1. Introduction and overview

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Floating exchange rates and free cross-border mobility of financial claims allow an economy to adjust to external macroeconomic shocks. Milton Friedman's essay on the case for flexible exchange rates (Friedman, 1953) is a classic statement of the role of floating exchange rates in allowing an economy to adjust its real prices and wages in the face of shocks to its fundamentals. In the same spirit, the flexible exchange rate version of the Mundell-Fleming model (Fleming, 1962; Mundell, 1963) lays out the case for how flexible exchange rates allow monetary authorities to pursue domestic macroeconomic objectives in a world of free capital flows. Financial integration allows resources to flow from capital-rich economies to capital-poor economies, and these financial resources augment domestic funds in financing investment.

Post-crisis discussions of capital flows and monetary policy spillovers have revisited these classic propositions. The procyclicality of the financial system has been at the center of these discussions. Although the procyclicality of the financial system could manifest itself in a purely domestic context, the cross-border dimension is often important, both for advanced and emerging economies. Cross-border capital flows driven by the leverage cycle of banks and other financial intermediaries figured prominently during the 2008–09 global financial crisis. For observers of emerging market crises of the 1990s, the lessons learned from the more recent episodes of financial turbulence provided an opportunity to revisit some of the timeworn lessons.

The chapters in this volume represent the fruits of such a gathering. The chapters are drawn from the papers presented at the research group meeting jointly organized by the East-West Center in Hawaii and the Korea Development Institute in July 2012. What made the gathering particularly poignant was that the meeting took place against the background of the European banking crisis, which bore many of the hallmarks of a reversal of capital flows that figured in previous emerging market crises, raising the question of what policy measures may have been used in order to lean against the build-up of the vulnerabilities arising from credit surges.

In Chapter 2 (“Macroprudential policies: indicators and tools”), Hyun Song Shin discusses the state of knowledge at the time of the role of macroprudential policies as a complement to traditional macroeconomic stabilization policy. He lays out the two key elements of a framework: indicators of vulnerability to financial instability, and policy tools and automatic stabilizers that anticipate and limit the vulnerabilities to financial crises.

Indicators of the financial cycle that may prove useful include measures of private sector credit and bank liabilities. The ratio of total private sector credit to gross domestic product (GDP) is an indicator of the stage of the financial cycle, with the gap an advanced signal of system stress. As with any simple indicator, however, a deeper understanding of the forces governing the growth of private sector credit is essential to interpretation.

Shin emphasizes the potential of alternate measures of bank liabilities. He notes that the traditional focus on transactions-motivated monetary aggregates may not provide the most useful measure, and investigates instead the advantages of distinguishing between core liabilities, which arise from the household sector and are relatively sticky, and noncore liabilities, which arise from the corporate sector and are relatively flighty. During a credit boom, bank lending outstrips the core deposit funding available, and the bank resorts to alternatives (noncore liabilities) to finance its lending. The ratio of noncore-to-core liabilities thus serves as an indicator of the stage of the financial cycle and the vulnerability of the banking system to a downturn.

Turning from his discussion of macroprudential indicators, Shin next examines policy tools for mitigating the build-up of vulnerabilities to financial instability. He indicates that the primary aims of macroprudential policy are to secure financial stability by leaning against permissive financial conditions (should they be deemed excessive) and to lean against excessively rapid loan growth by the banking sector. In grouping such tools, he indicates that it is useful to distinguish between bank capital-oriented tools that limit loan growth through altering incentives of banks, asset-side tools that limit bank loan growth directly and liabilities-side tools that limit vulnerability to liquidity and currency mismatches. Each of these is discussed in turn, followed by a discussion of the debate on capital controls (or “capital flow management” in the terminology suggested by the International Monetary Fund, IMF), similarities of the tools used for capital controls and for macroprudential policy, and the effects of capital controls on financial stability.

Traditional monetary policy is also part of the toolkit used to address financial instability contrary to neat textbook divisions. Monetary policy has financial stability implications through changes in the size and

composition of bank balance sheets, while prudential policies will have direct implications for credit growth and aggregate demand.

In Chapter 3 (“Business and financial cycles in emerging markets: lessons for macroprudential policies”), Stijn Claessens and Swati R. Ghosh explore the nature of economic crises in emerging markets (EMs) and the policy measures, both traditional and macroprudential, that can be used to reduce risks and mitigate their impacts.

The authors confirm that EMs are more exposed to financial (notably capital flows) volatility, commodity, terms of trade and other macroeconomic shocks. The impacts are larger, since EMs are less able, institutionally and financially, to handle shocks. Framing effective policy requires a clear understanding of the business and domestic financial cycles, the impact of financial fluctuations on the business cycle, factors behind the amplified cycles in emerging economies and capital flows as a source of shocks and risk, together with the tools available to emerging economies.

