mass.: National Bureau of Economic Research.
- Caballero, R.J. and A. Krishnamurthy. 2002. "A Dual Liquidity Model for Emerging Markets." *American Economic Review* 92(2): 33–7.
- Caballero, R.J. and S. Panageas. 2004. "Contingent Reserves Management: An Applied Framework." Working paper 04-32. MIT, Department of Economics.
- Calvo, G., A. Izquierdo, and L.F. Mejía. 2004. "On the Empirics of Sudden Stops: The Relevance of Balance-Sheet Effects." *Proceedings* (June). Federal Reserve Bank of San Francisco.
- Calderón, C., A. Chong, and N. Loayza. 2002. "Determinants of Current Account Deficits in Developing Countries." *Contributions to Macroeconomics* 2(1): 1012-21.
- Céspedes, L.F., R. Chang, and A. Velasco. 2000. "Balance Sheets and Exchange Rate Policy." *American Economic Review* 94(4): 1183–93.

- Chinn, M.D. and H. Ito. 2005. "Current Account Balances, Financial Development, and Institutions: Assaying the World 'Savings Glut.'" Working paper 11761. Cambridge, Mass.: National Bureau of Economic Research.
- Chinn, M.D. and J. Lee. 2005. "Three Current Account Balances: A 'Semi-Structuralist' Interpretation." Working paper 11853. Cambridge, Mass.: National Bureau of Economic Research.
- Clarida, R. 2005a. "Japan, China, and the U.S. Current Account Deficit." *CATO Journal* 25(1): 111–4.
- . 2005b. "Some Thoughts on 'The Sustainability and Adjustment of Global Current Account Imbalances.'" Speech given at the Council on Foreign Relations. 28 March.
- Corsetti, G., P. Pesenti, and N. Roubini. 1999. "Paper Tigers? A Model of the Asian Crisis." *European Economic Review* 43(7): 1211–36.
- De Gregorio, J. 2005. "Global Imbalances and Exchange Rate Adjustment." Economic policy paper 15. Santiago: Central Bank of Chile.
- De Gregorio, J., S. Edwards, and R.O. Valdés. 2000. "Controls on Capital Inflows: Do They Work?" *Journal of Development Economics* 63(1): 59–83.
- Diamond, D.W. and P.H. Dybvig. 1983. "Bank Runs, Deposit Insurance, and Liquidation." *Journal of Political Economy* 91(2): 383–414.
- Dooley, M.P., D. Folkerts-Landau, and P. Garber. 2004. "The Revived Bretton Woods System: The Effects of Periphery Intervention and Reserve Management on Interest Rates and Exchange Rates in Center Countries." Working paper 10332. Cambridge, Mass.: National Bureau of Economic Research.
- Eaton, J. and M. Gersovitz. 1981. "Debt with Potential Repudiation: Theoretical and Empirical Analysis." *Review of Economic Studies* 48(2): 289–309.
- Edwards, S. 2002. "Does the Current Account Matter?" In *Preventing Currency Crises in Emerging Markets*, edited by S. Edwards and J. A. Frankel, pp. 21–69. University of Chicago Press.
- . 2004. "Thirty Years of Current Account Imbalances, Current Account Reversals, and Sudden Stops." *IMF Staff Papers* 51 (special issue): 1–49.
- . 2005. "The End of Large Current Account Deficits, 1970–2002: Are There Lessons for the United States?" Working paper 11669. Cambridge, Mass.: National Bureau of Economic Research.
- Faucette, J., A. Rothenberg, and F. Warnock. 2005. "Outflow-Induced Sudden Stops." *Journal of Policy Reform* 8(2): 119–29.