The authors classify measures into five categories, providing examples of various countries’ experience with each: (1) capital and provisioning requirements, (2) other quantitative restrictions on the balance sheets of financial institutions, (3) quantitative restrictions on borrowers, instruments or activities, (4) taxation or levies of activities or balance sheet composition and (5) other measures such as accounting changes and changes to compensation.

The experience of the EMs supports a continuing role for macroprudential policies that have shown promise in reducing systemic risks, especially those that target external risks. At the same time, the authors note the considerable progress in governance, institutional strength, and the diversity of EMs that may be reducing their vulnerability to economic crisis.

Maria Socorro Gochoco-Bautista and Changyong Rhee examine the evolving positions of the IMF and the G20 with regard to managing capital flows, and propose a solution that builds on the work of both institutions in Chapter 4 (“Capital controls: a pragmatic proposal”).

Free capital markets confer well-known benefits to countries, but there are risks associated with large and volatile capital flows. An interest in moderating risk, but other motives as well, has led countries to introduce capital controls. The effectiveness of these policies is difficult to assess and controversial among many economists and policy-makers who may see them as a tool for pursuing beggar-thy-neighbor policies intended to prevent currency appreciation, for example. At the same time, surging capital inflows after Asia’s 1997–98 financial crisis and the 2008 global financial crisis have encouraged many to turn to such policies.

Recently the IMF has outlined key elements of a possible framework for managing capital inflows. The IMF’s central position is that capital

controls should be used only when macroeconomic and exchange rate policy options have been exhausted and found to be insufficient. Measures must be targeted, address specific types of flows, and their distortionary effects kept to a minimum. While the IMF's recent openness to the use of capital controls has drawn positive reactions from emerging economies, its framework is still perceived as complicated, intentionally vague, and difficult to implement. The IMF's framework is perceived as "paternalistic" and an infringement of national sovereignty.

Gochoco-Bautista and Rhee propose that recently negotiated G20 guidelines on current account balances be used in combination with the IMF framework to identify specific cases in which capital controls should or should not be used. Countries with large and persistent current account surpluses should not use capital controls to begin with. Moreover, there should be no substantial negative externalities on other countries. The bottom line is that if countries comply with the G20 guidelines on current account imbalances, but nevertheless experience large and volatile capital flows, they have every right and reason to use capital controls.

In Chapter 5 ("Irrational expectations, financial amplification and prudential capital controls"), Sangwon Suh and Jinsoo Lee investigate the use of macropprudential controls on international capital flows from a welfare perspective. The authors build upon the existing literature, emphasizing financial amplification and prudential capital regulation by adding the dimension of irrational expectations. Private agents neglect the balance sheet effects and thus fail to internalize their contribution to financial amplification, generating a pecuniary externality. Prudential capital controls may be desirable as policy measures to correct these externalities. A social planner, who is subject to the same budget constraints and external borrowing conditions as private agents, would take social costs of the private agents' financial decisions into consideration. By prudentially employing controls on international capital inflows during good times, the planner may stabilize the economy in bad times and thus reduce social welfare costs.

The authors use their model to assess prudential capital controls intended to stem risk accumulation before a financial crisis breaks out. Their model implies that the unremunerated reserve requirement rate for the irrational expectation case is greater than for the rational expectation case. Because private agents fail to recognize the higher social costs that result from financial amplification, they engage in excessive risk-taking and take too little insurance against a crisis. This behavior may provide further rationale for prudential capital controls that intend to reduce the issuance of excessively risky financial liabilities by private agents.

In Chapter 6 on "The optimal international reserves with sudden stop

risks,” Kyu-Chul Jung develops a dynamic model to explore quantitatively optimal levels of international reserves. Emerging market countries, particularly those in Asia, began to rapidly accumulate international reserves starting in the mid-1990s. Korea’s international reserves, for example, have recently been maintained at about 30 percent of GDP.

There is widespread debate about the appropriate level for international reserves and several rules of thumb have been proposed. The Guidotti-Greenspan rule suggests sufficient reserves to fully cover short-term external debt and three months of imports. An alternative suggests that international reserves be maintained at between 5 and 20 percent of broad money. Jung acknowledges some rationale behind these rules, but they lack a sound economic foundation. An objective of this chapter is to provide an economic framework for discussing optimum levels of international reserves in relation to risk parameters.

Holding international reserves is costly because they yield relatively low returns. Agents will only be willing to bear this cost to insure against the risk of a sudden stop. If governments are risk averse, they will be willing to bear this cost. The greater the degree of risk aversion, the larger the international reserves that governments will choose to hold.

Recently observed international reserves are about 20 percent of GDP in emerging economies. This compares with an optimal level of 15 percent, based on Jung’s model and risk aversion set to an upper bound found in the macroeconomics literature. International reserves in Korea are roughly twice as high as can be explained by insuring against a sudden stop. The reasons and need for holding such large international reserves are not fully understood. Jung suggests that distorted incentives for policy-makers may induce them to accumulate more international reserves than the social optimum.

Jong-Eun Lee (Chapter 7, “International reserves for emerging economies”) studies the impact of international reserves on the determination of the exchange rate. The study is timely, because the size of central bank balance sheets has grown in Asia following the 1997–98 Asian financial crisis. Given the role of international reserves in resolving crises, the author seeks both theoretical and empirical grounds for determining the optimal size of international reserves for an emerging economy.

This chapter explores the implications of two models of an emerging economy that is small and open, with a currency that is not an international currency, in order to study the impacts of international reserves on the exchange rate.

The author observes that international reserves are the most realistic way for emerging economies to insure against external shocks and thereby to prevent a currency crisis. But beyond some threshold, internal reserves

may become excessive, with symptoms of unwelcome side-effects of holding too much international reserves. The author examines several considerations on the optimal holding of international reserves.

In the first model, exchange rate appreciation is predicted in response to the rise in the nominal value of the international reserves denominated by foreign currency. The second model says that an emerging economy should move from a financially vulnerable economy to a financially stable one, rather than altering monetary policy measures. Moving to a financially stable economy could be interpreted in various ways, including structural changes and perceptions from abroad. In this model, the effects of the international reserves on the exchange rate can be in both directions: appreciation and depreciation. This model and empirical evidence show that emerging economies are justified in accumulating international reserves. Criticism of international reserves, either as a sign of global imbalances or as an intention to make exports more competitive, is not well grounded.

In Chapter 8 (“Foreign currency liquidity risk and prudential regulation of banks”), Sungbin Cho and Joon-Ho Hahm investigate the management of assets and liabilities in foreign currency, and the difficulties faced by emerging economies that have led to systemic banking crisis. They examine data from Korea to show some of the causes of the 1997–98 Asian crisis and the global economic crisis beginning in 2008, and the regulatory measures taken by the Korean government in both cases.

In their critical review of the banks’ management of foreign currency liquidity risk, they investigate the reasons why existing microprudential regulations were not effective as a guard against systemic risk spillover in 2008. They also draw lessons from the Korean experience and discuss general policy implications for open emerging market economies.

In examining foreign currency liquidity risk as a source of systemic banking crisis, the authors point out that banks in open emerging market countries are inherently exposed to significant foreign currency liquidity risks, and their foreign currency illiquidity problems often lead to systemic banking crises. They conclude that regulatory authorities must devise measures to limit the exposure of banks, and banks must have adequate internal systems to monitor and control such exposures.

They recommend that regulatory authorities extend their assessment of liquidity to include bank liabilities, monitor bank performance on a daily basis, improve monitoring of mismatches in external assets and liabilities and the interconnectedness among banks and markets, and incorporate macroeconomic factors when assessing liquidity risk.

They recommend that individual banks adopt internal risk management systems, diversify currencies more, improve monitoring of foreign

currencies, adopt an early warning system, maintain a foreign currency liquidity back-up facility, and improve their funding structure.

Dongsoo Kang and Daehee Jeong (Chapter 9, “Investment patterns of foreign bank branches in Korea and their role in the foreign exchange market”) explore both the benefits and costs that arise through foreign branch bank (FBB) operations in Korea and other emerging economies. FBBs improve the efficiency and competitiveness of the domestic banking sector and may provide greater stability to domestic credit markets. They can also fill financing gaps during periods of financial turmoil, as they did in Korea when domestic banks could not raise funds in foreign currencies after the 2008 financial crisis. FBBs concentrated on arbitrage trading, leading to massive capital movements into and out of the economy. These and other experiences have raised concerns that FBBs could be importing instability and threatening domestic financial stability. Such concerns have led Korean policy-makers to take a closer look at using macroprudential measures to regulate FBBs.

The authors conclude that, as an export-driven economy, Korea requires foreign currency-related financial services such as trade credits, long-term investment funds, foreign exchange hedging instruments and so on. When excess foreign exchange demand prevails and the capacity of domestic banks to attract external funding is inadequate, Korea depends on foreign banks. Although greater regulation could be useful, the Korean government has not been in a position to impose heavy requirements of information disclosure on foreign bank headquarters. Nonetheless, to ensure minimum soundness in the case of FBBs, prudential regulations must apply the same yardstick to FBBs and domestic banks. Prudential measures should focus on the risks arising from the currency-related derivative trading in light of the evidence that arbitrage incentives sought by FBBs may threaten domestic financial stability in Korea.

Munro and Reddell provide an important perspective on reserves in a small open economy in Chapter 10 (“The role of reserves in a small open economy: the case of New Zealand”). The New Zealand Reserve Bank emphasizes longer-term foreign currency borrowing and long-term hedging of domestic currency using foreign currency swap markets. New Zealand’s approach is unusual, although not unique, among small advanced economies with floating exchange rates.