- Forbes, C. 2002. "One Cost of the Chilean Capital Controls: Increased Financial Constraints for Smaller Traded Firms". MIT Sloan Working Paper 4273-02.
- García, P. and C. Soto. 2005. "Large Hoardings of International Reserves: Are They Worth It?" In *External Vulnerability and Preventive Policies*, edited by R.J. Caballero, C. Calderón, and L.F. Céspedes. Santiago: Central Bank of Chile.
- Gourinchas, P.O. and H. Rey. 2005. "From World Banker to World Venture Capitalist: U.S. External Adjustment and the Exorbitant Privilege." Working paper 11563. Cambridge, Mass.: National Bureau of Economic Research.
- Gruber, J. and S.B. Kamin. 2005. "Explaining the Global Pattern of Current Account Imbalances." International finance discussion paper 846. Board of Governors of the Federal Reserve System.
- Guidotti, P., F. Sturzenegger, and A. Villar, 2004. "On the Consequences of Sudden Stops." *Economía* 4(2): 171–214.
- Hausmann, R. and F. Sturzenegger. 2006. "Global Imbalances or Bad Accounting? The Missing Dark Matter in the Wealth of Nations." Working paper 124. Harvard University, Center for International Development.
- Hubbard, R.G. 2005. "A Paradox of Interest." *Wall Street Journal* (June 23).
- Jeanne, O. and R. Rancière. 2006. "The Optimal Level of International Reserves for Emerging Market Countries: Formulas and Applications." IMF Working Papers 06/229, International Monetary Fund.
- Krugman, P. 1979. "A Model of Balance-of-Payments Crises." *Journal of Money, Credit, and Banking* 11(3): 311–25.
- . 1998. "What Happened to Asia?" MIT.
- . 1999a. "Analytical Afterthoughts on the Asian Crisis." MIT.
- . 1999b. "Balance Sheets, the Transfer Problem, and Financial Crises." *International Tax and Public Finance* 6(4): 459–72.
- Levchenko, A. and P. Mauro. 2006. "Do Some Forms of Financial Flows Help Protect from Sudden Stops?" Working paper 06/202. Washington: International Monetary Fund.
- Levy-Yeyati, E. 2006. /7410418543210 "Financial Dollarization: Evaluating the Consequences", *Economic Policy*. 21(45):61-118.
- Loayza, N., K. Schmidt-Hebbel, and L. Servén. 2000. "What Drives Private Saving across the World?" *Review of Economics and Statistics* 82(2): 165–81.

- Massad, C. 1998. "La política monetaria en Chile." *Economía Chilena* 1(1): 7–27.
- McKinnon, R. and H. Pill. 1996. "Credible Liberalizations and International Capital Flows: The Overborrowing Syndrome." In *Financial Deregulation and Integration in East Asia*, edited by T. Ito and A. Krueger. Chicago University Press.
- Milesi-Ferretti, G.M. and A. Razin. 1998. "Current Account Reversals and Currency Crises: Empirical Regularities." Working paper 6620. Cambridge, Mass.: National Bureau of Economic Research.
- Neumeyer, P.A. and F. Perri. 2005. "Business Cycles in Emerging Economies: The Role of Interest Rates." *Journal of Monetary Economics* 52(2): 345–80.
- Obstfeld, M. 1994. "The Logic of Currency Crises." Working paper 4640. Cambridge, Mass.: National Bureau of Economic Research.
- Prasad, E.S., R.G. Rajan, and A. Subramanian. 2007. "Foreign Capital and Economic Growth." Working paper 13619. Cambridge, Mass.: National Bureau of Economic Research.
- Radelet, S. and J.D. Sachs. 1998. "The East Asian Financial Crisis: Diagnosis, Remedies, Prospects." *Brookings Papers on Economic Activity* 1(1): 1–74.
- Redrado, M., J. Carrera, D. Bastourre, and J. Ibarlucia. 2006. "La política económica de la acumulación de reservas: nueva evidencia internacional." Working paper 2006-13. Buenos Aires: Banco Central de la Republica de Argentina.
- Schneider, M. and A. Tornell. 2004. "Balance Sheet Effects, Bailout Guarantees, and Financial Crises." *Review of Economics Studies* 71(3): 883–913.
- Soto, C., A. Naudon, E. López, and A. Aguirre. 2004. "Acerca del nivel adecuado de las reservas internacionales." Working paper 267. Santiago: Central Bank of Chile.