The Reserve Bank’s intervention capacity is made up of an open foreign currency position and borrowed and hedged reserves with a maturity exceeding 12 months. The objectives of intervention policy and institutional responsibilities have materially influenced thinking about the structure and financing of reserves holdings. A key aspect of the institutional reforms of the 1980s was to decentralize responsibility to public sector

agencies and their chief executives, and then to hold those agencies to account for their performance. Hedged reserves have been the predominant approach to obtaining foreign currency liquidity since about 2004. Risk has been managed by ensuring that no more than 20 percent of the gross position reverts to NZ dollars in a given year.

The role of foreign currency reserves in New Zealand is largely dictated by the government's clear choices to have a floating exchange rate, an open financial account and a monetary policy aimed at domestic price stability. The primary reason for holding reserves remains the low-probability but high-impact risk of a crisis that materially undermines the functioning of the foreign exchange market. In the period since 1985, foreign currency markets have continued to function adequately in the face of some large international shocks. No intervention has been required during this period to support market function.

Although the choice to hedge foreign exchange risk on most of New Zealand's reserves is unusual internationally, it is consistent with the predominant approach to thinking about the potential role for intervention. An alternative approach involving a much larger share of unhedged reserves would have involved much larger costs over the last 20 years or more.

In Chapter 11 ("Facing volatile capital flows: the role of exchange rate flexibility and foreign assets"), Rodrigo Cifuentes and Alejandro Jara consider alternative approaches to moderating the volatility of capital flows and their impact. In particular, they explore whether relying on flexible exchange rate regimes combined with holding foreign assets obviates the need for using capital controls.

The authors consider four types of events: surges and stops (both associated with gross inflows) as well as flights and retrenchments (both associated with gross outflows). This approach is a departure from the empirical literature, which focuses mainly on net capital flows. The authors argue that this distinction is important, because the factors underlying the behavior of gross inflows and outflows may differ.

The authors examine extreme events in capital flows for 59 emerging and advanced countries for the period 1990–2010. Neither the degree of openness of the capital account nor the flexibility of the exchange rate regime has an impact on the probability of stops or surges. The authors' results are quite interesting, however, when they consider compensatory responses—a retrenchment in response to a stop and capital flight in response to surges.

The authors find that, if a stop has occurred, the probability of an accompanying retrenchment is significantly linked to the flexibility of the exchange rate regime and to the stock of assets abroad. They also find that both exchange rate flexibility and the stock of assets abroad are significant

in explaining a higher degree of compensation, when funds lost in a stop are compensated by a retrenchment of outflows. Thus they conclude that both elements are effective in dealing with stops in capital flows. For the case of surges, they find that asset diversification is important, but exchange rate flexibility is not.

In Chapter 12 (“Risk hedging in Korea’s financial markets: the impact of foreign investors”), Changwoo Nam begins with media reports that foreign investors were significantly reducing their equity holdings and contributing to market volatility in Korea following the 2008 financial crisis. In this chapter he examines foreign investments made from Singapore, Hong Kong, France and the Cayman Islands (in comparison with securities and futures brokerage investors, asset management investors and retail investors in Korea) in relation to derivatives for the 200 big companies in the Korea Composite Stock Price Index (KOSPI 200) for the years 2007–11.

He finds that foreign investors registered in tax havens led the transactions in option derivatives related to the KOSPI 200 and proposes that they were likely to engage in option trading strategies that could increase the volatility of capital markets. Using KOSPI 200, he provides data for foreign investors.

The study shows that it is difficult to assess whether the foreign investors increase stock market volatility. The empirical results show that the put–call ratio is one of the major factors that explain current stock returns, but the question of whether derivative trading increases volatility is left unanswered. This is important because the volume of derivative trading in the Korean Exchange is very large in comparison with other international exchanges.

The author concludes that, contrary to media reports in 2008, foreign investors had already sold a considerable volume of their Korean shares before the financial crisis spread to the markets. He finds that foreign investors registered in tax havens—which had committed to agreed tax standards but had not yet substantially implemented them—were trading significantly higher proportions of volumes in Korea’s financial markets. In particular, investors registered in Singapore and Cayman Islands led the transactions in the KOSPI 200 options, and they were more likely to implement option trading strategies that could increase the volatility of capital markets. The study shows that the put–call ratio of foreign investors is a major factor highly correlated to returns on the KOSPI 200 during the global financial shocks.

In spite of the time that has elapsed since the papers were first presented at the meeting in Hawaii in 2012, the core lessons continue to be relevant for emerging and developing economies. Indeed, the recognition of the procyclicality of the financial system and the importance of

macroprudential policies have been embraced by policy-makers in both advanced and emerging economies.

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